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Port of Seattle

Annual Stormwater Monitoring Report

for

Seattle-Tacoma International Airport

for the period July 1, 2000 through June 30, 2001

September 2001

Ex # 429 (also #6)

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Prepared by

Scott Tobiason

Environmental Management Specialist

Aviation Environmental Programs

Port of Seattle

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1 EXECUTIVE SUMMARY

This Annual Stormwater Monitoring Report has been prepared pursuant to Special Condition S2.E of the NPDES permit for the Port of Seattle's Seattle-Tacoma International Airport (STIA). This report covers required stormwater sampling for the 14 outfalls listed in permit condition S2.B. The Port took a total of 61 grab and 59 composite stormwater samples from a total of 22 storm events in the past year, bringing the 7-year totals to over 400 samples and 168 storm events. The Port complied with all sampling and reporting requirements in the NPDES permit.

In summary, STIA stormwater quality, especially airfield runoff, continues to have constituent concentrations lower than those reported in comparable regional studies. Results continue to demonstrate that most constituent concentrations in STIA airfield outfall discharges are much lower than those from the landside outfalls. This difference is most likely due to higher vehicular use in the landside areas and a higher degree of biofiltration present in the airfield subbasins. Nonetheless, overall STIA results are generally lower than results from other studies for roadways and commercial areas.

The Port is continuing to investigate management options for the zinc in runoff associated with two cargo buildings with galvanized metal rooftops. This work is a follow up to whole effluent toxicity (WET) testing findings reported in 2000. Recent work has focused on stormwater treatment alternatives where several media have been tested in controlled laboratory experiments, including commercially available CSF® deciduous leaf compost produced by Stormwater Management (Portland OR) and specially modified soybean hulls developed by the U.S. Department of Agriculture. Both the leaf compost and the soybean hulls are agricultural waste products that can be recycled as water-treatment media.

Current implementation concepts may include deploying the media in commercially available Stormfilter™ cartridges in below-grade, pre-cast vaults; or in cartridges adapted for above-grade downspouts. These options amount to a new stormwater BMP option that appears more cost-effective than re-roofing or painting to eliminate zinc sources. Future onsite studies may include long-term performance monitoring and an evaluation of the costs for operation and maintenance.

A fecal coliform source tracing study corroborated previous work, demonstrating an absence of cross connections for sanitary sewage with STIA storm drainage. Baseflow in the several outfalls tested was often absent, and when present had low to non-detectable fecal coliforms with no indications of human sources. The study used the microbial source tracing (MST) technique developed at the University of Washington. The MST method isolates *E. coli* bacteria DNA in the samples and compares it to isolates from specific sources already characterized in the regional database and several site-specific sources characterized in the study. The Port issued a separate report for this study (Herrera, 2001).

The SDE4 discharges that formed the impetus for this study have exhibited sporadically elevated fecal coliform levels that the study indicated were associated primarily with animal wastes, principally nuisance bird populations (e.g. pigeons). This study also showed that fecal coliform sources, notably some attributable to humans, were present in runoff and baseflows upgradient from STIA (Bow Lake), even in samples with low fecal coliform concentrations. Human sources found in airport runoff were limited to isolated samples from SDE4 and SDS3 runoff, where many samples had low fecal coliform concentrations. Aircraft lavatory wastewater-specific sources were implicated in less than 10% of all SDS3 samples and none of the SDE4 samples. Because the data suggest these human sources may be associated with aircraft lavatory waste transfer operations, the Port will continue to investigate this issue.

The Port removed a potential source of glycols and other constituents in SDS1 runoff by re-routing a portion of the SDS1 drainage to the industrial waste system (IWS) in September 2000. Several samples and observations in the past year showed that glycols were at much lower concentrations than in past years. Prior to the re-routing, there were episodic indications of certain constituents (glycols and soaps) associated with aircraft and ground service equipment (GSE) servicing near the South Satellite. This BMP is a direct result of the stormwater monitoring program.

In the past year, two short periods of winter weather in February 2001 triggered runway and other ground surface deicing at STIA. Glycol and BOD_5 concentrations were similar to winter weather sampling in past years. According to the Port's SWPPP, the six to eight inches of snowfall from the second event was plowed and moved to the snow storage areas (BMPs), where snowmelt drains to the IWS.

According to the provisions of the recently issued Water Quality Certification (401 permit) for the Master Plan Update, the Port will be developing a workplan to assess and develop appropriate site-specific water quality indicators. This work will determine the appropriate monitoring locations and water quality measures that best relate airport runoff to the local receiving streams (Miller, Walker and Des Moines Creeks). The Port plans to work with Ecology in developing this plan in the near future. Also, the Port will be submitting NPDES permit renewal application materials by the end of 2001.

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2 INTRODUCTION

The STIA stormwater monitoring program has been in place since 1993 pursuant to the National Pollutant Discharge Elimination System (NPDES) permit. The first permit was issued June 30, 1994, and was renewed and reissued on February 20, 1998, becoming effective March 1, 1998 (permit number WA-002465-1.) In early 1999, a major permit modification issued by Ecology reduced sampling frequency based upon a permit appeal settlement (WDOE 1999.) A second major modification was issued in mid 2001, though it did not change any of the routine (non-construction) stormwater monitoring requirements. The Port will begin the next permit renewal process this year where the application is due by December 31st.

The Port conducts the required monitoring activities according to the specific guidelines and criteria of the Ecology-approved Procedure Manual for Stormwater Monitoring (POS 1999a). This report summarizes and discusses results from the seventh year of sampling conducted in the 12-month period July 2000 through June 2001, the conclusions, and potential new initiatives to be undertaken. Results summarized in this report include data already submitted to Ecology in Discharge Monitoring Reports (DMRs) plus additional results from other samples unrelated to DMR reporting. The Port has previously submitted six Annual Reports (POS 1995, 1996a, 1997a, 1998a, 1999b, 2000a). The Annual Stormwater Monitoring Reports and associated DMRs do not apply to construction or IWTP monitoring.

This report satisfies Special Condition S2.E of the National Pollutant Discharge Elimination System (NPDES) permit for the Port of Seattle's (Port) Sea-Tac International Airport (STIA). Special Condition S2.E of the permit states: "On or before October 1 of each year, the Permittee shall submit a report to the Department summarizing the results of the stormwater monitoring conducted pursuant to Special Condition S2.B or S3.E of this permit during the preceding twelve (12) month period from July 1 through June 30. The report shall present the analytical data, the Port's conclusions as to what is being learned from the data, and any new initiatives to be undertaken as part of the Stormwater Pollution Prevention Plan for Airport Operations required in Special Condition S12."

Additionally, Special Condition S2B of the permit requires that: "The permittee shall include the following data for each storm event in the Annual Stormwater Monitoring Summary Report...: date, duration, the number of dry hours preceding the storm event, total rainfall during the storm event (inches), maximum flow rate during the rain event (gallons per minute), and the total flow from the rain event (gallons). The permittee shall also include a monthly summary of daily rainfall..." All of the information required under Special Condition S2B appears in Appendix A.

3 BACKGROUND

3.1 Sea-Tac International Airport

Seattle-Tacoma International Airport (STIA) lies about mid-way between the cities of Seattle and Tacoma, Washington. The airport was built in the 1940s and has expanded throughout the years to become the 18th busiest airport in the U.S. The highly urbanized cities of SeaTac, Des Moines, and Burien surround the airport.

STIA storm drainage discharges through 14 individual outfalls, four that drain to Miller Creek, eight that drain to Des Moines Creek, and two that drain to a City of SeaTac system. Together, these 14 outfalls drain a total area of about 970 acres of which about 56% are impervious surfaces. Only 17% of this total area (165 acres) drains to Miller Creek, while the remaining area of about 800 acres drains to Des Moines Creek. An area of about 370 acres, mostly the impervious surfaces of terminal gate and ramp areas, drains to the Industrial Waste System (IWS) and the Industrial Waste Treatment Plant (IWTP.) Three large lagoons detain and equalize runoff flowing to the IWTP, which removes suspended solids and petroleum products using the dissolved air flotation process. The IWTP discharges directly to Puget Sound via a separate outfall that combines with the Midway sewage treatment plant. IWTP (and construction project) monitoring results are not included in nor required to be addressed in this report.

The Port has determined future stormwater management needs in the Comprehensive Stormwater Management plan (CSMP), which is part of the Master Plan Update (MPU). Issues addressed in this plan include retrofitting existing development to meet state and local guidelines for stormwater quantity and quality BMPs (Parametrix, 2001). The CSMP has been approved and adopted for implementation by the Port's Water Quality Certification (401 permit) for the MPU.

3.2 STIA Storm Drainage Subbasins

The NPDES permit refers to outfalls by number; however, this report refers to subbasins and their outfalls by location names (see Table 1). The Port codes STIA storm drainage subbasin names according to location, for example, "SDS1" means "storm drain south number 1". In addition, the Port identifies all manholes according to an alphanumeric scheme, some of which are referred to in this report. For convenience and consistency, many of these locations were renamed and renumbered in 1999, though physical monitoring locations have not been moved. Drainage area estimates are included in Appendix A. Figure 1 shows the individual stormwater drainage subbasins and the STIA stormwater management boundaries.

STIA stormwater subbasins fall into the general categories listed in Table 1. These categories group subbasins together that have similar land use and other characteristics. These categories include "landside," "airfield," and other non-specific, low-activity areas. Previous reports showed that concentrations of TPH, TSS and other constituents were different for the landside and airfield categories (POS 1996a, 1997a.)

Outfalls SDS3, SDS4, SDN3, and SDN4 drain the principal subbasins of the airfield. These four outfalls drain a total of 626 acres (45% impervious) of the Aircraft Movement Area (AMA), which includes the airport runways, taxiways, and other open space of the "airfield." These four airfield subbasins represent approximately 65 percent of the total STIA storm drainage area. Previously an airfield outfall, SDN2 now discharges to the Industrial Waste System (IWS) via two pump stations constructed as BMPs in 1997.

Four subbasins (SDE4, SDN1, EY, and TY) compose the 165 acres (about two-thirds impervious) of "landside" areas of the airport, primarily draining public roads, parking, passenger vehicle areas and rooftops. SDE4 alone comprises about 149 acres, or 90% of this total landside area drainage. Although 11 percent of the total impervious area of SDE4 drains portions of Taxiways A and B, the "landside" designation is appropriate because roads, parking, and other vehicle areas on the landside of the airport are the predominant impervious areas of SDE4.

Table 1 Nomenclature for Outfalls listed in NPDES Permit Condition S2B

Outfall #	Port Name	Category	Creek	Proximity to receiving water
002	SDE4	landside	Des Moines	Combines w/Bow Lake & City flows before daylighting in East Branch
003	SDS1	none	Des Moines	Direct outfall to East Branch
004	SDS2	none	Des Moines	Flows through swale, NW Ponds then into W. Branch
005	SDS3	airfield	Des Moines	Flows through swale, NW Ponds then into W. Branch
006	SDN1	landside	Miller	Flows through 1000'+ natural channel and Lake Reba detention Pond
007	SDN2	Drains to IWS[1]	Miller	Same as SDN1
008	SDN3	airfield	Miller	Same as SDN1
009	SDS4	airfield	Des Moines	Direct outfall near confluence of East and West Branches
010	SDS7[2]	none	Des Moines	Combines w/City streets commercial area, via swale & NW Ponds
011	SDN4	airfield	Miller	Same as SDN1
012	EY	landside	Gilliam	Via City drains to stream
013	TY	landside	Gilliam	Via City drains to stream
014	SDS6[2]	none	Des Moines	Same as SDS7
015	SDS5[2]	none	Des Moines	Same as SDS7

Table notes:

1. Two pump stations divert all runoff from the former SDN2 subbasin to the IWS. Discharges to SDN2 only occur when rainfall intensity exceeds the 0.20 inches per hour design for these pump stations. These two pump stations were constructed in 1997 as SWPPP BMPs.
2. Outfalls 010, 014 and 015 were previously named "SDW3", "B" and "D", respectively

In earlier reports, the SDS1 subbasin was included in the "terminal" category, which is no longer appropriate. Several stormwater BMPs undertaken in 1996-97, and 2000 have removed all known ramp areas from SDS1 (the only "industrial activity" in SDS1 was the total of about 2.5 acres removed from SDS1 that was associated with aircraft ramp areas near the B-Concourse and South Satellite). Other BMPs disconnected ramp areas that occasionally drained to SDS1 when intense rainfall surcharged certain structures. As a result, SDS1 now drains only three hangar rooftops (about 8 acres), employee parking (about 5 acres), and no ramp areas. The added employee parking areas for the new Northwest Airlines hangar have detention vaults for the runoff. In addition, expanded drainage from South 188th Street was added to SDS1 in 1998-99, adding about 1 acre of offsite (non-Port) area to the total SDS1 area.[1] Four other outfalls (SDS2, SDS5, SDS6 and SDS7) drain a total of about 110 acres, mostly open spaces (about 11% impervious) in the southwestern portion of STIA.

3.3 Sampling locations

The Port monitors stormwater discharges at 14 locations, one for each subbasin within the boundary of the permit. Figure 1 shows the location of the outfalls and monitoring locations.

Four monitoring locations (subbasins SDE4, SDN1, EY, and TY) are in-pipe, substantially upstream from the final discharge point where the outfall actually "daylights". Runoff contributions from other, non-STIA sources that are outside the Port's jurisdiction enter these storm drains and therefore necessitate monitoring at the first location, often a manhole, upstream of the majority of offsite inputs. Table 2 lists these offsite influences. However, offsite runoff is inextricable for sampling stations for SDE4, SDS1, SDS2, and SDS3.

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[1] In 1998-99 the City of SeaTac added drainage area to SDS1 through the widening of about 800 linear feet of S. 188th Street, adding curb, gutter, piping and a number of storm drain inlets. This section of roadway previously drained sheetwise off the shoulder to grassed ditches. Prior to these improvements, only one inlet drained a much smaller portion of this public roadway that is outside the Port's jurisdiction.

Considering that the offsite area for outfalls SDS1 and SDS2 is primarily roadways, the runoff contributed by non-Port entities is substantial and may influence the Port's monitoring results.

To remove biases from highway SR518 runoff, in 1997 the sampling location for SDN1 was moved upstream to its current location. Therefore, outfall SDN1 has two datasets, one for the period prior to January 1997 that includes results influenced by SR518 runoff, and the other for the "SDN1up" location (more-representative of Port property) for the ensuing period. Past reports have shown how the SR518 runoff biased the Port's sampling results upward (POS 2000a, 1998a).

It is important to note that because of their distance from receiving waters, certain current sampling locations do not integrate all possible factors that could influence water quality prior to discharging to the streams. Only two of STIA's current outfalls (SDS1 and SDS4) discharge directly to the receiving waters. These two outfalls are sampled at these "daylight", or end-of-pipe locations.

In contrast, because of factors in addition to those mentioned above, all other outfalls are sampled at points well removed from the biotic community (see Table 1). As a result, the sampling results do not reflect the complex interactions with chemical, physical, and biological elements that can enhance water quality prior to where STIA stormwater actually enters receiving waters.

For example, drainage from all four Miller Creek outfalls (SDN1, SDN2, SDN3, and SDN4) passes through additional piping and surface conveyance, and then passes through Lake Reba prior to entering Miller Creek. Lake Reba[2] is a

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[2] Lake Reba, sometimes referred to as "little Lake Reba" is the perennial pool (with several feet of live storage) that receives runoff from the airport and other areas. The Lake Reba facility was built by the Port in 1973, is adjacent to Miller Creek and drains to this creek via an outlet control structure that was renovated in 1998. Lake Reba lies within the footprint of the larger Miller Creek Detention Facility (MCDF), which is an *instream* detention facility (built by King County

constructed stormwater detention pond that also serves a water quality function (WDOE 1997). The potential influences of these important factors are not accounted for in the current sampling scheme required by the permit. These issues should be addressed in the NPDES permit renewal.

According to the provisions of the recently issued Water Quality Certification for the Master Plan Update ("401" permit number 1996-4-0235 (amended-1) dated 9/21/01), the Port will be developing a workplan to assess and develop appropriate site-specific water quality indicators. This work will determine the appropriate monitoring locations and water quality measures that best relate airport runoff to the local receiving streams (Miller, Walker and Des Moines Creeks). The Port plans to work with Ecology in developing this plan in the near future.

3.4 Storm sampling procedures and analytes

The Port's Procedure Manual for Stormwater Monitoring (POS 1999a) describes the criteria for sampling storm events, and describes all relevant sampling, programming, and handling necessary to comply with requirements of the permit. Table 4 lists required sampling frequencies, constituent analytes, methods, and detection limits. The Port reports data on DMRs only where results from storms and samples meet representativeness criteria of the manual. In addition to data provided in the DMRs, results from samples not meeting these criteria or those taken for other purposes are also included in this report. Using automatic samplers, the Port generally takes a grab sample then a flow-weighted composite sample during rainstorms of 0.20 inches or greater that are preceded by less than 0.1inch of rainfall in the previous 24 hours.

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in 1992) that does not have an associated permanent pool (no dead storage). Under high flow conditions, the backwaters formed by the live storage of the MCDF (the ultimate footprint) may inundate Lake Reba.

Table 2 Offsite Influences Affecting STIA Monitoring Locations[1]

Outfall (manhole)[2]	Total Area (ac)	Offsite Area (ac)	Percent Offsite	Comment
SDE4 (SDE4-65)	149	0.6	<1%	Offsite area of SR99, may be greater than 0.6 acre
SDS1 (outfall)	14.4	0.85	6%	Offsite area of S. 188th St. includes area added by City in Fall 1998
SDS2 (outfall)	13.2	2.9+	>21%	Offsite 16th Ave S., S. 188th St, and possible non-Port commercial area.
SDS3 (outfall)	462	3	<1%	Approximate offsite area of S. 188th St.
SDN1 (SDN1-56)	24+	9.9+	>40%	Former SDN1 location includes public road runoff. Runoff from add'l 49 ac non-POS area enters below,prior to entering L. Reba
SDN1up (SDN1-41)	13.8	0	0%	Air Cargo Road is about 50% of SDN1 area.

Table notes

1. All area estimates are as of **September 2001** and subject to change.
2. Though manhole number designations were changed in 1999, sampling locations remained the same as in previous years.

Table 3 Analytes, Methods and Detection Limits

			Applicable Subbasins/Outfalls			
Analyte	Method[a]	Detection limit (MDL) mg/l	SDE4, SDS3, SDN1, SDN4	EY,TY, SDN2	SDS1, SDN2	SDS1, SDS2, SDN3, SDS4, SDS5, SDS6, SDS7
pH[e]	150.1	0.1	X	X	X	X
FOG (Oil and Grease)	413.1	1.0	(f)	(f)	(f)	(f)
TPH (IR)	418.1 mod[b]	1.0	(f)	(f)	(f)	(f)
TPH (GC)	NWTPH-Dx	0.15	X	X	X	X
Fecal coliforms (MPN)	9221 E	2	X	n/a	n/a	X
TSS (total suspended solids)	160.2	0.5	X	X	X	X
Turbidity	180.1	0.1	X	n/a	X	X
BOD_5	405.1	4	X	n/a	X	n/a
Total Glycols[c]	GC FID	4	X	n/a	X	X
Total Recoverable copper, lead, zinc[d]	200	Cu: 2 µg/l Pb: 2 µg/l Zn: 5 µg/l	X	n/a	n/a	n/a

(a) Method refers to EPA-600/4-79-020, March 1979. Fecal coliform method refers to 18th edition of Standard Methods for the Examination of Water and Wastewater (APHA, 1995), or as revised.

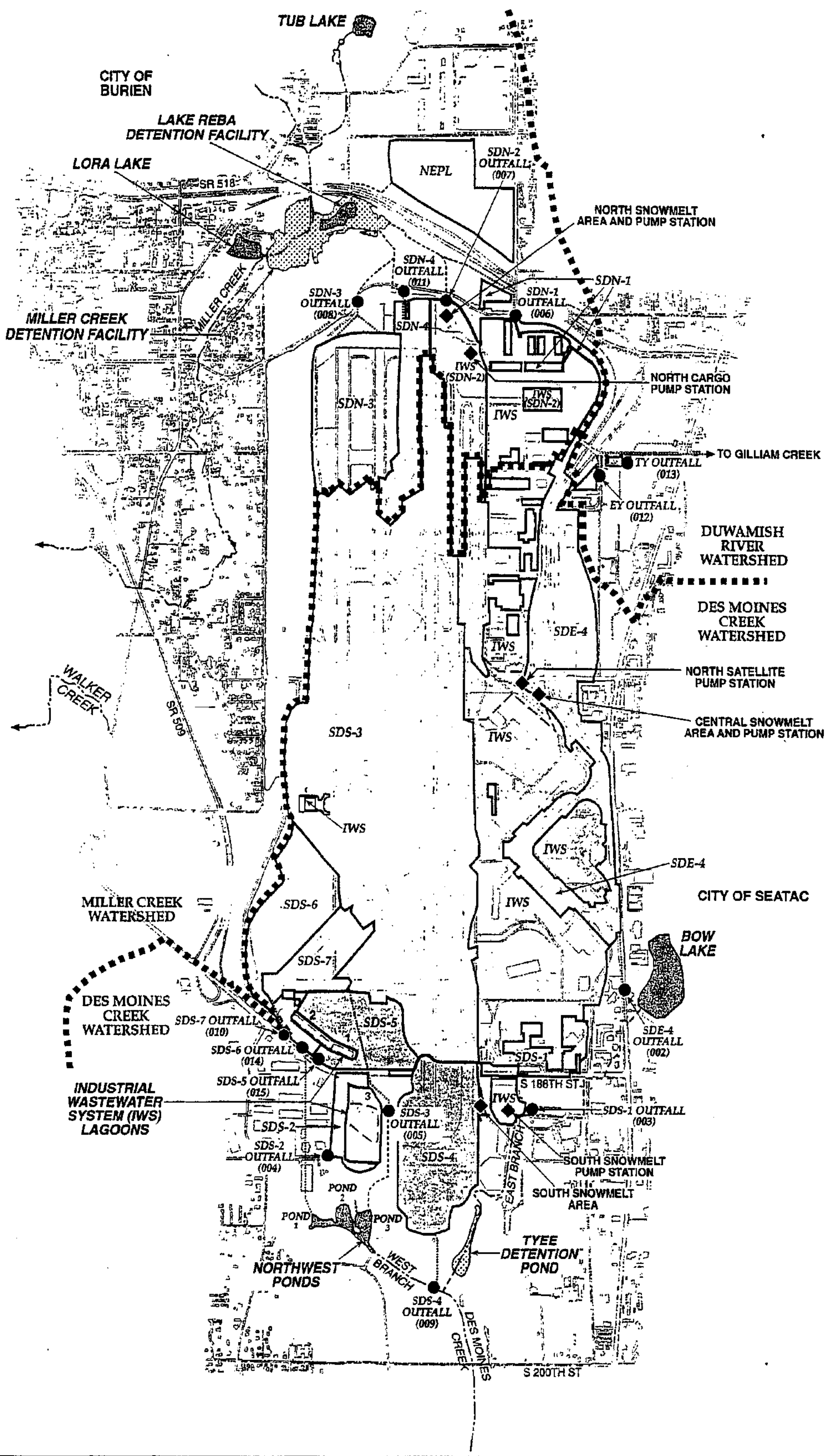
(b) Washington State Department of Ecology method WTPH-418.1 Modified.

(c) Analyzed by Gas Chromatograph, Flame Ionization Detector. MDL is 2 mg/l each for propylene and ethylene gycols.

(d) Lead and copper by atomic absorption (AA) furnace, zinc by ICP.

(e) pH is not required by permit, but is used as a reference parameter

(f) FOG and TPH (IR) methods replaced by NWTPH-Dx March 1, 1998.



Sea-Tac Airport/Stormwater Management Plan/556-2912-001/01(61A) 9/01 (X)

Sea-Tac Airport Drainage Basin Boundary
SDS-3 SeaTac Airport Drainage Basin Name
Stream
Piped Stream
Pipe (only connections between subbasins and outfalls shown)
Permanent Water Features
Live Storage Pool Area
Watershed Divide
Drainage Channel

SCALE IN FEET
0 750 1,500
N

Figure 1
NPDES Drainage Subbasins, Snowmelt Areas and Pump Stations, and Permitted Outfalls

4 SAMPLING RESULTS

4.1 General

This chapter presents and discusses data separately for results from grab samples, composite samples, and deicing event (glycol) samples. These types of samples employ different protocols that represent different temporal periods of the particular stormwater discharge event (i.e., grab samples versus composite samples) and should be evaluated separately.

The required hydraulic and hydrologic data are included in Appendix A. Samples were validated according to the representativeness criteria described in the Port's Procedure Manual for Stormwater Monitoring (Port 1999a). Appendix B tabulates and summarizes analytical results for each outfall. Data previously submitted to Ecology in the monthly DMRs represent samples collected strictly from those storms and sampling routines that fully met the criteria of the Procedure Manual. In addition to this DMR data, this report summarizes all other data collected at the storm drain outfalls covered under condition S2B of the NPDES permit (Table 1).

4.2 Data Presentation Methods

Because the NPDES permit does not specify discharge limits for stormwater, this report compares the Port's data to others' stormwater data listed as reference comparators in Table 4. Most reference comparators discussed in this report were the lowest results from two City of Bellevue studies. These comprehensive, local studies had similar sampling protocols to the Port's. However, the samples in the 1995 Bellevue study were taken at instream stations and therefore reflect stormflows in receiving waters, as opposed to direct outfall discharges.

Nonetheless, contrasting STIA *outfall* discharges to this *instream* comparator results in more conservative conclusions. This report uses the Portland NPDES data for copper because it better represents commercial and industrial outfall discharges *before* mixing with receiving waters. Again, the reader should consider the nature of the STIA sampling locations discussed in Section 3.3.

Comparator data and outfall sampling results appear on box plots that illustrate the central tendency, spread, and skew of the stormwater data (Figures 2 through 9). The bold line within a box represents the median value, while the bottom and top of a box show the 25th and 75th percentiles, respectively. In other words, the interquartile range (central 50 percent) of the data fall within values highlighted by the box. SPSS software was used to generate the box plots (SPSS 1999).

When summarizing data to compare typical values, outliers usually represent unusual conditions or anomalies, atypical of what could be expected under usual circumstances given historical data. In a box plot, the "whiskers" show the largest values that are not considered outliers. SPSS box plots show two types of outliers: those more than 1.5 box-lengths from the 75th percentile plotted with the symbol "o", and those more than 3.0 boxlengths with a star symbol ("*"). In most cases, the boxplots show the outliers, but in some cases the scales selected prevent plotting all outliers. Outliers have also been defined as those values in a particular outfall's data set that are more than 3 standard deviations from the mean (99.7% of the data fall within this range by definition in a normal distribution). All data are tabulated in Appendix B and C.

4.3 Storm events sampled

Consistent with permit requirements, the 2000-2001 sampling season began on July 1, 2000 and ended June 30, 2001. During this 12-month period, about 25 inches of rain fell at STIA, which is about13 inches (35%) below the 60+ year average and very different than the past two seasons, especially the 1998-99 period, influenced by the very wet La Nina weather pattern. See Figure 2.

In the 12 months ending June 2001, the Port sampled 22 rainfall events. Rainfall during these events ranged from 0.23 to 1.28 inches. Dry weather preceding these events averaged 4 days, with a minimum of about one day to a maximum of nearly one-month (8/18/00 event). Appendix A summarizes daily rainfall and storms sampled.

Table 4 Stormwater Quality Comparators[a]

Constituent	Units	Comparative Study Data[a]						STIA		
		NURP 1983	BURP 1984	Metro 1982	Bellevue 1995[b]	Highway Runoff[c] 1981	Portland NPDES[d] 1993	Landside (SDE4, SDN1)	Airfield (SDS3, SDS4, SDN3, SDN4)	WA State Standard[e]
pH	std units		**5.2 - 7.4**		7.2 - 7.8			6.7	7.3	6.5 - 8.5
TPH	mg/l				**3.7**		6.5	2.6 FOG 1.8 TPH 1.7 TPH-Dx	0.5 FOG 0.13 TPH 0.08 TPH-Dx	*no standard*
Fecal coliforms	mpn per 100 ml	1000 to 21000	*980*		**201**			110	8	50
BOD_5	mg/l	9	***6.6***				20	6.7	6	*no standard*
TSS	mg/l	100	***50***		82.3	106	119	42.5	7.45	*no standard*
Turb	mg/l		19		**29.4**			22	6.2	based on background
glycols	mg/l	*not analyzed in any of these studies*						5[i]	5[i]	*no standard*
Cu (TR)[f]	µg/l	34		20	10.4	43	**40**	24	27	10.3[f]
Pb (TR)[f]	µg/l	144	170	210	**26.3**	466[c]	25	11	1	39[f]
Zn (TR)[f]	µg/l	160	120	110	**161.4**	638	376	171	32	72[f]
statistic reported		median	mean[g], *median*	mean	log-normal median	mean	median	7-yr median	7-yr median	na

(a) Comparative values used in this report are in bold. Blank space means no data available, reported, or applicable.

(b) Bellevue, 1995 data are for instream stormwater runoff samples from the "Sturtevant Creek, downstream" site.

(c) Highway runoff from an I5 location in Seattle with 57,000 ADT, 43 to 54 storm samples in 1980-81 (Chui, Mar, and Horner, 1982). Because this study was conducted prior to the phase-out of leaded gasoline, lead results were higher than for other later studies.

(d) City of Portland 1993 NPDES Part 2 Municipal Application. Median of 10 samples from "I2" "industrial" outfall.

(e) Standards listed are for class AA waters, see WAC 173-201A.

(f) Total recoverable metals. WA State acute standards expressed as total recoverable, calculated at 56 mg/l hardness using generic translators in Ecology's "TSDCALC8.XLW" spreadsheet (see Section 4.5.3). This hardness value is the median of seven instream samples collected in Miller and Des Moines Creeks in 1999.

(g) For Turb, Cu, Pb, and Zn, BURP 1984 data was mean of grab samples, therefore Bellevue, 1995 data are more representative comparators because they represent median of composite samples, comparable to STIA samples and data for these parameters.

(h) STIA median data cited reflect 37 to 112 samples per parameter for landside group samples, and 90 to 153 samples per parameter for airfield group samples

(i) About 70% of all STIA sample results for glycols have been below detection limits of 5 mg/l (to April 1997) and 2 mg/l (May 1997-current).

In the past year's sample events there was a single summer storm event (8/18/00) that produced higher than typical constituent concentrations at one outfall (copper at SDS3, see Section 4.5.3). In previous years, thunderstorms or other periods of intense rainfall after protracted dry periods of a month or more caused elevated levels of certain constituents (POS 1999b). These meteorological factors resulted in the unusual combination of a lengthy accumulation period and high scour from the intense rainfall. Patterns like these have been most evident in the late summer and early fall months, particularly in 1998. The 3 highest copper results for SDS3 were from storms sampled in the month of August (8/2/96, 8/16/98 and 8/18/00). These factors are important to take into account when considering how representative a particular sample result is given the naturally occurring, and perhaps infrequent seasonal influences.

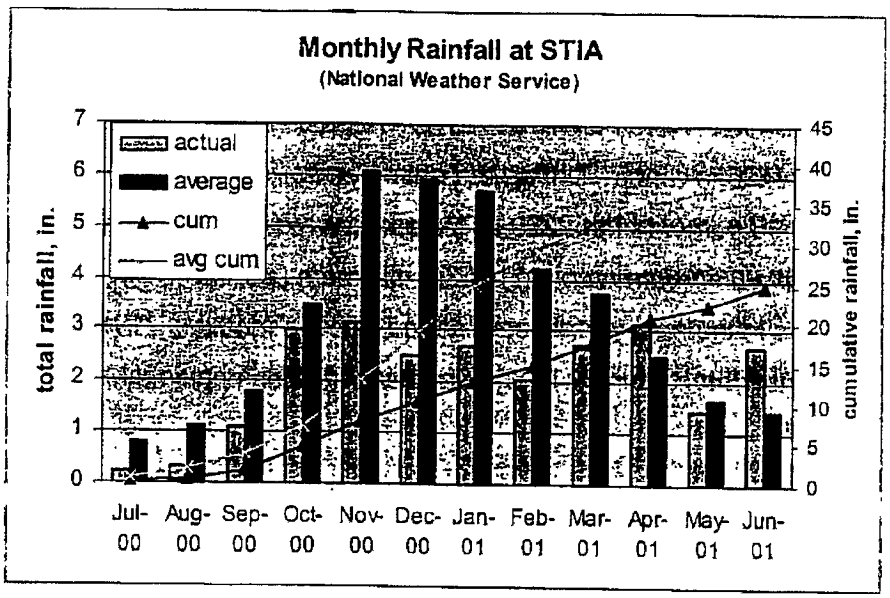


Figure 2 Rainfall Summary

4.4 Grab Sample Results

The following discussion includes results from 61 grab samples collected in the past year, bringing the 7-year total to 431 total grab samples. Grab samples are analyzed only for TPH and fecal coliform bacteria per current permit requirements. Previous versions of the permit required FOG, and TPH analysis by methods now outdated (413.1 and 418.1, respectively). Both of these parameters were replaced by NWTPH-Dx by the permit revision of February, 1998, though historical data for FOG and TPH are included in Appendix B.

4.4.1 Total Petroleum Hydrocarbons (TPH)

The results from the current year presented in Figure 2 continue to demonstrate that concentrations of petroleum-type constituents in STIA stormwater are consistently less than in stormwater from other urban areas. The overall results indicate the following:

- STIA stormwater overall continues to have less petroleum-type constituents than typical urban runoff. During the past 4 years, with a median of 0.26 mg/l, more than 95 percent of the 220 STIA results were less than the Bellevue, 1995 median (instream samples) of 3.7 milligrams per liter (mg/l). Only two of 61 samples in the past year exceeded the Bellevue median. On the whole, TPH was not detected in 79 (36%) of a total of 220 samples taken since March 1998.

- Airfield stormwater (SDS3, SDS4, SDN3, and SDN4) continues to contain far less TPH than runoff from the landside subbasins (SDE4, SDN1, and TY.) To date, median airfield TPH is 0.08 mg/l compared to the 1.1 to 2.4 mg/l median levels for the landside outfalls. TPH was not detected in 63 (72%) of the 88 airfield outfall samples in the past four years. All but two TPH results from these 88 airfield outfall samples were less than 0.5 mg/l, which is one half the detection limit of the previous TPH (IR) method of 1.0 mg/l. Current results are similar to these overall patterns.

- New maxima occurred at two airfield outfalls in the May 14, 2001 storm samples (2.75 and 1.59 at SDS3 and SDN4, respectively). See Figure 3. Interestingly, from this same event, TPH results for both landside outfall samples (SDE4 and SDN1) were non-detectable. Typically, the situation for these pairs of outfalls is opposite: landside outfall TPH>>airfield TPH, as explained above. Relative to the extensive sampling history for their respective outfalls, the results for SDS3 and SDN4 samples are anomalies, pronounced statistical outliers according to both definitions (SPSS and ±3 Standard deviations). Instead, the SDS3 and SDN4 TPH results for the 5/14/01 event would be more typical of SDE4 and SDN1, falling well within historical interquartile ranges (middle 50% of the data) for these two landside outfalls, respectively. Chain of custody records and laboratory data were not in error, though the results suggest that the labels on the sample bottles may have been interchanged in error. There were no incidents reported on or near this sampling date that might have caused the elevated TPH in the airfield samples.

- Because most of the TPH detected in landside runoff is motor oil, it is likely attributable to lubricants from cars and trucks (there are no passenger vehicle roads in the 4 airfield subbasins). Diesel oil fractions are rarely detected while motor oil has represented the majority of the TPH at the landside outfalls (SDE4, SDN1, and TY.) Diesel fractions were not detected in current year TPH data therefore a boxplot is unnecessary.

- The IWS effectively isolates aviation-related fuel spills and drips from the storm drains. For all outfalls, measurements of diesel fractions[3] are typically

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[3] The diesel range results for TPH by method NWTPH-Dx would represent jet fuels (e.g. JP4, JP5, etc) which have complex mixtures of C10-C16 hydrocarbons, overlapping with the C8-C24 hydrocarbon range found in diesel fuel.

below detection limits (92% of the 220 samples), with a historical maximum of 0.8 mg/l. Considering that subbasins SDE4 and SDS3 are contiguous with aircraft service (IWS) areas where fueling takes place, sample results for these two outfalls show low incidence of TPH, especially diesel fractions (consistently non-detected in SDS3 and SDE4 samples). Up to 90% of the 39 samples from SDE4 had TPH less than the 3.7 mg/l comparative value for urban areas. More than 70% of the total of 40 SDS3 samples had non-detectable TPH.

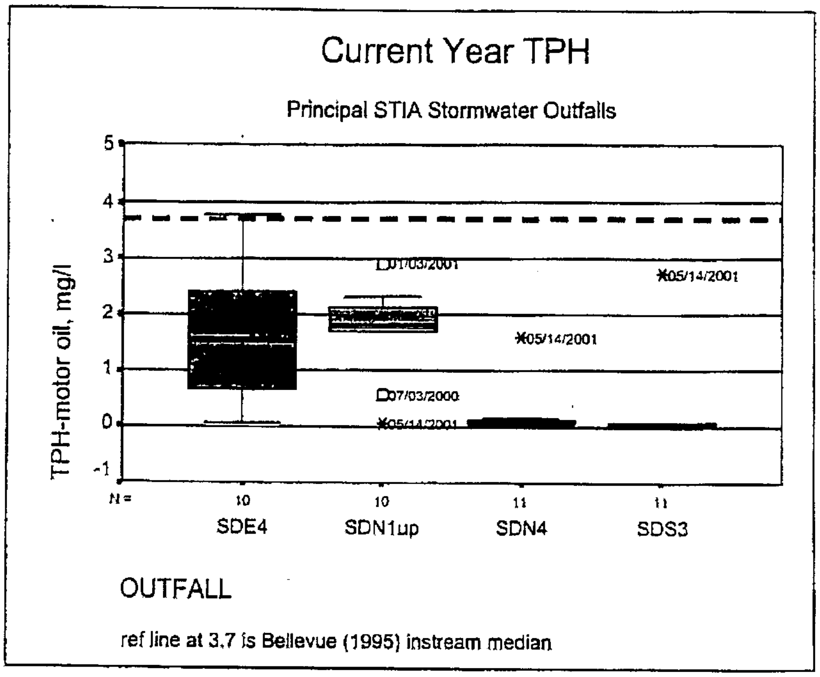

Figure 3 TPH for current year

4.4.2 Fecal Coliforms

Overall, the median value for fecal coliforms in 289 samples to date is 30 per 100 ml, with more than two thirds of the results less than 200 per 100 ml. Relative to the comparative values (Table 4), these overall results indicate that STIA stormwater contains fewer fecal coliforms than typical urban stormwater. More than 80 percent of the 127 airfield subbasin samples taken to date showed fecal coliforms less than the Bellevue (1995) comparative value of 201 per 100 ml (see

Figure 4). Current year results from a total of 56 samples from ten outfalls continue this pattern, where 88 percent were less than the Bellevue comparative value. See Figure 4 for current year data.

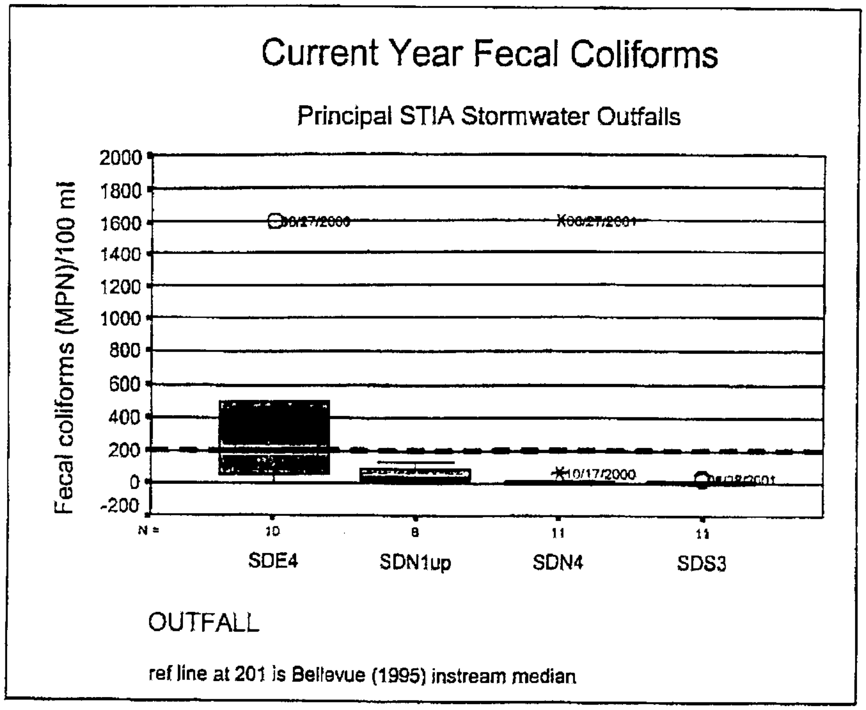

Figure 4 Fecal coliforms for current year

There are numerous sources of fecal coliforms including fecal matter from birds and mammals. Urban stormwater often contains fecal coliforms at sporadically elevated levels. Human sources, such as septage or sanitary sewage are not always implicated as contaminants. Importantly, all fecal coliform test methods often overestimate true fecal coliform concentrations, plus they are susceptible to interference from non-pathogenic coliform bacteria including *klebsiella* species (U.S. EPA, 1986). Fecal coliforms are a presumptive indicator, meaning that if present, pathogens are presumed present as well, which may not always be the case.

To remove these sources of uncertainty and to better serve public health, the U.S. EPA stated in 1986 that *E. coli* and enterococcus-based methods and standards should be used by the states (U.S. EPA, 1986) as a means of measuring the presence of pathogens. Ecology is considering these changes in the triennial review of water quality standards process (WDOE, 1998, 2000b).

A method called the Microbial Source Tracing (MST) technique matches "fingerprints" isolated from *E. coli* bacteria DNA with those previously characterized from known human and animal sources. Professor Mansour Samadpour of the University of Washington's School of Environmental Health developed this technique which has been used in a number of surface water studies in the region and nationally (Farag et al. 2000, NVRC 2000, Herrera 1999, KCDNR 1997, Trial et al 1993).

Using the MST technique, the limited sampling for the Des Moines Creek Basin Plan showed that some of the fecal contamination in the lower watershed was attributable to unsewered residential areas (septage) and that animal sources existed as well (KCDNR, 1997).. Human sources were less prevalent upstream nearer the airport, where dog and avian sources together comprised up to 34% of the results. This study had limited statistical power due to the limited number of samples, plus a number of the isolates were unmatched with known sources.

The Port recently completed a study using the MST technique to identify potential fecal coliform sources in airport runoff (Herrera, 2001). This study found that more than 90% of the sample results from STIA runoff and instream samples above and below STIA were associated with animals, while humans accounted for less than 10%. Human sources were implicated only infrequently in storm runoff and not found in baseflows from STIA. The study also showed that upstream sources of fecal contamination existed, including human sources not attributable to the airport. Several sources of avian fecal matter were found at STIA, including a pigeon colony on the rooftop of Concourse A (removed during concourse demolition in February 2001). The study indicated birds, particularly pigeons were a significant source of fecal coliforms for SDE4 and the other locations sampled. See Section 4.7.2 for more details.

In past reports, the Port showed that sporadically elevated fecal coliform counts occurred mostly in the landside subbasin SDE4. Of the ten current year fecal coliform results for SDE4, only two samples showed elevated results, while others ranged from non-detectable to 500 per 100 ml, well within the typical range for STIA and other regional stormwater (see Table 4). The Port's MST study corroborated work discussed in previous annual reports showing an absence of cross-connections with sanitary sewer lines. Baseflow samples were not contaminated (generally non-detectable fecal coliforms, and an absence of human "fingerprints") and indicated that there was no continuous source of fecal coliform bacteria, whether arising from human, animal or other sources.

Elevated fecal coliform results for SDN1 and SDN4 samples from the June 27, 2001 storm were unique. Relative to the extensive sampling history, these samples are statistical outliers according to both definitions (SPSS and ±3 standard deviations). Typical fecal coliform concentrations for these two subbasins have been very low with many non-detectable. The MST study found only avian sources in storm samples from these two outfalls, while baseflow discharges were absent as is the usual case. Thus, the elevated results in the two SDN1 and SDN4 samples in the past year were most likely caused by avian influences, with no indications of sanitary cross connections.

4.5 Composite Sample Results

In the past year, the Port took a total of 59 flow-weighted composite samples, bringing the six-year total to 412 for all outfalls. The discussion of these composite sample results are segregated from grab samples because grab samples represent instantaneous values. Composite sample results, especially those from samples that comprise the entire hydrograph, represent an average value or event-mean concentration (EMC) over a longer time period. All composite sample data reported below met the representativeness criteria of the Procedure Manual. Non-representative composite data not reported below are in Appendix D.

4.5.1 Suspended Solids and Turbidity

STIA outfalls continue to discharge typically less total suspended solids (TSS) and turbidity than urban areas. In the seven-year sampling history at STIA, more than 80 percent of the 386 TSS samples and 336 turbidity samples were below the comparative values of 50 mg/l, and 29 NTUs, respectively. As shown in Figure 5 and Figure 6, the majority of results for the past year continue to be consistently low.

The four airfield outfalls (SDS3, SDS4, SDN3, and SDN4) continue to produce less TSS and turbidity than the two principal landside subbasins (SDE4 and SDN1). In the past seven years, 86 percent of the 146 TSS results from the airfield outfalls were less than one-half the regional comparative median value of 50 mg/l. Because these airfield outfalls represent about 61 percent of the total SDS area, the data show that the majority of STIA runoff is much lower in suspended material than runoff from comparable regional urban areas.

In the past year, 3 samples exhibited higher than typical TSS and turbidity; two at SDN4 and 1 at the taxi yard (TY). All three TSS results (366, 331, and 660 mg/l) were new maxima for the respective outfalls (SDN4 and TY). The SDN1 turbidity results of 170 and 198 NTU were new maxima for that outfall. No other constituent maxima were associated with these SDN1 results, though lead and zinc were relatively high compared to historical data (see Section 4.5.3.2).

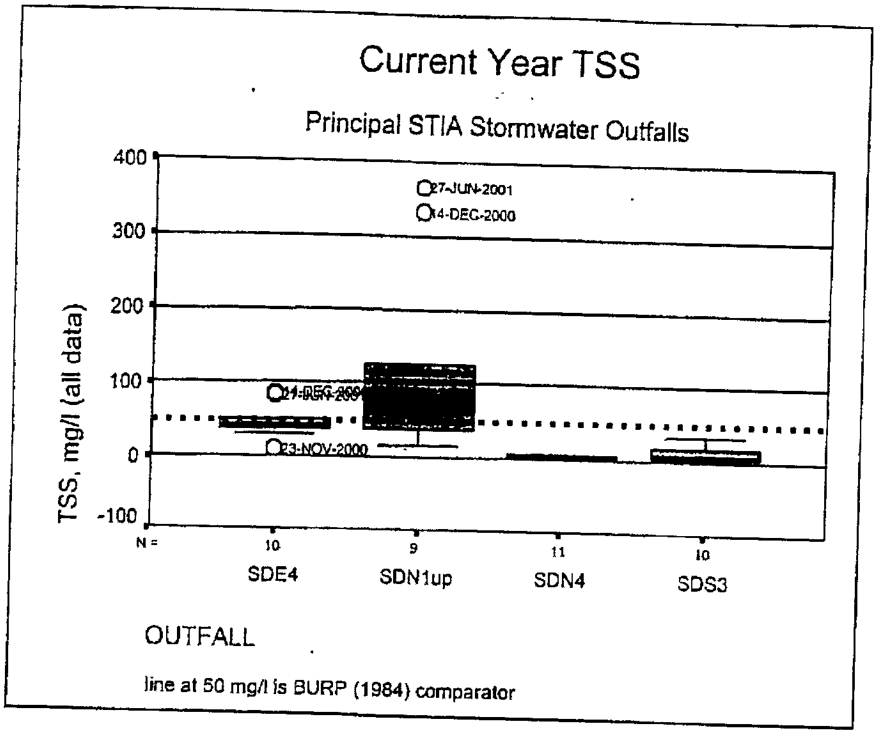

Figure 5 TSS for Current Year

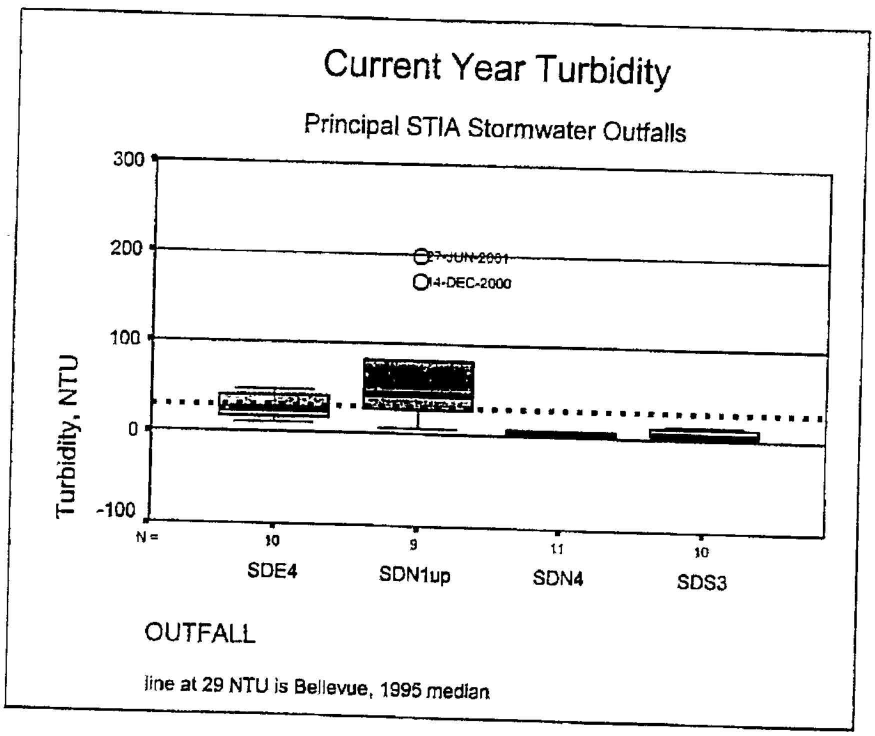

Figure 6 Turbidity for Current Year

BMPs were added in SDN1 in January 2001 (flexible catch basin inserts) after the first occurrence. Subsequent TSS and turbidity dropped in the next five SDN1 samples until the 6/27/01 sample event indicated new peaks. Visual observations suggested that the source of sediment was associated with two factors: 1) truck traffic on air cargo road, and 2) sediment mobilized by vehicle traffic turning around in a small unpaved shoulder area on the south side of S. 154th St about 100m west of the SDN1 sampling station. The embankment construction areas have a complete range of BMPs onsite to minimize tracking, including truck wheel washes and roadway sweeping.

The Port's construction erosion and sediment control program provides effective erosion and sediment controls. The stormwater batch treatment system used over the past three seasons for the third runway embankment project has been highly effective. Discharges from this system always met water quality standards for turbidity in Miller Creek, and in fact, were typically much cleaner than background conditions in the creek upstream from the project (Tobiason et al., 2000).

The elevated TSS of 660 mg/l in the 1/28/01 Taxi Yard sample may have been associated with limited construction in the area (electrical ductbank station) and/or inappropriate sediment disposal onsite. A small pile of sediment and other debris was observed near the dumpster at the taxi facility. Staff were notified and the sediment was removed shortly thereafter.

4.5.2 Biochemical Oxygen Demand (BOD_5)

Results for the past year continue to indicate overall low levels of BOD_5 in STIA stormwater. In 42 samples analyzed in the past year, the median BOD_5 was 7.7 mg/l, just above the 6.6 mg/l regional urban comparator (BURP, 1984, see Table 4). See Figure 7. Overall, 54% of the 335 samples to date were less than the regional comparator. Elevated results have usually only been associated with major deicing periods.

Principal sources of elevated BOD_5 concentrations in the past were associated primarily with infrequent and short-lived winter weather episodes and ground surface deicing. During these events, acetate-based ground surface deicing chemicals are the primary sources of BOD_5. The Port discontinued the use of urea and glycol-based ground surface deicers in 1996. There have been only a few isolated indications of limited BOD_5 contributions to stormwater from aircraft deicing glycols. Two elevated BOD_5 results in the past year, 84.3 and 137 mg/l at SDS3 on November 23, 2000 and January 28, 2001 appeared to be associated with glycols (84.3 and 122 mg/l total glycols respectively). Direct sources of glycols have been eliminated from the storm drains through numerous BMPs (POS, 1998c). In September 2000, the Port rerouted drainage to the IWS from an SDS1 area of about 0.1 acre near the South Satellite that can receive infrequent aircraft deicing/anti-icing fluids (ADAFs) when and if applied to aircraft at gates S3 and S4. See Section 4.7.2.

In the past year, two limited periods of winter weather occurred: February 8-9, and February 16-17, 2001. In time-composites taken during these two events, BOD5 ranged from 53 mg/l (SDE4) to 756 mg/l (SDS3). Because these samples were time-composites they do not appear on the figure below. Section 4.6 discusses these in more detail. Snowfall from the more substantial second event required plowing and storage in the three snowmelt BMP areas. During both of these events, there were no discharges from outfall SDN2, which could drain the north snowmelt BMP area in the event of an IWS pump station bypass[4].

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[4] The entire drainage area of outfall SDN2 was re-routed to the IWS in 1997 as a result of two BMPs.

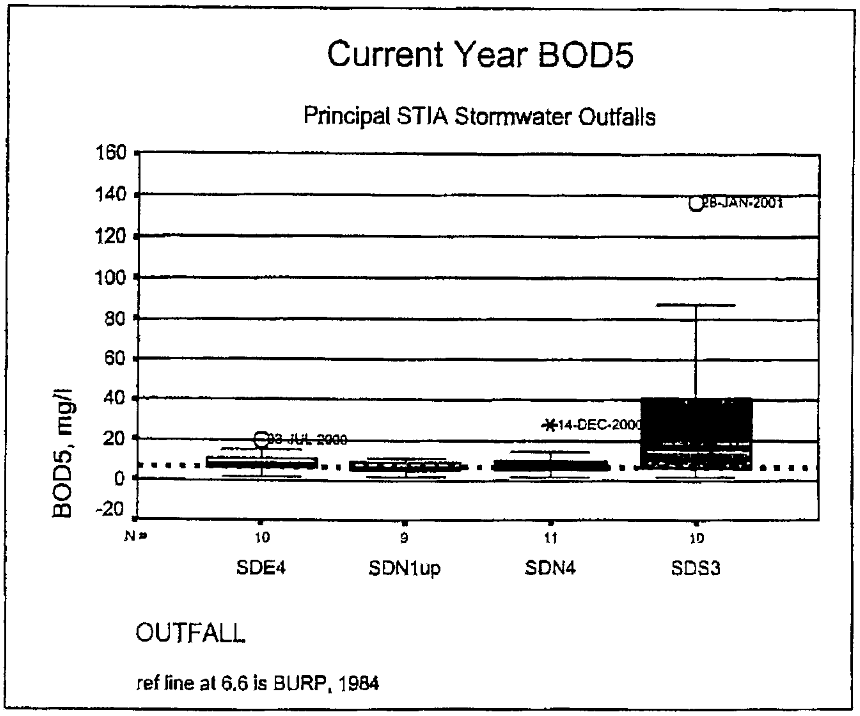

Figure 7 BOD_5 for Current Year

4.5.3 Metals

All data reported below are for total recoverable metals. It is important to note that Washington State Water Quality Standards (WAC 173-201A) apply to the receiving waters, not to the discharges from a particular outfall. See the discussion in Section 3.3 concerning the STIA monitoring locations relative to the receiving streams.

The Washington State water quality standards for copper, lead, and zinc are based on toxicity associated with the dissolved fraction of the metal. Because of complex water chemistry, only a portion of the dissolved fraction is actually bioavailable (Hall et al., 1997). Thus, direct comparisons of dissolved metals with standards may result in "false positives" where a sample is not actually toxic. Results for dissolved copper and zinc analyzed in WET testing and source tracing studies (POS, 2000b) at the Port's principal outfalls have shown that dissolved fractions were often substantially less than the 96% to 98% ratios applied by default in the water quality standards (Ecology's and EPA's). The comparisons offered below are based on the total recoverable metal using the non-specific ratios (partitioning coefficients) provided in the water quality standards and Ecology's TSDCALC8 workbook. The application of site-specific coefficients for these calculations would be more appropriate.

4.5.3.1 Copper

Overall, in 312 samples in the past six years, the median copper value for all outfalls sampled is 0.024 mg/l. Airfield and landside outfall data in this case are similar, with medians ranging from 0.020 to 0.031 mg/l. See Figure 8. Nearly 80% of all STIA copper data to date (312 samples) are less than the 0.040-mg/l median from the City of Portland's sampling results (City of Portland, 1993.)

These comparisons are more representative of outfall discharges than the Bellevue, 1995 median of 0.01 mg/l that was for *instream* stormwater samples. However, note that the comparators listed in Table 4 show that urban runoff typically exceeds receiving water standards for copper when compared directly and without mixing.

In samples from the minor subbasins SDS2, SDS5, SDS6, and SDS7 not associated with landside or airfield activity, median copper ranges from 0.005 to 0.013 mg/l, where all data has been substantially less than the two comparators cited here. Nearly half of the copper data for these four outfalls has been below the receiving water standard of 0.010 mg/l. Passenger vehicle roads and/or parking is very limited to non-existent in these four subbasins.

Copper results from the past year exhibited no new maxima, though an SDS3 result of 0.111 from the August 18, 2000 sample ranked third in the total of 58 samples to date. In past years, some samples associated with certain seasons and/or weather patterns have resulted in elevated copper. The top three SDS3 copper results all occurred in samples from storms in the month of August after extended dry periods of 2 weeks to 33 days (in 1996, 1998, and 2000). Though the length of the dry antecedent period may be significant in its effect on copper, there may be other important determinants such as rainfall intensity.

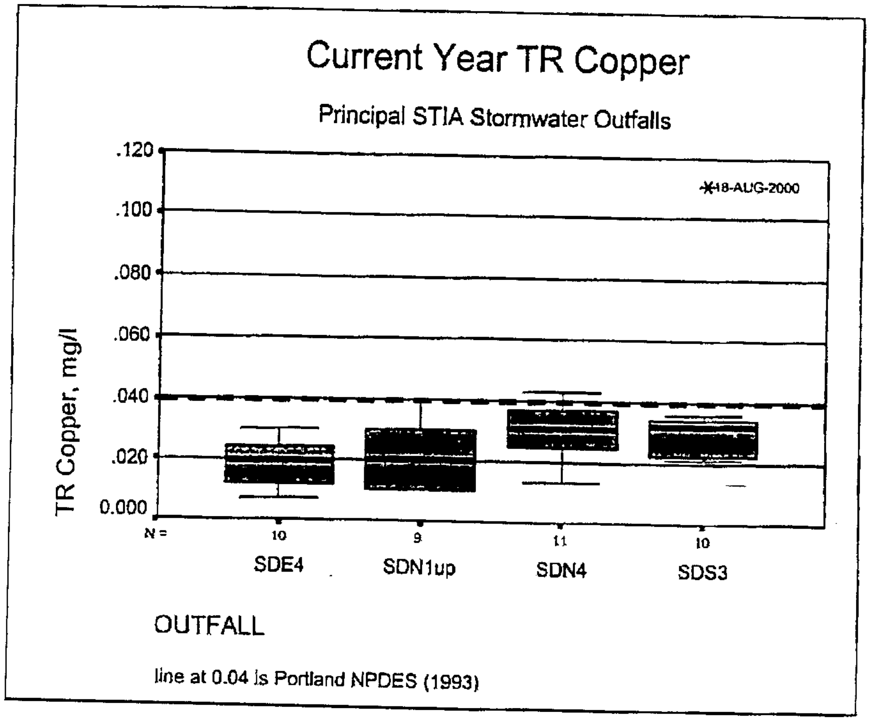

Figure 8 Total Recoverable Copper for Current Year

4.5.3.2 Lead and zinc

Samples from airfield outfalls continue to contain less lead and zinc concentrations than typical urban sources. In the seven-year permit sampling history, the vast majority of the 312 results for lead and zinc in all STIA outfalls were below the median for comparable regional data for commercial areas. For the four airfield outfalls, which comprise more than 65% of the total SDS, nearly all (more than 97%) of the 145 sample results to date for lead and zinc were less than the comparators.

These comparisons have added significance given that the commercial/industrial comparators cited (see Table 4) are very conservative data. Plus, these Bellevue (1995) lead and zinc comparators reflect *instream* sample concentrations after outfall discharges were mixed with receiving waters. Thus, metals in the vast majority of STIA stormwater, especially airfield runoff, are generally far lower than those measured in other local and regional studies. Current results continue these patterns, See Figure 9 and Figure 10.

Much of the airfield outfall lead and zinc data are below water quality standards. All but one of 145 lead results in the past seven years are below the standard of 0.039 mg/l calculated at a hardness of 56 mg/l (Table 4.) In fact, lead was not detected in 50% of these 145 total samples. Airfield zinc was similar in that more than 85% of the 145 results are less than the standard of 0.072 mg/l at 56 mg/l hardness[5]. See Figure 9 and Figure 10.

Importantly, lead and zinc concentrations measured in airfield outfall samples were far lower than those in the landside outfall samples were. The overall median lead and zinc values for principal airfield outfalls SDS3 and SDN4 (0.041 and 0.021 mg/l respectively) were three to ten times *less* than for the landside outfalls SDE4 and SDN1 (0.134 and 0.192 mg/l, respectively). See Figure 9 and Figure 10. This difference is likely associated with a higher degree of passenger and service vehicle usage in the landside areas.

The lead result of 0.035 mg/l from the SDN1 sample of 12/14/00 was associated with elevated TSS and turbidity in the sample. These TSS and turbidity results were new maxima for SDN1, representing outliers most likely associated with truck traffic. See Section 4.5.1. Though not an overall outlier, this lead result ranked third overall in the 37-sample history for SDN1, and was near the

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[5] In two storms in 1999, hardness values in seven Miller and Des Moines Creek instream composite samples ranged from 41 to 74 mg/l with a median of 56 mg/l.

historical maximum of 0.048 mg/l of January 13, 1999. Though not unusual, the zinc result in this sample was in the 78th percentile for all SDN1 data.

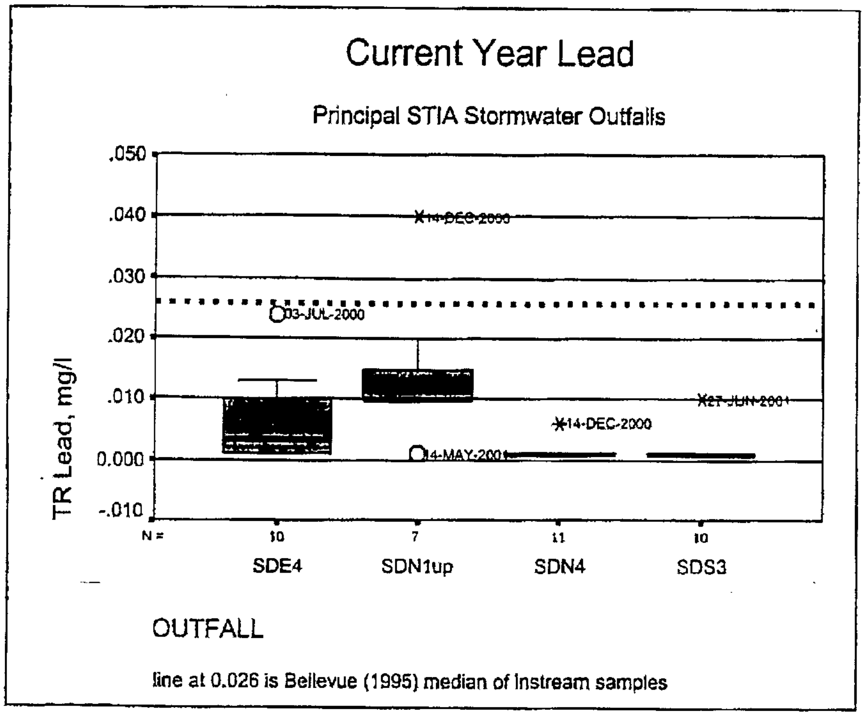

Figure 9 Total Recoverable Lead for Current Year

The landside subbasins experience considerable vehicle traffic where tire wear is a likely source of zinc (EPA 1993). Roads and parking areas constitute more than 50 percent of the impervious surfaces draining to SDE4 and SDN1. The lower results for the airfield outfall samples are most likely attributable to the fact that airfield runoff flows through grass areas prior to draining to the piping system. Certain portions of landside subbasins SDE4 and SDN1 will be assessed for appropriate BMP retrofits, such as biofiltration, according to the recent CSMP (Parametrix 2001).

Zinc associated with runoff from galvanized roofing material appears to effect only outfall SDN1. Unlike SDE4, where several metal-roofed cargo buildings make up a few percent of the total impervious area in the subbasin, three similar cargo buildings comprise nearly 30% of the total impervious area drained by SDN1 (at the sampling station). Five WET tests in 1998-99 did not indicate toxicity in the SDE4 samples, while significant toxicity was found in multiple SDN1 samples. Source-tracing indicated that the SDN1 toxicity was attributable to zinc (POS 2000b; Tobiason and Logan 2000). However, the SDN1 sampling point tested is more than ½ mile upgradient from Lake Reba (a detention facility) and its outfall to Miller Creek. Several instream samples below the Lake Reba outfall have shown much less zinc than the SDN1 data and have not indicated toxicity (POS, 1997c, Parametrix 1999).

Despite the benefits provided by the Reba detention facility, the Port has been collaborating with other researchers in investigating several options for mitigating the zinc in the SDN1 (rooftop) runoff. Because re-roofing or painting costs appear high, runoff treatment by media filtration appears as a potential cost effective solution. According to the manufacturer of the roofing material, painting it would cause product warranty problems. Therefore, there are more issues to consider than cost alone.

Stormwater treatment media tested recently in controlled laboratory experiments include commercially available CSF® deciduous leaf compost produced by Stormwater Management Inc. (Portland, Ore.) and specially-modified soybean hulls developed by the U.S. Department of Agriculture Agricultural Research Service Southern Regional Research Center (New Orleans, La.). Both the leaf compost and the soybean hulls are agricultural waste products that can be recycled as water-treatment media. Other media tested proved less suitable or even generated some degree of toxicity.

Implementation concepts include deploying the media in commercially available Stormfilter™ cartridges in below-grade, pre-cast vaults; or in cartridges adapted for above-grade downspouts. These options amount to a new stormwater BMP option that appears much more cost-effective than re-roofing or painting to eliminate zinc sources. Further studies will characterize the long-term performance and operations and maintenance costs for these options for dealing with metal rooftop runoff. In addition, in the coming year, the Port will begin evaluating other rooftop runoff according to the provisions of the CSMP (Parametrix 2001).

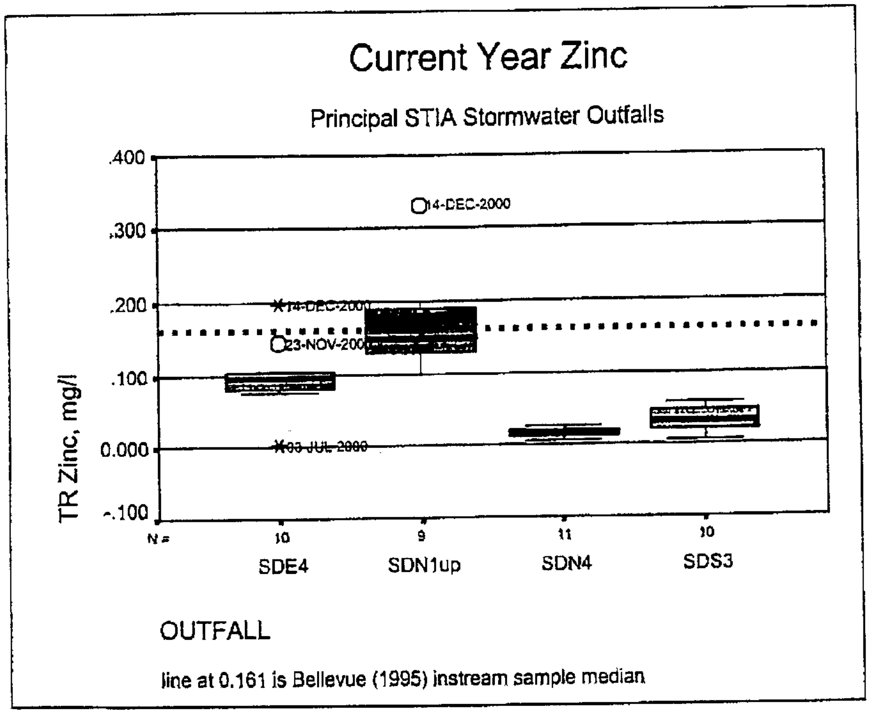

Figure 10 Total Recoverable Zinc for Current Year

4.6 Deicing Event Samples

The permit requires sampling and analysis for glycols during "deicing events". The Port conducts this sampling according to the Ecology-approved Procedure Manual (POS, 1999a.) The glycol data discussed below encompass mostly composite samples collected during periods of aircraft deicing, representing average values during a storm event discharge. Some of the data are from grab samples as required for outfalls SDS1 and SDN2. The two major deicing events of 2001 (February 8 and 16th) were sampled on a time-composite basis because the weather and associated deicing activities persisted for several days.

4.6.1 <u>Background.</u>

In 1995-1997, as recommended by the SWPPP, the Port implemented seven BMPs that rerouted drainage to the IWS from certain areas in four SDS subbasins: SDE4, SDS1, SDS3, and SDN2 (POS 1998c). Several limited areas within these subbasins were subject to aircraft servicing, including periodic ADAF (glycol) application. Two of these BMPs use multiple pump stations that have performed as intended over the past four-plus years.

Two of these pump stations divert runoff to the IWS from the entire SDN2 subbasin. In the past year, there were only three storms that resulted in bypasses from these pump stations to the SDN2 outfall (October 9, 2000, January 4, 2001 and June 11, 2001). Two of these were sampled according to permit requirements and no unusual results were found. All bypasses were of very short duration compared to the length of the rainfall event and the period flows were pumped to the IWS. As intended in the station design, these bypasses to SDN2 represented only a fraction of the peak flows of the hydrograph. None of these bypasses occurred during a major deicing period or when snowmelt was present.

The Port's Annual Glycol Reports (POS, 2001, 2000c, 1999c, 1998b, 1997b, 1996b) detail ADAF (glycol) application at STIA. These reports summarize data reported by the airlines for the volumes of both ethylene and propylene glycol applied and number of aircraft treated each day. The Federal Aviation Administration (FAA) authorizes only specially formulated ethylene and propylene glycols for aircraft deicing and anti-icing. Port tenants perform all glycol application at STIA (applied by airlines or their ground service providers). Importantly, to ensure public safety, aircraft pilots make the ultimate decision on whether to apply glycols or not.

During the winters of 1998-99 and 1999-2000, the Port investigated the possible effects of ground deicing chemicals (acetates) on receiving-water dissolved oxygen (DO). As indicated by conductivity and/or tracer constituents of the potassium acetate, sodium acetate and calcium-magnesium acetate chemicals, these two studies showed that the deicing materials travel rapidly through the streams (Cosmopolitan Engineering, 1999; POS, 2000d). Though extended detention periods for the affected runoff occurred in Northwest Ponds, and Lake Reba to a lesser degree, it was not possible to attribute oxygen depletion to the chemicals. The studies documented very dynamic and often extreme DO fluctuations existed in background conditions for the ponds, weeks and months before any ground deicing chemicals were used.

Prior to these ground-deicing events, runoff glycol concentrations attributable to aircraft deicing were either absent or at low levels insufficient to have caused any of the observed oxygen deficits observed in the ponds. Runoff data during these major deicing events indicated BOD_5 attributable to glycols was a small fraction of the total given the acetate-based chemicals used concurrently. Moreover, the data indicated that the IWS effectively captures the majority of the total volume of glycols applied to aircraft.

4.6.2 Current Results

Glycols have been present infrequently, usually limited to the rare, one to two day winter weather episodes, amounting to just a few days annually. In the past year, glycols were analyzed in a total of 58 samples from five outfalls[6]. The majority of samples were collected at the regular sampling locations (SDE4,

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[6] Multiple time-composites were taken at SDE4, SDS3 and SDN4 during the 4-day deicing period of February 16-19, 2001. Results in Appendix C include each of these time-series samples plus an overall single sample comprised of equal volume aliquots from each time-series composite. Thus, the overall time-composite of up to 6 sub-samples is considered to represent the entire event. BOD5 and glycol concentrations in the overall composite used in the data summaries closely agree with mathematical averages of the individual time-series samples.

SDS3, and SDN4.) A total of 18 of these samples were time-composite series taken during the 4-day period of February 16-19, 2001. Total glycol concentrations ranged from non-detectable to a maximum of 548 mg/l in an SDS3 sample. Fourteen of the 27 samples representing individual events were below the detection limit of 2 mg/l. Glycols were typically detected only during periods of winter weather and considerable aircraft deicing activity.

The total number of aircraft deiced in the dry period before sampling events ranged from 1 to 414, with a median of 148. Data appear in Figure 11 and are summarized in tabular form in Appendix C. These results continue to indicate that glycols are typically absent in STIA stormwater discharges except during periods of major winter weather.

In the past year, two limited periods of winter weather occurred: February 8-9, and February 16-19, 2000. During the first event, the minor snowfall of 2 to 3 inches did not require plowing because it melted rapidly with the ensuing rainfall. The second event had up to 8 inches of snow that was plowed from the airfield and moved to the three snow storage areas. There were no discharges from outfall SDN2 during either of these events[7]. In both events, deicing/anti-icing chemicals were applied to ground surfaces during periods of a few hours.

These were the only periods in the winter of 2000-2001 when the Port applied chemicals to ground surfaces (primarily runways and taxiways.) Storms following both events were sampled at various outfalls. Glycols and BOD were generally higher during the first event. Note that the BOD measured in these samples aggregates multiple constituents (acetate-based ground-surface deicing agents, plus lesser contributions from glycols and other potential sources). In composite samples from the first event, glycols were 41 mg/l at SDE4, 7 mg/l at SDS1, 426 mg/l at SDS3 and 144 mg/l at SDN4. Glycols in time-composites during the

[7] The entire drainage area of outfall SDN2 was re-routed to the IWS in 1997 as a result of two BMPs.

second event[8] ranged from 6 to 48 mg/l at SDE4, 12 to 167 mg/l at SDS3, and <4 to 33 mg/l at SDN4.

The 1999 Annual Report identified a clogged IWS drain inlet that may have overflowed to SDS3. Because of the proximity to certain gates of the C-Concourse, these overflows could have been a potential source of glycols found sporadically in past SDS3 samples. The Port corrected this problem last year and the IWS drain inlet now functions properly.

Drainage reroutes in September 2000 near the South Satellite appear to be effective in abating glycols in SDS1 discharges. Compared to past years' samples, glycols in 5 SDS1 samples in the past year were much lower, ranging from 5 to 49 mg/l. Prior to this BMP, an elevated glycol result of 801 mg/l in the SDS1 sample of January 12, 2000 was associated with substantial aircraft deicing that took place at the South Satellite.

Several small area drains under the South Satellite roof overhang near gates S3 and S4 receive limited runoff from a small area between the nearby IWS flush gutters and the building. Only the forward sections of larger aircraft may overhang this area, resulting in the potential for ADAFs to enter the associated drains. See Section 4.7.2. These drains were reconnected from SDS1 to the IWS during the Northwest hangar and North Ductbank construction projects in September 2000. The SDS1 sampling this past year coincided with one to six aircraft deiced by the airline that is most likely to have used the affected area during or just prior to the sampling events[9].

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[8] Most time-composites in the series sampled for the February 16-19 event represented periods of about 12-hours of discharge. Glycols and BOD_5 in the overall composites for these series closely approximated averages of the individual samples.

[9] According to Port records (POS, 2001), Northwest Airlines deiced a total of 58 aircraft in the winter sampling period coinciding with this report. A total of at least 16 aircraft of these aircraft were deiced on or the day before SDS1 was sampled. See Appendix C.

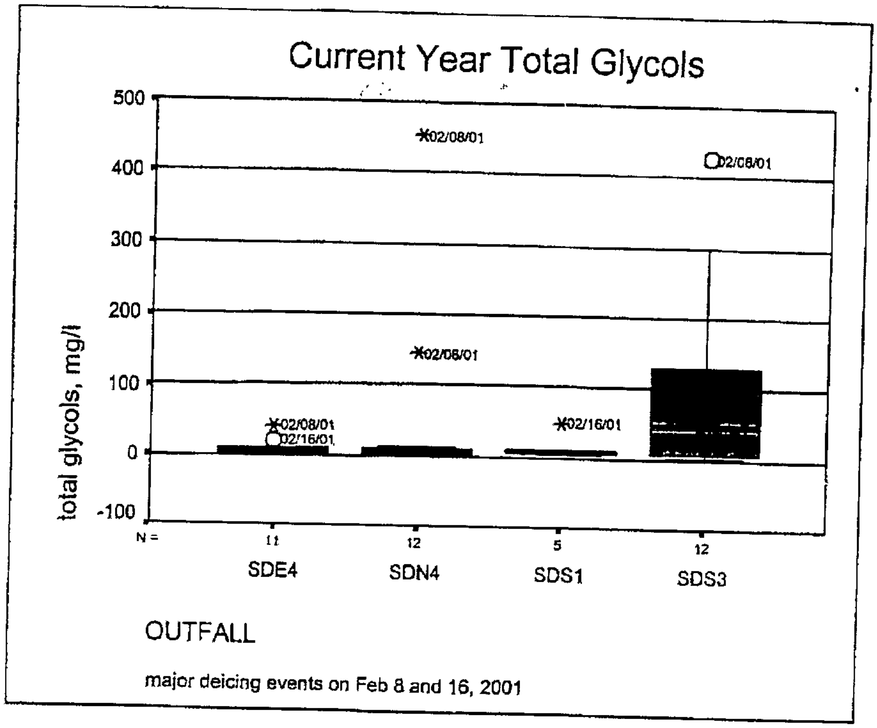

Figure 11 Glycol results for Current Year

The Port has exceeded minimum sampling requirements of Special Condition S2B4 for deicing events at outfalls SDS1 (003) and SDN2 (007). This permit condition was added when the current permit became effective on March 1, 1998. Previous annual reports have discussed how the data signify that the BMPs have been effective and the intent of this monitoring requirement is satisfied. As allowed for in Special Condition S2B4, the Port has requested Ecology's approval to cease this monitoring (POS, 1999d, POS, 2000e). The SDS1 samples discussed above were taken to further demonstrate BMP effectiveness.

4.7 Other Results

The following results were obtained from samples taken for purposes other than to satisfy permit condition S2B.

4.7.1 Field Quality Control Samples

The Port routinely collects duplicate and equipment blank samples during NPDES sampling events according to the Procedure Manual. Appendix D summarizes these results. The field equipment blanks taken in the past year indicate that sampling techniques and equipment do not contribute a high bias to sample results reported, notably for metals. These results support the efficacy of the Port's "clean" sampling methods that were developed for stormwater monitoring, in particular for the WET testing source tracing (POS, 1999e).

4.7.2 Source Tracing Studies

Because some sampling results have indicated elevated levels for certain constituents, the Port has conducted source-tracing studies aimed at identifying and characterizing potential inappropriate sources. Through past efforts, the Port has already discovered and eliminated several other sources of stormwater contamination in subbasins SDE4, SDN1, and SDS4 that are discussed in previous Annual Reports[10].

As discussed in the metals section above, the Port investigated and found the likely source of toxicity exhibited in SDN1 samples. These results from SDN1 were included in last year's report (in Appendix D) and were elaborated further in the final WET characterization report submitted to Ecology in May 2000 (POS, 2000b). Other source tracing investigations are summarized below.

4.7.2.1 SDE4 Source Tracing

The Port began studying fecal coliforms in SDE4 discharges in 1998 and completed the series of investigations in early 2001 (Herrera, 2001). This work used several special forensic techniques aimed to identify potential sources of

[10] See POS 1997, 1998. Inappropriate connections to the stormdrains were found and eliminated in subbasins SDE4, SDN1, and SDS4.

the sporadic elevated results. Past Annual Report's have discussed findings that corroborate the most recent and final portion of this investigation. Multiple data over several years using state of the art techniques have demonstrated an absence of sanitary sewer cross connections. The most recent work found that animals, primarily birds accounted for more than 90% of the fecal coliforms in samples from several outfalls.

4.7.2.1.1 Fecal coliform history

To date, the median of the 47 NPDES storm event grab samples from SDE4 is 220 per 100 ml, which is about 100 to 200 units higher than median values at other STIA outfalls. See Appendix B. Results to date for SDS3 and other outfalls show very low counts, which are consistent with the 7-years' sampling summarized in Section 4.4.2. Baseflow samples at SDS3 have shown non-detectable fecal coliforms.

Many other studies have shown that fecal coliforms in stormwater can be highly variable with frequent highly elevated numbers. The BURP (1984) study found a fecal coliform median of 980 per 100 ml in 326 *instream* stormwater samples. Fecal coliforms had a mean concentration of 4,500 MPN/100 mL in the 200 stormwater samples for 11 stations in suburban catchments during the comprehensive Bellevue (1995) study, which concluded that the high concentrations were probably due to animal wastes.

Work in 1998-99 showed that concentrations of certain chemical constituents in SDE4 storm and baseflow samples (e.g. ammonia, surfactants, fluoride, potassium) have been below levels that might indicate cross connections with sanitary wastewater (POS, 1999b, 2000a). These particular indicators have shown an absence of wastewater that might be linked with the sporadically high fecal coliforms, demonstrating an absence of direct cross connections with sanitary sewage.

4.7.2.1.2 Microbial source tracing (MST) technique

The Port conducted multiple storm and baseflow rounds of microbial source tracing (MST) sampling routines in 2000. This MST technique uses a special method of RNA fingerprinting developed by Professor Mansour Samadpour of the University of Washington's School of Environmental Health. Several other local and regional studies used this technique and have been able to attribute fecal contamination in surface waters to multiple specific sources, including domestic animals and septage (Trial et al. 1993, King County 1995, Herrera 1999). Ecology recognizes the MST method as "...an excellent method for determining some of the sources of fecal contamination in a watershed" (Sargeant, 1999.)

Using the MST technique, King County (1997) attributed up to 64% of the results in the lower Des Moines Creek basin to unsewered residential areas (leaking septic tanks). In upstream samples taken nearer the airport, human sources comprised 10% or less of the results, while avian and dog sources together represented up to 34%. However, the two rounds of MST analysis in this King County study provided limited statistical power and resulted in 36% to 59% unmatched results, which may also be due to the limited number of "fingerprints" available in the database at that time. Nonetheless, the study indicated that human sources were prevalent in lower basin areas (City of Des Moines) suggesting that aging septic systems should be addressed.

4.7.2.1.3 Summary of Port's (2001) MST Study Results

The following are excerpts from the Port's MST study report (Herrera 2001):

- During storm flow, mean fecal coliform bacteria concentrations increased downstream within the SDE4 subbasin (165, 538, and 945 organisms/100 mL at the upstream, midstream and outfall locations, respectively), and were higher at the SDE4 outfall than at the other STIA outfalls (range from 3 to 83 organisms/100 mL). These results are similar to the six-year NPDES monitoring results and further suggest that fecal sources were most concentrated in the vicinity of the main terminal area located in the southeast portion of STIA.

- Base flow was rarely present at the STIA outfalls and exhibited low mean fecal coliform bacteria concentrations (ranged from 3 to 4 organisms/100 mL) when present. These findings corroborate previous STIA studies and indicate that drainage from STIA was not contaminated during dry conditions by sanitary sewer cross-connections or leaks.

- Overall, the vast majority (92 percent) of the fecal coliform bacteria found in the stormwater and stream samples originated from non-human sources (58 percent birds and 34 percent non-human mammals for all samples). Birds were the most prevalent source observed during both storm flow (57 percent) and base flow (67 percent). Source percentages did not vary substantially among the stormwater and stream stations.

- A large quantity (approximately 1 cubic yard) of pigeon feces was found on the roof of Concourse A (located in the main terminal area) and was removed during concourse demolition in February 2001. Substantial accumulations of bird feces were not present on the many other rooftops that were inspected. The removal of pigeon feces from Concourse A may reduce fecal coliform bacteria concentrations at the SDE4 outfall in the future. Construction practices at STIA should minimize the amount of potential bird habitat to reduce stormwater contamination (and increase aircraft safety).

- Bacteria from human sources accounted for less than 10 percent of the total isolates obtained from each monitoring station during storm flow. Human sources accounted for 9 percent at the SDE4 outfall, 6 percent at the SDS3 outfall, 9 percent at the Bow Lake outlet (upstream) station, and 6 percent at the Des Moines Creek (downstream) station during storm flow. Human sources were not consistently observed at any station, and were rarely observed at both upstream and downstream stations during a single storm event. These results suggest that human sources were a small contribution to the fecal coliform bacteria present at the stormwater and stream stations, and there was no continuous source of bacteria from human sources during the monitored storm events.

- Human sources were not detected at the SDE4 upstream station, SDN1 outfall, SDN4 outfall, and the Northwest Ponds inlet (upstream) station during storm or base flow. Thus, human sources were not observed in the northernmost subbasins of STIA that drain to Miller Creek, or in the residential/commercial area west of STIA that drains to the west fork of Des Moines Creek.

- During base flow, human sources were not observed at the STIA outfalls and were only observed at the Bow Lake outlet (upstream) station (20 percent of base flow isolates) and the Des Moines Creek (downstream) station (7 percent of base flow isolates). These results suggest that human sources of bacteria present in Des Moines Creek during dry periods likely originated from Bow Lake and not STIA outfalls.

- Only three of the 49 *E. coli* isolates that originated from a human source were unique matches to isolates obtained from aircraft wastewater samples. These three isolates were observed at the airfield outfall (SDS3) and downstream in Des Moines Creek during one storm event (May 9, 2000). These findings suggest that aircraft wastewater transfer operations may be a source of the minor and infrequent human fecal contamination in runoff from the airfield. Aircraft wastewater transfer operations should be reviewed on a regular basis to determine if existing practices are adequately preventing the potential contamination of runoff from STIA.

- Deposits of human feces were observed on the banks of Des Moines Creek in the Tyee Golf Course. This observation suggests that unsanitary toilet practices may have contributed to the minor human fecal contamination observed in drainage from within and outside STIA.

- This study also collected samples of local municipal sanitary wastewater (MWW) generated by STIA, and aircraft lavatory wastewater (AWW), known as "biffy" waste. *E. coli* from these samples were genetically typed to augment the database with local human sources. Samples of MWW and AWW taken during the study have shown very high fecal coliform counts ranging from 39,000 to 48,000,000 per 100 ml (membrane filter method; APHA, 1995). Importantly, the presence of high counts in the AWW samples indicated that the toilet chemical added by the airlines has limited sanitizing effects. This aspect should be considered in spill response.

4.7.2.1.4 Measures of contamination

Another part of the MST study examines the potential relationships among several indicators of bacterial contamination. Most fecal coliform bacteria are not pathogenic, but are used to indicate potential contamination from mammalian, avian, and human fecal waste products. Washington state water quality standards (WAC 173-201A) are based on fecal coliforms. Importantly, this metric does not distinguish actual sources, whether human, animal, or interference (false positives) from other non-pathogenic coliform bacteria such as Klebsiella species. For example, recent studies in Colorado showed that Klebsiella significantly interfered with fecal coliform results, causing the potential for false exceedances of permit criteria for a WWTP and implying higher than necessary disinfectant usage (Elmund et al., 1999).

For many years, various proponents, including EPA, have suggested that other metrics which correlate better with actual measures of disease are more appropriate (U.S. EPA, 1986). In 1986, the U.S. EPA stated that *E. coli* and enterococci-based standards would serve public health better than fecal coliforms and that states should change standards, effluent limits and test methods accordingly (U.S. EPA, 1986). The U.S. EPA issued an implementation guidance document this year (U.S. EPA, 2000). Ecology's triennial review of water quality standards, currently in progress, generally concurs with EPA, and as of May 2000 Ecology is considering *E. coli* and Enterococcus as alternative standards (WDOE, 1998, 2000).

The Port's MST study found that 62 percent (1,420) of the 2,305 total fecal coliform bacteria colonies isolated tested positive for *E. coli*. The highest percentage of *E. coli* (77 percent) was observed in samples from Des Moines Creek. As mentioned above, *E. coli* concentrations are typically less than fecal coliform bacteria concentrations because of the presence of other bacteria (e.g., *Klebsiella, Enterobacter*, and *Serratia*) that also test positive for fecal coliform bacteria. Enterococcus analyses in one round of sampling done in May, 2000, were similar to fecal coliform counts. Some of these samples correlated well, but notably, the samples from the routine SDE4 monitoring location had much lower enterococcus numbers than fecal coliforms (POS 2000a).

4.8 Outfall Inspections

Appendix E summarizes the visual observations made at outfalls during the past year. The number of instances exceeds the minimum of 3 wet season inspections required by the permit and reflected in the SWPPP (POS 1998c.) Most outfalls were visited more than 10 times and the four principal outfalls were visited more than 30 times in the past year during routine monitoring equipment deployment and maintenance. Visual indications of potential sediment problems were limited primarily to outfalls SDN1, SDE4 where TSS and turbidity results have been discussed earlier in this report. Several observations of limited amounts of foam at the SDS3 outfall did not appear to be associated with the presence of soaps and/or glycols[11]. The annual dry-weather inspection was conducted during September 2000. Visual observations recorded during these inspections did not indicate problems associated with baseflows or other dry-weather flow.

[11] Foam was present at outfall during SDS3 grab sample collection for 11/8/00 storm event. In this sample, pH=7.4, TPH<0.11mg/l, fecal coliforms=2/100ml, surfactants<0.025 mg/l, TDP = 0.179 mg/l, SRP = 0.163 mg/l, and BOD_5= 14.1. None of these results appeared to indicate the presence of soaps and/or washwater

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5 CONCLUSIONS

Storm sample results from the past year continue to support the conclusions reached in previous annual reports that STIA stormwater compares favorably to other comparable regional data, even with instream stormwater data. Constituents and concentrations of concern at STIA have been generally associated with specific activities or locations, and usually not routine runoff.

The Port has implemented various BMPs to address specific findings of the stormwater monitoring program. The data generally indicate that these BMPs have been effective. Still, the Port continues to investigate other issues to resolve problems indicated by the data.

Sampling locations for certain outfalls are in-pipe or are well above the final discharge point to receiving waters. Because these locations do not account for the influence of other factors prior to discharge, namely detention, it is not appropriate to compare the STIA data to water quality standards.

In addition to completing all required routine stormwater sampling, the Port accomplished the following pro-active measures in the past year.

1. Completed fecal coliform source-tracing in SDE4 and other areas. This MST study report indicated fecal coliforms were attributable to animals, mainly birds, and that cross-connections with sewers were absent.
2. Continuing to investigate toxicity (zinc) abatement for metal rooftop runoff in SDN1. These investigations have used state of the science techniques to evaluate emerging BMPs as potential solutions. More rooftop runoff evaluations are expected in the coming year.
3. Confirmed that drainage re-routes from SDS1 to IWS reduced glycol concentrations in SDS1 discharges.
4. Adopted the Ecology-approved Comprehensive Stormwater Management Plan (CSMP) for the STIA Master Plan Update.

The past year's monitoring efforts lead to these suggestions:

1. Investigate the potential for links between surface drainage (sheet flow) in the IWS and SDS3 drainage areas near the main terminal. The GSE "drivelanes" in this vicinity may be within the apparent SDS3 boundary. The areas just to the east of these drivelanes (ramps for Concourses B and C) are drained by the IWS, and are contiguous with SDS3. This effort should determine if there is a potential for significant flows from associated IWS areas to enter the SDS3 system.
2. Continue to evaluate stormwater treatment technologies (media filtration) to determine if they are a technically and cost effective BMP to consider for managing metals in roof runoff.

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APPENDICES

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APPENDIX A STORM EVENT HYDROLOGIC AND HYDRAULIC DATA

Table 1

Monthly Summary of Daily Rainfall at STIA
source: NWS rain gage at STIA

day	Jul-00	Aug-00	Sep-00	Oct-00	Nov-00	Dec-00	Jan-01	Feb-01	Mar-01	Apr-01	May-01	Jun-01
1	0.04	0	C	0.02	0	0.04	0	0.06	0.23	0.19	0.01	0.18
2	0.06	0	0.04	0	0	0.18	0	0.29	0	0.29	0	0.48
3	0.02	0	0.02	0	0	0	0.36	0.16	0	0	0	0.01
4	0	0	0	0	0.15	0.03	0.6	0.38	0	0	0.08	0
5	0	0	0	0	0.04	0	0.21	0	0	0.2	0.01	0.05
6	0	0	0.01	0	0.14	0	0	0.01	0	0.06	0	0.02
7	0	0	0.07	0	0	0	0	0	0.07	0	0	0
8	0	0	0.07	0	0.85	0.02	0.05	0.27	0.13	0	0	0.1
9	0	0	0.17	0.45	0.1	0.06	0.03	0	0.04	0	0	0.04
10	0	0	0.26	0.01	0	0	0	0	0	0.78	0	0.09
11	0	0	0.01	0	0	0	0	0	0	0	0	0.87
12	0	0	0	0	0	0	0	0	0	0.06	0.01	0.06
13	0	0	0	0.06	0	0	0.06	0	0.13	0	0.05	0
14	0	0	0	0	0	0.26	0.01	0	0	0	0.54	0
15	0	0	0	0	0	0	0	0.17	0.32	0	0.56	0
16	0	0	0	0.62	0	0.74	0	0.44	0	0.24	0.01	0
17	0	0	0	0.32	0	0	0.08	0.06	0.01	0.23	0	0
18	0	0.28	0.01	0	0	0	0.16	0.07	0.58	0.1	0	0
19	0	0	0.04	0.49	0	0	0.04	0	0.01	0	0	0
20	0	0	0.04	0.79	0	0.06	0.01	0	0	0	0	0
21	0	0	0	0	0	0.08	0.76	0.13	0	0	0	0
22	0.11	0	0	0	0	0.27	0	0	0	0.05	0	0
23	0	0	0	0	0.38	0.24	0	0	0	0.03	0.04	0
24	0	0	0	0	0.01	0	0.07	0	0.2	0	0	0.16
25	0	0.01	0	0	0.17	0.04	0	0	0.26	0	0	0
26	0	0.01	0	0	0.99	0.06	0	0	0.16	0	0	0.01
27	0	0	0	0.13	0	0.01	0	0	0.41	0.03	0	0.61
28	0	0	.0	0.07	0	0	0.16	0	0.02	0.13	0.12	0
29	0	0.03	0.08	0	0.25	0.1	0.09		0	0.18	0	0
30	0	0	0.26	0	0.05	0.06	0.01		0.07	0.57	0	0
31	0	0	0	0.01	0	0.28	0		0.09	0	0	
total	0.23	0.33	1.08	2.97	3.13	2.53	2.7	2.04	2.73	3.14	1.43	2.68
NWS	0.79	1.1	1.79	3.48	6.05	5.92	5.7	4.21	3.75	2.51	1.66	1.44
actua	0.23	0.56	1.64	4.61	7.74	10.27	12.97	15.01	17.74	20.88	22.31	24.99
avg c	0.79	1.89	3.68	7.16	13.21	19.13	24.83	29.04	32.79	35.3	36.96	38.4

12-month total	24.99
12-month NWS avg	38.4
departur	35%

Drainage Basin	Current Estimate (2001) Perv. (acres)	Imperv. (acres)	Total (acres)	total percent of each Creek perv	Imperv	total	total percent of SDS perv	Imperv	total	total percent of Airfield perv	Imperv	total
Miller Creek SDS												
SDN-1 (above monitoring point)	3.3	10.2	13.5	3%	16%	8%	0 6%	2.4%	1 4%			
SDN-1 (POS below mon. pt.)	0 4	5.0	5 4	0.4%	8%	3%	0.1%	1.2%	0.6%			
SDN-1 (offsite below mon pt)	33 9	12.1	45 9	33%	19%	28%	6 3%	2.8%	4.7%			
SDN-2	0 0	0.0	0.0	0%	0%	0%	0.0%	0 0%	0 0%	0%	0%	0%
SDN-3	42 9	27.0	69 9	42%	44%	42%	8 0%	6.2%	7.2%	12%	9%	10.9%
SDN-4	22 6	7 7	30.2	22%	12%	18%	4.2%	1.8%	3.1%	7%	3%	4 7%
	103.0	62.0	165.0									
Des Moines Creek SDS												
SDE-4	51 7	97 4	149.1	12%	26%	19%	9 7%	22.5%	15.4%		5 7%	2.6%
SDS-1	1.5	14 4	15.9	0.3%	3.9%	2%	0 3%	3.3%	1 6%			
SDS-2	12.2	1.0	13 2	3%	0.3%	2%	2.3%	0.2%	1.4%			
SDS-3	238 1	224 3	462 3	55%	61%	58%	44.5%	51.8%	47 7%	59%	76%	72%
SDS-4	42 6	20 8	63 4	10%	6%	8%	8.0%	4 8%	6.5%	12%	7%	9.9%
SDS-7 (SDW3)	7.0	7 0	14 0	2%	1.9%	2%	1.3%	1.6%	1.4%			
SDS-6 (B)	48 2	1.4	49.6	11%	0 4%	6%	9 0%	0.3%	5.1%			
SDS-5 (D)	30.7	3 2	33.9	7%	0.9%	4%	5.7%	0 7%	3.5%			
total	432.0	369 4	801.4									
Other SDS												
Taxi Yard	0 0	0 8	0 8									
Engineering Yard	0.3	1.2	1.5									
IWS												
Primary drainage	6 3	285 7	292.0									
North Snowmelt PS (SDN2)	6 4	0.2	6 6									
Central Snowmelt PS (SDE4)	0 1	0 7	0 8									
South Snowmelt PS	0.0	0.3	0.3									
North Cargo Area PS (SDN2)	6.5	33.3	39 8									
North Satellite PS (SDE4)	0.3	13 4	13.8									
IWS-510 Diversion (SDS1)	0.4	16.1	16 5									
Delta Hngr/NW Hngr	0 0	-6.0	-6.0									
South Satellite diversion (SDS1)	0.0	2.5	2.5									
total diversions			74.2									
SUMMARY												
Miller Creek SDS	103 0	62.0	165.0									
% of SDS	19%	14%	17%									
% of total	19%	8%	12%									
[redacted]	432.0	369 4	[redacted]									
% of SDS	81%	85%	83%									
% of total	78%	47%	60%									
Other SDS	0.3	2.0	2 3									
total airfield [redacted]	346.1	296.8	[redacted]									
% of SDS	65%	68%	66%									
[redacted]	535.3	433.3	[redacted]									
% of total	96%	56%	73%									
IWS [redacted]	19.9	346.3	[redacted]									
% of total	4%	44%	27%									
Total drainage	555.2	779 6	1334.8									

Note: "airfield" category includes 17 acres of taxiway in SDE4

AR 022697

Summary of Storms Sampled 7/1/00 - 6/30/01

Storm Date	Depth, in.	Dur, hr	Max Int, in/hr	24hrant, In	48hrant, In	Dryant, hr	Dryant, Days	Load Factor	Event Type	Comment
6/27/01	0.52	20	0.23	0	0	58	2.4	13.3	NPDES Storm	
6/11/01	1.28	22	0.26	0.01	0.09	22	0.9	5.7	NPDES Storm	IWS pump station bypass to SDN2
5/14/01	0.48	16	0.08	0.01	0.02	24	1.0	1.9	NPDES Storm	
4/5/01	0.23	9	0.05	0	0.01	32	1.3	1.6	NPDES Storm	
3/27/01	0.39	8	0.1	0.01	0.19	19	0.8	1.9	NPDES Storm	
3/15/01	0.32	14	0.05	0	0.11	43	1.8	2.2	NPDES Storm	
3/1/01	0.27	6	0.11	0	0	127	5.3	14.0	NPDES Storm	
12/21/00	0.09	4	0.05	0.01	0.05	22	0.9	1.1	NPDES Storm	
12/14/00	0.29	7	0.08	0	0	123	5.1	9.8	NPDES Storm	
2/16/01	0.46	96	0.14	0.04	0.04	29	1.2	4.1	Unknown	coincided with major (runway) deicing event
2/8/01	0.3	7	0.14	0	0	55	2.3	7.7	NPDES Storm	coincided with major (runway) deicing event
2/1/01	0.29	13	0.09	0	0	62	2.6	5.6	NPDES Storm	
1/28/01	0.26	8	0.09	0	0	101	4.2	9.1	NPDES Storm	
1/3/01	0.44	15	0.13	0	0	77	3.2	10.0	NPDES Storm	
11/29/00	0.29	26	0.06	0	0	54	2.3	3.2	NPDES Storm	
11/23/00	0.37	9	0.1	0	0	330	13.8	33.0	NPDES Storm	
11/8/00	0.77	9	0.18	0	0	54	2.3	9.7	NPDES Storm	
10/19/00	1.21	26	0.19	0	0.36	41	1.7	7.8	NPDES Storm	
10/17/00	0.36	4	0.12	0	0.51	27	1.1	3.2	NPDES Storm	
10/9/00	0.37	8	0.29	0	0	196	8.2	56.8	NPDES Storm	IWS pump station bypass to SDN2
8/18/00	0.27	11	0.08	0	0	631	26.3	50.5	NPDES Storm	
7/3/00	0.29	12	0.13	0	0.02	30	1.3	3.9	NPDES Storm	
Count	22	22	22	22	22	22	22	22		
Median	0.34	10	0.11	0	0	54	2.3	6.7		
Average	0.43	16	0.13	0.00	0.06	98	4.1	11.6		

load factor = maxint (in/hr)*dryant(hrs)
Event Type defined in Procedure Manual for Stormwater Monitoring
"dur" = rainfuall duration in hours
"24hrant" and "48hrant" is the total rainfall in the 24 and 48 hours preceding the event respectively
"dryant" is the duration of the antecedent dry period to the last measurable (0.01 in.) rainfall

POS EMIS

Estimated Peak Runoff Rates (gpm) for Storm Events Monitored 7/1/00 - 6/30/01

Storm Date	Peak RI, in./hr	002 SDE-4	003 SDS-1	004 SDS-2	005 SDS-3	006 SDN-1	007 SDN-2	008 SDN-3	009 SDS-4	010 SDS-7	011 SDN-4	012 EY	013 TY	014 SDS-6	015 SDS-5
6/27/01	0.23	10,440	900	410	27,200	1,040		3,650	3,060	840	1,300	120	73	1,376	1,100
6/11/01	0.26	11,800	1,020	460	30,700	1,180		4,120	3,450	950	1,470	136	83	1,555	1,240
5/14/01	0.08	3,630	310	140	9,400	360		1,270	1,060	290	450	42	25	478	380
4/5/01	0.05	2,270	200	89	5,900	230		790	660	180	280	26	16	299	240
3/27/01	0.1	4,540	390	180	11,800	450		1,590	1,330	360	560	52	32	598	480
3/15/01	0.05	2,270	200	89	5,900	230		790	660	180	280	26	16	299	240
3/1/01	0.11	4,990	430	200	13,000	500		1,740	1,460	400	620	57	35	658	520
2/16/01	0.14	6,350	550	250	16,500	630		2,220	1,860	510	790	73	44	837	670
2/8/01	0.14	6,350	550	250	16,500	630		2,220	1,860	510	790	73	44	837	670
2/1/01	0.09	4,080	350	160	10,600	410		1,430	1,200	330	510	47	29	538	430
1/28/01	0.09	4,080	350	160	10,600	410		1,430	1,200	330	510	47	29	538	430
1/3/01	0.13	5,900	510	230	15,400	590		2,060	1,730	470	730	68	41	777	620
12/21/00	0.05	2,270	200	89	5,900	230		790	660	180	280	26	16	299	240
12/14/00	0.08	3,630	310	140	9,400	360		1,270	1,060	290	450	42	25	478	380
11/29/00	0.06	2,720	230	110	7,100	270		950	800	220	340	31	19	359	290
11/23/00	0.1	4,540	390	180	11,800	450		1,590	1,330	360	560	52	32	598	480
11/8/00	0.18	8,170	700	320	21,300	810		2,850	2,390	660	1,020	94	57	1,077	860
10/19/00	0.19	8,620	740	340	22,400	860		3,010	2,520	690	1,070	99	60	1,136	910
10/17/00	0.12	5,440	470	210	14,200	540		1,900	1,590	440	680	63	38	718	570
10/9/00	0.29	13,160	1,140	520	34,300	1,310		4,600	3,850	1,060	1,640	152	92	1,734	1,380
8/18/00	0.08	3,630	310	140	9,400	360		1,270	1,060	290	450	42	25	478	380
7/3/00	0.13	5,900	510	230	15,400	590		2,060	1,730	470	730	68	41	777	620
A = total Basin Area, ac		149.0	10.7	13.2	462.0	13.5		70.0	63.4	14.0	30.2	1.5	0.8	49.6	33.9
Ai = impervious area, ac		97.0	9.2	1.0	224.0	10.2		27.0	20.8	7.0	7.6	1.2	0.8	1.3	3.2
Ap = pervious area, ac		52.0	1.5	12.2	238.0	3.3		43.0	42.6	7.0	22.6	0.3	0.0	48.2	30.7
Cr = (0 90(Ai)+0 25(Ap))/A		0.67	0.81	0 30	0.57	0 74		0.50	0.46	0.58	0.41	0.77	0.90	0.27	0.31

Rainfall data from Port of Seattle and/or National Weather Service Rain gage at Sea-Tac Airport
Peak runoff rates based upon "rational method": Q=CIA.

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POS EMIS

9/20/01 2:30:52 PM

Estimated Runoff Volumes (gal) for Storm Events Monitored 7/1/00 - 6/30/01

Storm Date	Depth, in.	002 SDE-4	003 SDS-1	004 SDS-2	005 SDS-3	006 SDN-1	007 SDN-2	008 SDN-3	009 SDS-4	010 SDS-7	011 SDN-4	012 EY	013 TY	014 SDS-6	015 SDS-5
6/27/01	0.52	1,327,000	39,000	56,000	2,676,000	161,000		203,000	313,000	114,000	177,000	17,000	10,000	187,000	150,000
6/11/01	1.28	3,647,000	116,000	138,000	8,234,000	439,000		943,000	1,070,000	280,000	435,000	41,000	25,000	460,000	367,000
5/14/01	0.48	1,107,000	34,000	52,000	2,403,000	134,000		209,000	253,000	105,000	163,000	16,000	10,000	173,000	138,000
4/5/01	0.23	182,000	6,000	25,000	394,000	22,000		35,000	40,000	51,000	79,000	8,000	5,000	83,000	66,000
3/27/01	0.39	687,000	21,000	42,000	1,490,000	83,000		129,000	156,000	86,000	133,000	13,000	8,000	140,000	112,000
3/15/01	0.32	428,000	13,000	35,000	928,000	52,000		81,000	96,000	70,000	109,000	11,000	7,000	115,000	92,000
3/1/01	0.27	279,000	9,000	29,000	605,000	34,000		53,000	62,000	60,000	92,000	9,000	6,000	97,000	78,000
2/16/01	0.46	1,005,000	31,000	50,000	2,182,000	122,000		189,000	230,000	101,000	157,000	15,000	9,000	166,000	132,000
2/8/01	0.3	365,000	11,000	33,000	791,000	44,000		69,000	82,000	66,000	102,000	10,000	6,000	108,000	86,000
2/1/01	0.29	335,000	11,000	32,000	726,000	41,000		63,000	75,000	64,000	99,000	10,000	6,000	105,000	84,000
1/28/01	0.26	253,000	8,000	28,000	548,000	31,000		48,000	56,000	57,000	89,000	9,000	5,000	94,000	75,000
1/3/01	0.44	908,000	28,000	48,000	1,971,000	110,000		171,000	207,000	97,000	150,000	14,000	9,000	158,000	127,000
12/21/00	0.09	0	0	0	0	0		0	0	0	0	0	0	0	0
12/14/00	0.29	335,000	11,000	32,000	726,000	41,000		63,000	75,000	64,000	99,000	10,000	6,000	105,000	84,000
11/29/00	0.29	335,000	11,000	32,000	726,000	41,000		63,000	75,000	64,000	99,000	10,000	6,000	105,000	84,000
11/23/00	0.37	607,000	19,000	40,000	1,316,000	74,000		114,000	138,000	81,000	126,000	12,000	8,000	133,000	107,000
11/8/00	0.77	2,040,000	62,000	83,000	4,289,000	247,000		388,000	522,000	169,000	262,000	25,000	15,000	277,000	221,000
10/19/00	1.21	3,414,000	108,000	130,000	7,641,000	411,000		852,000	985,000	265,000	411,000	38,000	24,000	435,000	347,000
10/17/00	0.36	569,000	17,000	39,000	1,233,000	69,000		107,000	129,000	79,000	123,000	12,000	7,000	130,000	104,000
10/9/00	0.37	607,000	19,000	40,000	1,316,000	74,000		114,000	138,000	81,000	126,000	12,000	8,000	133,000	107,000
8/18/00	0.27	279,000	9,000	29,000	605,000	34,000		53,000	62,000	60,000	92,000	9,000	6,000	97,000	78,000
7/3/00	0.29	335,000	11,000	32,000	726,000	41,000		63,000	75,000	64,000	99,000	10,000	6,000	105,000	84,000
A = total Basin Area, ac		149.0	10.7	13.2	462.0	13.5		70.0	63.4	14.0	30.2	1.5	0.8	49.6	33.9
Ai = impervious area, ac		97.0	9.2	1.0	224.0	10.2		27.0	20.8	7.0	7.6	1.2	0.8	1.3	3.2
Ap = pervious area, ac		52.0	1.5	12.2	238.0	3.3		43.0	42.6	7.0	22.6	0.3	0.0	48.2	30.7
Cr = (0.90(Ai)+0.25(Ap))/A		0.67	0.81	0.30	0.57	0.74		0.50	0.46	0.58	0.41	0.77	0.90	0.27	0.31
Max runoff, gal/in		4,045,708	290,531	358,412	12,544,409	366,557		1,900,668	1,721,462	380,134	820,002	40,729	21,179	1,346,759	920,466
Cr Est runoff, gal/in		2,723,386	235,004	107,252	7,089,492	271,660		951,692	797,466	218,577	339,133	31,361	19,061	358,955	286,594

Only certain outfalls sampled during a particular event

Rainfall data from National Weather Service and/or Port of Seattle rain gage at Sea-Tac Airport.

Runoff volumes based upon basin-specific estimation models.

SDN2 volumes gaged by flowmeter during pump station bypass sampling events.

Note: equations built into embedded functions above apply for rainfall from 0.1" to 2.0".

APPENDIX B TABULAR NPDES SAMPLE DATA SUMMARIES

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POS EMIS

9/27/01 10:33:01 AM

NPDES Grab Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS											CONCENTRATION, mg/L									
Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
1	SDE4	SDE4 111394 grab	1995	11/11/94	0 28	14				48	NPDES	1	No		2.8	1 1					1100	
2	SDE4	SDE4 010795 grab	1995	1/7/95	0.21	62			0	252	NPDES	1	No	7	3.6	2.8					45	
3	SDE4	SDE4 041095 grab	1995	4/10/95	0 29	18			0	56	NPDES	1	No	6.6	< 1.1	1 1					260	
4	SDE4	SDE4 072695 grab	1996	7/26/95	0 41	36			0		NPDES	1	No	6 9	5.7	3.8					> 4000	
5	SDE4	SDE4 102695 grab	1996	10/25/95	0.28	8			0 01		NPDES	1	No	7.1	5 9	< 1.0					300	
6	SDE4	SDE4 020496 GRAB	1996	2/3/96	1 6	8					NPDES	1	Yes	7.9	17	8 8					22	
7	SDE4	SDE4 032296 GRAB	1996	3/22/96	0 21				0		Slip Ag	1	No	7 1	2.8	3.9				20		
8	SDE4	SDE4 041696 GRAB	1996	4/15/96	0 49	16			0 09		NPDES	1	No	6 39	2.8	3 35				17		
9	SDE4	SDE4 071796 GRAB	1997	7/17/96	0.27	31			0		NPDES	1	No							220		
10	SDE4	SDE4 090396 GRAB	1997	9/3/96	0 29	1.2			0	76	NPDES	1	No	7.31	3.1	2 64				> 1600		
11	SDE4	SDE4 121596 GRAB	1997	12/15/96	0 11	4			0	72	NPDES	2	No	6.61	2.9	1.80				50		backup data in case short on data for 96 Q4
12	SDE4	SDE4 121996 GRAB	1997	12/19/96	0.36	37			0	103	NPDES	1	No	6.45	3.3	1.97				220		
13	SDE4	SDE4 011697 GRAB	1997	1/16/97	1.21	23			0	154	NPDES	1	No	7.06	9	10				> 1600		
14	SDE4	SDE4 012797 GRAB	1997	1/27/97	0.41	26			0	109	Slip Ag	1	No	6.17	< 1.0	5 0				50		
15	SDE4	SDE4 030597 GRAB	1997	3/5/97	0.39	20			0 24	42	NPDES	1	No	6.33	103 R	3 06				> 1600		FOG result not representative, laboratory error, see letter of May 15, 1997
16	SDE4	SDE4 053097	1997	5/30/97	1.64	36			0.04	14	NPDES	1	No		1.1	1.2						backup FOG/TPH for March 1997 Lab errors (SDE4 030597 grab)
17	SDE4	SDE4 061697 GRAB	1997	6/16/97	0 36	28			0	135	NPDES	1	No	8	1.6	1 48				188		
18	SDE4	SDE4 102897 GRAB	1998	10/28/97	0 47	10 8			0.08	26	NPDES	1	No	6.5	< 1.0	2.09				> 1600		
19	SDE4	SDE4 121597 GRAB	1998	12/15/97	1	33			0	87	NPDES	1	No	6 59	1 8	2 3				80		
20	SDE4	SDE4 030198 GRAB	1998	3/1/98	0.98	86			0 07	6	NPDES	1	No	7.15		1.5	1.58	< 0 09	1.54	500 R		fecal coliform result not representative exceeded holding time by 9+ hours
21	SDE4	SDE4 040798 GRAB	1998	4/7/98	0.03	0.5			0.04	87	NPDES	2	No	7.03		2.4	3.4	< 0.05	3 4	110		
22	SDE4	SDE4 041098 GRAB	1998	4/9/98	0.09	17			0	62	NPDES	2	No	6 86		2.27	3.1	< 0.10	3.05	900		
23	SDE4	SDE4 042398 GRAB	1998	4/23/98	0 46	20			0	264	NPDES	1	No	6		3.5	2.5	< 0.05	2.48	500		
24	SDE4	SDE4 050998 GRAB	1998	5/9/98	0 12	8			0	360	NPDES	2	No	7.03		1.8	2.53	0.09	2.44	1600		
25	SDE4	SDE4 051498 GRAB	1998	5/14/98	0.21	8			0 01	125	NPDES	1	No	6.93		2.6	3 04	0.1	2.94	80		
26	SDE4	SDE4 062498 GRAB	1998	6/24/98	0.43	4			0	288	NPDES	1	No	6.94		1.9	2.77	0.84	1.93	300		
27	SDE4	SDE4 071498 GRAB	1999	7/14/98	0 13	16	0.04	0	0	264	NPDES	2	No	6.72		2.9	5.56	< 0.05	5.54	> 1600		
28	SDE4	SDE4 081698 GRAB	1999	8/16/98	0.31	10	0.25	0	0	792	NPDES	1	No	6 62		< 0.25	0.21	< 0.08	0.17	500	1220	thunderstorm, 0 25 in/hr

Full Data Set (No Values Trimmed)

R=Rejected Non-Representative Data - Refer to line comment for detail

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NPDES Grab Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L								
Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrrant in	48hrrant in	Dryant hr	Pur-pose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
29	SDE4	SDE4 091898 GRAB	1999	9/18/98	0.19	20	0.16	0	0	456	NPDES	2	No	7.42			2.11	< 0.05	2.09	500	10600	
30	SDE4	SDE4 092498 GRAB	1999	9/24/98	0.47	23	0.26	0	0	148	NPDES	1	No	6.79			1.19	< 0.05	1.17	> 1600		
31	SDE4	SDE4 100398 GRAB	1999	10/3/98	0.4	3	0.22	0	0.07	36	NPDES	1	No	6.67		2.2	4.94	< 0.05	4.92	> 1600	> 186000	
32	SDE4	SDE4 110398 GRAB	1999	11/3/98	1.62	39	0.48	0	0.08	35	NPDES	1	No	6.58			2.85	< 0.05	2.83	> 1600		
33	SDE4	SDE4 111998 GRAB	1999	11/19/98	2.34	66	0.18	0	0	73	NPDES	1	No	9			1.46	< 0.05	1.44	240		concurrent WET sample
34	SDE4	SDE4 121098 GRAB	1999	12/10/98	0.14	4	0.03	0	0	49	NPDES	2	No	6.62			0.88	< 0.05	0.86	220		
35	SDE4	SDE4 121798 GRAB	1999	12/17/98	0.11	4	0.03	0	0.02	33	NPDES	2	No	6.47			3.57	< 0.05	3.55	900		
36	SDE4	SDE4 122498 GRAB	1999	12/24/98	1.19	39	0.16	0	0	153	NPDES	1	Yes	7.76			8.66	< 0.05	8.64			fecals not analyzed due to holiday lab closure
37	SDE4	SDE4 012099 GRAB	1999	1/20/99	0.42	28	0.09	0.01	0.95	22	NPDES	1	No	6.98			3.03	< 0.06	3.00	170		concurrent WET test
38	SDE4	SDE4 021899 GRAB	1999	2/18/99	0.6	32	0.06	0.01	0.35	20	NPDES	1	No	10.7			0.27	< 0.05	0.25	< 2		
39	SDE4	SDE4 030899 GRAB	1999	3/8/99	0.28	15	0.05	0	0	96	NPDES	1	No	6.5			3.66	< 0.05	3.64	30		
40	SDE4	SDE4 031299 GRAB	1999	3/12/99	0.83	23	0.07	0	0	71	NPDES	1	No	6.94			1.99	< 0.05	1.97	500		
41	SDE4	SDE4 032499 GRAB	1999	3/24/99	0.28	19	0.08	0	0.15	40	NPDES	1	No	6.32			3.17	0.06	3.11	500		concurrent WET sample
42	SDE4	SDE4 032799 GRAB	1999	3/27/99	0.24	9	0.07	0	0.09	26	NPDES	1	No	6.45			2.63	0.05	2.58	50		
43	SDE4	SDE4 062099 GRAB	1999	6/20/99	0.21	38	0.03	0	0	48	NPDES	1	No	6.65			2.64	< 0.05	2.62	> 1600		
44	SDE4	SDE4 070299 grab	2000	7/2/99	0.3	6	0.11	0	0	103	NPDES	1	No	6.58			1.47	< 0.05	1.47	900		
45	SDE4	SDE4 111699 GRAB	2000	11/16/99	0.6	15	0.07	0.01	0.08	23	NPDES	1	No	6.25			0.99	< 0.05	0.97	> 1600		
46	SDE4	SDE4 112499 GRAB	2000	11/24/99	0.33	16	0.05	0	0.15	26	NPDES	1	No	6.85			1.73	< 0.10	1.68	21		
47	SDE4	SDE4 120499 grab	2000	12/4/99	0.24	10	0.1	0	0	60	NPDES	1	No	6.77			0.97	< 0.08	0.93	50		
48	SDE4	SDE4 031300 grab	2000	3/13/00	0.47	9	0.13	0	0	49	NPDES	1	No	6.67			1.86	< 0.05	1.84	170		
49	SDE4	SDE4 041300 GRAB	2000	4/13/00	0.34	12	0.08	0	0	74	NPDES	1	No	6.69			0.31	< 0.05	0.29	130		
50	SDE4	SDE4 070200 grab	2001	7/3/00	0.29	12	0.13	0	0.02	30	NPDES	1	No	6.45			0.43	< 0.05	0.41	< 2		
51	SDE4	SDE4 101700 grab	2001	10/17/00	0.36	4	0.12	0	0.51	27	NPDES	1	No	7.62			3.33	< 0.05	3.3	1600		
52	SDE4	SDE4 110800 grab	2001	11/8/00	0.77	9	0.18	0	0	54	NPDES	1	No	7.58			1.22	< 0.08	1.18	300		
53	SDE4	SDE4 112300 grab	2001	11/23/00	0.37	9	0.1	0	0	330	NPDES	1	No	7.04			0.69	< 0.05	0.67	50		
54	SDE4	SDE4 121400 GRAB	2001	12/14/00	0.29	7	0.08	0	0	123	NPDES	1	No	7.96			2.45	< 0.05	2.43	30		
55	SDE4	SDE4 010301 grab	2001	1/3/01	0.44	15	0.13	0	0	77	NPDES	1	No	6.26			3.82	< 0.05	3.80	110		
56	SDE4	SDE4 031501 GRAB	2001	3/15/01	0.32	14	0.05	0	0.11	43	NPDES	1	No	6.4			1.76	< 0.06	1.74	50		
57	SDE4	SDE4 032701 GRAB	2001	3/27/01	0.39	8	0.1	0.01	0.19	19	NPDES	1	No	7.57			1.44	< 0.06	1.41	500		
58	SDE4	SDE4 051401 GRAB	2001	5/14/01	0.48	16	0.08	0.01	0.02	24	NPDES	1	No	7.66			< 0.15	< 0.05	< 0.10	300		
59	SDE4	SDE4 062701-GRAB	2001	6/27/01	0.52	20	0.23	0	0	58	NPDES	1	No	6.59			1.67	< 0.05	1.65	1600		
60	SDS1	SDS1 101994 grab	1995	10/19/94	0.2	32				120	NPDES	1	No	5.76	1.1	< 1					10	

Full Data Set (No Values Trimmed)
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NPDES Grab Sample Data 9/1/94 - 6/30/01

SAMPLE DATA | STORM CHARACTERISTICS | CONCENTRATION, mg/L

Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
61	SDS1	SDS1 021695 grab	1995	2/15/95	1 1	56			0	88	NPDES	1	Yes	6 6	3 4	5.3					< 9	
62	SDS1	SDS1 051195 grab	1995	5/11/95	0 2	8			0 12		NPDES	1	No	7.4	10	< 1						
63	SDS1	SDS1 060495 grab	1995	6/4/95	0 7	28			0	384	NPDES	1	No	6.4	5 6	5 4					60	
64	SDS1	SDS1 080795 grab	1996	8/6/95	0.4	8			0		NPDES	1	No	7.2	3.3	< 1.0					4	
65	SDS1	SDS1 101695 grab	1996	10/15/95	0.35	12			0		NPDES	1	No	7 1	1 2	< 1.0					200	
66	SDS1	SDS1 011396 GRAB	1996	1/13/96	0 37	20			0		NPDES	1	No	7 1	< 1.0	1 8					< 1	
67	SDS1	SDS1 041696 GRAB	1996	4/15/96	0.49	16			0.09		NPDES	1	No	6 65	2 5	0.32				4		
68	SDS1	SDS1 042296 GRAB	1996	4/22/96	2.83	8			0		Slip Ag	1	No	7 54	1.9	0.58				23		
69	SDS1	SDS1 070396 GRAB	1997	7/3/96	0 23	12			0		NPDES	1	No	5.88	< 1.0	0 35				2 R		Fecals exceeded 30 hour holding time, results not representative
70	SDS1	SDS1 071796 GRAB	1997	7/17/96	0 27	31			0		NPDES	1	No							> 1600		fecals make up for 7/3/96
71	SDS1	SDS1 080296 GRAB	1997	8/2/96	1.01	27			0	325	Slip Ag	1	No	5.36	< 1.0	0.42				130		
72	SDS1	SDS1 120496 GRAB	1997	12/4/96	0.82	7.5			0.16	44	NPDES	1	No	6 81	2.4	0.35				1600		
73	SDS1	SDS1 011697 GRAB	1997	1/16/97	1.21	23			0	154	NPDES	1	No	6 62	< 1.0	2.9				350		
74	SDS1	SDS1 041397 GRAB	1997	4/13/97	0 31	12			0.04		NPDES	1	No	7 13	< 1.0	2.6				23		
75	SDS1	SDS1 061797 GRAB	1997	6/16/97	0 36	28			0	135	NPDES	1	No	7	< 1.0	0.95				> 1600		
76	SDS1	SDS1 102897 GRAB	1998	10/28/97	0 47	10.8			0 08	26	NPDES	1	No	5.86	< 1.0	0.84				80		
77	SDS1	SDS1 111997 GRAB	1998	11/19/97	0 65	39			0.12	24	NPDES	1	No			0 83				1600		
78	SDS1	SDS1 121597 GRAB	1998	12/15/97	1	33			0	87	NPDES	1	No	6 09	< 1.0	1.3				23		
79	SDS1	SDS1 030898 GRAB	1998	3/8/98	0 86	27			0	132	NPDES	1	No	6 22		0 95	0 72	0 16	0 56	< 2		fulfils quarterly deicing sample rqmt plus annual sample rqmt
80	SDS1	SDS1 062099 GRAB 1	1999	6/20/99	0 21	38	0.03	0	0	48	NPDES	1	No	6 68			1.56	< 0 05	1.54	> 1600		foam observed below outfall
81	SDS1	SDS1 070299 GRAB 1	2000	7/2/99	0 3	6	0.11	0	0	103	NPDES	1	No	6 82			0 78	< 0 05	0 76	900		
82	SDS1	SDS1 070299 GRAB 2	2000	7/2/99	0 3	6	0 11	0	0	103	SrcTrace	1	No	6.95								
83	SDS1	SDS1 012801 GRAB	2001	1/28/01	0.26	8	0 09	0	0	101	NPDES	1	No	7.75			0.72	< 0 05	0.7	< 2		
84	SDS1	SDS1 030101 GRAB	2001	3/1/01	0.27	6	0.11	0	0	127	NPDES	1	No	7.40			0.61	< 0 05	0.59	< 2		
85	SDS2	SDS2 051095 grab	1995	5/9/95	0.12	7.5			0	102	NPDES	1	No	7.2	3.4	< 1					440	
86	SDS2	SDS2 051195 grab	1995	5/11/95	0.2	8			0 12		NPDES	1	No	7 4	1.4	< 1					780	
87	SDS2	SDS2 061095 grab	1995	6/10/95	0.3	10			0	96	NPDES	1	No	7.1	1 8	< 1					1400	
88	SDS2	SDS2 090595 grab	1996	9/5/95							NPDES	1	No	6.7	2.2	< 1.0					2600	
89	SDS2	SDS2 112396 GRAB	1997	11/23/96	0.63	34.1			0	72	NPDES	1	Yes	6.71	< 1.0	< 0.25				23		

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NPDES Grab Sample Data 9/1/94 - 6/30/01

SAMPLE DATA | STORM CHARACTERISTICS | CONCENTRATION, mg/L

Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
90	SDS2	SDS2 120496 GRAB	1997	12/4/96	0.82	7.5			0.16	44	NPDES	1	No	6.68	< 1.0	< 0.25				8		
91	SDS2	SDS2 011697 GRAB	1997	1/16/97	1.21	23			0	154	Slip Ag	1	No	6.77	< 1.0	< 0.25				220		
92	SDS2	SDS2 021197 GRAB	1997	2/11/97	0.48	18			0	205	Slip Ag	1	No	6.76	4	< 0.25				11		last for slip ag
93	SDS2	SDS2 111198 GRAB	1999	11/11/98	0.98	62	0.15	0	0.05	31	NPDES	1	No				< 0.16	< 0.05	< 0.11	110		
94	SDS2	SDS2 050799 GRAB	1999	5/6/99	0.25	22	0.06	0	0	79	NPDES	1	No	7.45			0.31	< 0.05	0.29	900		annual sample
95	SDS2	SDS2 070300 GRAB	2001	7/3/00	0.29	12	0.13	0	0.02	30	NPDES	1	No	7.88			< 0.25	< 0.05	< 0.2	17		
96	SDS3	SDS3 091494 grab	1995	9/13/94	0.15	9				118	NPDES	1	No	7.14	8.3	< 1					20	
97	SDS3	SDS3 101394 grab	1995	10/13/94	0.32	14			0	480	NPDES	1	No		1.4	< 1					< 2	
98	SDS3	SDS3 111994 grab	1995	11/19/94	0.42	24			0.05	62	NPDES	1	No		< 1	< 1					2	
99	SDS3	SDS3 010795 grab	1995	1/7/95	0.21	62			0	252	NPDES	1	No	7.2	< 1.3	< 1					< 2	
100	SDS3	SDS3 041295 grab	1995	4/10/95	0.29	18			0	56	NPDES	1	No	7.3	< 1.1	< 1					< 2	
101	SDS3	SDS3 072695 grab	1996	7/26/95	0.41	36			0		NPDES	1	No	7.7	< 1.3	< 1.0					< 3	
102	SDS3	SDS3 101695 grab	1996	10/15/95	0.35	12			0		NPDES	1	No	7.4	1.4	< 1.0					< 2	
103	SDS3	SDS3 011396 GRAB	1996	1/13/96	0.37	20			0		NPDES	1	No	7.4	< 1.0	< 1.0					< 1	
104	SDS3	SDS3 032296 grab	1996	3/22/96	0.21				0		Slip Ag	1	No	7.5	< 1.0	< 1.0				13		
105	SDS3	SDS3 041696 GRAB	1996	4/15/96	0.49	16			0.09		NPDES	1	No	7.38	1.2	0.31				< 2		
106	SDS3	SDS3 071796 GRAB	1997	7/17/96	0.27	31			0		NPDES	1	No							< 2		fecals make up for 7/3/96 > hold time
107	SDS3	SDS3 080296 GRAB	1997	8/2/96	1.01	27			0	325	NPDES	1	No	7.35	< 1.0	0.30				8		
108	SDS3	SDS3 090396 GRAB	1997	9/3/96	0.29	1.2			0	76	NPDES	1	No	6.96	< 1.0	< 0.25				> 1600		
109	SDS3	SDS3 102196 GRAB	1997	10/21/96	0.68	4.1			0	64	NPDES	1	No	6.97	< 1.0	< 0.25				130		
110	SDS3	SDS3 112396 GRAB	1997	11/23/96	0.63	34.1			0	72	Slip Ag	1	Yes	7.29	< 1.0	< 0.25				< 2		
111	SDS3	SDS3 011697 GRAB	1997	1/16/97	1.21	23			0	154	NPDES	1	No	6.87	3.0	0.54				30		
112	SDS3	SDS3 030597 GRAB	1997	3/5/97	0.39	20			0.24	42	NPDES	1	No	7.22	< 1.0	< 0.25				< 2		
113	SDS3	SDS3 060397 GRAB	1997	6/3/97	0.26	16			0	76	NPDES	1	No	7.49	< 1.0	3.7				130		
114	SDS3	SDS3 102897 GRAB	1998	10/28/97	0.47	10.8			0.08	26	NPDES	1	No	7.13	< 1.0	< 0.25				13		
115	SDS3	SDS3 012998 GRAB	1998	1/29/98	0.2	14			0	107	NPDES	1	No	7.26	1.1	< 0.25				< 2		
116	SDS3	SDS3 030198 GRAB	1998	3/1/98	0.98	86			0.07	6	NPDES	1	No	7.69		< 0.25	0.19	0.08	0.11	< 2		
117	SDS3	SDS3 030998 GRAB	1998	3/8/98	0.86	27			0	132	NPDES	1	No			< 0.25	< 0.15	< 0.05	< 0.10	< 2		backup monhtly sample in case 3/1/98 sample didn't qualify under new permit
118	SDS3	SDS3 042398 GRAB	1998	4/23/98	0.46	20			0	264	NPDES	1	No	7.39		< 0.25	< 0.15	< 0.05	< 0.10	< 2		
119	SDS3	SDS3 050998 GRAB	1998	5/9/98	0.12	8			0	360	NPDES	2	No	7.07		0.34	0.33	< 0.05	0.31	17		
120	SDS3	SDS3 051498 GRAB	1998	5/14/98	0.21	8			0.01	125	NPDES	1	No	7.23		0.26	0.18	0.05	0.13	70		considerable pollen in sample

Full Data Set (No Values Trimmed)
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NPDES Grab Sample Data 9/1/94 - 6/30/01

SAMPLE DATA | STORM CHARACTERISTICS | CONCENTRATION, mg/L

Seq	Outfall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Purpose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
121	SDS3	SDS3 061098 GRAB	1998	6/10/98	0.28	10			0	288	NPDES	1	No	7.51		< 0.25	< 0.15	< 0.05	< 0.10	4		
122	SDS3	SDS3 071598 GRAB	1999	7/14/98	0.13	16	0.04	0	0	264	NPDES	2	No	7.32		0.38	0.2	< 0.05	0.18	30		
123	SDS3	SDS3 081698 GRAB	1999	8/18/98	0.31	10	0.25	0	0	792	NPDES	1	No	7.75		< 0.25	0.19	< 0.05	0.17	500		thunderstorm, 0.25 in/hr
124	SDS3	SDS3 091898 GRAB	1999	9/18/98	0.19	20	0.16	0	0	456	NPDES	2	No	7.71			0.15	< 0.05	0.13	300	360	
125	SDS3	SDS3 092498 GRAB	1999	9/24/98	0.47	23	0.26	0	0	148	NPDES	1	No	7.14			0.21	< 0.05	0.19	900	660	
126	SDS3	SDS3 100398 GRAB	1999	10/3/98	0.4	3	0.22	0	0.07	36	NPDES	1	No	6.99		0.56	0.53	< 0.05	0.51	50		
127	SDS3	SDS3 102798 GRAB	1999	10/27/98	0.64	9	0.19	0	0	72	NPDES	1	No	7.34			< 0.14	< 0.05	< 0.09	13		
128	SDS3	SDS3 111198 GRAB	1999	11/11/98	0.98	62	0.15	0	0.05	31	NPDES	1	No	7.1			0.35	< 0.05	0.33	30		concurrent WET sample
129	SDS3	SDS3 121098 GRAB	1999	12/10/98	0.14	4	0.03	0	0	49	NPDES	2	No	7.27			< 0.17	< 0.06	< 0.11	16		
130	SDS3	SDS3 121798 GRAB	1999	12/17/98	0.11	4	0.03	0	0.02	33	NPDES	2	No	7.09			< 0.15	< 0.05	< 0.10	24		
131	SDS3	SDS3 122498 GRAB	1999	12/24/98	1.19	39	0.16	0	0	153	NPDES	1	Yes	7.62			0.47	< 0.05	0.45			fecals not analyzed due to holiday lab closure
132	SDS3	SDS3 010999 GRAB	1999	1/9/99	0.27	21	0.05	0	0	54	NPDES	1	No	7.65			< 0.17	< 0.06	< 0.11	< 2		
133	SDS3	SDS3 011399 grab	1999	1/13/99	1.07	22	0.16	0	0	85	NPDES	1	No	7.5			0.26	< 0.05	0.24	23		concurrent WET sample
134	SDS3	SDS3 020399 GRAB	1999	2/3/99	0.28	19	0.07	0	0.61	27	NPDES	1	No	7.44			< 0.16	< 0.05	< 0.11	2		
135	SDS3	SDS3 030899 GRAB	1999	3/8/99	0.28	15	0.05	0	0	96	NPDES	1	No	7.01			< 0.15	< 0.05	< 0.10	< 2		
136	SDS3	SDS3 031299 GRAB	1999	3/12/99	0.83	23	0.07	0	0	71	NPDES	1	No	7.23			0.35	< 0.05	0.33	> 1600		
137	SDS3	SDS3 032499 GRAB	1999	3/24/99	0.28	19	0.08	0	0.15	40	NPDES	1	No	7.26			< 0.15	< 0.05	< 0.10	8		
138	SDS3	SDS3 062099 GRAB	1999	6/20/99	0.21	38	0.03	0	0	48	NPDES	1	No	7.38			< 0.16	< 0.05	< 0.11	220		
139	SDS3	SDS3 070299 GRAB	2000	7/2/99	0.3	6	0.11	0	0	103	NPDES	1	No	7.16			< 0.15	< 0.05	< 0.10	23		
140	SDS3	SDS3 110599 GRAB	2000	11/5/99	0.68	12	0.11	0	0.05	44	NPDES	1	No	7.53			< 0.15	< 0.05	< 0.10	16		
141	SDS3	SDS3 111699 GRAB	2000	11/16/99	0.6	15	0.07	0.01	0.08	23	NPDES	1	No	7.59			< 0.16	< 0.05	< 0.10	13		
142	SDS3	sds3 120499 GRAB	2000	12/4/99	0.24	10	0.1	0	0	60	NPDES	1	No	7.17			< 0.15	< 0.05	< 0.10	< 2		
143	SDS3	SDS3 120899 GRAB	2000	12/8/99	0.49	27	0.09	0	0.36	40	NPDES	1	No	7.38			< 0.15	< 0.05	< 0.10	< 2		
144	SDS3	SDS3 031300 grab	2000	3/13/00	0.47	9	0.13	0	0	49	NPDES	1	No	7.35			< 0.15	< 0.05	< 0.1	4		
145	SDS3	SDS3 041300 GRAB	2000	4/13/00	0.34	12	0.08	0	0	74	NPDES	1	No	7.69			< 0.15	< 0.05	< 0.10	8		
146	SDS3	SDS3 081800 grab	2001	8/18/00	0.27	11	0.08	0	0	631	NPDES	1	No	7.64			< 0.15	< 0.05	< 0.1	< 2		
147	SDS3	SDS3 101700 grab	2001	10/17/00	0.36	4	0.12	0	0.51	27	NPDES	1	No	7.33			< 0.15	< 0.05	< 0.1	13		
148	SDS3	SDS3 110800 grab	2001	11/8/00	0.77	9	0.18	0	0	54	NPDES	1	No	7.40			< 0.16	< 0.05	< 0.11	2		
149	SDS3	SDS3 112300 grab	2001	11/23/00	0.37	9	0.1	0	0	330	NPDES	1	No	7.30			< 0.16	< 0.05	< 0.11	8		
150	SDS3	SDS3 010301 grab	2001	1/3/01	0.44	15	0.13	0	0	77	NPDES	1	No	7.28			< 0.15	< 0.05	< 0.10	2		
151	SDS3	SDS3 012801 GRAB	2001	1/28/01	0.26	8	0.09	0	0	101	NPDES	1	No	7.18			< 0.15	< 0.05	< 0.1	26		
152	SDS3	SDS3 020101 GRAB	2001	2/1/01	0.29	13	0.09	0	0	62	NPDES	1	No	7.29			< 0.15	< 0.05	< 0.1	< 2		

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NPDES Grab Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L								
Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
153	SDS3	SDS3 031501 GRAB	2001	3/15/01	0.32	14	0.05	0	0 11	43	NPDES	1	No	7.15			< 0 16	< 0 05	< 0.11	< 2		
154	SDS3	SDS3 032701 GRAB	2001	3/27/01	0.39	8	0.1	0.01	0.19	19	NPDES	1	No	7.24			< 0 15	< 0 05	< 0 10	< 2		
155	SDS3	SDS3 051401 GRAB	2001	5/14/01	0.48	16	0.08	0.01	0 02	24	NPDES	1	No	7.39			2 75	< 0 05	2.73	2		MOresult is an anomaly, TPH result is an anomaly
156	SDS3	SDS3 062701-GRAB	2001	6/27/01	0.52	20	0 23	0	0	58	NPDES	1	No	7.01			< 0 15	< 0 05	< 0 10	30		
157	SDS4	SDS4 091494 grab	1995	9/13/94	0.15	9				118	NPDES	1	No	7 14	3	< 1					132	
158	SDS4	SDS4 101394 grab	1995	10/13/94	0.32	14			0	480	NPDES	1	No	7.02	1 2	< 1					70	
159	SDS4	SDS4 011295 grab	1995	1/11/95	0.3	60			0 04	24	NPDES	1	No	7 8	< 1	< 1					92	
160	SDS4	SDS4 051295 grab	1995	5/11/95	0 2	8			0 12		NPDES	1	No	7 5	1.8	< 1					16	
161	SDS4	SDS4 080795 grab	1996	8/6/95	0 4	8			0		NPDES	1	No	7.6	2.7	< 1 0					16	
162	SDS4	SDS4 101695 grab	1996	10/15/95	0.35	12			0		NPDES	1	No	7 7	1 7	< 1 0					< 55	
163	SDS4	SDS4 011496 GRAB	1996	1/13/96	0.37	20			0		NPDES	1	No	7 4	< 1.0	< 1.0					440	
164	SDS4	SDS4 041696 GRAB	1996	4/15/96	0 49	16			0 09		NPDES	1	No	7.63	2.7	< 0 25				350		
165	SDS4	SDS4 042296 GRAB	1996	4/22/96	2 83	8			0		Slip Ag	1	No	7 15	< 1.0	< 0.25				1600		
166	SDS4	SDS4 070396 GRAB	1997	7/3/96	0 23	12			0		NPDES	1	No	6.87	< 1.0	0.76				300 R		Fecals exceeded 30 hour holding time, results not representative
167	SDS4	SDS4 071796 GRAB	1997	7/17/96	0.27	31			0		NPDES	1	No							500		fecals make up for 7/4/96 grab that exceeded holding time
168	SDS4	SDS4 100396 GRAB	1997	10/4/96	0.59	8.1			0.08	18	NPDES	1	No	6.74	< 1 0	< 0 25				500		
169	SDS4	SDS4 120496 GRAB	1997	12/4/96	0.82	7 5			0.16	44	NPDES	1	No	6 78	< 1.0	< 0.25				80		
170	SDS4	SDS4 011697 GRAB	1997	1/16/97	1.21	23			0	154	NPDES	1	No	7.38	4 0	0 26				> 1600		
171	SDS4	SDS4 012797 GRAB	1997	1/27/97	0.41	26			0	109	Slip Ag	1	No	7 45	3.0	< 0 25				30		
172	SDS4	SDS4 041997 GRAB	1997	4/19/97	1.16	26			0	64	NPDES	1	No	7 4	< 1.0	< 1 0				50		
173	SDS4	SDS4 082497 GRAB	1998	8/25/97	0 2	10.5			0 07	96	NPDES	1	No	7 77	< 1.0	< 0 25				70		
174	SDS4	SDS4 111797 GRAB	1998	11/16/97	0.47	12.6			0	222	NPDES	1	No	7 46	< 1.0	< 0 25				29		
175	SDS4	SDS4 012998 GRAB	1998	1/29/98	0 2	14			0	107	NPDES	1	No	7.21	< 1 0	< 0.25				4		matching composite not representative, not reported
176	SDS4	SDS4 030998 GRAB	1998	3/8/98	0.86	27			0	132	NPDES	1	No	7.5	< 1.0	< 0.25				< 2		extra grab (has makeup comp for 98qw)
177	SDS4	SDS4 111998 GRAB	1999	11/19/98	2.34	66	0.18	0	0	73	NPDES	1	No	7.09			< 0 15	< 0 05	< 0.10	300		-79% RPD in lab dupe
178	SDS4	SDS4 050799 GRAB	1999	5/6/99	0.25	22	0.06	0	0	79	NPDES	1	No	7.46			0 11	0.06	< 0.10	900		annual sample
179	SDS4	SDS4 010301 grab	2001	1/3/01	0.44	15	0.13	0	0	77	NPDES	1	No	6 82			0 17	< 0 05	0.15	4		
180	SDS4	SDS4 032701 GRAB	2001	3/27/01	0.39	8	0.1	0 01	0 19	19	NPDES	1	No	7.38			< 0.15	< 0.05	< 0 10	11		

Full Data Set (No Values Trimmed)
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NPDES Grab Sample Data 9/1/94 - 6/30/01

Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L								
181	SDS7	SDW3 051095 grab	1995	5/9/95	0 12	7.5			0	102	NPDES	1	No	7.3	< 1	< 1					1700	
182	SDS7	SDW3 051195 grab	1995	5/11/95	0.2	8			0 12		NPDES	1	No	7 4	1 1	< 1					73	
183	SDS7	SDW3 061095 grab	1995	6/10/95	0.3	10			0	96	NPDES	1	No	7	< 1.2	< 1					1000	
184	SDS7	SDW3 081795 grab	1996	8/16/95	1.34	12			0.01		NPDES	1	No	7.2	2.9	6 6					30000	
185	SDS7up	SDW3 112396 GRAB	1997	11/23/96	0 63	34 1			0	72	NPDES	1	Yes	7 41	< 1 0	0.26				50		
186	SDS7up	SDW3 011697 GRAB	1997	1/16/97	1 21	23			0	154	Slip Ag	1	No	6 7	< 1.0					148		
187	SDS7up	SDW3 021197 GRAB	1997	2/11/97	0 48	18			0	205	Slip Ag	1	No	6 75	< 1 0	< 0 25				17		grab makes up for 12/4/96 missed grab
188	SDS7up	SDW3 022697 GRAB	1997	2/26/97	0 24	25			0	167	Slip Ag	1	No	6.13	9 7	< 0 25				< 2		grab makes up for 1/27/97 missed grab
189	SDS7up	SDW3 110498 GRAB	1999	11/3/98	1.62	39	0 48	0	0 08	35	NPDES	1	No				3.79	< 0.05	3.77	500		
190	SDS7up	SDW3 021699 GRAB	1999	2/15/99	0.45	28	0 08	0	0	59	NPDES	1	No				0 14	< 0.05	0.12	80		1998 annual sample
191	SDS7up	SDW3 021899 GRAB	1999	2/18/99	0 6	32	0 06	0 01	0.35	20	NPDES	1	No				0.13	< 0 05	0 11	< 2		1998 annual sample
192	SDS7up	SDW3 031299 GRAB	1999	3/12/99	0 83	23	0.07	0	0	71	NPDES	1	No				0 14	< 0.06	0 11	2		1999 annual sample-no comp
193	SDS7up	SDW3 032499 GRAB	1999	3/24/99	0 28	19	0 08	0	0 15	40	NPDES	1	No	7.65			< 0 15	< 0.05	< 0.10	< 2		1999 annual sample
194	SDS7up	SDS7 121500 GRAB	2001	12/14/00	0 29	7	0.08	0	0	123	NPDES	1	No	7.87			0.14	< 0.05	0.12	< 2		
195	SDS7up	SDS7 031501 GRAB	2001	3/15/01	0 32	14	0 05	0	0.11	43	NPDES	1	No	7.76			< 0 15	< 0.05	< 0 10	< 2		
196	SDS6	B 120496 GRAB	1997	12/4/96	0 82	7.5			0 16	44	NPDES	1	No	6 51	< 1.0	< 0 25				2		
197	SDS6	B 012797 GRAB	1997	1/27/97	0 41	26			0	109	NPDES	1	No	7 11	< 1 0	< 0 25				4		
198	SDS6	B 041997 GRAB	1997	4/19/97	1 16	26			0	64	NPDES	1	No	6 85	< 1.0	< 1 0				30		pairs with 3/6/97 composite for 97 spring quarter
199	SDS6	B 110498 GRAB	1999	11/3/98	1.62	39	0 48	0	0.08	35	NPDES	1	No	7.18			0.15	< 0.05	0.13	> 1600		
200	SDS6	B 111298 GRAB	1999	11/11/98	0.98	62	0 15	0	0.05	31	NPDES	1	No	7 42			< 0.15	< 0 05	< 0 05	220		
201	SDS6	B 050799 GRAB	1999	5/6/99	0 25	22	0.06	0	0	79	NPDES	1	No	6.57			0 19	< 0.05	0 17	> 1600		annual sample
202	SDS6	SDS6 101900 grab	2001	10/19/00	1.21	26	0.19	0	0.36	41	NPDES	1	No	7.44			< 0.3	< 0 1	< 0 2	30		
203	SDS5	D 120496 GRAB	1997	12/4/96	0 82	7 5			0.16	44	NPDES	1	No	6 78	1.2	< 0.25				70		
204	SDS5	D 011797 GRAB	1997	1/16/97	1.21	23			0	154	NPDES	1	No	6.95	3.9	0.47				350		
205	SDS5	D 012797 GRAB	1997	1/27/97	0 41	26			0	109	NPDES	1	No	7 11	13	< 0.25				170		makeup for 96Q4
206	SDS5	D 021197 GRAB	1997	2/11/97	0.48	18			0	205	NPDES	1	No	6 54	7.1	0.25				38		

Full Data Set (No Values Trimmed)
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NPDES Grab Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L								
Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
207	SDS5	D 030597 GRAB	1997	3/5/97	0.39	20			0.24	42	NPDES	1	No	7.03	< 1.0	< 0.25				2		
208	SDS5	D 061797 GRAB	1997	6/16/97	0.36	28			0	135	NPDES	1	No	6.87	< 1.0	< 0.25				1600		
209	SDS5	D 011399 GRAB	1999	1/13/99	1.07	22	0.16	0	0	65	NPDES	1	No				< 0.16	< 0.05	< 0.11	> 1600		
210	SDS5	D 050699 GRAB	1999	5/6/99	0.25	22	0.06	0	0	79	NPDES	1	No	7.01			< 0.15	< 0.05	< 0.10	500		annual sample
211	SDS5	SDS5 122100 GRAB	2001	12/21/00	0.09	4	0.05	0.01	0.05	22	NPDES	1	No	6.26			< 0.15	< 0.05	< 0.1			
212	SDS5	SDS5 010301 grab	2001	1/3/01	0.44	15	0.13	0	0	77	NPDES	1	No	6.83			< 0.15	< 0.05	< 0.10	< 2		
213	SDS5	SDS5 031501 GRAB	2001	3/15/01	0.32	14	0.05	0	0.11	43	NPDES	1	No	7.73			< 0.15	< 0.05	< 0.10	30		
214	SDN1	SDN1 091494 grab	1995	9/13/94	0.15	9				118	NPDES	1	No	6.56	3.3	< 1					> 4000	
215	SDN1	SDN1 101994 grab	1995	10/19/94	0.2	32				120	NPDES	1	No	6.83	1.8	< 1					180	
216	SDN1	SDN1 011295 grab	1995	1/11/95	0.3	60			0.04	24	NPDES	1	No	7.4	2.6	5.1					1000	
217	SDN1	SDN1 040795 grab	1995	4/6/95	0.61	28			0.04	60	NPDES	1	No	7.6	< 1.2	< 1					58	
218	SDN1	SDN1 080795 grab	1996	8/6/95	0.4	8			0		NPDES	1	No	7.8	21	5.6					42	
219	SDN1	SDN1 110795 grab	1996	11/6/95	3.69	48			0.09		NPDES	1	No	6.7	16	3.4					25	
220	SDN1	SDN1 020496 GRAB	1996	2/3/96	1.6	8					NPDES	1	Yes	7.4	7.3	7.6					100	
221	SDN1	SDN1 033196 GRAB	1996	3/31/96	0.64	0			0.01		Slip Ag	1	No	6.9	8.0	4.1				340		xtra NPDES/Slip Ag
222	SDN1	SDN1 042296 GRAB	1996	4/22/96	2.83	8			0		NPDES	1	No	7.26	1.0	0.25				6		
223	SDN1	SDN1 062396 GRAB	1996	6/23/96	0.46	10			0		Slip Ag	1	No	5.52	2.0	0.92				23		xtra NPDES/Slip Ag
224	SDN1	SDN1 070396 GRAB	1997	7/3/96	0.23	12			0		NPDES	1	No	6.17	2.8	1.8				900 R		Fecals exceeded 30 hour holding time, results not representative
225	SDN1	SDN1 071796 GRAB	1997	7/17/96	0.27	31			0		NPDES	1	No							500		fecals make up for 7/4/96 grab that exceeded holding time
226	SDN1	SDN1 100496	1997	10/4/96	0.59	8.1			0.08	18	Slip Ag	2	No		3.8	3.0						paired up/down sample
227	SDN1	SDN1 110496 GRAB	1997	11/3/96	0.14	2			0	120	SrcTrace	2	Yes	5.99	2.5	1.30				240		paired up/down sample
228	SDN1	SDN1 011697 GRAB	1997	1/16/97	1.21	23			0	154	NPDES	1	No	5.16	0 R	3.6				161		paired up/down sample, FOG Sample Bottle Broken
229	SDN1	SDN1 041397 grab	1997	4/13/97	0.31	12			0.04		NPDES	1	No	4.57	< 1.0	1.08				33		
230	SDN1up	SDN1up 100496 GRAB	1997	10/4/96	0.59	8.1			0.08	18	NPDES	1	No	7.23	< 1.0	0.50				500		paired up/down sample
231	SDN1up	SDN1up 110496 GRAB	1997	11/3/96	0.14	2			0	120	SrcTrace	2	Yes	4.59	< 1.0	0.39				23		paired up/down sample
232	SDN1up	SDN1up 011697 GRAB	1997	1/16/97	1.21	23			0	154	NPDES	1	No	4.37	< 1.0	2.1				23		paired up/down sample
233	SDN1up	SDN1 060397 GRAB	1997	6/3/97	0.26	16			0	76	NPDES	1	No	3.49	< 1.0	4.3				17		
234	SDN1up	SDN1 102697 grab	1998	10/28/97	0.47	10.8			0.08	26	NPDES	1	No	6.54	< 1.0	< 0.25				50		

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9/27/01 10:33:08 AM

NPDES Grab Sample Data 9/1/94 - 6/30/01

SAMPLE DATA | STORM CHARACTERISTICS | CONCENTRATION, mg/L

Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
235	SDN1up	SDN1 121597 GRAB	1998	12/15/97	1	33			0	87	NPDES	1	No	7.34	< 1.0	1.5				11		
236	SDN1up	SDN1 030198 GRAB	1998	3/1/98	0.98	86			0.07	6	NPDES	1	No	6.33		0.48	0.68	< 0.06	0.65	2		
237	SDN1up	SDN1 030998 GRAB	1998	3/8/98	0.86	27			0	132	NPDES	1	No	6.68		0.47	0.78	0.06	0.72	< 2		backup monthly sample in case 3/1/98 sample didn't qualify under new permit
238	SDN1up	SDN1 040798 GRAB	1998	4/7/98	0.03	0.5			0.04	87	NPDES	2	No	5.56		0.34	0.89	< 0.10	0.84	< 2		
239	SDN1up	SDN1 041098 GRAB	1998	4/9/98	0.09	17			0	62	NPDES	2	No	6.26		1.16	1.4	0.79	0.61	2		
240	SDN1up	SDN1 042398 GRAB	1998	4/23/98	0.46	20			0	264	NPDES	1	No	5.35		1.2	0.97	< 0.05	0.95	170		
241	SDN1up	SDN1 050998 GRAB	1998	5/9/98	0.12	8			0	360	NPDES	2	No	4.94		0.60	0.55	0.06	0.49	80		
242	SDN1up	SDN1 051498 GRAB	1998	5/14/98	0.21	8			0.01	125	NPDES	1	No	6.21		0.56	0.41	< 0.05	0.39	50		considerable pollen in sample
243	SDN1up	SDN1 061098 GRAB	1998	6/10/98	0.28	10			0	288	NPDES	1	No	6.45		0.76	1.03	< 0.05	1.01	240		
244	SDN1up	SDN1 071498 GRAB	1999	7/14/98	0.13	16	0.04	0	0	264	NPDES	2	No	5.46		1.9	2.56	0.46	2.09	240		
245	SDN1up	SDN1 081698 GRAB	1999	8/16/98	0.31	10	0.25	0	0	792	NPDES	1	No	6.36		< 0.25	0.64	< 0.06	0.61	900		thunderstorm, 0.25 in/hr
246	SDN1up	SDN1 091898 GRAB	1999	9/18/98	0.19	20	0.16	0	0	456	NPDES	2	No	6.95			2.46	< 0.05	2.45	1600	> 51200	
247	SDN1up	SDN1 092498 GRAB	1999	9/24/98	0.47	23	0.26	0	0	148	NPDES	1	No	6.73			1.82	< 0.05	1.8	80		
248	SDN1up	SDN1 100398 GRAB	1999	10/3/98	0.4	3	0.22	0	0.07	36	NPDES	1	No	6.08		2.1	1.95	< 0.06	1.92	170	180	
249	SDN1up	SDN1 102798 GRAB	1999	10/27/98	0.64	9	0.19	0	0	72	NPDES	1	No	8.08			2.01	< 0.05	1.99	130		
250	SDN1up	SDN1 110498 GRAB	1999	11/3/98	1.62	39	0.48	0	0.08	35	NPDES	1	No	5.97			0.37	< 0.05	0.35	500		
251	SDN1up	SDN1 111198 GRAB	1999	11/11/98	0.98	62	0.15	0	0.05	31	NPDES	1	No	7.08			0.96	< 0.05	0.94	80		concurrent WET sample
252	SDN1up	SDN1 121098 GRAB	1999	12/10/98	0.14	4	0.03	0	0	49	NPDES	2	No	7.4			0.91	< 0.05	0.89	> 1600		
253	SDN1up	SDN1 121798 GRAB	1999	12/17/98	0.11	4	0.03	0	0.02	33	NPDES	2	No	7.23			3.16	< 0.05	3.14	500		
254	SDN1up	SDN1 122498 GRAB	1999	12/24/98	1.19	39	0.16	0	0	153	NPDES	1	Yes	7.86			4.95	< 0.05	4.93			fecals not analyzed due to holiday lab closure
255	SDN1up	SDN1 010999 GRAB	1999	1/9/99	0.27	21	0.05	0	0	54	NPDES	1	No	6.67			3.51	< 0.06	3.48	23		
256	SDN1up	SDN1 011399 GRAB	1999	1/13/99	1.07	22	0.16	0	0	85	NPDES	1	No	7.27			2.81	< 0.06	2.78	> 1600		concurrent WET sample
257	SDN1up	SDN1 020399 GRAB	1999	2/3/99	0.28	19	0.07	0	0.61	27	NPDES	1	No	7.32			1.4	< 0.05	1.38	30		
258	SDN1up	SDN1 030899 GRAB	1999	3/8/99	0.28	15	0.05	0	0	96	NPDES	1	No	6.58			1.04	< 0.05	1.02	7		
259	SDN1up	SDN1 031299 GRAB	1999	3/12/99	0.83	23	0.07	0	0	71	NPDES	1	No	6.71			0.99	< 0.05	0.97	< 2		
260	SDN1up	SDN1 032499 GRAB	1999	3/24/99	0.28	19	0.08	0	0.15	40	NPDES	1	No	6.92			1.69	< 0.05	1.67	8		
261	SDN1up	SDN1 032799 GRAB	1999	3/27/99	0.24	9	0.07	0	0.09	26	NPDES	1	No	6.36			0.86	< 0.05	0.84	2		concurrent WET sample
262	SDN1up	SDN1 062099 GRAB	1999	6/20/99	0.21	38	0.03	0	0	48	NPDES	1	No	5.85			4.97	< 0.05	4.95	1600		
263	SDN1up	SDN1 070299 GRAB	2000	7/2/99	0.3	6	0.11	0	0	103	NPDES	1	No	7.33			0.6	< 0.05	0.58	50		
264	SDN1up	SDN1 110599 GRAB	2000	11/5/99	0.68	12	0.11	0	0.05	44	NPDES	1	No	6.61			1.17	< 0.05	1.15	42		
265	SDN1up	SDN1 111699 GRAB	2000	11/16/99	0.6	15	0.07	0.01	0.08	23	NPDES	1	No	7.62			2.59	< 0.05	2.57	> 1600		

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail
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AR 022711

POS EMIS

9/27/01 10:33:09 AM

NPDES Grab Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L								
Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
266	SDN1up	SDN1 120499 grab	2000	12/4/99	0.24	10	0.1	0	0	60	NPDES	1	No	6.21			1.53	< 0 09	1 49	4		
267	SDN1up	SDN1 121799 grab	2000	12/17/99	0 34	11	0.08	0	1 15	26	NPDES	1	No	7.54			0.87	< 0.05	0 85	900		
268	SDN1up	SDN1 031300 grab	2000	3/13/00	0.47	9	0.13	0	0	49	NPDES	1	No	6.2			0.12	< 0.05	0.1	< 2		
269	SDN1up	SDN1 032200 grab	2000	3/22/00	0.43	8	0.14	0	0	86	NPDES	1	No	5.06			0.31	< 0 05	0.29	< 2		
270	SDN1up	SDN1 041300 GRAB	2000	4/13/00	0.34	12	0 08	0	0	74	NPDES	1	No	5 94			0 23	0 1	0 13	< 2		
271	SDN1up	SDN1 070300 grab	2001	7/3/00	0 29	12	0 13	0	0.02	30	NPDES	1	No	6 18			0 58	< 0 05	0 56	21		
272	SDN1up	SDN1 101700 grab	2001	10/17/00	0 36	4	0 12	0	0 51	27	NPDES	1	No	7.52			1 74	< 0 05	1 72	50		
273	SDN1up	SDN1 112300 grab	2001	11/23/00	0.37	9	0.1	0	0	330	NPDES	1	No	7 62			1.86	< 0 05	1 84	2	< 2	
274	SDN1up	SDN1 121400 GRAB	2001	12/14/00	0 29	7	0.08	0	0	123	NPDES	1	No	7 70			2.15	< 0 05	2.13	130		
275	SDN1up	SDN1 010301 grab	2001	1/3/01	0.44	15	0.13	0	0	77	NPDES	1	No	6 33			2 95	< 0 10	2.90	23	24 J	
276	SDN1up	SDN1 012801 GRAB	2001	1/28/01	0.26	8	0 09	0	0	101	NPDES	1	No	7 44			2.33	< 0 05	2 31	22		
277	SDN1up	SDN1 030101 GRAB	2001	3/1/01	0.27	6	0.11	0	0	127	NPDES	1	No	5 79			1.86	< 0 05	1.84	< 2		
278	SDN1up	SDN1 031501 GRAB	2001	3/15/01	0.32	14	0 05	0	0 11	43	NPDES	1	No	5 98			1 76	< 0 05	1 74	130		
279	SDN1up	SDN1 051401 GRAB	2001	5/14/01	0 48	16	0.08	0.01	0.02	24	NPDES	1	No	5 80			< 0 15	< 0.05	< 0 10	30		
280	SDN1up	SDN1 062701-GRAB	2001	6/27/01	0.52	20	0 23	0	0	58	NPDES	1	No	8 45			1 7	< 0 05	1 68	> 1600		
281	SDN2	SDN2 090894 grab	1995	9/8/94	0.69	22				93	NPDES	1	No	6 82	1.8	< 1					3	
282	SDN2	SDN2 101394 grab	1995	10/13/94	0.32	14			0	480	NPDES	1	No		1.1	< 1					2	
283	SDN2	SDN2 111394 grab	1995	11/11/94	0.28	14				46	NPDES	1	No		< 1	< 1					30	
284	SDN2	SDN2 011295 grab	1995	1/11/95	0.3	60			0.04	24	NPDES	1	No	8	2.3	< 1					4	
285	SDN2	SDN2 041295 grab	1995	4/10/95	0.29	18			0	56	NPDES	1	No	7 6	4	5 2					< 2	
286	SDN2	SDN2 080795 grab	1996	8/6/95	0 4	8			0		NPDES	1	No	7	2 6	< 1 0					15	
287	SDN2	SDN2 101695 grab	1996	10/15/95	0.35	12			0		NPDES	1	No	7 3	1.9	< 1 0					< 2	
288	SDN2	SDN2 020496 GRAB	1996	2/3/96	1.6	8					RW W/O	1	Yes	7 5								storm after runway deice
289	SDN2	SDN2 021796 GRAB	1996	2/17/96	1.29	12			0		NPDES	1	No	7 6	< 1.0	< 1 0					10	
290	SDN2	SDN2 033196 GRAB	1996	3/31/96	0.64	0			0 01		Slip Ag	1	No	6 7	< 1 0	< 1.0				16		xtra NPDES/Slip Ag
291	SDN2	SDN2 042296 GRAB	1996	4/22/96	2.83	8			0		NPDES	1	No	7 17	< 1 0	< 0.25				50		
292	SDN2	SDN2 062396 GRAB	1996	6/23/96	0 46	10			0		Slip Ag	1	No	6 83	1.0	0 46				2		xtra NPDES/Slip Ag
293	SDN2	SDN2 071796 GRAB	1997	7/17/96	0 27	31			0		NPDES	1	No							4		xtra fecals analyzed
294	SDN2	SDN2 090396 GRAB	1997	9/3/96	0.29	1.2			0	76	NPDES	1	No	7.24	1.6	0 29				900		some composite aliquots in grab
295	SDN2	SDN2 102196 GRAB	1997	10/21/96	0.68	4.1			0	64	NPDES	1	No	6.45	< 1.0	0.32				2		
296	SDN2	SDN2 011697 GRAB	1997	1/16/97	1.21	23			0	154	NPDES	1	No	7.45	4.3	0.39				11		
297	SDN2	SDN2 041997 GRAB	1997	4/19/97	1 16	26			0	64	NPDES	1	No	6.91	< 1.0	0.87				4		

Full Data Set (No Values Trimmed)
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POS EMIS

9/27/01 10:33:10 AM

NPDES Grab Sample Data 9/1/94 - 6/30/01

Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
	SAMPLE DATA			**STORM CHARACTERISTICS**										**CONCENTRATION, mg/L**								
298	SDN2	SDN2 082497 GRAB	1998	8/25/97	0.2	10.5			0.07	96	NPDES	1	No	7.08	1.2	0.43				500		
299	SDN2	SDN2 110498 GRAB	1999	11/3/98	1 62	39	0 48	0	0 08	35	NPDES	1	No				1.09	< 0 07	1 07			N. cargo (IWS) pump station bypass
300	SDN2	SDN2 112598 GRAB	1999	11/25/98	3 45	52	0 32	0.28	0.31	8	NPDES	2	No				0.13	< 0 05	0 11			N cargo (IWS) pump station bypass
301	SDN2	SDN2 012899 GRAB	1999	1/28/99	1.16	33	0.1	0	0 02	33	NPDES	2	No				0 17	< 0.05	0.15			N. cargo (IWS) pump station bypass, storm<<design, maint notified (o&m in progress)
302	SDN2	SDN2 062499 GRAB	1999	6/24/99	1 12	24	0.35	0 03	0 08	10	NPDES	1	No				0.26	< 0 05	0 24			N cargo (IWS) pump station bypass (30 min)
303	SDN2	SDN2 121599 grab	2000	12/15/99	1 26	13	0.32	0 15	0 32	8	NPDES	2	No				< 0 15	< 0.05	< 0 10			N. cargo (IWS) pump station bypass
304	SDN2	SDN2 100900 grab	2001	10/9/00	0.37	8	0 29	0	0	196	NPDES	1	No				0.29	< 0 05	0.27			N. cargo (IWS) pump station bypass
305	SDN2	SDN2 061101-GRAB	2001	6/11/01	1.28	22	0.26	0.01	0.09	22	NPDES	1	No				< 0.15	< 0.05	< 0 10			N. cargo (IWS) pump station bypass
306	SDN3	SDN3 090894 grab	1995	9/8/94	0.69	22				93	NPDES	1	No	6.4	1 1	< 1					2200	
307	SDN3	SDN3 102694 grab	1995	10/25/94	1.96	44				114	NPDES	1	No		2.9	< 1					< 4	
308	SDN3	SDN3 010795 grab	1995	1/7/95	0 21	62			0	252	NPDES	1	No	7.8	< 1.1	< 1					< 2	
309	SDN3	SDN3 060495 grab	1995	6/4/95	0 7	28			0	384	NPDES	1	No	7	2.5	< 1					40	
310	SDN3	SDN3 071095 grab	1996	7/9/95	0 81	13			0		NPDES	1	No	7	3.3	< 1.0					800	
311	SDN3	SDN3 110795 grab	1996	11/6/95	3.89	48			0 09		NPDES	1	No	7,2	2.1	< 1.0					4	
312	SDN3	SDN3 011496 GRAB	1996	1/13/96	0 37	20			0		NPDES	1	No	7.2	< 1.0	< 1.0					< 2	
313	SDN3	SDN3 033196 GRAB	1996	3/31/96	0 64	0			0.01		Slip Ag	1	No	6.8	1 4	< 1 0				< 2		xtra NPDES/Slip Ag
314	SDN3	SDN3 041696 GRAB	1996	4/15/96	0 49	16			0 09		NPDES	1	No	7.61	2.0	< 0.25				50		
315	SDN3	SDN3 042296 GRAB	1996	4/22/96	2.83	8			0		Slip Ag	1	No	7 12	< 1 0	< 0.25				110		xtra NPDES/Slip Ag
316	SDN3	SDN3 080396 GRAB	1997	8/2/96	1.01	27			0	325	NPDES	1	No	7 41	< 1.0	0 30				900		delayed hydrograph, very dry antecedent
317	SDN3	SDN3 112396 GRAB	1997	11/23/96	0.63	34 1			0	72	NPDES	1	Yes	7 32	< 1.0	< 0.25				14		insufficient sample for composite
318	SDN3	SDN3 120496 GRAB	1997	12/4/96	0 82	7.5			0 16	44	NPDES	1	No	6 46	< 1.0	< 0.25				14		
319	SDN3	SDN3 122096 GRAB	1997	12/19/96	0.36	37			0	103	NPDES	1	No	6.32	< 1.0	< 0.25				7		
320	SDN3	SDN3 011697 GRAB	1997	1/16/97	1.21	23			0	154	NPDES	1	No	6.68	1.4	< 0.25				4		
321	SDN3	SDN3 030597 GRAB	1997	3/5/97	0 39	20			0 24	42	NPDES	1	No	7.18	36 R	< 0 25				< 2		FOG result not representative, laboratory error, see letter of May 15, 1997

Full Data Set (No Values Trimmed)
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NPDES Grab Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L								
Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
322	SDN3	SDN3 053097	1997	5/30/97	1.64	36			0.04	14	NPDES	1	No		< 1.0	< 0.25						BACKUP fog/tph for March lab errors on SDN3 030597 grab
323	SDN3	SDN3 062197 GRAB	1997	6/21/97	0.27	11.8		0.01	0.02	24	NPDES	1	No	7.51	< 1.0	< 0.25				80		
324	SDN3	SDN3 102897 GRAB	1998	10/28/97	0.47	10.8			0.08	26	NPDES	1	No	6.72	< 1.0	< 0.25				1600		
325	SDN3	SDN3 121597 GRAB	1998	12/15/97	1	33			0	87	NPDES	1	No	7.28	1.5	< 0.25				50		
326	SDN3	SDN3 111998 GRAB	1999	11/19/98	2.34	66	0.18	0	0	73	NPDES	1	No	6.52			< 0.16	< 0.05	< 0.10	240		
327	SDN3	SDN3 012099 GRAB	1999	1/20/99	0.42	28	0.09	0.01	0.95	22	NPDES	1	No				< 0.16	< 0.05	< 0.11	< 2		
328	SDN3	SDN3 062299 GRAB	1999	6/20/99	0.21	38	0.03	0	0	48	NPDES	1	No	7.5			0.13	< 0.05	0.11	240		
329	SDN3	SDN3 071699 grab	2000	7/16/99	0.7	34	0.11	0	0	300	NPDES	1	No	7.07			0.20	0.07	0.13	2		
330	SDN3	SDN3 120899 GRAB	2000	12/8/99	0.49	27	0.09	0	0.36	40	NPDES	1	No	7.67			< 0.15	< 0.05	< 0.10	< 2		
331	SDN3	SDN3 101900 grab	2001	10/19/00	1.21	26	0.19	0	0.36	41	NPDES	1	No	7.69			< 0.15	< 0.05	< 0.1	2		
332	SDN3	SDN3 040501 GRAB	2001	4/5/01	0.23	9	0.05	0	0.01	32	NPDES	1	No	7.26			< 0.15	< 0.05	< 0.10	< 2		
333	SDN4	SDN4 090396 GRAB	1997	9/3/96	0.29	12			0	76	NPDES	1	No	6.63	1.2	< 0.25				280		taken in 2 BOTTLES FOG/TPH, and fecals
334	SDN4	SDN4 120496 GRAB	1997	12/4/96	0.82	7.5			0.16	44	NPDES	1	No	6.57	< 1.0	< 0.25				< 2		
335	SDN4	SDN4 011697 GRAB	1997	1/16/97	1.21	23			0	154	NPDES	1	No	7.34	1.6	< 0.25				4		
336	SDN4	SDN4 030597 GRAB	1997	3/5/97	0.39	20			0.24	42	NPDES	1	No	8.08	< 1.0	< 0.25				< 2		
337	SDN4	SDN4 060397 GRAB	1997	6/3/97	0.26	16			0	76	NPDES	1	No	9.07	< 1.0	< 0.25				13		
338	SDN4	SDN4 102897 GRAB	1998	10/28/97	0.47	10.8			0.08	26	NPDES	1	No	8.44	< 1.0	< 0.25				7		
339	SDN4	SDN4 121597 GRAB	1998	12/15/97	1	33			0	87	NPDES	1	No	7.81	< 1.0	< 0.25				8		
340	SDN4	SDN4 030198 GRAB	1998	3/1/98	0.98	86			0.07	6	NPDES	1	No	7.88		< 0.25	< 0.16	< 0.05	< 0.11	< 2		
341	SDN4	SDN4 030998 GRAB	1998	3/8/98	0.86	27			0	132	NPDES	1	No	7.62		< 0.25	< 0.15	< 0.05	< 0.10	< 2		backup monhtly sample in case 3/1/98 sample didn't qualify under new permit
342	SDN4	SDN4 042398 GRAB	1998	4/23/98	0.46	20			0	264	NPDES	1	No	7.86		< 0.25	< 0.15	< 0.05	< 0.10	< 2		
343	SDN4	SDN4 052598 GRAB	1998	5/24/98	0.58	11			0	87	NPDES	1	No	6.94		< 0.25	0.13	0.08	< 0.10	9		
344	SDN4	SDN4 062498 GRAB	1998	6/24/98	0.43	4			0	288	NPDES	1	No	8.26		< 0.25	< 0.15	< 0.05	< 0.10	130		
345	SDN4	SDN4 081698 GRAB	1999	8/16/98	0.31	10	0.25	0	0	792	NPDES	1	No	7.68		< 0.25	< 0.27	< 0.11	< 0.16	170		thunderstorm, 0.25 in/hr
346	SDN4	SDN4 092498 GRAB	1999	9/24/98	0.47	23	0.26	0	0	148	NPDES	1	No	7.13			< 0.15	< 0.05	< 0.10	22 R	22 R	fecals exceed holding time
347	SDN4	SDN4 100398 GRAB	1999	10/3/98	0.4	3	0.22	0	0.07	36	NPDES	1	No	7.04		0.28	< 0.15	< 0.05	< 0.10	30	20	
348	SDN4	SDN4 102798 GRAB	1999	10/27/98	0.64	9	0.19	0	0	72	NPDES	1	No	7.9			< 0.15	< 0.05	< 0.10	2		
349	SDN4	SDN4 110498 GRAB	1999	11/3/98	1.62	39	0.48	0	0.08	35	NPDES	1	No	9.26			< 0.15	< 0.05	< 0.10	17		
350	SDN4	SDN4 111398 GRAB	1999	11/11/98	0.98	62	0.15	0	0.05	31	NPDES	1	No	8.91			< 0.15	< 0.05	< 0.10	17		concurrent WET sample

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AR 022714

NPDES Grab Sample Data 9/1/94 - 6/30/01

SAMPLE DATA | STORM CHARACTERISTICS | CONCENTRATION, mg/L

Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
351	SDN4	SDN4 121098 GRAB	1999	12/10/98	0.14	4	0.03	0	0	49	NPDES	2	No	7.15			< 0.16	< 0.05	< 0.11	> 1600		
352	SDN4	SDN4 121798 GRAB	1999	12/17/98	0.11	4	0.03	0	0.02	33	NPDES	2	No	7.3			< 0.16	< 0.05	< 0.11	8		
353	SDN4	SDN4 122498 GRAB	1999	12/24/98	1.19	39	0.16	0	0	153	NPDES	1	Yes	7.59			< 0.15	< 0.05	< 0.10			fecals not analyzed due to holiday lab closure
354	SDN4	SDN4 011099 GRAB	1999	1/9/99	0.27	21	0.05	0	0	54	NPDES	1	No	7.13			< 0.16	< 0.05	< 0.11	23		
355	SDN4	SDN4 011399 GRAB	1999	1/13/99	1.07	22	0.16	0	0	85	NPDES	1	No	7.09			< 0.17	< 0.06	< 0.11	1600		concurrent WET sample
356	SDN4	SDN4 020399 GRAB	1999	2/3/99	0.28	19	0.07	0	0.61	27	NPDES	1	No	7.18			< 0.16	< 0.05	< 0.11	< 2		
357	SDN4	SDN4 031299 GRAB	1999	3/12/99	0.83	23	0.07	0	0	71	NPDES	1	No	7.28			< 0.15	< 0.05	< 0.10	< 2		
358	SDN4	SDN4 032799 GRAB	1999	3/27/99	0.24	9	0.07	0	0.09	26	NPDES	1	No	7.02			< 0.15	< 0.05	< 0.10	< 2		
359	SDN4	SDN4 071699 grab	2000	7/16/99	0.7	34	0.11	0	0	300	NPDES	1	No	6.98			0.29	< 0.05	0.27	8		
360	SDN4	SDN4 110599 GRAB	2000	11/5/99	0.68	12	0.11	0	0.05	44	NPDES	1	No	7.73			0.18	< 0.05	0.16	30		
361	SDN4	SDN4 111699 GRAB	2000	11/16/99	0.6	15	0.07	0.01	0.08	23	NPDES	1	No	7.63			< 0.16	< 0.05	< 0.11	300		
362	SDN4	SDN4 120899 GRAB	2000	12/8/99	0.49	27	0.09	0	0.36	40	NPDES	1	No	7.45			< 0.15	< 0.05	< 0.10	< 2		
363	SDN4	SDN4 121799 grab	2000	12/17/99	0.34	11	0.08	0	1.15	26	NPDES	1	No	7.67			< 0.15	< 0.05	< 0.10	< 2		
364	SDN4	SDN4 013100 grab	2000	1/31/00	1.76	29	0.15	0.07	0.07	9	NPDES	1	No	6.67			< 0.15	< 0.05	< 0.1	4		
365	SDN4	SDN4 031300 grab	2000	3/13/00	0.47	9	0.13	0	0	49	NPDES	1	No	7.48			0.21	< 0.05	0.19	4		
366	SDN4	SDN4 041300 GRAB	2000	4/13/00	0.34	12	0.08	0	0	74	NPDES	1	No	7.39			0.52	0.17	0.35	33		
367	SDN4	SDN4 081800 grab	2001	8/18/00	0.27	11	0.08	0	0	631	NPDES	1	No	7.38			< 0.15	< 0.05	< 0.1	< 2		
368	SDN4	SDN4 101700 grab	2001	10/17/00	0.36	4	0.12	0	0.51	27	NPDES	1	No	7.29			< 0.15	< 0.05	< 0.1	60		
369	SDN4	SDN4 110800 grab	2001	11/8/00	0.77	9	0.18	0	0	54	NPDES	1	No	7.57			< 0.16	< 0.05	< 0.11	7		
370	SDN4	SDN4 112300 grab	2001	11/23/00	0.37	9	0.1	0	0	330	NPDES	1	No	8.21			0.15	< 0.05	0.13	2	< 2	
371	SDN4	SDN4 112900 grab	2001	11/29/00	0.29	26	0.06	0	0	54	NPDES	1	No	7.45			0.18	< 0.05	0.16	2	< 2	
372	SDN4	SDN4 121400 GRAB	2001	12/14/00	0.29	7	0.08	0	0	123	NPDES	1	No	8.32			0.13	< 0.05	0.11	< 2		
373	SDN4	SDN4 030101 GRAB	2001	3/1/01	0.27	6	0.11	0	0	127	NPDES	1	No	7.61			< 0.16	< 0.05	< 0.11	< 2		
374	SDN4	SDN4 031501 GRAB	2001	3/15/01	0.32	14	0.05	0	0.11	43	NPDES	1	No	7.24			< 0.15	< 0.05	< 0.10	< 2		
375	SDN4	SDN4 040501 GRAB	2001	4/5/01	0.23	9	0.05	0	0.01	32	NPDES	1	No	7.33			< 0.15	< 0.05	< 0.10	< 2		
376	SDN4	SDN4 051401 GRAB	2001	5/14/01	0.48	16	0.08	0.01	0.02	24	NPDES	1	No	7.91			1.59	< 0.05	1.57	< 2		MO result is an anomaly; TPH result is an anomaly
377	SDN4	SDN4 062701-GRAB	2001	6/27/01	0.52	20	0.23	0	0	58	NPDES	1	No	7.5			< 0.15	< 0.05	< 0.10	> 1600		
378	EY	EY 091494 grab	1995	9/13/94	0.15	9				118	NPDES	1	No	6.93	2.2							
379	EY	EY 101394 grab	1995	10/13/94	0.32	14			0	480	NPDES	1	No	6.98	2.1							
380	EY	EY 030995 grab	1995	3/8/95	2.16	114			0	88	NPDES	1	No	6.6	< 1							
381	EY	EY 060495 grab	1995	6/4/95	0.7	28			0	384	NPDES	1	No	5.5	6.5							

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail
c:\ENV-apps\EMIS\POSDEV\EMISMain.mdb/rptSWNPDESGrabOnly

AR 022715

NPDES Grab Sample Data 9/1/94 - 6/30/01

SAMPLE DATA | STORM CHARACTERISTICS | CONCENTRATION, mg/L

Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
382	EY	EY 072695 grab	1996	7/26/95	0 41	36			0		NPDES	1	No	5.8	4 1							
383	EY	EY 101695 grab	1996	10/15/95	0.35	12			0		NPDES	1	No	6.5	< 1 1							
384	EY	EY 021796 GRAB	1996	2/17/96	1.29	12			0		NPDES	1	No	7 7	< 1.0							
385	EY	EY 042296 GRAB	1996	4/22/96	2.83	8			0		NPDES	1	No	7.19	< 1.0							
386	EY	EY 052296 GRAB	1996	5/21/96	0.31	30			0.02		Slip Ag	1	No	6 06	1 0							
387	EY	EY 062396 GRAB	1996	6/23/96	0 46	10			0		Slip Ag	1	No	6 15	< 1 0							
388	EY	EY 070396 GRAB	1997	7/3/96	0.23	12			0		NPDES	1	No	6 26	< 1 0							
389	EY	EY 102196 GRAB	1997	10/21/96	0.68	4 1			0	64	NPDES	1	No	5 8	< 1 0							
390	EY	EY 021197 GRAB	1997	2/11/97	0 48	18			0	205	NPDES	1	No	5 63	1.9							
391	EY	EY 030597 GRAB	1997	3/5/97	0.39	20			0 24	42	NPDES	1	No	5.11	< 1.0							
392	EY	EY 060397 GRAB	1997	6/3/97	0.26	16			0	76	NPDES	1	No	5 54	< 1.0							
393	EY	EY 110697 GRAB	1998	11/6/97	0.16	4.4			0.01	72	NPDES	1	No	6 28	< 1.0							
394	EY	EY 012998 GRAB	1998	1/29/98	0.2	14			0	107	NPDES	1	No	6.19	< 1.0							
395	EY	EY 052598 GRAB	1998	5/24/98	0.58	11			0	87	NPDES	1	No				0.20	< 0 05	0 18			
396	EY	EY 011399 GRAB	1999	1/13/99	1.07	22	0.16	0	0	85	NPDES	1	No				1 79	< 0 06	1 76			
397	EY	EY 062099 GRAB	1999	6/20/99	0.21	38	0.03	0	0	48	NPDES	1	No				0 78	< 0 05	0 76			
398	EY	EY 013100 grab	2000	1/31/00	1.76	29	0.15	0.07	0 07	9	NPDES	1	No				1.34	< 0.05	1.32			
399	EY	EY 081800 grab	2001	8/18/00	0.27	11	0.08	0	0	631	NPDES	1	No	7.72			0 13	< 0 05	0 11			
400	EY	EY 010301 grab	2001	1/3/01	0.44	15	0 13	0	0	77	NPDES	1	No				1.23	< 0.05	1.21			
401	EY	EY 062701-GRAB	2001	6/27/01	0.52	20	0.23	0	0	58	NPDES	1	No				1 11	< 0 05	1.09			
402	TY	TY 090894 grab	1995	9/8/94	0 69	22				93	NPDES	1	No	7.91	3 9							
403	TY	TY 101994 grab	1995	10/19/94	0.2	32				120	NPDES	1	No	6 52	1 3							
404	TY	TY 030495 grab	1995	3/4/95	0.18	24			0	158	NPDES	1	No	6 9	5 7							
405	TY	TY 060495 grab	1995	6/4/95	0 7	28			0	384	NPDES	1	No	5 5	7 6							
406	TY	TY 081795 grab	1996	8/16/95	1.34	12			0 01		NPDES	1	No	6 8	2.3							
407	TY	TY 090595	1996	9/5/95							NPDES	1	No		1 6							
408	TY	TY 101695-1 grab	1996	10/15/95	0.35	12			0		NPDES	1	No	6 7	19							
409	TY	TY 101695-2 grab	1996	10/15/95	0.35	12			0		NPDES	1	No		22							duplicate sample
410	TY	TY 032296 GRAB	1996	3/22/96	0.21				0		Slip Ag	1	No	6 9	3.9							
411	TY	TY 041696 GRAB	1996	4/15/96	0.49	16			0.09		NPDES	1	No	6.06	3.7							
412	TY	TY 042296 GRAB	1996	4/22/96	2 83	8			0		NPDES	1	No	7.31	2.0							
413	TY	TY 070396 GRAB	1997	7/3/96	0.23	12			0		NPDES	1	No	6.15	1.4							

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail
c:\ENV-apps\EMIS\POSDEV\EMISMain.mdb/rptSWNPDESGrabOnly

NPDES Grab Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L								
Seq	Outfall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Purpose	Event	Ground Deice?	pH	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Comments
414	TY	TY 071796 grab	1997	7/17/96	0.27	31			0		Slip Ag	1	No	5.91	1.9							
415	TY	TY 080296 GRAB	1997	8/2/96	1.01	27			0	325	Slip Ag	1	No	6.43	1.6							
416	TY	TY 100496 GRAB	1997	10/4/96	0.59	8.1			0.08	18	NPDES	1	No	7.19	1.4	1.34						
417	TY	TY 021197 GRAB	1997	2/11/97	0.48	18			0	205	NPDES	1	No	5.72	5.1							
418	TY	TY 030597 GRAB	1997	3/5/97	0.39	20			0.24	42	NPDES	1	No	5.98	18 R							FOG result not representative, laboratory error, see letter of May 15, 1997
419	TY	TY 060397 GRAB	1997	6/3/97	0.26	16			0	76	NPDES	1	No	6.07	1.4							
420	TY	TY 111697 GRAB	1998	11/16/97	0.47	12.6			0	222	NPDES	1	No	6.67	< 1.0							
421	TY	TY 012998 GRAB	1998	1/29/98	0.2	14			0	107	NPDES	1	No	6.31	1.0							Matching Comp not representative, not reported
422	TY	TY 030998 GRAB	1998	3/8/98	0.86	27			0	132	NPDES	1	No	6.83	< 1.0	1.2	1.41	0.09	1.32			Extra Grab (has makeup Comp for 98QW)
423	TY	TY 061098 GRAB	1998	6/10/98	0.28	10			0	288	NPDES	1	No			1.2	1.05	< 0.05	1.03			
424	TY	TY 020399 GRAB	1999	2/3/99	0.28	19	0.07	0	0.61	27	NPDES	1	No				4.34	< 0.05	4.32			
425	TY	TY 062099 GRAB	1999	6/20/99	0.21	38	0.03	0	0	48	NPDES	1	No				5.77	< 0.05	5.75			
426	TY	TY 070299 GRAB	2000	7/2/99	0.3	8	0.11	0	0	103	NPDES	1	No				1.25	< 0.05	1.23			
427	TY	TY 022100 grab	2000	2/21/00	0.28	36	0.06	0	0	72	NPDES	1	No				1.03	< 0.05	1.01			
428	TY	TY 022500 grab	2000	2/25/00	0.28	6	0.09	0	0	70	NPDES	1	No				2.92	< 0.05	2.9			
429	TY	TY 031300 grab	2000	3/13/00	0.47	9	0.13	0	0	49	NPDES	1	No				2.42	< 0.05	2.4			
430	TY	TY 020101 GRAB	2001	2/1/01	0.29	13	0.09	0	0	62	NPDES	1	No				8.26	< 0.05	8.24			

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NPDES Grab Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

		pH TSS	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)
All Outfalls	Count	384	196	203	222	222	222	299	89
	Max	10.7	22.0	10.00	8.66	0.84	8.64	1600	186000
	95th	7.9	8.1	4.28	3.57	0.07	3.55	1600	7960
	75th	7.4	2.7	1.18	1.55	0.03	1.53	240	440
	Median	7.1	1.1	0.50	0.28	0.03	0.26	30	40
	25th	6.6	0.5	0.13	0.08	0.03	0.05	3	3
	Min	3.5	0.5	0.13	0.07	0.03	0.03	1	1
	SD	0.7	3.4	1.58	1.41	0.08	1.40	523	23310
	CV%	10%	149%	148%	139%	206%	144%	177%	530%
	#NonDetects	0	90	109	79	204	81	56	17
	%NonDetects	0%	46%	54%	36%	92%	36%	19%	25%
SDE4 (002)	Count	56	17	28	40	40	40	50	9
	Max	10.7	17.0	10.00	8.66	0.84	8.64	1600	186000
	95th	8.0	10.6	7.47	4.97	0.09	4.95	1600	115840
	75th	7.1	3.6	3.13	3.06	0.04	3.01	1425	4000
	Median	6.8	2.8	2.28	2.05	0.03	1.95	270	1100
	25th	6.6	1.6	1.73	1.21	0.03	1.18	58	260
	Min	6.0	0.5	0.13	0.08	0.03	0.05	1	22
	SD	0.7	4.0	2.15	1.64	0.13	1.64	641	61363
	CV%	11%	106%	77%	71%	241%	73%	108%	271%
	#NonDetects	0	3	2	1	35	1	2	0
	%NonDetects	0%	18%	7%	3%	88%	3%	4%	0%
SDS1 (003)	Count	23	17	19	5	5	5	16	6
	Max	7.8	10.0	5.40	1.56	0.18	1.54	1600	200
	95th	7.5	6.5	5.31	1.40	0.13	1.38	1600	165
	75th	7.1	2.5	1.55	0.78	0.03	0.76	1600	48
	Median	6.8	1.1	0.83	0.72	0.03	0.70	105	7
	25th	6.3	0.5	0.50	0.72	0.03	0.59	18	4
	Min	5.4	0.5	0.32	0.61	0.03	0.56	1	1
	SD	0.6	2.5	1.57	0.39	0.06	0.41	734	78
	CV%	9%	120%	111%	44%	116%	49%	123%	169%
	#NonDetects	0	8	4	0	4	0	3	2
	%NonDetects	0%	47%	21%	0%	80%	0%	19%	33%

Full Data Set (No Values Trimmed)
Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.
c:\ENV-apps\EMIS\POSDEV\EMISMain.mdb/rptSWNPDESGrabStats

NPDES Grab Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

		pH TSS	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)
SDS2 (004)	Count	10	8	8	3	3	3	7	4
	Max	7.9	4.0	0.50	0.31	0.03	0.29	900	2600
	95th	7.7	3 8	0.50	0 29	0.03	0.27	696	2420
	75th	7.3	2.5	0.50	0.22	0.03	0.19	165	1700
	Median	6.9	1.6	0 31	0 13	0 03	0 10	23	1090
	25th	6.7	0.5	0 13	0 10	0 03	0 08	14	695
	Min	6 7	0.5	0 13	0 08	0 03	0 05	8	440
	SD	0 4	1 4	0 20	0.12	0 00	0 12	325	950
	CV%	6%	76%	64%	71%	0%	84%	177%	73%
	#NonDetects	0	3	8	2	3	2	0	0
	%NonDetects	0%	38%	100%	67%	100%	67%	0%	0%
SDS3 (005)	Count	57	19	28	41	41	41	52	10
	Max	7.8	8.3	3 70	2.75	0.08	2 73	1600	660
	95th	7.7	3.5	0.55	0.47	0 03	0 45	680	525
	75th	7.4	1 1	0.50	0 19	0 03	0 13	30	16
	Median	7.3	0 5	0.32	0 08	0 03	0.05	11	1
	25th	7.2	0.5	0.13	0 08	0 03	0 05	1	1
	Min	6.9	0.5	0.13	0 07	0 03	0 05	1	1
	SD	0.2	1.8	0.66	0 42	0 01	0 43	334	225
	CV%	3%	149%	151%	209%	34%	241%	295%	215%
	#NonDetects	0	13	20	28	39	28	16	6
	%NonDetects	0%	68%	71%	68%	95%	68%	31%	60%
SDS4 (009)	Count	23	19	19	4	4	4	16	7
	Max	7 8	4 0	0 76	0 17	0 06	0 15	1600	440
	95th	7 8	3 1	0.53	0 16	0 05	0 14	1600	348
	75th	7.5	2.3	0.50	0 13	0 03	0 08	500	112
	Median	7.4	0.5	0.26	0 09	0 03	0.05	75	70
	25th	7.1	0.5	0 13	0.08	0.03	0 05	25	22
	Min	6 7	0.5	0 13	0.08	0.03	0.05	1	16
	SD	0.3	1.2	0 21	0.04	0.02	0 05	541	150
	CV%	4%	86%	65%	42%	52%	67%	144%	133%
	#NonDetects	0	11	17	2	3	3	1	1
	%NonDetects	0%	58%	89%	50%	75%	75%	6%	14%

Full Data Set (No Values Trimmed)
Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.

NPDES Grab Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

Station	Statistic	pH TSS	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Note
SDS7 (010)	Count	4	4	4					4	Former location downstream, ends 10/1996
	Max	7 4	2.9	6.60					30000	
	95th	7.4	2.6	5.68					25756	
	75th	7.3	1.5	2 03					8775	
	Median	7.3	0.9	0.50					1350	
	25th	7.2	0 6	0.50					768	
	Min	7.0	0.5	0.50					73	
	SD	0 2	1 1	3 05					14553	
	CV%	2%	87%	151%					178%	
	#NonDetects	0	2	3					0	
	%NonDetects	0%	50%	75%					0%	
SDS7up (010)	Count	7	4	3	7	7	7	11		Upstream location, begins 11/1996
	Max	7.9	9.7	0 26	3 79	0 03	3 77	600		
	95th	7.8	8.3	0.25	2 69	0.03	2.67	324		
	75th	7 7	2.8	0.19	0.14	0.03	0 12	65		
	Median	7 4	0.5	0.13	0 14	0 03	0 11	2		
	25th	6 7	0.5	0 13	0 10	0 03	0.08	1		
	Min	6.1	0.5	0.13	0.08	0.03	0.06	1		
	SD	0 7	4.6	0 08	1.39	0.00	1.39	149		
	CV%	9%	164%	46%	217%	7%	225%	205%		
	#NonDetects	0	3	2	2	7	2	5		
	%NonDetects	0%	75%	67%	29%	100%	29%	45%		
SDS6 (014)	Count	7	3	3	4	4	4	8		Formerly SB B
	Max	7 4	0.5	0.50	0 19	0 05	0 17	1600		
	95th	7 4	0 5	0 46	0 18	0 05	0 16	1600		
	75th	7.3	0 5	0.31	0 16	0.03	0 14	565		
	Median	7 1	0 5	0.13	0.15	0.03	0.11	30		
	25th	6.7	0.5	0.13	0.13	0 03	0.08	24		
	Min	6.5	0.5	0.13	0.08	0.03	0.03	2		
	SD	0.4	0.0	0.22	0.05	0 01	0.06	720		
	CV%	5%	0%	87%	34%	40%	58%	164%		
	#NonDetects	0	3	3	2	4	2	0		
	%NonDetects	0%	100%	100%	50%	100%	50%	0%		

Full Data Set (No Values Trimmed)
Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.
c:\ENV-apps\EMIS\POSDEV\EMISMain.mdb/rptSWNPDESGrabStats

NPDES Grab Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

Location	Statistic	pH TSS	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	Notes
SDS5 (015)	Count	10	6	6	5	5	5	10		Formerly SB D
	Max	7.7	13.0	0.47	0.08	0.03	0.05	1600		
	95th	7.5	11.5	0.41	0.08	0.03	0.05	1600		
	75th	7.0	6.3	0.22	0.08	0.03	0.05	463		
	Median	6.9	2.6	0.13	0.08	0.03	0.05	120		
	25th	6.8	0.7	0.13	0.08	0.03	0.05	32		
	Min	6.3	0.5	0.13	0.08	0.03	0.05	1		
	SD	0.4	4.9	0.14	0.00	0.00	0.00	635		
	CV%	6%	113%	69%	3%	0%	4%	146%		
	#NonDetects	0	2	4	5	5	5	1		
	%NonDetects	0%	33%	67%	100%	100%	100%	10%		
SDN1 (006)	Count	14	14	15				7	7	Former location downstream at SDN1-27, ends 1996.
	Max	7.8	21.0	7.50				500	4000	
	95th	7.7	17.8	6.17				452	3100	
	75th	7.4	6.4	3.85				290	590	
	Median	6.8	2.7	1.80				161	100	
	25th	6.0	1.9	0.71				28	50	
	Min	4.6	0.5	0.25				6	25	
	SD	1.0	6.1	2.23				186	1465	
	CV%	15%	117%	85%				100%	190%	
	#NonDetects	0	2	3				0	0	
	%NonDetects	0%	14%	20%				0%	0%	
SDN1up (006)	Count	52	6	17	45	45	45	50	4	Upstream location at SDN1-22, begins 1997.
	Max	8.4	0.5	4.30	4.97	0.79	4.95	1600	51200	
	95th	7.8	0.5	2.54	3.44	0.09	3.41	1600	43547	
	75th	7.3	0.5	1.50	2.01	0.03	1.99	223	12935	
	Median	6.6	0.5	0.60	1.40	0.03	1.15	46	102	
	25th	6.0	0.5	0.47	0.78	0.03	0.65	7	18	
	Min	3.5	0.5	0.13	0.08	0.03	0.05	1	1	
	SD	1.0	0.0	1.06	1.13	0.13	1.14	526	25566	
	CV%	16%	0%	96%	73%	227%	76%	177%	199%	
	#NonDetects	0	6	2	1	40	1	7	1	
	%NonDetects	0%	100%	12%	2%	89%	2%	14%	25%	

Full Data Set (No Values Trimmed)

Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.

NPDES Grab Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

Outfall	Statistic	pH TSS	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)	
SDN2 (007)	Count	15	16	16	7	7	7	9	8	Pumped to IWS as of late 1997.
	Max	8.0	4.3	5 20	1.09	0.04	1.07	900	30	
	95th	7.7	4 1	1.95	0 85	0.03	0.83	740	25	
	75th	7.5	2.0	0.50	0.28	0 03	0.25	50	11	
	Median	7.2	1.2	0 50	0.17	0 03	0.15	11	4	
	25th	6 9	0.5	0 42	0.10	0 03	0 08	4	2	
	Min	6 4	0.5	0.13	0.08	0 03	0 05	2	1	
	SD	0 4	1.2	1.19	0.36	0 00	0.36	319	10	
	CV%	6%	79%	158%	120%	14%	130%	193%	122%	
	#NonDetects	0	6	9	2	7	2	0	2	
	%NonDetects	0%	38%	56%	29%	100%	29%	0%	25%	
SDN3 (008)	Count	24	19	20	7	7	7	20	7	
	Max	7.8	3.3	0.50	0.20	0.07	0.13	1600	2200	
	95th	7.7	2.9	0 50	0.18	0.06	0.12	935	1780	
	75th	7 4	1.8	0.50	0.10	0 03	0.08	88	420	
	Median	7.2	0 6	0.13	0.08	0.03	0.05	11	4	
	25th	6 8	0.5	0.13	0.08	0.03	0.05	2	2	
	Min	6.3	0.5	0.13	0.08	0.03	0.05	1	1	
	SD	0.4	0.9	0 19	0.05	0.02	0.03	395	832	
	CV%	6%	76%	65%	47%	54%	48%	238%	191%	
	#NonDetects	0	10	19	5	6	5	5	3	
	%NonDetects	0%	53%	95%	71%	86%	71%	25%	43%	
SDN4 (011)	Count	45	7	14	38	38	38	43	3	
	Max	9.3	1 6	0 28	1 59	0 17	1.57	1600	20	
	95th	8.8	1.5	0 18	0.32	0 06	0 28	1470	18	
	75th	7.9	0.9	0.13	0 12	0.03	0 05	27	11	
	Median	7.5	0.5	0.13	0 08	0.03	0.05	4	1	
	25th	7.2	0.5	0.13	0.08	0.03	0.05	1	1	
	Min	6 6	0.5	0.13	0.08	0.03	0.05	1	1	
	SD	0.6	0.5	0 04	0.25	0 03	0.25	410	11	
	CV%	8%	60%	30%	170%	81%	211%	295%	150%	
	#NonDetects	0	5	13	29	36	30	16	2	
	%NonDetects	0%	71%	93%	76%	95%	79%	37%	67%	

Full Data Set (No Values Trimmed)
Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.

NPDES Grab Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

		pH TSS	FOG	TPH (IR)	TPH-Dx	TPH-D	TPH-MO	Fecals (MPN)	Fecals (MF)
EY (012)	Count	18	17		7	7	7		
	Max	7.7	6.5		1.79	0.03	1.76		
	95th	7.7	4.6		1.65	0.03	1.63		
	75th	6.8	1.9		1.28	0.03	1.26		
	Median	6.2	0.5		1.11	0.03	1.09		
	25th	5.8	0.5		0.49	0.03	0.47		
	Min	5.1	0.5		0.13	0.03	0.11		
	SD	0.7	1.7		0.61	0.00	0.61		
	CV%	12%	120%		65%	7%	66%		
	#NonDetects	0	11		0	7	0		
	%NonDetects	0%	65%		0%	100%	0%		
TY (013)	Count	19	20	3	9	9	9		
	Max	7.9	22.0	1.34	8.26	0.09	8.24		
	95th	7.4	19.1	1.33	7.26	0.06	7.24		
	75th	6.9	4.2	1.27	4.34	0.03	4.32		
	Median	6.5	2.0	1.20	2.42	0.03	2.40		
	25th	6.1	1.4	1.20	1.25	0.03	1.23		
	Min	5.5	0.5	1.20	1.03	0.03	1.01		
	SD	0.6	5.8	0.08	2.51	0.02	2.52		
	CV%	9%	133%	6%	79%	67%	80%		
	#NonDetects	0	2	0	0	8	0		
	%NonDetects	0%	10%	0%	0%	89%	0%		
Airfield (SDS3,SDS4,SDN3,SDN4)	Count	149	63	81	89	90	90	131	27
	Max	9.3	8.3	3.70	2.75	0.17	2.73	1600	2200
	95th	8.0	3.0	0.50	0.42	0.06	0.34	1600	758
	75th	7.6	1.5	0.50	0.14	0.03	0.11	50	81
	Median	7.3	0.5	0.13	0.08	0.03	0.05	8	16
	25th	7.1	0.5	0.13	0.08	0.03	0.05	1	1
	Min	6.3	0.5	0.13	0.08	0.03	0.05	1	1
	#NonDetects	0	38	69	63	84	66	38	12
	%NonDetects	0%	60%	85%	71%	93%	73%	29%	44%

Full Data Set (No Values Trimmed)
Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.
c:\ENV-apps\EMIS\POSDEV\EMISMain.mdb/rptSWNPDESGrabStats

POS EMIS

NPDES Composite Sample Data 9/1/94 - 6/30/01

SAMPLE DATA | STORM CHARACTERISTICS | CONCENTRATION, mg/L

Seq	Outfall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Purpose	Type	Ground Deice?	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Comments
1	SDE4	SDE4 111394	1995	11/11/94	0.28	14				46	NPDES		No	56	46	7	< 5	< 5	< 10	0.021	0.008	0.195	
2	SDE4	SDE4 111994	1995	11/19/94	0.42	24			0.05	52	NPDES		No			8	< 5	< 5	< 10				
3	SDE4	SDE4 010795	1995	1/7/95	0.21	62			0	252	NPDES		No	16	27	26				0.031	0.014	0.337	
4	SDE4	SDE4 030995	1995	3/8/95	2.16	114			0	88	Other		No							0.013	0.004	0.132	
5	SDE4	SDE4 041095	1995	4/10/95	0.29	18			0	56	NPDES		No	16	19	8	< 5	< 5	< 10	0.029	0.011	0.263	
6	SDE4	SDE4 072695	1996	7/26/95	0.41	36			0		NPDES		No	41	30	29				0.121	0.023	0.779	Zn result is outlier; Suspect Lab Error
7	SDE4	SDE4 081795	1996	8/16/95	1.34	12			0.01		NPDES		No				< 5.0	7.9	7.9				
8	SDE4	SDE4 102695	1996	10/25/95	0.28	8			0.01		NPDES		No	14	27	27				0.033	0.021	0.204	
9	SDE4	SDE4 020396	1996	2/3/96	1.6	8					NPDES		Yes	210	190	74	14	12	26	0.054	0.104	0.279	TSS from deice sand
10	SDE4	SDE4 032296	1996	3/22/96	0.21				0		Slip Ag		No	44	18	12	< 5.0	< 5.0	< 10.0	0.057	0.026	0.361	
11	SDE4	SDE4 041696	1996	4/15/96	0.49	16			0.09		NPDES		No	53	11	6.54	< 5.0	< 5.0	< 10.0	0.078	0.098	0.320	
12	SDE4	SDE4 051796	1996	5/17/96	0.24	15			0		SES		No							0.027	0.011	0.110	has metals results only
13	SDE4	SDE4 052296	1996	5/21/96	0.31	30			0.02		SES		No	8.8		22				0.045	0.018	0.243	
14	SDE4	SDE4 090396	1997	9/3/96	0.29	1.2			0	76	NPDES		No	40	15	7.06	< 5.0	< 5.0	< 10.0	0.053	0.025	0.138	
15	SDE4	SDE4 122196	1997	12/19/96	0.36	37			0	103	NPDES		No	42	24	11.7	< 5.0	< 5.0	< 10.0	0.030	0.029	0.171	
16	SDE4	SDE4 011697	1997	1/16/97	1.21	23			0	154	NPDES		No	140	1.5	12.8	< 5.0	< 5.0	< 10.0	0.042	0.076	0.190	TSS Suspect deice sand
17	SDE4	SDE4 012797	1997	1/27/97	0.41	26			0	109	Slip Ag		No	49	20	< 4.00	< 5.0	49.4	49.4	0.031	0.049	0.148	
18	SDE4	SDE4 030697	1997	3/5/97	0.39	20			0.24	42	NPDES		No	30	14	4.36	< 5.0	< 5.0	< 10.0	0.023	0.023	0.098	
19	SDE4	SDE4 060397	1997	6/3/97	0.26	16			0	76	NPDES	EMC	No	79	19	6.24	< 2.0	< 2.0	< 4.0	0.035	0.033	0.122	
20	SDE4	SDE4 102897	1998	10/28/97	0.47	10.8			0.08	26	NPDES	EMC	No	34	41	4.02	< 2.0	< 2.0	< 4.0	0.208	0.016	0.106	
21	SDE4	SDE4 121697	1998	12/15/97	1	33			0	87	NPDES	SMC	No	66	30	< 4.0	< 2.0	< 2.0	< 4.0	0.024	0.031	0.162	
22	SDE4	SDE4 030198	1998	3/1/98	0.98	86			0.07	6	NPDES	SMC	No	253	75	5.4	< 2.0	< 2.0	< 4.0	0.003	0.005	0.196	
23	SDE4	SDE4 030998	1998	3/8/98	0.86	27			0	132	NPDES	SMC	No				< 2.0	< 2.0	< 4.0				taken for aircraft deicing only
24	SDE4	SDE4 042398	1998	4/23/98	0.46	20			0	264	NPDES	SMC	No	64	27	20.8	< 2.0	< 2.0	< 4.0	0.075	0.042	0.312	
25	SDE4	SDE4 051498	1998	5/14/98	0.21	8			0.01	125	NPDES	EMC	No	60	21	11.1	< 2.0	< 2.0	< 4.0	0.062	0.038	0.299	
26	SDE4	SDE4 062498	1998	6/24/98	0.43	4			0	288	NPDES	EMC	No	33	25	4.96				0.024	0.013	0.095	
27	SDE4	SDE4 092598	1999	9/24/98	0.47	23	0.26	0	0	148	NPDES	EMC	No	54	79	< 4.00	< 2	< 2	< 4	0.037	0.029	0.094	
28	SDE4	SDE4 100398	1999	10/3/98	0.4	3	0.22	0	0.07	36	NPDES	EMC	No	67	20	5.46	< 2	< 2	< 4	0.048	0.039	0.276	
29	SDE4	SDE4 102798	1999	10/27/98	0.64	9	0.19	0	0	72	NPDES	SMC	No	45	26	4.76	< 2	< 2	< 4	0.006	< 0.002	0.041	
30	SDE4	SDE4 111998	1999	11/19/98	2.34	66	0.18	0	0	73	NPDES	SMC	No	66	52	6.8	< 2	< 2	< 4	0.032	0.031	0.163	concurrent WET sample
31	SDE4	SDE4 122498	1999	12/24/98	1.19	39	0.16	0	0	153	NPDES	SMC	Yes	250	145	335	13.4	80.9	44.3	0.005	0.006	0.151	Suspect deice sand

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail

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AR 022725

NPDES Composite Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L									
Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Type	Ground Deice?	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Comments
32	SDE4	SDE4 012299	1999	1/20/99	0 42	28	0 09	0.01	0.95	22	NPDES	EMC	No	92	52	5.82	< 2.0	< 2.0	< 4 0	0.022	0 013	0 168	concurrent WET sample
33	SDE4	SDE4 021899	1999	2/18/99	0.6	32	0.06	0.01	0.35	20	NPDES	SMC	No	131	54	4.26	< 2 0	< 2 0	< 4 0	0 003	< 0.002	< 0 005	
34	SDE4	SDE4 022399	1999	2/22/99	0.56	34	0 14	0 02	0 04	9	NPDES	EMC	No	53	44	< 4 0	< 2 0	< 2.0	< 4.0	0.015	0.022	0.108	concurrent WET sample
35	SDE4	SDE4 030899	1999	3/8/99	0.28	15	0 05	0	0	96	NPDES	EMC	No	49	31	9.72	< 2.0	4 76	5.76	0.016	0 018	0.118	
36	SDE4	SDE4 031399	1999	3/12/99	0 83	23	0 07	0	0	71	NPDES	EMC	No	52	57	5.16	< 2 0	< 2 0	< 4 0	0.018	0 023	0.113	
37	SDE4	SDE4 032499	1999	3/24/99	0 28	19	0 08	0	0.15	40	NPDES	EMC	No	41	32	5.88	< 2 0	< 2 0	< 4.0	0 020	0 017	0 134	concurrent WET sample
38	SDE4	SDE4 032899	1999	3/27/99	0.24	9	0 07	0	0 09	26	NPDES	EMC	No	9 5	7 9	< 4 0	< 2.0	< 2 0	< 4.0	0 012	< 0 002	0 106	
39	SDE4	SDE4 070299	2000	7/2/99	0.3	6	0 11	0	0	103	NPDES	EMC	No	45	39	6.84				0 026	0.013	0 141	
40	SDE4	SDE4 110699	2000	11/5/99	0 68	12	0.11	0	0.05	44	NPDES	SMC	No	22	16	< 4	< 2	< 2	< 4	0 013	0 008	0 082	
41	SDE4	SDE4 111799	2000	11/16/99	0 6	15	0.07	0 01	0 08	23	NPDES	EMC	No	17	25	< 4	< 2	< 2	< 4	0.011	0.005	0.077	
42	SDE4	SDE4 120599	2000	12/4/99	0 24	10	0 1	0	0	60	NPDES	EMC	No	18	9 4	7.54	< 2	< 2	< 4	0.014	0.013	0 084	
43	SDE4	SDE4 011300	2000	1/12/00	0.37	48	0 04	0.07	0.31	10	NPDES	SMC	Yes				4.5	7.47	12				runway deice
44	SDE4	SDE4 031300	2000	3/13/00	0 47	9	0 13	0	0	49	NPDES	SMC	No	76	14	5 62	< 2	< 2	< 4	0.003	< 0.002	0.015	
45	SDE4	SDE4 041300	2000	4/13/00	0.34	12	0 08	0	0	74	NPDES	SMC	No	59	2.2	8.88	< 2	< 2	< 4	0.018	< 0.002	0.139	
46	SDE4	SDE4 070200	2001	7/3/00	0.29	12	0 13	0	0 02	30	NPDES	EMC	No	37	11	19.8				0.03	0 024	< 0.005	
47	SDE4	SDE4 101700	2001	10/17/00	0 36	4	0 12	0	0 51	27	NPDES	EMC	No	42	17	6.1	< 2	< 2	< 4	0 021	< 0 002	0.104	
48	SDE4	SDE4 110800	2001	11/8/00	0 77	9	0 18	0	0	54	NPDES	SMC	No	30	16	< 4	6 6	< 2	7.6	0 007	< 0.002	0.074	
49	SDE4	SDE4 112300	2001	11/23/00	0.37	9	0 1	0	0	330	NPDES	EMC	No	9.6	20	9 12	< 2	< 2	< 4	0.024	0.010	0.144	
50	SDE4	SDE4 121400	2001	12/14/00	0 29	7	0 08	0	0	123	NPDES	SMC	No	86	40	15 2	3.96	5 66	9.62	0.022	0 013	0.197	
51	SDE4	SDE4 010401	2001	1/3/01	0 44	15	0.13	0	0	77	NPDES	EMC	No	51	46	5 78	< 2.00	< 2.00	< 4 00	0 012	0 003	0.089	
52	SDE4	SDE4 031501	2001	3/15/01	0 32	14	0 05	0	0 11	43	NPDES	EMC	No	42	30	10 6	< 2 00	< 2 00	< 4.00	0 017	0 010	0 1	
53	SDE4	SDE4 032701 COMP	2001	3/27/01	0 39	8	0 1	0 01	0 19	19	NPDES	EMC	No	45	24	6 24	< 2 00	< 2.00	< 4 00	0 010	0 004	0.081	
54	SDE4	SDE4 051401 COMP	2001	5/14/01	0 48	16	0 08	0 01	0 02	24	NPDES	EMC	No	39	29	8 1	< 2.00	< 2 00	< 4.00	0.018	< 0 002	0.093	
55	SDE4	SDE4 062701-COMP	2001	6/27/01	0 52	20	0 23	0	0	58	NPDES	EMC	No	83	47	7.62				0.025	< 0.002	0 106	
56	SDS1	SDS1 101994	1995	10/19/94	0.2	32				120	NPDES		No	2 5	11	12				0.084	0.006	0.234	
57	SDS1	SDS1 111994	1995	11/19/94	0 42	24			0 05	52	NPDES		No			46	14	< 5	14				
58	SDS1	SDS1 021695	1995	2/15/95	1 1	56			0	86	NPDES		Yes	6 7	40	> 92	260	15	275	0.016	0.006	0.125	
59	SDS1	SDS1 051195	1995	5/11/95	0.2	8			0 12		NPDES		No	34	25	2				0.119	0.045	0.304	
60	SDS1	SDS1 060495	1995	6/4/95	0.7	28			0	384	NPDES		No	14	36	15				0 115	0 017	0.29	
61	SDS1	SDS1 080795	1996	8/6/95	0 4	8			0		NPDES		No	28	8.9	13				0.089	0 019	0.211	

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail

AR 022726

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NPDES Composite Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L									
Seq	Outfall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Purpose	Type	Ground Deice?	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Comments
62	SDS1	SDS1 101695	1996	10/15/95	0.35	12			0		NPDES		No	8.6	3.6	5				0.042	0.005	0.116	
63	SDS1	SDS1 011496	1996	1/13/96	0.37	20			0		NPDES		No	3.2	4	18	< 5.0	< 5.0	< 10.0	0.019	0.006	0.104	
64	SDS1	SDS1 041696	1996	4/15/96	0.49	16			0.09		NPDES		No	74	16	23.9	< 5.0	< 5.0	< 10.0	0.117	0.088	0.255	
65	SDS1	SDS1 042296	1996	4/22/96	2.83	8			0		Slip Ag		No	17	6.3	9.28	< 5.0	< 5.0	< 10.0	0.012	0.008	0.062	
66	SDS1	SDS1 052296	1996	5/21/96	0.31	30			0.02		SES		No	7.8		29				0.035	0.010	0.106	
67	SDS1	SDS1 070496	1997	7/3/96	0.23	12			0		NPDES		No	17	6	11.2	< 5.0	< 5.0	< 10.0	0.038	0.013	0.188	
68	SDS1	SDS1 080296	1997	8/2/96	1.01	27			0	325	Slip Ag		No	16	7.2	12.5				0.102	0.015	0.209	
69	SDS1	SDS1 120496	1997	12/4/96	0.82	7.5			0.18	44	NPDES		No	22	21	40.5	< 5.0	24	29.0	0.028	0.001	0.096	
70	SDS1	SDS1 011697	1997	1/16/97	1.21	23			0	154	NPDES		No	37	17	79	< 5.0	33.4	33.4	0.041	0.027	0.112	
71	SDS1	SDS1 041397	1997	4/13/97	0.31	12			0.04		NPDES		No	49	27	21.2	< 5.0	< 5.0	< 10.0	0.071	0.041	0.253	
72	SDS1	SDS1 061797	1997	6/16/97	0.36	28			0	135	NPDES	EMC	No	25	15	4.5	< 2.0	< 2.0	< 4.0	0.038	0.027	0.119	
73	SDS1	SDS1 102897	1998	10/28/97	0.47	10.8			0.08	26	NPDES	EMC	No	12	46	7.18	< 2.0	< 2.0	< 4.0	0.030	0.011	0.152	
74	SDS1	SDS1 112097	1998	11/19/97	0.65	39			0.12	24	NPDES	EMC	No			< 4.0	< 2.0	< 2.0	< 4.0	0.013	0.004	0.082	
75	SDS1	SDS1 121697	1998	12/15/97	1	33			0	87	NPDES	EMC	No	18	6.2	6.44	< 2.0	< 2.0	< 4.0	0.013	0.003	0.080	
76	SDS1	SDS1 030998	1998	3/8/98	0.86	27			0	132	NPDES	SMC	No	6.0	12		< 2.0	6.1	7.1	0.022	0.005	0.075	fulfills annual sample rqmt
77	SDS1	SDS1 102798	1999	10/27/98	0.64	9	0.19	0	0	72	NPDES	SMC	No	11	13	6.3	< 2	< 2	< 4	0.028	< 0.002	0.118	
78	SDS1	SDS1 070299	2000	7/2/99	0.3	6	0.11	0	0	103	NPDES	EMC	No	13	13	7.68	< 2	< 2	< 4	0.366	0.009	0.206	
79	SDS1	SDS1 012901	2001	1/28/01	0.26	8	0.09	0	0	101	NPDES	EMC	No	93	34		3	4.53	7.53	0.022	0.005	0.1	
80	SDS1	SDS1 030101	2001	3/1/01	0.27	6	0.11	0	0	127	NPDES	EMC	No	73	72					0.025	0.003	0.129	
81	SDS2	SDS2 051095	1995	5/9/95	0.12	7.5			0	102	NPDES		No	15	15	11							
82	SDS2	SDS2 051195	1995	5/11/95	0.2	8			0.12		NPDES		No	7.8	6.1	4							
83	SDS2	SDS2 061095	1995	6/10/95	0.3	10			0	96	NPDES		No	18	8.2	8							
84	SDS2	SDS2 090595	1996	9/5/95							NPDES		No	52	28	5							
85	SDS2	SDS2 120496	1997	12/4/96	0.82	7.5			0.18	44	NPDES		No	37	29	< 4.00							
86	SDS2	SDS2 011797	1997	1/16/97	1.21	23			0	154	Slip Ag		No	16	19	< 4.0							
87	SDS2	SDS2 021197	1997	2/11/97	0.48	18			0	205	Slip Ag		No	32	39	< 6.0							last for slip ag
88	SDS2	SDS2 111398	1999	11/11/98	0.98	62	0.15	0	0.05	31	NPDES	SMC	No	20	31	< 4				0.009	0.006	0.213	
89	SDS2	SDS2 050799	1999	5/6/99	0.25	22	0.06	0	0	79	NPDES	EMC	No	65	20					0.007	< 0.002	0.064	annual sample
90	SDS2	SDS2 070300	2001	7/3/00	0.29	12	0.13	0	0.02	30	NPDES	SMC	No	20	7.3	5.82				0.010	< 0.002	0.006	
91	SDS3	SDS3 090894	1995	9/8/94	0.69	22				93	NPDES		No				< 5	< 5	< 10				
92	SDS3	SDS3 091494	1995	9/13/94	0.15	9				118	NPDES		No	4.5	5.8	8				0.041	0.004	0.031	
93	SDS3	SDS3 101394	1995	10/13/94	0.32	14			0	480	NPDES		No	6.7	12	22				0.053	0.003	0.076	

Full Data Set (No Values Trimmed)
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NPDES Composite Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L									
Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Type	Ground Deice?	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Comments
94	SDS3	SDS3 111994	1995	11/19/94	0 42	24			0 05	52	NPDES		No	2 3	4 9	18	< 5	< 5	< 10	0.027	0.004	0.108	glycols and BOD on labjob "J 014"
95	SDS3	SDS3 010795	1995	1/7/95	0.21	62			0	252	NPDES		No	2	3.7	5				0.016	0.002	0.058	
96	SDS3	SDS3 030895	1995	3/8/95	2.16	114			0	88	Other		No							0.005	0.001	0.029	
97	SDS3	SDS3 041295	1995	4/10/95	0.29	18			0	56	NPDES		No	< 2	1.9	4	< 5	< 5	< 10	0.041	0.002	0.044	
98	SDS3	SDS3 072695	1996	7/26/95	0.41	36			0		NPDES		No	20	15	8				0.087	0 005	0.069	
99	SDS3	SDS3 101695	1996	10/15/95	0.35	12			0		NPDES		No	2.2	3	5				0.032	0.002	0 037	
100	SDS3	SDS3 011496	1996	1/13/96	0 37	20			0		NPDES		No	1 6	2 1	8	< 5 0	< 5 0	< 10 0	0 029	0.002	0.054	
101	SDS3	sds3 032296	1996	3/22/96	0 21				0		Slip Ag		No	4.1	2.9	8	< 5.0	< 5 0	< 10.0	0 028	0 002	0.054	
102	SDS3	SDS3 041696	1996	4/15/96	0 49	16			0 09		NPDES		No	20	6 6	6.36	< 5 0	< 5 0	< 10 0	0.046	0.012	0.074	
103	SDS3	SDS3 052296	1996	5/21/96	0.31	30			0 02		SES		No	2 6		14				0.035	0 001	0.036	
104	SDS3	SDS3 080296	1997	8/2/96	1.01	27			0	325	NPDES		No	19	13	9.80				0.115	0.009	0 097	
105	SDS3	SDS3 090396	1997	9/3/96	0.29	1.2			0	76	NPDES		No	33	16	11 4				0.080	0 016	0 062	
106	SDS3	SDS3 102196	1997	10/21/96	0.68	4 1			0	64	NPDES		No	4.8	4.2	< 4.00	< 5.0	< 5.0	< 10.0	0 025	0.003	0.022	
107	SDS3	SDS3 112396	1997	11/23/96	0.63	34 1			0	72	Slip Ag		Yes	16	9 2	34.2	18	10	28	0.039	0.014	0.061	
108	SDS3	SDS3 011697	1997	1/16/97	1.21	23			0	154	NPDES		No	5 6	0.7	9.78	< 5.0	< 5.0	< 10.0	0.029	0.002	0.042	
109	SDS3	SDS3 030597	1997	3/5/97	0.39	20			0 24	42	NPDES		No	3 4	2.5	< 4 0	< 5.0	< 5 0	< 10 0	0.018	0.002	0.037	
110	SDS3	SDS3 060397	1997	6/3/97	0.26	16			0	76	NPDES	EMC	No	10	6	2.5				0.054	0.004	0 039	
111	SDS3	SDS3 102897	1998	10/28/97	0 47	10.8			0 08	26	NPDES	EMC	No	3 6	5.3	15.9				0.028	0.003	0.037	
112	SDS3	SDS3 013098	1998	1/29/98	0.2	14			0	107	NPDES	EMC	No	3.6	5 4	13.5	5.4	4.2	9.6	0.028	0.002	0.055	
113	SDS3	SDS3 030198	1998	3/1/98	0.98	86			0 07	6	NPDES	SMC	No	21	13	8.2	< 2.0	< 2.0	< 4.0	0.034	0 007	0.045	
114	SDS3	SDS3 030998	1998	3/8/98	0 86	27			0	132	NPDES	SMC	No	3 2	5.2	38.3	23 0	8 7	31 7	0.037	0 002	0 034	backup monthly sample in case 3/1/98 sample didn't qualify under new permit
115	SDS3	SDS3 042398	1998	4/23/98	0 46	20			0	264	NPDES	SMC	No	7.3	4	9 4	< 2 0	< 2.0	< 4 0	0.081	0.001	0.084	
116	SDS3	SDS3 051498	1998	5/14/98	0 21	8			0.01	125	NPDES	EMC	No	14	9 5	6.32	< 2 0	< 2 0	< 4 0	0 076	0 003	0.116	
117	SDS3	SDS3 061098	1998	6/10/98	0.28	10			0	288	NPDES	EMC	No	8.0	42	8.30				0.068	0 002	0.060	
118	SDS3	SDS3 081798	1999	8/16/98	0.31	10	0 25	0	0	792	NPDES	EMC	No	51	19	10.4				0.136	0.006	0.056	thunderstorm, 0.25 in/hr
119	SDS3	SDS3 092598	1999	9/24/98	0.47	23	0.26	0	0	148	NPDES	EMC	No	224	166	5.14	< 2	2 2	3.2	0.089	0.012	0.043	glycols may be high biased, dupe was <MDL
120	SDS3	SDS3 100398	1999	10/3/98	0 4	3	0.22	0	0.07	36	NPDES	EMC	No	43	23	4.2	< 2	< 2	< 4	0.055	0.008	0 194	
121	SDS3	SDS3 102798	1999	10/27/98	0.64	9	0.19	0	0	72	NPDES	SMC	No	95	64	4.74	< 2	4.2	5.2	0.004	< 0.002	< 0.005	
122	SDS3	SDS3 110498	1999	11/3/98	1.62	39	0.48	0	0.08	35	NPDES	SMC	No	310	85	6.76	4.7	< 2	5.7	0.083	0.043	0.149	

Full Data Set (No Values Trimmed)
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NPDES Composite Sample Data 9/1/94 - 6/30/01

Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Type	Ground Deice?	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Comments
SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L									
123	SDS3	SDS3 111398	1999	11/11/98	0.98	62	0.15	0	0.05	31	NPDES	SMC	No	24	29	17.6	10.5	< 2	11.5	0.022	0.004	0.189	concurrent WET sample
124	SDS3	SDS3 122598	1999	12/24/98	1.19	39	0.16	0	0	153	NPDES	SMC	Yes	18	15	450	31.5	81.6	113	0.047	0.002	0.134	
125	SDS3	SDS3 011099	1999	1/9/99	0.27	21	0.05	0	0	54	NPDES	EMC	No	3.7	6.2	21.9	8.4	14	22.4	0.019	< 0.002	0.030	
126	SDS3	SDS3 011499	1999	1/13/99	1.07	22	0.16	0	0	85	NPDES	EMC	No	22	16	7.84	< 2.0	10.0	11	0.023	0.004	0.030	concurrent WET and WER
127	SDS3	SDS3 020399	1999	2/3/99	0.28	19	0.07	0	0.61	27	NPDES	SMC	No	9.2	11	6.06	< 2.0	2.06	3.06	0.016	< 0.002	0.027	
128	SDS3	SDS3 021499	1999	2/13/99	0.26	5	0.04	0	0	102	Other	EMC	Yes			80.0				0.049	< 0.002	0.074	for DO study
129	SDS3	SDS3 030999	1999	3/8/99	0.28	15	0.05	0	0	96	NPDES	EMC	No	9.2	14	220	6.52	151	157.5	0.024	0.002	0.053	
130	SDS3	SDS3 031399	1999	3/12/99	0.83	23	0.07	0	0	71	NPDES	SMC	No	7.6	15	15	< 2.0	6.21	7.21	0.022	< 0.002	0.036	
131	SDS3	SDS3 032599	1999	3/24/99	0.28	19	0.08	0	0.15	40	NPDES	EMC	No	8.7	3.5	< 4.0	< 2.0	< 2.0	< 4.0	0.019	< 0.002	0.027	
132	SDS3	SDS3 070299	2000	7/2/99	0.3	6	0.11	0	0	103	NPDES	EMC	No	11	14	4.7				0.025	< 0.002	0.028	
133	SDS3	SDS3 110699	2000	11/5/99	0.68	12	0.11	0	0.05	44	NPDES	SMC	No	21	26	15.2	< 2	< 2	< 4	0.025	< 0.002	0.031	
134	SDS3	SDS3 110899 COMP 2	2000	11/5/99	0.68	12	0.11	0	0.05	44	SrcTrace	SMC	No	36	42	11.1	< 2	< 2	< 4	0.021	< 0.002	0.025	
135	SDS3	SDS3 111699	2000	11/16/99	0.6	15	0.07	0.01	0.08	23	NPDES	SMC	No	10	15	12.3	< 2	6.09	7.1	0.023	< 0.002	0.023	
136	SDS3	SDS3 120599	2000	12/4/99	0.24	10	0.1	0	0	60	NPDES	EMC	No	6.4	6.3	48.4	3.0	18.0	21.0	0.013	< 0.002	0.031	
137	SDS3	SDS3 120999	2000	12/8/99	0.49	27	0.09	0	0.36	40	NPDES	EMC	No	5.0	9	25.8	< 2	22.8	23.8	0.012	< 0.002	0.023	
138	SDS3	SDS3 011300	2000	1/12/00	0.37	48	0.04	0.07	0.31	10	NPDES	SMC	Yes			646	9.47	355	364				runway deice
139	SDS3	SDS3 031300	2000	3/13/00	0.47	9	0.13	0	0	49	NPDES	SMC	No	11	5.5	15.5	< 2	9.05	10.05	0.009	< 0.002	0.008	
140	SDS3	SDS3 041400	2000	4/13/00	0.34	12	0.08	0	0	74	NPDES	SMC	No	15	7.2	18.1	< 2	< 2	< 4	0.024	< 0.002	0.029	
141	SDS3	SDS3 081800	2001	8/18/00	0.27	11	0.08	0	0	631	NPDES	EMC	No	18	15	21.4				0.111	< 0.002	0.047	
142	SDS3	SDS3 101800	2001	10/17/00	0.36	4	0.12	0	0.51	27	NPDES	EMC	No	18	15	4.82	< 2.00	< 2.00	< 4.00	0.036	< 0.002	0.017	
143	SDS3	SDS3 112300	2001	11/23/00	0.37	9	0.1	0	0	330	NPDES	EMC	No	32	8	87	4.89	79.4	84.3	0.033	< 0.002	0.047	
144	SDS3	SDS3 010401	2001	1/3/01	0.44	15	0.13	0	0	77	NPDES	SMC	No	2.8	4.0	5.74	< 2.00	< 2.00	< 4.00	0.022	< 0.002	0.020	
145	SDS3	SDS3 012901	2001	1/28/01	0.26	8	0.09	0	0	101	NPDES	EMC	No	7.2	5.6	137	4.8	117	122	0.032	< 0.002	0.057	
146	SDS3	SDS3 020201	2001	2/1/01	0.29	13	0.09	0	0	62	NPDES	SMC	No	6	4.4	19.8	< 2	13.1	14.1	0.032	< 0.002	0.045	
147	SDS3	SDS3 031501	2001	3/15/01	0.32	14	0.05	0	0.11	43	NPDES	EMC	No	5.5	6	41.2	< 2.00	25	26.0	0.034	< 0.002	0.036	
148	SDS3	SDS3 032701 COMP	2001	3/27/01	0.39	8	0.1	0.01	0.19	19	NPDES	EMC	No	5.0	4.8	13.5	< 2.00	9.10	10.10	0.021	< 0.002	0.029	
149	SDS3	SDS3 051501 COMP	2001	5/14/01	0.48	16	0.08	0.01	0.02	24	NPDES	EMC	No	5.5	3.9	14	< 2.00	< 2.00	< 4.00	0.026	< 0.002	0.021	
150	SDS3	SDS3 062801-COMP	2001	6/27/01	0.52	20	0.23	0	0	58	NPDES	EMC	No	10	12	< 4.00				0.022	0.010	0.006	
151	SDS4	SDS4 091494	1995	9/13/94	0.15	9				118	NPDES		No	2.8	1.3	8				0.02	0.004	0.009	

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail
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AR 022729

NPDES Composite Sample Data 9/1/94 - 6/30/01

SAMPLE DATA | STORM CHARACTERISTICS | CONCENTRATION, mg/L

Seq	Outfall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Purpose	Type	Ground Deice?	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Comments
152	SDS4	SDS4 101394	1995	10/13/94	0.32	14			0	480	NPDES		No	5.7	5.6	18				0.036	0.001	0.047	
153	SDS4	SDS4 111994	1995	11/19/94	0 42	24			0.05	52	NPDES		No			5	< 5	< 5	< 10				
154	SDS4	SDS4 011295	1995	1/11/95	0.3	60			0 04	24	NPDES		No	3 5	8.4	3				0.017	0 003	0.019	
155	SDS4	SDS4 021695	1995	2/15/95	1 1	56			0	86	NPDES		Yes			> 93	< 5	< 5	< 10				
156	SDS4	SDS4 051295	1995	5/11/95	0 2	8			0 12		NPDES		No	7.7	5.3	4				0.008	< 0.001	0 01	
157	SDS4	SDS4 080795	1996	8/6/95	0.4	8			0		NPDES		No	4 2	3 7	9				0 02	0.002	0.016	
158	SDS4	SDS4 101695	1996	10/15/95	0.35	12			0		NPDES		No	6 8	4 2	5				0 023	0 001	0.022	
159	SDS4	SDS4 011496	1996	1/13/96	0.37	20			0		NPDES		No	20	6	6	< 5 0	< 5.0	< 10 0	0 018	< 0 001	0.019	
160	SDS4	SDS4 041696	1996	4/15/96	0 49	16			0 09		NPDES		No	26	14	4.64	< 5.0	< 5 0	< 10.0	0 041	0.005	0.031	
161	SDS4	SDS4 042296	1996	4/22/96	2.83	8			0		Slip Ag		No	19	8.9	6 44	< 5 0	< 5.0	< 10 0	0 033	< 0 001	0 017	
162	SDS4	SDS4 052296	1996	5/21/96	0.31	30			0 02		SES		No	4.8		18				0.036	0 001	0.018	
163	SDS4	SDS4 070496	1997	7/3/96	0 23	12			0		NPDES		No	20	11	6.0	< 5 0	< 5.0	< 10.0	0.024	0.001	0.020	
164	SDS4	SDS4 100496	1997	10/4/96	0.59	8 1			0 08	18	NPDES		No	4310	2650	6.04				0 180	0 047	0.228	TSS, Turb not typical; high turbidity from POS construction site (34R safety fill).
165	SDS4	SDS4 120496	1997	12/4/96	0.82	7.5			0.16	44	NPDES		No	11	6.5	< 4.00	< 5.0	< 5 0	< 10 0	0 023	0 002	0 032	
166	SDS4	SDS4 011797	1997	1/16/97	1 21	23			0	154	NPDES		No	17	2.2	3.92				0.031	0.002	0.024	
167	SDS4	SDS4 012797	1997	1/27/97	0.41	26			0	109	Slip Ag		No	12	9 1	4.3				0.017	0 001	0.02	
168	SDS4	SDS4 041997	1997	4/19/97	1.16	26			0	64	NPDES		No	42	12	4.44	< 5 0	< 5 0	< 10.0	0.039	0.003	0.038	
169	SDS4	SDS4 082497	1998	8/25/97	0 2	10 5			0 07	96	NPDES	EMC	No	104	95	5 38				0 032	0.004	0.044	
170	SDS4	SDS4 111797	1998	11/16/97	0 47	12.6			0	222	NPDES	SMC	No	31	34	4 54				0.019	0.002	0.039	
171	SDS4	SDS4 030998	1998	3/8/98	0 86	27			0	132	NPDES	SMC	No	3 8	5 7	< 4.0	< 2.0	< 2.0	< 4.0	0.016	< 0.001	0 012	makeup comp for 98Qw non-rep comp
172	SDS4	SDS4 111998	1999	11/19/98	2.34	66	0.18	0	0	73	NPDES	SMC	No	2 1	2 9	< 4	< 2	< 2	< 4	0 029	< 0 002	0 015	
173	SDS4	SDS4 021399	1999	2/13/99	0 26	5	0.04	0	0	102	Other	EMC	Yes			10.5				0.006	< 0 002	0.036	for DO study
174	SDS4	SDS4 050799	1999	5/6/99	0 25	22	0.06	0	0	79	NPDES	EMC	No	36	12					0.023	< 0.002	0.008	annual sample
175	SDS4	SDS4 032801 COMP	2001	3/27/01	0 39	8	0 1	0.01	0.19	19	NPDES	EMC	No	6.0	5.5					0.021	< 0.002	0.014	
176	SDS7	SDW3 051095	1995	5/9/95	0.12	7 5			0	102	NPDES		No	88	310	15							
177	SDS7	SDW3 051195	1995	5/11/95	0 2	8			0.12		NPDES		No	20	25	4							
178	SDS7	SDW3 061095	1995	6/10/95	0.3	10			0	96	NPDES		No	5.7	2.3	5							
179	SDS7	SDW3 081795	1996	8/16/95	1.34	12			0.01		NPDES		No	56	20	6							
180	SDS7up	SDW3 120496	1997	12/4/96	0.82	7.5			0.16	44	NPDES		No	7.2	2.6	< 4.00							grab missed

Full Data Set (No Values Trimmed)
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AR 022730

NPDES Composite Sample Data 9/1/94 - 6/30/01

SAMPLE DATA / STORM CHARACTERISTICS / CONCENTRATION, mg/L

Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Type	Ground Deice?	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Comments
181	SDS7up	SDW3 011697	1997	1/16/97	1.21	23			0	154	Slip Ag		No	7.1	1	4.18							
182	SDS7up	SDW3 012797	1997	1/27/97	0.41	26			0	109	Slip Ag		No	3.2	3.2	6.7							no grab sample taken
183	SDS7up	SDW3 021197	1997	2/11/97	0.48	18			0	205	Slip Ag		No	2.2	1.9	< 4.0							
184	SDS7up	SDW3 021999	1999	2/18/99	0.6	32	0.06	0.01	0.35	20	NPDES	EMC	No	8.8	13					< 0.002	< 0.002	< 0.005	1998 annual sample
185	SDS7up	SDW3 032599	1999	3/24/99	0.28	19	0.08	0	0.15	40	NPDES	EMC	No	12	7.3					0.006	< 0.002	0.010	1999 annual sample
186	SDS7up	SDS7 121500	2001	12/14/00	0.29	7	0.08	0	0	123	NPDES	EMC	No	2.8	4.1					0.004	< 0.002	0.006	
187	SDS7up	SDS7 031501	2001	3/15/01	0.32	14	0.05	0	0.11	43	NPDES	EMC	No	4.5	6.5					0.028	< 0.002	0.009	
188	SDS6	B 120496	1997	12/4/96	0.82	7.5			0.16	44	NPDES		No	91	110	< 4.00				0.028	0.006	0.041	
189	SDS6	B 011797	1997	1/16/97	1.21	23			0	154	NPDES		No	37	40	5.66				0.018	0.002	0.034	
190	SDS6	B 012897	1997	1/27/97	0.41	26			0	109	NPDES		No	23	35	3.28				0.015	0.002	0.028	
191	SDS6	B 030697	1997	3/5/97	0.39	20			0.24	42	NPDES		No	13	23	< 4.0				0.007	< 0.001	0.017	had QC dupe. no grab sample (no liquid detected). pairs with 4/19/97 grab
192	SDS6	B 111398	1999	11/11/98	0.98	62	0.15	0	0.05	31	NPDES	EMC	No	29	126	< 4				0.013	0.007	0.124	
193	SDS6	B 050799	1999	5/6/99	0.25	22	0.06	0	0	79	NPDES	EMC	No	8.8	14					0.006	< 0.002	0.006	annual sample
194	SDS6	SDS6 102000	2001	10/19/00	1.21	26	0.19	0	0.36	41	NPDES	EMC	No	7.1	16					0.006	< 0.002	0.029	
195	SDS5	D 012897	1997	1/27/97	0.41	26			0	109	NPDES		No	38	35	11.3				0.016	0.004	0.023	makeup for 96Q4 (3 unsuccessful attempts)
196	SDS5	D 021297	1997	2/11/97	0.48	18			0	205	NPDES		No	38	49	< 6.0				0.008	< 0.001	< 0.005	
197	SDS5	D 030597	1997	3/5/97	0.39	20			0.24	42	NPDES		No	34	25	< 4.0				0.021	0.006	0.022	
198	SDS5	D 011499	1999	1/13/99	1.07	22	0.16	0	0	85	NPDES	SMC	No	51	40	< 4.0				0.014	0.003	0.129	
199	SDS5	D 050799	1999	5/6/99	0.25	22	0.06	0	0	79	NPDES	EMC	No	58	14					0.005	< 0.002	0.008	
200	SDS5	SDS5 102000	2001	10/19/00	1.21	26	0.19	0	0.36	41	NPDES	SMC	No	7.2	11					0.011	< 0.002	0.020	annual sample
201	SDS5	SDS5 010401	2001	1/3/01	0.44	15	0.13	0	0	77	NPDES	EMC	No	4.4	2.9					0.013	< 0.002	0.008	
202	SDS5	SDS5 031501	2001	3/15/01	0.32	14	0.05	0	0.11	43	NPDES	EMC	No	3	3.4					0.005	< 0.002	0.022	
203	SDN1	SDN1 091494	1995	9/13/94	0.15	9				118	NPDES		No	21.5	6.4	194				0.064	0.008	1.03	
204	SDN1	SDN1 101994	1995	10/19/94	0.2	32				120	NPDES		No	13	10	8				0.034	0.008	0.416	
205	SDN1	SDN1 111994	1995	11/19/94	0.42	24			0.05	52	NPDES		No			8	< 5	< 5	< 10				
206	SDN1	SDN1 011295	1995	1/11/95	0.3	60			0.04	24	NPDES		No	22	30	4				0.02	0.016	0.285	
207	SDN1	SDN1 021695	1995	2/15/95	1.1	56			0	86	NPDES		Yes			31	6.1	< 5	6.1				
208	SDN1	SDN1 030595	1995	3/4/95	0.18	24			0	158	Slip Ag		No	< 2	3.5	4	< 5	< 5	< 10				
209	SDN1	SDN1 030995	1995	3/8/95	2.16	114			0	88	Slip Ag		No	14	17	6	< 5	< 5	< 10				

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail
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9/27/01 10:32:17 AM

NPDES Composite Sample Data 9/1/94 - 6/30/01

SAMPLE DATA / STORM CHARACTERISTICS / CONCENTRATION, mg/L

Seq	Outfall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Purpose	Type	Ground Deice?	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Comments
210	SDN1	SDN1 040595	1995	4/4/95	0.17	4			0	270	Slip Ag		No	6	7.6	5	< 5	< 5	< 10				
211	SDN1	SDN1 040795	1995	4/6/95	0.61	28			0.04	60	NPDES		No	18	6.2	40	< 5	< 5	< 10	0.009	0.001	0.288	
212	SDN1	SDN1 080795	1996	8/6/95	0.4	8			0		NPDES		No	56	16	27				0.035	0.009	0.464	
213	SDN1	SDN1 110795	1996	11/6/95	3.89	48			0.09		NPDES		No	15	14	8				0.023	0.013	0.375	
214	SDN1	SDN1 020496	1996	2/3/96	1.6	8					NPDES		Yes	130	150	15	< 5.0	< 5.0	< 10.0	0.019	0.021	0.288	
215	SDN1	SDN1 041696	1996	4/15/96	0.49	16			0.09		Slip Ag		No	47	7.1	< 4	< 5.0	< 5.0	< 10.0				
216	SDN1	SDN1 042296	1996	4/22/96	2.83	8			0		NPDES		No	31	9.5	8.80	< 5.0	< 5.0	< 10.0	0.016	0.011	0.160	
217	SDN1	SDN1 051396	1996	5/13/96	0.99	20			0.07	12	Slip Ag		No	14	15	4.22	< 5.0	< 5.0	< 10.0				
218	SDN1	SDN1 052296	1996	5/21/96	0.31	30			0.02		Slip Ag		No	11	7.3	10.2	< 5.0	< 5.0	< 10.0	0.027	0.007	0.299	xtra NPDES/Slip Ag
219	SDN1	SDN1 062396 A	1996	6/23/96	0.46	10			0		SES		No	22		16				0.081	0.010	0.506	
220	SDN1	SDN1 062396	1996	6/23/96	0.46	10			0		Slip Ag		No	36	8.3	20	< 5.0	< 5.0	< 10.0	0.080	0.013	0.589	xtra NPDES/Slip Ag
221	SDN1	SDN1 070496	1997	7/3/96	0.23	12			0		NPDES		No	51	18	10.7	< 5.0	< 5.0	< 10.0	0.046	0.019	0.355	
222	SDN1	SDN1 071796	1997	7/17/96	0.27	31			0		Slip Ag		No	19	2.1	25.1	< 5.0	< 5.0	< 10.0				
223	SDN1	SDN1 080296	1997	8/2/96	1.01	27			0	325	Slip Ag		No	35	20	14.2	< 5.0	< 5.0	< 10.0				
224	SDN1	SDN1 090396	1997	9/3/96	0.29	1.2			0	76	Slip Ag		No	49.3	15	9.88	< 5.0	< 5.0	< 10.0				
225	SDN1	SDN1 091496	1997	9/13/96	0.72	48			0	144	Slip Ag		No	50	22	10.3	< 5.0	< 5.0	< 10.0				
226	SDN1	SDN1 091996	1997	9/18/96	0.38	20			0.02	28	Slip Ag		No	3.6	7	< 4.00	< 5.0	< 5.0	< 10.0				
227	SDN1	SDN1 011697	1997	1/16/97	1.21	23			0	154	NPDES		No	66	30	23.6				0.039	0.039	0.343	paired up/down sample
228	SDN1	SDN1 041397	1997	4/13/97	0.31	12			0.04		NPDES		No	34	19	17.0				0.042	0.013	0.433	downstream location at SDN1-27
229	SDN1up	SDN1up 100496	1997	10/4/96	0.59	8.1			0.08	18	NPDES		No	21	6.7	< 4.00				0.025	0.016	0.219	paired up/down sample
230	SDN1up	SDN1up 011697	1997	1/16/97	1.21	23			0	154	NPDES		No	62	29	9.94				0.030	0.040	0.391	paired up/down sample
231	SDN1up	SDN1 060397	1997	6/3/97	0.26	16			0	76	NPDES	EMC	No	77	30	17.9				0.038	0.027	0.211	
232	SDN1up	SDN1 102897	1998	10/28/97	0.47	10.8			0.08	26	NPDES	EMC	No	19	28	4.0				0.019	0.017	0.222	
233	SDN1up	SDN1 121597	1998	12/15/97	1	33			0	87	NPDES	SMC	No	22	21	4.68	< 2.0	< 2.0	< 4.0	0.017	0.013	0.191	
234	SDN1up	SDN1 030198	1998	3/1/98	0.98	86			0.07	6	NPDES	SMC	No	104	39	4.62				0.010	0.007	0.084	
235	SDN1up	SDN1 042398	1998	4/23/98	0.46	20			0	264	NPDES	SMC	No	26	12	12.8				0.062	0.005	0.401	
236	SDN1up	SDN1 051498	1998	5/14/98	0.21	8			0.01	125	NPDES	EMC	No	43	21	8.8				0.053	0.010	0.540	
237	SDN1up	SDN1 061098	1998	6/10/98	0.28	10			0	288	NPDES	EMC	No	34	71	9.84				0.056	0.009	0.360	
238	SDN1up	SDN1 081698	1999	8/16/98	0.31	10	0.25	0	0	792	NPDES	EMC	No	192	63	28.9				0.083	0.030	0.589	thunderstorm, 0.25 in/hr
239	SDN1up	SDN1 100398	1999	10/3/98	0.4	3	0.22	0	0.07	36	NPDES	EMC	No	67	21	4.22				0.018	0.017	0.247	
240	SDN1up	SDN1 102798	1999	10/27/98	0.64	9	0.19	0	0	72	NPDES	SMC	No	85	44	6.82				0.006	< 0.002	0.066	

Full Data Set (No Values Trimmed)
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NPDES Composite Sample Data 9/1/94 - 6/30/01

SAMPLE DATA | STORM CHARACTERISTICS | CONCENTRATION, mg/L

Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Type	Ground Deice?	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Comments
241	SDN1up	SDN1 110498	1999	11/3/98	1.62	39	0.48	0	0.08	35	NPDES	SMC	No	32	17	< 4				0.014	0.011	0.127	
242	SDN1up	SDN1 111398	1999	11/11/98	0.98	62	0.15	0	0.05	31	NPDES	EMC	No	53	46	< 4				0.024	0.025	0.487	concurrent WET sample
243	SDN1up	SDN1 122598	1999	12/24/98	1.19	39	0.16	0	0	153	NPDES	SMC	Yes	156	95	116	13.8	12.3	26.1	0.003	0.004	0.122	
244	SDN1up	SDN1 011499	1999	1/13/99	1.07	22	0.16	0	0	85	NPDES	EMC	No	78	31	< 4.0				0.024	0.048	0.182	concurrent WET sample
245	SDN1up	SDN1 020499	1999	2/3/99	0.28	19	0.07	0	0.61	27	NPDES	EMC	No	45	22	5.84				0.020	0.006	0.233	
246	SDN1up	SDN1 030899	1999	3/8/99	0.28	15	0.05	0	0	96	NPDES	EMC	No	40	24					0.015	0.009	0.170	
247	SDN1up	SDN1 032499	1999	3/24/99	0.28	19	0.08	0	0.15	40	NPDES	EMC	No	61	40	4.86				0.015	0.010	0.175	concurrent WET sample
248	SDN1up	SDN1 032899	1999	3/27/99	0.24	9	0.07	0	0.09	26	NPDES	EMC	No	9.7	6.4	< 4.0				0.012	< 0.002	0.218	
249	SDN1up	SDN1 070299	2000	7/2/99	0.3	6	0.11	0	0	103	NPDES	EMC	No	69	25	4.28				0.038	0.009	0.238	
250	SDN1up	SDN1 110699	2000	11/5/99	0.68	12	0.11	0	0.05	44	NPDES	SMC	No	26	20	4.14				0.011	0.009	0.120	
251	SDN1up	SDN1 111699	2000	11/16/99	0.6	15	0.07	0.01	0.08	23	NPDES	SMC	No	39	41	4.98	< 2	< 2	< 4	0.011	0.007	0.108	
252	SDN1up	SDN1 120599	2000	12/4/99	0.24	10	0.1	0	0	60	NPDES	EMC	No	16	8.4	16				0.010	0.005	0.151	
253	SDN1up	SDN1 121799	2000	12/17/99	0.34	11	0.08	0	1.15	26	NPDES	EMC	No	25	16	5.54				0.013	0.005	0.122	
254	SDN1up	SDN1 031300	2000	3/13/00	0.47	9	0.13	0	0	49	NPDES	SMC	No	13	3.1	5.66				0.034	< 0.002	0.613	
255	SDN1up	SDN1 032200	2000	3/22/00	0.43	8	0.14	0	0	86	NPDES	SMC	No	1.9	0.63	< 4				0.028	< 0.002	0.203	
256	SDN1up	SDN1 041300	2000	4/13/00	0.34	12	0.08	0	0	74	NPDES	EMC	No	46	15	6.54	< 2	< 2	< 4	0.035	< 0.002	0.41	glycols not reqd
257	SDN1up	SDN1 070300	2001	7/3/00	0.29	12	0.13	0	0.02	30	NPDES	EMC	No	16	8.1	< 4				0.026	0.004	0.192	
258	SDN1up	SDN1 101700	2001	10/17/00	0.36	4	0.12	0	0.51	27	NPDES	EMC	No	92	32	5.14				0.033	0.021	0.15	
259	SDN1up	SDN1 121400	2001	12/14/00	0.29	7	0.08	0	0	123	NPDES	EMC	No	331	170	10.4				0.042	0.035	0.33	
260	SDN1up	SDN1 010401	2001	1/3/01	0.44	15	0.13	0	0	77	NPDES	EMC	No	103	80	< 4.00				0.014	0.003	0.099	
261	SDN1up	SDN1 012901	2001	1/28/01	0.26	8	0.09	0	0	101	NPDES	SMC	No	118	44	5.18				0.013	0.006	0.153	
262	SDN1up	SDN1 030101	2001	3/1/01	0.27	6	0.11	0	0	127	NPDES	EMC	No	127	71	10.4				0.040	0.010	0.195	
263	SDN1up	SDN1 031501	2001	3/15/01	0.32	14	0.05	0	0.11	43	NPDES	EMC	No	37	27	5.5	< 2.00	< 2.00	< 4.00	0.017	0.006	0.135	glycols not reqd
264	SDN1up	SDN1 051401 COMP	2001	5/14/01	0.48	16	0.08	0.01	0.02	24	NPDES	EMC	No	18	9.2	5.32				0.014	< 0.002	0.126	
265	SDN1up	SDN1 062701-COMP	2001	6/27/01	0.52	20	0.23	0	0	58	NPDES	EMC	No	366	198	9.00				0.022	0.01	0.095	
266	SDN2	SDN2 090894	1995	9/8/94	0.69	22				93	NPDES		No	3.2	4.1	11				0.028	0.007	0.022	
267	SDN2	SDN2 101394	1995	10/13/94	0.32	14			0	480	NPDES		No	6.5	8.1	86				0.059	0.005	0.067	
268	SDN2	SDN2 111394	1995	11/11/94	0.28	14				46	NPDES		No	2	5.4	7				0.013	0.004	0.03	
269	SDN2	SDN2 111994	1995	11/19/94	0.42	24			0.05	52	NPDES		No			10	< 5	< 5	< 10				
270	SDN2	SDN2 011295	1995	1/11/95	0.3	60			0.04	24	NPDES		No	7.5	14	4				0.035	0.022	0.076	
271	SDN2	SDN2 030595	1995	3/4/95	0.18	24			0	158	Slip Ag		No	2.4	2.1	> 12	36	< 5	36				

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail
c:\ENV-apps\EMIS\POSDEV\EMISMain.mdb/rptSWNPDESCompositesOnly

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NPDES Composite Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L									
Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Type	Ground Deice?	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Comments
272	SDN2	SDN2 030895	1995	3/8/95	2.16	114			0	88	Other		No							0.012	0.003	0.026	
273	SDN2	SDN2 040795	1995	4/6/95	0.61	28			0.04	60	Slip Ag		No	7.2	4.8	15	< 5	< 5	< 10				
274	SDN2	SDN2 041295	1995	4/10/95	0.29	18			0	56	NPDES		No	5.6	4.9	30	< 5	19	19	0.025	0.003	0 098	
275	SDN2	SDN2 080795	1996	8/6/95	0.4	8			0		NPDES		No	8 9	5.1	6				0 028	0.01	0.049	
276	SDN2	SDN2 101695	1996	10/15/95	0.35	12			0		NPDES		No	1.25	1.8	5				0.016	0 002	0.024	
277	SDN2	SDN2 021796	1996	2/17/96	1 29	12			0		NPDES		No	< 2 0	2	6	6 3	11	17.3	0 009	0.005	0.027	
278	SDN2	SDN2 041696	1996	4/15/96	0 49	16			0 09		Slip Ag		No	15	11	< 4	< 5 0	< 5 0	< 10.0				
279	SDN2	SDN2 042296	1996	4/22/96	2.83	8			0		NPDES		No	5.3	2.5	6 64	< 5.0	< 5.0	< 10.0	0 013	0.003	0.017	
280	SDN2	SDN2 051396	1996	5/13/96	0.99	20			0.07	12	Slip Ag		No	5 6	5.3	4 86	< 5.0	< 5.0	< 10 0				
281	SDN2	SDN2 052296	1996	5/21/96	0.31	30			0 02		Slip Ag		No	10	2	5.08	< 5 0	< 5 (	< 10 0	0.014	0.002	0.076	xtra NPDES/Slip Ag
282	SDN2	SDN2 062396 A	1996	6/23/96	0.46	10			0		SES		No	48		24				0 076	0 022	0 138	
283	SDN2	SDN2 062396	1996	6/23/96	0.46	10			0		Slip Ag		No	33	7.5	18.3	< 5.0	< 5 0	< 10.0	0.055	0 012	0 076	xtra NPDES/Slip Ag
284	SDN2	SDN2 090396	1997	9/3/96	0.29	1.2			0	76	NPDES		No	10	10	12.3				0.033	0 006	0.042	
285	SDN2	SDN2 102196	1997	10/21/96	0 68	4 1			0	64	NPDES		No	4.2	2.9	4.50	< 5.0	< 5 0	< 10.0	0.010	0.002	0.020	
286	SDN2	SDN2 011697	1997	1/16/97	1 21	23			0	154	NPDES		No	8.8	1.5	120	< 5.0	50 9	50.9	0.018	0 011	0 048	
287	SDN2	SDN2 041997	1997	4/19/97	1 16	26			0	64	NPDES		No	17	8.5	< 4.0	< 5.0	< 5 0	< 10 0	0 042	0.019	0.083	
288	SDN2	SDN2 062499	1999	6/24/99	1 12	24	0.35	0.03	0 08	10	NPDES	EMC	No	18									N. cargo (IWS) pump station bypass (30 min)
289	SDN2	SDN2 100900	2001	10/9/00	0.37	8	0.29	0	0	198	NPDES	EMC	No	46									N. cargo (IWS) pump station bypass
290	SDN2	SDN2 061101-COMP	2001	6/11/01	1 28	22	0.26	0.01	0 09	22	NPDES	SMC	No	43									N. cargo (IWS) pump station bypass
291	SDN3	SDN3 090894	1995	9/8/94	0 69	22				93	NPDES		No	2.1	5.1	5				0.032	0.002	0 063	
292	SDN3	SDN3 102694	1995	10/25/94	1 96	44				114	NPDES		No	9 2	8	4							
293	SDN3	SDN3 111994	1995	11/19/94	0.42	24			0 05	52	NPDES		No			4	< 5	< 5	< 10				
294	SDN3	SDN3 010795	1995	1/7/95	0 21	62			0	252	NPDES		No	0 62	1.6	2				0 003	0 001	0.052	
295	SDN3	SDN3 021695	1995	2/15/95	1 1	56			0	86	NPDES		Yes			> 90	< 5	< 5	< 10				
296	SDN3	SDN3 030695	1995	3/4/95	0.18	24			0	158	Slip Ag		No	< 2	2.3	3	< 5	< 5	< 10				
297	SDN3	SDN3 030995	1995	3/8/95	2.16	114			0	88	Slip Ag		No	< 10	12	3	< 5	< 5	< 10				
298	SDN3	SDN3 040595	1995	4/4/95	0 17	4			0	270	Slip Ag		No	< 2	1.8	3	< 5	< 5	< 10				
299	SDN3	SDN3 060495	1995	6/4/95	0.7	28			0	384	NPDES		No	15	25	8				0.011	0.001	0 126	
300	SDN3	SDN3 071095	1996	7/9/95	0.81	13			0		NPDES		No	21	24	7				0.036	0 004	0.18	
301	SDN3	SDN3 110795	1996	11/6/95	3.89	48			0.09		NPDES		No	15	16	3				0.010	0 001	0.066	

Full Data Set (No Values Trimmed)
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NPDES Composite Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L									
Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Type	Ground Deice?	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Comments
302	SDN3	SDN3 011496	1996	1/13/96	0.37	20			0		NPDES		No	3.8	4.7	5	< 5 0	< 5 0	< 10.0	0.010	0 002	0.047	
303	SDN3	SDN3 020496	1996	2/3/96	1.6	8					Stip Ag		Yes		9.7		< 5.0	< 5 0	< 10.0				storm after runway deice
304	SDN3	SDN3 040196	1996	3/31/96	0 64	0			0.01		Stip Ag		No	11	16	5	< 5 0	< 5.0	< 10.0	0.015	0 002	0.101	xtra NPDES/Stip Ag
305	SDN3	SDN3 041696	1996	4/15/96	0.49	16			0.09		NPDES		No	27	22	< 4	< 5 0	< 5.0	< 10 0	0.018	0.003	0 121	
306	SDN3	SDN3 042296	1996	4/22/96	2.83	8			0		Stip Ag		No	15	9 5	6.56	< 5.0	< 5 0	< 10.0	0 016	0.001	0.063	xtra NPDES/Stip Ag
307	SDN3	SDN3 051396	1996	5/13/96	0 99	20			0 07	12	Stip Ag		No	16	18	< 4	< 5.0	< 5.0	< 10.0				
308	SDN3	SDN3 052296	1996	5/21/96	0.31	30			0 02		Stip Ag		No	16	5 2	< 4	< 5 0	< 5.0	< 10 0				
309	SDN3	SDN3 062396 A	1996	6/23/96	0 46	10			0		SES		No	7.3		5				0.004	< 0.001	0.051	
310	SDN3	SDN3 080396	1997	8/2/96	1.01	27			0	325	NPDES		No	26	26	< 4.00				0 037	0 004	0.156	delayed hydrograph, very dry antecedent
311	SDN3	SDN3 120496	1997	12/4/96	0.82	7.5			0.16	44	NPDES		No	16	14	< 4.00	< 5.0	< 5.0	< 10.0	0.018	0.002	0.033	
312	SDN3	SDN3 122196	1997	12/19/96	0.36	37			0	103	NPDES		No	2.6	4.5	< 8.00	< 5.0	< 5.0	< 10.0	0.011	< 0.001	0.045	
313	SDN3	SDN3 011797	1997	1/16/97	1.21	23			0	154	NPDES		No	13	13	4.92				0.012	< 0 001	0.043	
314	SDN3	SDN3 030597	1997	3/5/97	0.39	20			0.24	42	NPDES		No	10	10	< 4 0	6.2	< 5.0	6.2	0.011	< 0 001	0.032	
315	SDN3	SDN3 062197	1997	6/21/97	0.27	11.8		0.01	0 02	24	NPDES	EMC	No	2.2	10	< 4.0				0.014	< 0.001	0 048	
316	SDN3	SDN3 111797	1998	11/16/97	0.47	12 6			0	222	NPDES	EMC	No	12	42	< 4.0				0.018	0 002	0.049	
317	SDN3	SDN3 121697	1998	12/15/97	1	33			0	87	NPDES	SMC	No	11	26	< 4.0	< 2 0	< 2.0	< 4.0	0.011	0 002	0.040	
318	SDN3	SDN3 122498	1999	12/24/98	1.19	39	0 16	0	0	153	NPDES	SMC	Yes	12	9	222	< 2.0	14.2	15.2	0.017	< 0.002	0.089	
319	SDN3	SDN3 021399	1999	2/13/99	0 26	5	0 04	0	0	102	Other	EMC	Yes			17.8				0.020	0.010	0.060	for DO study
320	SDN3	SDN3 120999	2000	12/8/99	0 49	27	0.09	0	0.36	40	NPDES	EMC	No	2.8	4.9					0.006	< 0.002	0.02	
321	SDN3	SDN3 101900	2001	10/19/00	1 21	26	0 19	0	0 38	41	NPDES	SMC	No	8	11					0 010	< 0.002	0 032	
322	SDN3	SDN3 040601 COMP	2001	4/5/01	0 23	9	0 05	0	0 01	32	NPDES	EMC	No	2 5	4 1	< 4.0				0 009	< 0 002	0 033	
323	SDN4	SDN4 090396	1997	9/3/96	0 29	1 2			0	76	NPDES		No	8.0	3	14 1				0.139	< 0 001	0.047	preliminary and only sample taken at SDN4 daylight outfall
324	SDN4	SDN4 120496	1997	12/4/96	0 82	7 5			0.16	44	NPDES		No	7.0	4.5	8.46	< 5.0	< 5.0	< 10 0	0.034	0 002	0.023	
325	SDN4	SDN4 011697	1997	1/16/97	1.21	23			0	154	NPDES		No	11	1.7	12.1				0.036	< 0.001	0 025	
326	SDN4	SDN4 030597	1997	3/5/97	0.39	20			0.24	42	NPDES		No	3 8	2.5	< 4 0	< 5.0	< 5.0	< 10 0	0.031	< 0 001	0.019	
327	SDN4	SDN4 060397	1997	6/3/97	0 26	16			0	76	NPDES	EMC	No	2.2	2.6	3 12				0.052	0.001	0 020	
328	SDN4	SDN4 102897	1998	10/28/97	0.47	10 8			0 08	26	NPDES	EMC	No	2.8	6	7.38	< 2.0	< 2.0	< 4 0	0.039	0 002	0 024	
329	SDN4	SDN4 121697	1998	12/15/97	1	33			0	87	NPDES	SMC	No	2.6	3.9	4.68	< 2.0	< 2.0	< 4.0	0.026	0 001	0.022	
330	SDN4	SDN4 030198	1998	3/1/98	0.98	86			0.07	6	NPDES	SMC	No	17	18	< 4 0	< 2.0	< 2 0	< 4.0	0.031	0.001	0 029	

Full Data Set (No Values Trimmed)
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NPDES Composite Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L									
Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Type	Ground Deice?	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Comments
331	SDN4	SDN4 030998	1998	3/8/98	0 86	27			0	132	NPDES	SMC	No	3 2	6.1	4.06	< 2.0	< 2.0	< 4.0	0 049	< 0.001	0.018	backup monthly sample in case 3/1/98 sample didn't qualify under new permit
332	SDN4	SDN4 042498	1998	4/23/98	0 46	20			0	264	NPDES	EMC	No	2.0	3.5	5.44				0 091	< 0.001	0.029	
333	SDN4	SDN4 052598	1998	5/24/98	0.58	11			0	87	NPDES	EMC	No	3 7	5.5	5 2	< 2.0	< 2.0	< 4.0	0.030	< 0 001	0.027	
334	SDN4	SDN4 062498	1998	6/24/98	0.43	4			0	288	NPDES	EMC	No	4 0	4	4 54				0.047	< 0.002	0.018	
335	SDN4	SDN4 081698	1999	8/16/98	0.31	10	0 25	0	0	792	NPDES	EMC	No	94	98	8 0				0 067	0.003	0.022	thunderstorm, 0.25 in/hr
336	SDN4	SDN4 092598	1999	9/24/98	0 47	23	0 26	0	0	148	NPDES	EMC	No	76	43	6 74	< 2	2.2	3 2	0 043	< 0.002	0.016	glycols may be high biased, dupe was <mdl
337	SDN4	SDN4 100398	1999	10/3/98	0 4	3	0.22	0	0 07	36	NPDES	EMC	No	27	23	< 4	< 2	< 2	< 4	0.061	< 0.002	0 045	
338	SDN4	SDN4 110498	1999	11/3/98	1.62	39	0.48	0	0 08	35	NPDES	SMC	No	18	5.6	< 4	< 2	< 2	< 4	0.047	< 0.002	0 07	
339	SDN4	SDN4 111398	1999	11/11/98	0.98	62	0.15	0	0 05	31	NPDES	EMC	No	22	15	< 4	< 2	< 2	< 4	0.025	0.001	0 127	concurrent WET sample
340	SDN4	SDN4 122598	1999	12/24/98	1 19	39	0.16	0	0	153	NPDES	SMC	Yes	12	12	168	7.0	27.3	34.3	0.023	< 0.002	0.075	
341	SDN4	SDN4 011499	1999	1/13/99	1 07	22	0.16	0	0	85	NPDES	EMC	No	7 0	9.2	< 4.0	< 2.0	< 2.0	< 4.0	0.020	< 0.002	0.034	concurrent WET sample
342	SDN4	SDN4 020499	1999	2/3/99	0.28	19	0.07	0	0 61	27	NPDES	EMC	No	3 8	4.8	< 4.0	< 2.0	< 2.0	< 4 0	0.015	< 0.002	0.024	
343	SDN4	SDN4 021399	1999	2/13/99	0.26	5	0 04	0	0	102	Other	EMC	Yes			36 0				0.036	< 0 002	0 026	for DO study
344	SDN4	SDN4 031399	1999	3/12/99	0.83	23	0 07	0	0	71	NPDES	EMC	No	2.9	7	< 4.0	< 2.0	< 2.0	< 4.0	0.019	< 0.002	0.025	
345	SDN4	SDN4 032899	1999	3/27/99	0.24	9	0.07	0	0.09	26	NPDES	EMC	No	4.3	3.6	< 4.0	< 2.0	< 2.0	< 4.0	0.022	< 0.002	0.014	
346	SDN4	SDN4 071799	2000	7/16/99	0 7	34	0 11	0	0	300	NPDES	EMC	No	188	320	12.5				0.052	0.004	0.017	
347	SDN4	SDN4 110699	2000	11/5/99	0.68	12	0.11	0	0.05	44	NPDES	SMC	No	12	17	6.94	< 2	< 2	< 4	0.017	< 0.002	0.023	
348	SDN4	SDN4 111699	2000	11/16/99	0 6	15	0 07	0 01	0 08	23	NPDES	SMC	No	5.3	7.2	4.06	< 2	< 2	< 4	0 029	< 0 002	0.033	
349	SDN4	SDN4 120999	2000	12/8/99	0.49	27	0 09	0	0 36	40	NPDES	SMC	No	2 8	6 2	5 4	< 2	2.1	3 1	0.018	< 0 002	0.031	
350	SDN4	SDN4 121799	2000	12/17/99	0 34	11	0 08	0	1.15	26	NPDES	EMC	No	4 2	6 1	< 4	< 2	< 2	< 4	0 020	< 0 002	0.015	
351	SDN4	SDN4 013100	2000	1/31/00	1.76	29	0 15	0 07	0 07	9	NPDES	SMC	No	6 2	5.1	< 4	< 2	< 2	< 4	0 013	< 0 002	0.017	
352	SDN4	SDN4 031400	2000	3/13/00	0 47	9	0 13	0	0	49	NPDES	EMC	No	14	6	4 04	< 2	< 2	< 4	0 030	< 0 002	< 0.005	
353	SDN4	SDN4 041300	2000	4/13/00	0.34	12	0 08	0	0	74	NPDES	SMC	No	4 7	4 5	5 62	< 2	< 2	< 4	0.044	< 0.002	0 016	
354	SDN4	SDN4 081800	2001	8/18/00	0.27	11	0.08	0	0	631	NPDES	EMC	No	4	2.5	14 2				0 039	< 0.002	0.014	
355	SDN4	SDN4 101800	2001	10/17/00	0.36	4	0.12	0	0.51	27	NPDES	EMC	No	4.8	3 1	6.94	< 2	< 2	< 4	0 032	< 0.002	0.01	
356	SDN4	SDN4 110800	2001	11/8/00	0.77	9	0.18	0	0	54	NPDES	SMC	No	2	4.7	4.36	5	< 2	6	0 013	< 0.002	0.009	
357	SDN4	SDN4 112300	2001	11/23/00	0.37	9	0.1	0	0	330	NPDES	EMC	No	3.2	3.4	9.42	< 2	5 86	6.9	0.027	< 0.002	0.015	
358	SDN4	SDN4 113000	2001	11/29/00	0.29	26	0.06	0	0	54	NPDES	EMC	No	1.6	3	5.34	< 2	< 2	< 4	0.024	< 0.002	0.014	
359	SDN4	SDN4 121400	2001	12/14/00	0.29	7	0.08	0	0	123	NPDES	EMC	No	3.6	6.1	27.7	2.82	10.5	13.3	0.021	0.006	0.019	
360	SDN4	SDN4 030201	2001	3/1/01	0.27	6	0.11	0	0	127	NPDES	EMC	No	2 7	5.8	8.24	< 2.00	< 2.00	< 4.00	0.039	< 0.002	0.021	

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail

POS EMIS

9/27/01 10:32:22 AM

NPDES Composite Sample Data 9/1/94 - 6/30/01

SAMPLE DATA — STORM CHARACTERISTICS — CONCENTRATION, mg/L

Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Type	Ground Deice?	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Comments
361	SDN4	SDN4 031601	2001	3/15/01	0.32	14	0 05	0	0.11	43	NPDES	EMC	No	2.7	4 7	10.5	< 2.00	2.2	3 20	0.043	< 0.002	0.021	
362	SDN4	SDN4 040601 COMP	2001	4/5/01	0 23	9	0.05	0	0 01	32	NPDES	EMC	No	2.5	5.9	< 4.00	< 2.00	< 2.00	< 4.00	0 025	< 0 002	0.024	
363	SDN4	SDN4 051401 COMP	2001	5/14/01	0.48	16	0 08	0 01	0 02	24	NPDES	EMC	No	3 25	2.3	7.78	< 2.00	< 2 00	< 4.00	0 036	< 0 002	0.016	
364	SDN4	SDN4 062801-COMP	2001	6/27/01	0 52	20	0 23	0	0	58	NPDES	EMC	No	4 5	5 6	4 70				0 031	< 0 002	0.006	
365	EY	EY 091494	1995	9/13/94	0.15	9				118	NPDES		No	24.9									
366	EY	EY 101394	1995	10/13/94	0 32	14			0	480	NPDES		No	25									
367	EY	EY 030995	1995	3/8/95	2 16	114			0	88	NPDES		No	3.2									
368	EY	EY 060495	1995	6/4/95	0 7	28			0	384	NPDES		No	25									
369	EY	EY 072695	1996	7/26/95	0 41	36			0		NPDES		No	56									
370	EY	EY 101695	1996	10/15/95	0.35	12			0		NPDES		No	12									
371	EY	EY 021796	1996	2/17/96	1.29	12			0		NPDES		No	24									
372	EY	EY 042296	1996	4/22/96	2 83	8			0		NPDES		No	39									
373	EY	EY 052296	1996	5/21/96	0 31	30			0.02		Slip Ag		No	28									
374	EY	EY 062396	1996	6/23/96	0.46	10			0		Slip Ag		No	262									
375	EY	EY 070496	1997	7/3/96	0.23	12			0		NPDES		No	16									
376	EY	EY 102196	1997	10/21/96	0.68	4 1			0	64	NPDES		No	12	4.3								
377	EY	EY 021297	1997	2/11/97	0.48	18			0	205	NPDES		No	8.6									
378	EY	EY 030597	1997	3/5/97	0.39	20			0.24	42	NPDES		No	17									
379	EY	EY 061797	1997	6/16/97	0 36	28			0	135	NPDES	EMC	No	72									
380	EY	EY 110697	1998	11/6/97	0 16	4.4			0 01	72	NPDES	EMC	No	10									
381	EY	EY 013098	1998	1/29/98	0.2	14			0	107	NPDES	EMC	No	12									
382	EY	EY 052598	1998	5/24/98	0.58	11			0	87	NPDES	EMC	No	26									
383	EY	EY 011499	1999	1/13/99	1 07	22	0 16	0	0	85	NPDES	EMC	No	76									
384	EY	EY 062499	1999	6/24/99	1.12	24	0.35	0 03	0 08	10	NPDES	SMC	No	128									
385	EY	EY 013100	2000	1/31/00	1.76	29	0 15	0 07	0.07	9	NPDES	SMC	No	100	82	24.1	< 2	< 2	< 4	0 020	0.026	0 179	glycol and metals data not reqd, analyzed for dupe only
386	EY	EY 081800	2001	8/18/00	0.27	11	0.08	0	0	631	NPDES	EMC	No	35									
387	EY	EY 102000	2001	10/19/00	1.21	28	0.19	0	0.38	41	NPDES	SMC	No		42								
388	EY	EY 010401	2001	1/3/01	0.44	15	0 13	0	0	77	NPDES	EMC	No	19									

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail
c:\ENV-apps\EMIS\POSDEV\EMISMain.mdb/rptSWNPDESCompositesOnly

POS EMIS

NPDES Composite Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS										CONCENTRATION, mg/L										
Seq	Out fall	Sample ID	Reported	Storm Date	Dpth in	Dur hr	MaxInt in/hr	24hrant in	48hrant in	Dryant hr	Pur-pose	Type	Ground Deice?	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Comments
389	EY	EY 062701-COMP	2001	6/27/01	0.52	20	0.23	0	0	58	NPDES	EMC	No	68									
390	TY	TY 090894	1995	9/8/94	0 69	22				93	NPDES		No	4									
391	TY	TY 101994	1995	10/19/94	0.2	32				120	NPDES		No	10									
392	TY	TY 030495	1995	3/4/95	0.18	24			0	158	NPDES		No	18			< 5	< 5	< 10				
393	TY	TY 060495	1995	6/4/95	0 7	28			0	384	NPDES		No	22									glycol data not reqd
394	TY	TY 081795	1996	8/16/95	1.34	12			0 01		NPDES		No	20									
395	TY	TY 101695-1	1996	10/15/95	0 35	12			0		NPDES		No	480									
396	TY	TY 032296	1996	3/22/96	0.21				0		NPDES		No		12								
397	TY	TY 041696	1996	4/15/96	0 49	16			0 09		NPDES		No	30									
398	TY	TY 042296	1996	4/22/96	2.83	8			0		NPDES		No	23									
399	TY	TY 070496	1997	7/3/96	0.23	12			0		NPDES		No	28									
400	TY	TY 071896	1997	7/17/96	0.27	31			0		Slip Ag		No	13									
401	TY	TY 080296	1997	8/2/96	1.01	27			0	325	Slip Ag		No	33									
402	TY	TY 100496	1997	10/4/96	0.59	8 1			0 08	18	NPDES		No	17	4								
403	TY	TY 021297	1997	2/11/97	0.48	18			0	205	NPDES		No	29									
404	TY	TY 030697	1997	3/5/97	0 39	20			0 24	42	NPDES		No	188									possible insert (BMP) failure indicated by elevated FOG and TSS
405	TY	TY 060397	1997	6/3/97	0 26	16			0	76	NPDES	SMC	No	73									
406	TY	TY 111797	1998	11/16/97	0 47	12 6			0	222	NPDES	SMC	No	26									
407	TY	TY 030998	1998	3/8/98	0 86	27			0	132	NPDES	SMC	No	15									Makeup Comp for 98QW, has extra Grab
408	TY	TY 061098	1998	6/10/98	0 28	10			0	288	NPDES	EMC	No	20									
409	TY	TY 020399	1999	2/3/99	0 28	19	0 07	0	0 61	27	NPDES	SMC	No	28									
410	TY	TY 07029	2000	7/2/99	0 3	6	0 11	0	0	103	NPDES	EMC	No	24									
411	TY	TY 020800	2000	2/7/00	1 18	25	0 12	0	0 05	31	NPDES	EMC	No	17									
412	TY	TY 031300	2000	3/13/00	0.47	9	0.13	0	0	49	NPDES	SMC	No	45									
413	TY	TY 012901	2001	1/28/01	0.26	8	0.09	0	0	101	NPDES	EMC	No	660									

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NPDES Composite Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

		TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn
All Outfalls	Count	387	336	334	202	202	204	312	312	312
	Max	4310	2650	646	260	355	364	0 366	0.104	1.030
	95th	124	79	76	9.4	25.0	34 2	0.083	0.034	0.360
	75th	41	25	12	2.5	2.5	5 0	0.037	0.010	0.148
	Median	17	12	6.27	2.5	2.5	5	0 024	0 003	0 064
	25th	7	6	4	1.0	1 0	2 0	0 015	0 001	0 026
	Min	0 62	0 63	2	1	1	2	0 001	0 001	0 002
	SD	226	148	53	18 6	29.6	35 9	0 033	0 014	0 131
	CV%	486%	487%	291%	454%	378%	306%	101%	163%	117%
	#NonDetects	6	0	63	174	158	152	1	103	6
	%NonDetects	2%	0%	19%	86%	78%	75%	0%	33%	2%
SDE4 (002)	Count	49	48	50	45	45	46	51	51	51
	Max	253	190	335	14	49 4	49.4	0.208	0.104	0.779
	95th	182	78	28	6.2	11.2	22 5	0.077	0.062	0.328
	75th	66	42	11	2.5	2.5	5 0	0.034	0.026	0 195
	Median	45	26 5	6 82	1	1	2	0 024	0 013	0 134
	25th	34	19	5	1.0	1.0	2.0	0 015	0.005	0.096
	Min	8 8	1.5	2	1	1	2	0.003	0.001	0.002
	SD	53	33	47	2.8	8.5	9 7	0.033	0 022	0.122
	CV%	88%	95%	287%	126%	225%	189%	105%	110%	75%
	#NonDetects	0	0	8	40	38	38	0	9	2
	%NonDetects	0%	0%	16%	89%	84%	83%	0%	18%	4%
SDS1 (003)	Count	23	22	22	17	17	17	24	24	24
	Max	93	72	92	260	33 4	275	0 366	0 088	0.304
	95th	74	46	77	63 2	25 9	81 7	0.119	0 044	0 285
	75th	31	27	23	2.5	4 5	7.5	0 085	0.018	0 210
	Median	15	14	12.25	2 5	2.5	5	0.036	0 009	0 122
	25th	8	8	7	1.0	1.0	2.0	0.022	0.005	0.103
	Min	1.8	3.6	2	1	1	2	0 012	0 001	0 062
	SD	25	17	24	62.5	9 3	65.4	0.074	0.019	0.073
	CV%	101%	84%	114%	352%	152%	276%	120%	124%	47%
	#NonDetects	0	0	1	14	12	11	0	1	0
	%NonDetects	0%	0%	5%	82%	71%	65%	0%	4%	0%

Full Data Set (No Values Trimmed)
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c:\ENV-apps\EMIS\POSDEV\EMISMain.mdb/rptSWNPDESCompStats

NPDES Composite Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

Station	Statistic	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn
SDS2 (004)	Count	10	10	9				3	3	3
	Max	65	39	11				0.010	0.006	0.213
	95th	59	35	10				0.010	0.005	0.198
	75th	36	29	6				0.009	0.003	0.138
	Median	20	19.5	4				0.009	0.001	0.064
	25th	17	10	2				0.008	0.001	0.035
	Min	7.8	6.1	2				0.007	0.001	0.006
	SD	18	11	3				0.002	0.003	0.107
	CV%	64%	56%	65%				18%	108%	113%
	#NonDetects	0	0	4				0	2	0
	%NonDetects	0%	0%	44%				0%	67%	0%
SDS3 (005)	Count	56	55	58	43	43	43	58	58	58
	Max	310	166	648	31.5	355	364	0.136	0.043	0.194
	95th	62	49	149	17.3	113.5	121.1	0.091	0.012	0.136
	75th	19	15	19	3.8	10.0	17.5	0.047	0.004	0.059
	Median	8.95	8	10.75	1	2.5	5	0.029	0.002	0.041
	25th	5	5	6	1.0	1.0	2.5	0.022	0.001	0.029
	Min	1	0.7	2	1	1	2	0.004	0.001	0.002
	SD	51	26	105	6.2	60.8	82.9	0.028	0.006	0.039
	CV%	223%	162%	287%	154%	266%	233%	71%	163%	76%
	#NonDetects	1	0	4	31	22	20	0	23	1
	%NonDetects	2%	0%	7%	72%	51%	47%	0%	40%	2%
SDS4 (009)	Count	22	21	23	10	10	10	23	23	23
	Max	4310	2650	93	2.5	2.5	5	0.180	0.047	0.228
	95th	101	95	18	2.5	2.5	5.0	0.041	0.005	0.047
	75th	25	12	7	2.5	2.5	5.0	0.033	0.003	0.034
	Median	11.5	6.5	5	2.5	2.5	5	0.023	0.001	0.020
	25th	5	5	4	2.5	2.5	5.0	0.018	0.001	0.016
	Min	2.1	1.3	2	1	1	2	0.006	0.001	0.008
	SD	916	576	19	0.6	0.6	1.3	0.034	0.010	0.044
	CV%	429%	417%	186%	29%	29%	29%	109%	258%	138%
	#NonDetects	0	0	3	10	10	10	0	8	0
	%NonDetects	0%	0%	13%	100%	100%	100%	0%	35%	0%

Full Data Set (No Values Trimmed)
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c:\ENV-apps\EMIS\POSDEV\EMISMain.mdb/rptSWNPDESCompStats

NPDES Composite Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

Location	Statistic	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Note
SDS7 (010)	Count	4	4	4							Former location downstream, ends 10/1996
	Max	88	310	15							
	95th	83	267	14							
	75th	64	96	8							
	Median	38	22.5	5.5							
	25th	16	16	5							
	Min	5 7	2 3	4							
	SD	37	147	5							
	CV%	87%	165%	68%							
	#NonDetects	0	0	0							
	%NonDetects	0%	0%	0%							
SDS7up (010)	Count	8	8	4				4	4	4	Upstream location, begins 11/1996
	Max	12	13	6.7				0.028	0 001	0.010	
	95th	11	11	6				0 025	0.001	0 010	
	75th	8	7	5				0 012	0.001	0.009	
	Median	5.8	3 65	3 09				0.005	0.001	0.007	
	25th	3	2	2				0.003	0.001	0.005	
	Min	2.2	1	2				0.001	0.001	0 002	
	SD	3	4	2				0.012	0.000	0.003	
	CV%	57%	79%	60%				127%	0%	49%	
	#NonDetects	0	0	2				1	4	1	
	%NonDetects	0%	0%	50%				25%	100%	25%	
SDS6 (014)	Count	7	7	5				7	7	7	Formerly SB B
	Max	91	126	5 66				0.028	0 007	0 124	
	95th	75	121	5				0.025	0.007	0 099	
	75th	33	75	3				0 016	0 004	0.038	
	Median	23	35	2				0 013	0 002	0.029	
	25th	11	20	2				0 007	0 001	0.023	
	Min	7.1	14	2				0 006	0.001	0.006	
	SD	29	46	2				0 008	0.003	0.039	
	CV%	98%	89%	53%				60%	94%	97%	
	#NonDetects	0	0	3				0	3	0	
	%NonDetects	0%	0%	60%				0%	43%	0%	

Full Data Set (No Values Trimmed)
Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.

NPDES Composite Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

Station	Statistic	TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	Notes
SDS5 (015)	Count	8	8	4				8	8	8	Formerly SB D
	Max	58	49	11.3				0.021	0 006	0.129	
	95th	56	46	10				0.019	0.005	0.092	
	75th	41	36	5				0 015	0 003	0.022	
	Median	36	19.5	2 5				0 012	0 001	0.021	
	25th	7	9	2				0 007	0 001	0 008	
	Min	3	2 9	2				0 005	0 001	0 002	
	SD	22	17	5				0 006	0 002	0 041	
	CV%	74%	77%	99%				48%	90%	140%	
	#NonDetects	0	0	3				0	5	1	
	%NonDetects	0%	0%	75%				0%	63%	13%	
SDN1 (006)	Count	24	23	26	18	18	18	14	14	14	Former location downstream at SDN1-27, ends 1996.
	Max	130	150	194	6 1	2.5	6 1	0.081	0 039	1.030	
	95th	65	30	38	3 0	2.5	5 2	0 080	0 027	0.730	
	75th	48	19	19	2.5	2.5	5 0	0.045	0.015	0 456	
	Median	22	14	10.25	2.5	2.5	5	0.035	0.012	0.365	
	25th	14	7	6	2.5	2.5	5.0	0.021	0.008	0 291	
	Min	1	2.1	2	2.5	2.5	5	0.009	0.001	0.160	
	SD	28	30	37	0 8	0 0	0.3	0.023	0.009	0.206	
	CV%	86%	154%	183%	31%	0%	5%	60%	67%	60%	
	#NonDetects	1	0	2	17	18	17	0	0	0	
	%NonDetects	4%	0%	8%	94%	100%	94%	0%	0%	0%	
SDN1up (006)	Count	37	37	36	5	5	5	37	37	37	Upstream location at SDN1-22, begins 1997.
	Max	366	198	116	13 8	12.3	26 1	0.083	0 048	0 613	
	95th	220	110	21	11 2	10 0	21.3	0 057	0 036	0.550	
	75th	85	44	9	1.0	1 0	2.0	0 034	0.016	0.247	
	Median	45	27	5.25	1	1	2	0 020	0 009	0.192	
	25th	25	16	4	1 0	1.0	2.0	0.014	0.005	0.127	
	Min	1.9	0.63	2	1	1	2	0.003	0.001	0.066	
	SD	80	42	19	5 7	5 1	10.8	0.017	0.012	0.144	
	CV%	110%	108%	194%	161%	155%	158%	87%	97%	62%	
	#NonDetects	0	0	8	4	4	4	0	6	0	
	%NonDetects	0%	0%	22%	80%	80%	80%	0%	16%	0%	

Full Data Set (No Values Trimmed)

Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.

c:\ENV-apps\EMIS\POSDEV\EMISMain.mdb/rptSWNPDESCompStats

NPDES Composite Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

		TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn	
SDN2 (007)	Count	23	19	21	13	13	13	17	17	17	Pumped to IWS as of late 1997.
	Max	48	14	120	36	50.9	50.9	0.076	0.022	0.138	
	95th	46	11	86	18.2	31.8	42.0	0.062	0 022	0.106	
	75th	16	8	15	2.5	2.5	17.3	0.035	0.011	0 076	
	Median	7.5	4 9	7	2.5	2 5	5	0.025	0.005	0 048	
	25th	5	2	5	2.5	2.5	5 0	0 013	0 003	0 026	
	Min	1	1 5	2	2.5	2 5	5	0 009	0.002	0.017	
	SD	15	4	29	9.3	13.8	14 7	0 020	0 007	0 034	
	CV%	108%	65%	158%	173%	169%	114%	68%	85%	62%	
	#NonDetects	1	0	2	11	10	9	0	0	0	
	%NonDetects	4%	0%	10%	85%	77%	69%	0%	0%	0%	
SDN3 (008)	Count	28	28	29	17	17	17	23	23	23	
	Max	27	42	222	6.2	14 2	15.2	0.037	0.010	0.180	
	95th	24	26	61	3.2	4 8	8 0	0 036	0.004	0.153	
	75th	15	17	5	2.5	2.5	5.0	0.018	0.002	0 079	
	Median	10 5	10	3	2.5	2.5	5	0.012	0.001	0 051	
	25th	3	5	2	2.5	2.5	5.0	0.010	0.001	0.042	
	Min	0.62	1.6	2	1	1	2	0.003	0.001	0.020	
	SD	7	9	43	1.1	2.9	2.6	0 009	0.002	0.042	
	CV%	73%	75%	296%	42%	93%	48%	60%	108%	62%	
	#NonDetects	3	0	11	16	16	15	0	9	0	
	%NonDetects	11%	0%	38%	94%	94%	88%	0%	39%	0%	
SDN4 (011)	Count	41	41	42	32	32	33	42	42	42	
	Max	188	320	168	7	27.3	34.3	0.139	0 008	0 127	
	95th	76	43	27	3 8	7 9	9 5	0 067	0.003	0 069	
	75th	11	7	8	1.0	1 3	3.1	0 043	0 001	0 027	
	Median	4.2	5.6	5.27	1	1	2	0.031	0.001	0.021	
	25th	3	4	2	1.0	1.0	2.0	0.023	0.001	0 016	
	Min	1.6	1 7	2	1	1	2	0.013	0.001	0.002	
	SD	33	51	26	1.3	4.9	5.9	0.022	0.001	0.021	
	CV%	224%	298%	241%	89%	198%	152%	61%	81%	81%	
	#NonDetects	0	0	12	29	26	26	0	33	1	
	%NonDetects	0%	0%	29%	91%	81%	79%	0%	79%	2%	

Full Data Set (No Values Trimmed)

Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.

NPDES Composite Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

		TSS	Turb, NTU	BOD5	E-Glycol	P-Glycol	Total Glycol	Cu	Pb	Zn
EY (012)	Count	24	3	1	1	1	1	1	1	1
	Max	262	82	24.1	1	1	2	0.020	0 026	0.179
	95th	124	78	4	3.6	3 6	3 6	3.600	3.600	3.600
	75th	59	62	4	3 6	3 6	3 6	3 600	3.600	3 600
	Median	25	42	24.1	1	1	2	0 020	0 026	0.179
	25th	15	23	4	3 6	3 6	3 6	3 600	3 600	3.600
	Min	3.2	4 3	24 1	1	1	2	0 020	0 026	0 179
	SD	56	39	0	0 0	0 0	0 0	0.000	0 000	0 000
	CV%	122%	91%	0%	0%	0%	0%	0%	0%	0%
	#NonDetects	0	0	0	1	1	1	0	0	0
	%NonDetects	0%	0%	0%	100%	100%	100%	0%	0%	0%
TY (013)	Count	23	2		1	1	1			
	Max	660	12		2.5	2.5	5			
	95th	451	12		23.1	23 1	23 1			
	75th	32	10		23 1	23 1	23 1			
	Median	24	8		2.5	2 5	5			
	25th	18	6		23 1	23.1	23.1			
	Min	4	4		2.5	2.5	5			
	SD	161	6		0.0	0 0	0.0			
	CV%	204%	71%		0%	0%	0%			
	#NonDetects	0	0		1	1	1			
	%NonDetects	0%	0%		100%	100%	100%			
Airfield (SDS3,SDS4,SDN3,SDN4)	Count	146	145	152	101	101	103	146	145	145
	Max	4310	2650	646	31 5	355	364	0 180	0 047	0.228
	95th	70	43	88	8 4	27.3	34.0	0 082	0 010	0 127
	75th	17	14	12	2 5	2.5	5 4	0.039	0 002	0 052
	Median	7.6	6.2	6	1	2.5	5	0.027	0 001	0.032
	25th	4	5	4	1 0	1 0	2.0	0 018	0 001	0 020
	Min	1	0.7	2	1	1	2	0 003	0.001	0.002
	#NonDetects	4	0	30	85	73	71	0	72	1
	%NonDetects	3%	0%	20%	84%	72%	69%	0%	50%	1%

Full Data Set (No Values Trimmed)

Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.

APPENDIX C TABULAR DEICING EVENT SAMPLE DATA SUMMARIES

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POS EMIS

Deicing Event Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS									CONCENTRATION, mg/L				
Seq	Outfall	Sample ID	Reported	Storm Date	Type	Dpth in	MaxInt in/hr	Dryant hr	Purpose	Type	Ground Deice?	Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	Comments
1	SDE4	SDE4 111394	1995	11/11/94	NPDES Storm	0.28		46	NPDES		No		7	< 5	< 5	< 10	
2	SDE4	SDE4 111894	1995	11/18/94	baseflow	0			NPDES		No		26	< 5	< 5	< 10	
3	SDE4	SDE4 111994	1995	11/19/94	NPDES Storm	0.42		52	NPDES		No		8	< 5	< 5	< 10	
4	SDE4	SDE4 041095	1995	4/10/95	NPDES Storm	0.29		56	NPDES		No		8	< 5	< 5	< 10	
5	SDE4	SDE4 042895	1995	4/28/95	baseflow	0			NPDES		No			< 5	< 5	< 10	
6	SDE4	SDE4 050295	1995	5/2/95	Other Storm	0.42		36	NPDES		No			10	< 5	10	
7	SDE4	SDE4 081795	1996	8/16/95	NPDES Storm	1.34			NPDES		No			< 5	8	8	
8	SDE4	SDE4 012096 AVG	1996	1/19/96	Other	1.8			R/W W/O	avg of time comp	Yes		72	13	10	24	20-hr avg of 8 discrete samples 2 of 6 glycol <MDL
9	SDE4	SDE4 020396	1996	2/3/96	NPDES Storm	1.6			NPDES	flow-wt comp	Yes		74	14	12	26	
10	SDE4	SDE4 020496 AVG	1996	2/3/96	Other	1.6			SES	avg of time comp	Yes		95	18	12	30	10-hr avg of 5 discrete samples. All>MDL
11	SDE4	SDE4 032296	1996	3/22/96	NPDES Storm	0.21			Stip Ag	flow-wt comp	No		12	< 5	< 5	< 10	
12	SDE4	SDE4 041696	1996	4/15/96	NPDES Storm	0.49			NPDES	flow-wt comp	No		7	< 5	< 5	< 10	
13	SDE4	SDE4 090396	1997	9/3/96	NPDES Storm	0.29		76	NPDES	flow-wt comp	No	3	7	< 5	< 5	< 10	
14	SDE4	SDE4 112196 A99	1997	11/20/96	Other	0.45	0.07	16	NPDES	avg of time comp	Yes	260		21	71	92	composite of bottles A1, A2, A3 for quarterly glycols
15	SDE4	SDE4 121596	1997	12/15/96	Other Storm	0.11		72	NPDES	flow-wt comp	No	63	9	< 5	< 5	< 10	backup data in case short on data for 96 Q4
16	SDE4	SDE4 122196	1997	12/19/96	NPDES Storm	0.36		103	NPDES	flow-wt comp	No	76	12	< 5	< 5	< 10	
17	SDE4	SDE4 123196 AVG	1997	12/26/96	Other	1.12			R/W W/O	avg of time comp	Yes	256	33	2	4	6	30-hr avg of 5 time-compositesamples. most glycol and BOD<MDL
18	SDE4	SDE4 010797 AVG	1997	12/26/96	Other	1.12			R/W W/O	avg of time comp	Yes	256	13	8	15	23	6-day avg of 15 time-composite samples. 12of 15 BOD<MDL, 11 of15 glycol <MDL
19	SDE4	SDE4 011697	1997	1/16/97	NPDES Storm	1.21		154	NPDES	flow-wt comp	No	136	13	< 5	< 5	< 10	
20	SDE4	SDE4 012797	1997	1/27/97	NPDES Storm	0.41		109	Stip Ag	flow-wt comp	No	145	< 4	< 5	49	49	
21	SDE4	SDE4 030697	1997	3/5/97	NPDES Storm	0.39		42	NPDES	flow-wt comp	No	51	4	< 5	< 5	< 10	
22	SDE4	SDE4 060397	1997	6/3/97	NPDES Storm	0.26		76	NPDES	flow-wt comp	No	2	6	< 2	< 2	< 4	
23	SDE4	SDE4 102897	1998	10/28/97	NPDES Storm	0.47		26	NPDES	flow-wt comp	No	9	4	< 2	< 2	< 4	
24	SDE4	SDE4 121697	1998	12/15/97	NPDES Storm	1		87	NPDES	flow-wt comp	No	30	< 4	< 2	< 2	< 4	
25	SDE4	SDE4 011398	1998	1/12/98	Other Storm	1.13		123	NPDES	avg of time comp	Yes	457	213	6	5	11	24-hour time composite
26	SDE4	SDE4 030198	1998	3/1/98	NPDES Storm	0.98		6	NPDES	flow-wt comp	No	11	5	< 2	< 2	< 4	
27	SDE4	SDE4 030998	1998	3/8/98	NPDES Storm	0.86		132	NPDES	flow-wt comp	No	154		< 2	< 2	< 4	taken for aircraft deicing only
28	SDE4	SDE4 042398	1998	4/23/98	NPDES Storm	0.46		264	NPDES	flow-wt comp	No	29	21	< 2	< 2	< 4	
29	SDE4	SDE4 051498	1998	5/14/98	NPDES Storm	0.21		125	NPDES	flow-wt comp	No	15	11	< 2	< 2	< 4	

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail
c:\ENV-apps\EMIS\POSDEV\EMISMain.mdb/rptSWNPDESDeicingEvents

Deicing Event Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS									CONCENTRATION, mg/L				
Seq	Out fall	Sample ID	Reported	Storm Date	Type	Dpth in	MaxInt in/hr	Dryant hr	Purpose	Type	Ground Deice?	Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	Comments
30	SDE4	SDE4 091898	1999	9/18/98	Other Storm	0 19	0.16	456	NPDES	flow-wt comp	No	5	14	< 2	< 2	< 4	
31	SDE4	SDE4 092598	1999	9/24/98	NPDES Storm	0 47	0.26	148	NPDES	flow-wt comp	No	3	< 4	< 2	< 2	< 4	
32	SDE4	SDE4 100398	1999	10/3/98	NPDES Storm	0.4	0 22	36	NPDES	flow-wt comp	No	3	5	< 2	< 2	< 4	
33	SDE4	SDE4 102798	1999	10/27/98	NPDES Storm	0.64	0.19	72	NPDES	flow-wt comp	No	16	5	< 2	< 2	< 4	
34	SDE4	SDE4 110498	1999	11/3/98	NPDES Storm	1.62	0.48	35	NPDES	failed comp	No	11	< 4	< 2	< 2	< 4	not representative, incomplete sample, flow probe error
35	SDE4	SDE4 111998	1999	11/19/98	NPDES Storm	2.34	0.18	73	NPDES	flow-wt comp	No	52	7	< 2	< 2	< 4	concurrent WET sample
36	SDE4	SDE4 121798	1999	12/17/98	Other Storm	0 11	0.03	33	NPDES	flow-wt comp	No	33		< 2	< 2	< 4	
37	SDE4	SDE4 122498	1999	12/24/98	NPDES Storm	1 19	0.16	153	NPDES	flow-wt comp	Yes	373	335	13	31	44	
38	SDE4	SDE4 011099	1999	1/9/99	NPDES Storm	0.27	0.05	54	NPDES	failed comp	No	39	< 4	< 2	3	4	not representative, too late on hydrograph
39	SDE4	SDE4 012299	1999	1/20/99	NPDES Storm	0 42	0 09	22	NPDES	flow-wt comp	No	31	6	< 2	< 2	< 4	concurrent WET sample
40	SDE4	SDE4 021899	1999	2/18/99	NPDES Storm	0.6	0 06	20	NPDES	flow-wt comp	No	26	4	< 2	< 2	< 4	
41	SDE4	SDE4 022399	1999	2/22/99	NPDES Storm	0.56	0 14	9	NPDES	flow-wt comp	No	15	< 4	< 2	< 2	< 4	concurrent WET sample
42	SDE4	SDE4 030899	1999	3/8/99	NPDES Storm	0.28	0 05	96	NPDES	flow-wt comp	No	171	10	< 2	5	6	
43	SDE4	SDE4 031399	1999	3/12/99	NPDES Storm	0.83	0.07	71	NPDES	flow-wt comp	No	69	5	< 2	< 2	< 4	
44	SDE4	SDE4 032499	1999	3/24/99	NPDES Storm	0.28	0 08	40	NPDES	flow-wt comp	No	16	6	< 2	< 2	< 4	concurrent WET sample
45	SDE4	SDE4 032899	1999	3/27/99	NPDES Storm	0 24	0 07	26	NPDES	flow-wt comp	No	17	< 4	< 2	< 2	< 4	
46	SDE4	SDE4 110699	2000	11/5/99	NPDES Storm	0 68	0 11	44	NPDES	flow-wt comp	No	22	< 4	< 2	< 2	< 4	
47	SDE4	SDE4 111799	2000	11/16/99	NPDES Storm	0 6	0.07	23	NPDES	flow-wt comp	No	10	< 4	< 2	< 2	< 4	
48	SDE4	SDE4 120599	2000	12/4/99	NPDES Storm	0.24	0 1	60	NPDES	flow-wt comp	No	34	8	< 2	< 2	< 4	
49	SDE4	SDE4 011300	2000	1/12/00	NPDES Storm	0 37	0 04	10	NPDES	flow-wt comp	Yes	261		4	7	12	runway deice
50	SDE4	SDE4 031300	2000	3/13/00	NPDES Storm	0 47	0 13	49	NPDES	flow-wt comp	No	44	6	< 2	< 2	< 4	
51	SDE4	SDE4 041300	2000	4/13/00	NPDES Storm	0.34	0.08	74	NPDES	flow-wt comp	No	16	9	< 2	< 2	< 4	
52	SDE4	SDE4 101700	2001	10/17/00	NPDES Storm	0 36	0 12	27	NPDES	flow wt comp	No	4	6	< 2	< 2	< 4	
53	SDE4	SDE4 110800	2001	11/8/00	NPDES Storm	0 77	0 18	54	NPDES	flow-wt comp	No	21	< 4	7	< 2	8	
54	SDE4	SDE4 112300	2001	11/23/00	NPDES Storm	0 37	0 1	330	NPDES	flow-wt comp	No	292	9	< 2	< 2	< 4	
55	SDE4	SDE4 121400	2001	12/14/00	NPDES Storm	0.29	0 08	123	NPDES	flow-wt comp	No	245	15	4	6	10	
56	SDE4	SDE4 010401	2001	1/3/01	NPDES Storm	0.44	0.13	77	NPDES	flow-wt comp	No	22	6	< 2	< 2	< 4	
57	SDE4	SDE4 020801-1	2001	2/8/01	NPDES Storm	0.3	0 14	55	NPDES	time-comp	Yes	301	131	5	36	41	24-hr time composite, bottle 1 of 2. Coincided with major deicing event (runway)
58	SDE4	SDE4 020901-2	2001	2/8/01	NPDES Storm	0.3	0 14	55	NPDES	time-comp	Yes	301	< 4	< 2	< 2	< 4	24-hr time composite, bottle 2 of 2. Coincided with major deicing event (runway)
59	SDE4	SDE4 021601-B1	2001	2/16/01	NPDES Storm	0.46	0 14	29	NPDES	time-comp	Yes	336	69	< 2	12	13	14-hr time comp, bottle 1 of 5. Coincided with major deicing event (runway)

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail

AR 022748

Deicing Event Sample Data 9/1/94 - 6/30/01

SAMPLE DATA | STORM CHARACTERISTICS | CONCENTRATION, mg/L

Seq	Outfall	Sample ID	Reported	Storm Date	Type	Dpth in	MaxInt in/hr	Dryant hr	Purpose	Type	Ground Deice?	Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	Comments
60	SDE4	SDE4 021701-B2	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	154	< 2	48	49	14-hr time comp, bottle 2 of 5 Coincided with major deicing event (runway)
61	SDE4	SDE4 021701-B3	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	34	< 2	12	13	14-hr time comp, bottle 3 of 5 Coincided with major deicing event (runway)
62	SDE4	SDE4 021801-B4	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	16	< 2	5	6	14-hr time comp, bottle 4 of 5 Coincided with major deicing event (runway)
63	SDE4	SDE4 021801-B5	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	10	< 2	7	8	9-hr time comp, bottle 5 of 5. Coincided with major deicing event (runway)
64	SDE4	SDE4 021801	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	53	< 2	19	20	overall event time comp (65-hr) of bottles 1 to 5 Coincided with major deicing event (runway)
65	SDE4	SDE4 031501	2001	3/15/01	NPDES Storm	0.32	0.05	43	NPDES	flow-wt comp	No	50	11	< 2	< 2	< 4	
66	SDE4	SDE4 032701 COMP	2001	3/27/01	NPDES Storm	0.39	0.1	19	NPDES	flow-wt comp	No	18	6	< 2	< 2	< 4	
67	SDE4	SDE4 051401 COMP	2001	5/14/01	NPDES Storm	0.48	0.08	24	NPDES	flow-wt comp	No		8	< 2	< 2	< 4	
68	SDS1	SDS1 111894	1995	11/18/94	baseflow	0			NPDES		No		> 54	32	< 5	32	
69	SDS1	SDS1 111994	1995	11/19/94	NPDES Storm	0.42		52	NPDES		No		46	14	< 5	14	
70	SDS1	SDS1 020895	1995	2/8/95	baseflow	0			NPDES		No			< 5	< 5	< 10	
71	SDS1	SDS1 021395	1995	2/13/95	baseflow	0			NPDES		Yes		5	< 5	< 5	< 10	
72	SDS1	SDS1 021695	1995	2/15/95	NPDES Storm	1.1		86	NPDES		Yes		> 92	260	15	275	
73	SDS1	SDS1 042895	1995	4/28/95	baseflow	0			NPDES		No			< 5	< 5	< 10	
74	SDS1	SDS1 050295	1995	5/2/95	Other Storm	0.42		36	NPDES		No			< 5	< 5	< 10	
75	SDS1	SDS1 092995	1996	9/29/95	baseflow	0			NPDES		No			< 5	< 5	< 10	
76	SDS1	SDS1 011496	1996	1/13/96	NPDES Storm	0.37			NPDES	flow-wt comp	No		18	< 5	< 5	< 10	
77	SDS1	SDS1 012096 AVG	1996	1/19/96	Other	1.8			R/W W/O	avg of time comp	Yes		130	105	193	298	20-hr avg of 6 discrete samples 5 TKN <MDL
78	SDS1	SDS1 012896	1996	1/28/96	baseflow				SES		Yes			320	5900	6220	
79	SDS1	SDS1 013096	1996	1/30/96	baseflow				SES		Yes		690	71	220	291	
80	SDS1	SDS1 020196	1996	2/1/96	baseflow				SES		Yes		170	13	23	36	
81	SDS1	SDS1 020496 AVG	1996	2/3/96	NPDES Storm	1.6			SES	avg of time comp	Yes		131	23	96	118	14-hr avg of 6 discrete samples. 1 glycol <MDL
82	SDS1	SDS1 041696	1996	4/15/96	NPDES Storm	0.49			NPDES	flow-wt comp	No		24	< 5	< 5	< 10	
83	SDS1	SDS1 042296	1996	4/22/96	NPDES Storm	2.83			Slip Ag	flow-wt comp	No		9	< 5	< 5	< 10	
84	SDS1	SDS1 070496	1997	7/3/96	NPDES Storm	0.23			NPDES	flow-wt comp	No		11	< 5	< 5	< 10	
85	SDS1	SDS1 110496	1997	11/3/96	Other Storm	0.14		120	NPDES	flow-wt comp	No	24	6	< 5	< 5	< 10	taken for aircraft deicing only

Full Data Set (No Values Trimmed)
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c:\ENV-apps\EMIS\POSDEV\EMISMain.mdb/rptSWNPDESDeicingEvents

Deicing Event Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS									CONCENTRATION, mg/L				
Seq	Out fall	Sample ID	Reported	Storm Date	Type	Dpth in	MaxInt in/hr	Dryant hr	Purpose	Type	Ground Deice?	Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	Comments
86	SDS1	SDS1 112096 A1	1997	11/20/96	Other	0.45	0.07	16	R/W W/O	time-comp	Yes	280	428	59	2800	2859	
87	SDS1	SDS1 112396	1997	11/23/96	NPDES Storm	0.63		72	NPDES	failed comp	Yes	112	258	8	190	198	not representative (<2 hrs) reference only.
88	SDS1	SDS1 120496	1997	12/4/96	NPDES Storm	0.82		44	NPDES	flow-wt comp	No	92	40	< 5	24	29	
89	SDS1	SDS1 011697	1997	1/16/97	NPDES Storm	1.21		154	NPDES	flow-wt comp	No	136	79	< 5	33	33	
90	SDS1	SDS1 041397	1997	4/13/97	NPDES Storm	0.31			NPDES	flow-wt comp	No	8	21	< 5	< 5	< 10	
91	SDS1	SDS1 061797	1997	6/16/97	NPDES Storm	0.36		135	NPDES	flow-wt comp	No	3	4	< 2	< 2	< 4	
92	SDS1	SDS1 102897	1998	10/28/97	NPDES Storm	0.47		26	NPDES	flow-wt comp	No	9	7	< 2	< 2	< 4	
93	SDS1	SDS1 112097	1998	11/19/97	NPDES Storm	0.65		24	NPDES	flow-wt comp	No	18	< 4	< 2	< 2	< 4	
94	SDS1	SDS1 121697	1998	12/15/97	NPDES Storm	1		87	NPDES	flow-wt comp	No	30	6	< 2	< 2	< 4	
95	SDS1	SDS1 011198	1998	1/12/98	Other Storm	1.13		123	NPDES	time-comp	Yes	457	< 12	< 2	< 2	< 4	24-hour time composite
96	SDS1	SDS1 030998	1998	3/8/98	NPDES Storm	0.86		132	NPDES	flow-wt comp	No	154		< 2	6	7	fulfills annual sample rqmt
97	SDS1	SDS1 102798	1999	10/27/98	NPDES Storm	0.64	0.19	72	NPDES	flow-wt comp	No	16	6	< 2	< 2	< 4	
98	SDS1	SDS1 121798	1999	12/17/98	Other Storm	0.11	0.03	33	NPDES	first flush grab	No	33		< 2	< 2	< 4	
99	SDS1	SDS1 031299 GRAB	1999	3/12/99	NPDES Storm	0.83	0.07	71	NPDES	first flush grab	No	69	123	5	43	49	quarterly deice grab sample in first 60 minutes
100	SDS1	SDS1 062099 GRAB 1	1999	6/20/99	NPDES Storm	0.21	0.03	48	NPDES	first flush grab	No	1		< 2	< 2	< 4	foam observed below outfall
101	SDS1	SDS1 062099 GRAB 2	1999	6/20/99	NPDES Storm	0.21	0.03	48	NPDES	first flush grab	No	1		< 2	< 2	< 4	foam observed below outfall
102	SDS1	SDS1 070299 GRAB 1	2000	7/2/99	NPDES Storm	0.3	0.11	103	NPDES	first flush grab	No	5	13	< 2	< 2	< 4	
103	SDS1	SDS1 070299 GRAB 2	2000	7/2/99	NPDES Storm	0.3	0.11	103	SrcTrace	first flush grab	No	5	10	< 2	< 2	< 4	
104	SDS1	SDS1 070299	2000	7/2/99	NPDES Storm	0.3	0.11	103	NPDES	flow-wt comp	No	5	8	< 2	< 2	< 4	
105	SDS1	SDS1 112799 GRAB	2000	11/27/99	NPDES Storm	0.32	0.07	22	NPDES	first flush grab	No	31		< 2	< 2	< 4	
106	SDS1	SDS1 010700 grab	2000	1/7/00	NPDES Storm	0.38	0.12	23	NPDES	first flush grab	No	60		< 2	< 2	< 4	
107	SDS1	SDS1 011200 grab	2000	1/12/00	NPDES Storm	0.37	0.04	10	NPDES	first flush grab	Yes	261		2	799	801	runway deice
108	SDS1	SDS1 042100 grab	2000	4/21/00	Other Storm	0.1	0.04		NPDES	first flush grab	No			< 2	< 2	< 4	
109	SDS1	SDS1 112300 GRAB	2001	11/23/00	NPDES Storm	0.37	0.1	330	NPDES	Non-Representative	No	292		4	6	10	Grab Not Representative-late on hydrograph
110	SDS1	SDS1 012901	2001	1/28/01	NPDES Storm	0.26	0.09	101	NPDES	flow-wt comp	No	187		3	5	8	

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail

AR 022750

Deicing Event Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS									CONCENTRATION, mg/L				
Seq	Out fall	Sample ID	Reported	Storm Date	Type	Dpth in	MaxInt In/hr	Dryant hr	Purpose	Type	Ground Deice?	Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	Comments
111	SDS1	SDS1 020801 GRAB	2001	2/8/01	NPDES Storm	0.3	0.14	55	NPDES	first flush grab	Yes	301		3	4	7	
112	SDS1	SDS1 021601-G1 GRAB	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	first flush grab	Yes	336		5	44	49	
113	SDS1	SDS1 021701-G2 GRAB	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	first flush grab	Yes	336		< 2	4	5	
114	SDS3	SDS3 090894	1995	9/8/94	NPDES Storm	0.69		93	NPDES		No			< 5	< 5	< 10	
115	SDS3	SDS3 111894	1995	11/18/94	baseflow	0			NPDES		No		2	< 5	< 5	< 10	
116	SDS3	SDS3 111994	1995	11/19/94	NPDES Storm	0.42		52	NPDES	flow-wt comp	No		18	< 5	< 5	< 10	glycols and BOD on labjob "J 014"
117	SDS3	SDS3 020895	1995	2/8/95	baseflow	0			NPDES		No			< 5	< 5	< 10	
118	SDS3	SDS3 041295	1995	4/10/95	NPDES Storm	0.29		56	NPDES		No		4	< 5	< 5	< 10	
119	SDS3	SDS3 042895	1995	4/28/95	baseflow	0			NPDES		No			< 5	< 5	< 10	
120	SDS3	SDS3 050295	1995	5/2/95	Other Storm	0.42		36	NPDES		No			< 5	< 5	< 10	
121	SDS3	SDS3 093095	1996	9/29/95	baseflow	0			NPDES		No			< 5	< 5	< 10	
122	SDS3	SDS3 093095 GRAB	1996	9/29/95	baseflow	0			NPDES	random grab	No			< 5	< 5	< 10	
123	SDS3	SDS3 011496	1996	1/13/96	NPDES Storm	0.37			NPDES	flow-wt comp	No		8	< 5	< 5	< 10	
124	SDS3	SDS3 012296 AVG	1996	1/19/96	Other Storm	1.8			R/W W/O	avg of time comp	Yes		118	25	14	40	3.5-day avg of 8 discrete + 8 time-comp samples. 7 glycol, 4 TKN, 2 NH3 <MDL
125	SDS3	SDS3 012896	1996	1/28/96	baseflow				SES		Yes			28	45	73	
126	SDS3	SDS3 013096	1996	1/30/96	baseflow				SES		Yes		210	96	19	115	
127	SDS3	SDS3 020196	1996	2/1/96	baseflow				SES		Yes		130	18	13	31	
128	SDS3	SDS3 020696 AVG	1996	2/3/96	Other Storm	1.6			R/W W/O	avg of time comp	Yes		162	16	13	29	2-day avg of 8 time-comp samples 5BOD>result, 2 glycol, 1 NH3 <MDL
129	SDS3	sds3 032296	1996	3/22/96	NPDES Storm	0.21			Slip Ag	flow-wt comp	No		8	< 5	< 5	< 10	
130	SDS3	SDS3 041696	1996	4/15/96	NPDES Storm	0.49			NPDES	flow-wt comp	No		6	< 5	< 5	< 10	
131	SDS3	SDS3 102196	1997	10/21/96	NPDES Storm	0.68		64	NPDES	flow-wt comp	No	18	< 4	< 5	< 5	< 10	
132	SDS3	SDS3 112896 AVG	1997	11/20/96	Other	0.45	0.07	16	R/W W/O	avg of time comp	Yes	260	75	14	15	28	9-day avg of 32 time-comp samples. 11 glycol, 28 NH3 <MDL
133	SDS3	SDS3 112396	1997	11/23/96	NPDES Storm	0.63		72	Slip Ag	flow-wt comp	Yes	112	34	18	10	28	
134	SDS3	SDS3 010297 AVG	1997	12/26/96	Other	1.12			R/W W/O	avg of time comp	Yes	256	252	19	44	62	7-day avg of 29 time-comp samples 12 glycol, 8 BOD, 14 NH3 <MDL
135	SDS3	SDS3 011697	1997	1/16/97	NPDES Storm	1.21		154	NPDES	flow-wt comp	No	136	10	< 5	< 5	< 10	
136	SDS3	SDS3 030597	1997	3/5/97	NPDES Storm	0.39		42	NPDES	flow-wt comp	No	51	< 4	< 5	< 5	< 10	
137	SDS3	SDS3 011298	1998	1/12/98	Other Storm	1.13		123	NPDES	time-comp	Yes	457	17	< 2	5	5	24-hour time composite

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Deicing Event Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS									CONCENTRATION, mg/L				
Seq	Out fall	Sample ID	Reported	Storm Date	Type	Dpth in	MaxInt in/hr	Dryant hr	Purpose	Type	Ground Deice?	Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	Comments
138	SDS3	SDS3 013098	1998	1/29/98	NPDES Storm	0.2		107	NPDES	flow-wt comp	No	39	14	5	4	10	
139	SDS3	SDS3 030198	1998	3/1/98	NPDES Storm	0.98		6	NPDES	flow-wt comp	No	11	8	< 2	< 2	< 4	
140	SDS3	SDS3 030998	1998	3/8/98	NPDES Storm	0.86		132	NPDES	flow-wt comp	No	154	38	23	9	32	backup monhtly sample in case 3/1/98 sample didn't qualify under new permit
141	SDS3	SDS3 042398	1998	4/23/98	NPDES Storm	0.46		264	NPDES	flow-wt comp	No	29	9	< 2	< 2	< 4	
142	SDS3	SDS3 051498	1998	5/14/98	NPDES Storm	0.21		125	NPDES	flow-wt comp	No	15	6	< 2	< 2	< 4	
143	SDS3	SDS3 091998	1999	9/18/98	Other Storm	0.19	0.16	456	NPDES	failed comp	No	5	12	< 2	< 2	< 4	not representative, extended into post-storm baseflow period
144	SDS3	SDS3 092598	1999	9/24/98	NPDES Storm	0.47	0.26	148	NPDES	flow-wt comp	No	3	5	< 2	2	3	glycols may be high biased, dupe was <MDL
145	SDS3	SDS3 100398	1999	10/3/98	NPDES Storm	0.4	0.22	36	NPDES	flow-wt comp	No	3	4	< 2	< 2	< 4	
146	SDS3	SDS3 102798	1999	10/27/98	NPDES Storm	0.64	0.19	72	NPDES	flow-wt comp	No	16	5	< 2	4	5	
147	SDS3	SDS3 110498	1999	11/3/98	NPDES Storm	1.62	0.48	35	NPDES	flow-wt comp	No	11	7	5	< 2	6	
148	SDS3	SDS3 111398	1999	11/11/98	NPDES Storm	0.98	0.15	31	NPDES	flow-wt comp	No	26	18	10	< 2	12	concurrent WET sample
149	SDS3	SDS3 121798	1999	12/17/98	Other Storm	0.11	0.03	33	NPDES	flow-wt comp	No	33		< 2	12	13	
150	SDS3	SDS3 122598	1999	12/24/98	NPDES Storm	1.19	0.16	153	NPDES	flow-wt comp	Yes	373	450	32	82	113	
151	SDS3	SDS3 011099	1999	1/9/99	NPDES Storm	0.27	0.05	54	NPDES	flow-wt comp	No	39	22	8	14	22	
152	SDS3	SDS3 011499	1999	1/13/99	NPDES Storm	1.07	0.16	85	NPDES	flow-wt comp	No	37	8	< 2	10	11	concurrent WET and WER
153	SDS3	SDS3 020399	1999	2/3/99	NPDES Storm	0.28	0.07	27	NPDES	flow-wt comp	No	16	6	< 2	2	3	
154	SDS3	SDS3 030999	1999	3/8/99	NPDES Storm	0.28	0.05	96	NPDES	flow-wt comp	No	171	220	7	151	158	
155	SDS3	SDS3 031399	1999	3/12/99	NPDES Storm	0.83	0.07	71	NPDES	flow-wt comp	No	69	15	< 2	6	7	
156	SDS3	SDS3 032599	1999	3/24/99	NPDES Storm	0.26	0.08	40	NPDES	flow-wt comp	No	16	< 4	< 2	< 2	< 4	
157	SDS3	SDS3 110699	2000	11/5/99	NPDES Storm	0.68	0.11	44	NPDES	flow-wt comp	No	22	15	< 2	< 2	< 4	
158	SDS3	SDS3 110699 COMP 2	2000	11/5/99	NPDES Storm	0.68	0.11	44	SrcTrace	flow-wt comp	No	22	11	< 2	< 2	< 4	
159	SDS3	SDS3 110699 GRAB 2	2000	11/5/99	NPDES Storm	0.68	0.11	44	SrcTrace	random grab	No	22	14	< 2	< 2	< 4	
160	SDS3	SDS3 111699	2000	11/16/99	NPDES Storm	0.6	0.07	23	NPDES	flow-wt comp	No	10	12	< 2	6	7	
161	SDS3	SDS3 120599	2000	12/4/99	NPDES Storm	0.24	0.1	60	NPDES	flow-wt comp	No	34	48	3	18	21	
162	SDS3	SDS3 120999	2000	12/8/99	NPDES Storm	0.49	0.09	40	NPDES	flow-wt comp	No	43	26	< 2	23	24	
163	SDS3	SDS3 011300	2000	1/12/00	NPDES Storm	0.37	0.04	10	NPDES	flow-wt comp	Yes	261	646	9	355	364	runway deice
164	SDS3	SDS3 031300	2000	3/13/00	NPDES Storm	0.47	0.13	49	NPDES	flow-wt comp	No	44	16	< 2	9	10	
165	SDS3	SDS3 041400	2000	4/13/00	NPDES Storm	0.34	0.08	74	NPDES	flow-wt comp	No	16	18	< 2	< 2	< 4	
166	SDS3	SDS3 101800	2001	10/17/00	NPDES Storm	0.36	0.12	27	NPDES	flow-wt comp	No	4	5	< 2	< 2	< 4	
167	SDS3	SDS3 112300	2001	11/23/00	NPDES Storm	0.37	0.1	330	NPDES	flow-wt comp	No	292	87	5	79	84	

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Deicing Event Sample Data 9/1/94 - 6/30/01

SAMPLE DATA					STORM CHARACTERISTICS									CONCENTRATION, mg/L				
Seq	Out fall	Sample ID	Reported	Storm Date	Type	Dpth In	MaxInt in/hr	Dryant hr	Purpose	Type	Ground Deice?	Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	Comments
168	SDS3	SDS3 010401	2001	1/3/01	NPDES Storm	0.44	0.13	77	NPDES	flow-wt comp	No	22	6	< 2	< 2	< 4	
169	SDS3	SDS3 012901	2001	1/28/01	NPDES Storm	0.26	0.09	101	NPDES	flow-wt comp	No	187	137	5	117	122	
170	SDS3	SDS3 020201	2001	2/1/01	NPDES Storm	0.29	0.09	62	NPDES	flow-wt comp	No	59	20	< 2	13	14	
171	SDS3	SDS3 020801 GRAB	2001	2/8/01	NPDES Storm	0.3	0.14	55	NPDES	first flush grab	Yes	301	431	24	276	300	
172	SDS3	SDS3 020801-1	2001	2/8/01	NPDES Storm	0.3	0.14	55	NPDES	time-comp	Yes	301	756	19	407	426	
173	SDS3	SDS3 020901-2	2001	2/8/01	NPDES Storm	0.3	0.14	55	NPDES	time-comp	Yes	301	103	6	63	69	
174	SDS3	SDS3 021601-B1	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	241	4	163	167	14-hr time comp, bottle 1 of 7 Coincided with major (runway) deicing event
175	SDS3	SDS3 021601-B2	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	927	12	536	548	14-hr time comp, bottle 2 of 7 Coincided with major (runway) deicing event
176	SDS3	SDS3 021701-B3	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	385	4	104	108	14-hr time comp, bottle 3 of 7 Coincided with major (runway) deicing event
177	SDS3	SDS3 021701-B4	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	171	< 2	46	47	9-hr time comp, bottle 4 of 7. Coincided with major (runway) deicing event
178	SDS3	SDS3 021801-B5	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	106	< 2	52	53	14-hr time comp, bottle 5 of 7. Coincided with major (runway) deicing event
179	SDS3	SDS3 021801-B6	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	63	< 2	20	< 21	14-hr time comp, bottle 6 of 7. Coincided with major (runway) deicing event
180	SDS3	SDS3 021901-B7	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	56	< 2	17	18	14-hr time comp, bottle 7 of 7 Coincided with major (runway) deicing event
181	SDS3	SDS3 021901	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	274	5	133	138	overall event 92-hr time-composite of bottles 1-7, coincided with major (runway) deice event
182	SDS3	SDS3 031501	2001	3/15/01	NPDES Storm	0.32	0.05	43	NPDES	flow-wt comp	No	50	41	< 2	25	26	
183	SDS3	SDS3 032701 COMP	2001	3/27/01	NPDES Storm	0.39	0.1	19	NPDES	flow-wt comp	No	18	14	< 2	9	10	
184	SDS3	SDS3 051501 COMP	2001	5/14/01	NPDES Storm	0.48	0.08	24	NPDES	flow-wt comp	No		14	< 2	< 2	< 4	
185	SDS4	SDS4 111994	1995	11/19/94	NPDES Storm	0.42		52	NPDES		No		5	< 5	< 5	< 10	
186	SDS4	SDS4 021395	1995	2/13/95	baseflow	0			NPDES		Yes		5	< 5	< 5	< 10	
187	SDS4	SDS4 021695	1995	2/15/95	NPDES Storm	1.1		66	NPDES		Yes		> 93	< 5	< 5	< 10	
188	SDS4	SDS4 011496	1996	1/13/96	NPDES Storm	0.37			NPDES	flow-wt comp	No		6	< 5	< 5	< 10	
189	SDS4	SDS4 012096 AVG	1996	1/19/96	Other	1.8			R/W W/O	avg of time comp	Yes		138	2	4	6	20-hr avg of 6 discrete samples 4 glycol <MDL
190	SDS4	SDS4 020196	1996	2/1/96	baseflow				SES		Yes		4	< 5	< 5	< 10	
191	SDS4	SDS4 020596	1996	2/3/96	Other Storm	1.6			SES		Yes		13	14	7	21	

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c:\ENV-apps\EMIS\POSDEV\EMISMain.mdb/rptSWNPDESDeicingEvents

Deicing Event Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS									CONCENTRATION, mg/L				
Seq	Out fall	Sample ID	Reported	Storm Date	Type	Dpth in	MaxInt in/hr	Dryant hr	Purpose	Type	Ground Deice?	Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	Comments
192	SDS4	SDS4 020496 AVG	1996	2/3/96	NPDES Storm	1.6			SES	avg of time comp	Yes		242	13	18	31	12-hr avg of 5 discrete samples. all BOD>result
193	SDS4	SDS4 041696	1996	4/15/96	NPDES Storm	0.49			NPDES	flow-wt comp	No		5	< 5	< 5	< 10	
194	SDS4	SDS4 042296	1996	4/22/96	NPDES Storm	2.83			Slip Ag	flow-wt comp	No		6	< 5	< 5	< 10	
195	SDS4	SDS4 070496	1997	7/3/96	NPDES Storm	0.23			NPDES	flow-wt comp	No		6	< 5	< 5	< 10	
196	SDS4	SDS4 120496	1997	12/4/96	NPDES Storm	0.82		44	NPDES	flow-wt comp	No	92	< 4	< 5	< 5	< 10	
197	SDS4	SDS4 041997	1997	4/19/97	NPDES Storm	1.16		64	NPDES	flow-wt comp	No	9	4	< 5	< 5	< 10	
198	SDS4	SDS4 011298	1998	1/12/98	Other Storm	1.13		123	NPDES	time-comp	Yes	457	< 12	< 2	< 2	< 4	24-hour time composite
199	SDS4	SDS4 030998	1998	3/8/98	NPDES Storm	0.86		132	NPDES	flow-wt comp	No	154	< 4	< 2	< 2	< 4	makeup comp for 98Qw non-rep comp
200	SDS4	SDS4 111998	1999	11/19/98	NPDES Storm	2.34	0.18	73	NPDES	flow-wt comp	No	52	< 4	< 2	< 2	< 4	
201	SDS7	SDW3 020496 AVG	1996	2/3/96	NPDES Storm	1.6			R/W W/O	avg of time comp	Yes		78	6	6	12	24-hr avg of 3 time-comp samples. 2 glycol<MDL
202	SDN1	SDN1 111994	1995	11/19/94	NPDES Storm	0.42		52	NPDES		No		6	< 5	< 5	< 10	
203	SDN1	SDN1 010595	1995	1/5/95	baseflow	0			Other		No		11	< 5	< 5	< 10	baseflow
204	SDN1	SDN1 020895	1995	2/8/95	baseflow	0			NPDES		No			< 5	< 5	< 10	
205	SDN1	SDN1 021395	1995	2/13/95	baseflow	0			NPDES		Yes		5	< 5	< 5	< 10	
206	SDN1	SDN1 021695	1995	2/15/95	NPDES Storm	1.1		86	NPDES		Yes		31	6	< 5	6	
207	SDN1	SDN1 030595	1995	3/4/95	NPDES Storm	0.18		158	Slip Ag		No		4	< 5	< 5	< 10	
208	SDN1	SDN1 030995	1995	3/8/95	NPDES Storm	2.16		88	Slip Ag		No		6	< 5	< 5	< 10	
209	SDN1	SDN1 031595	1995	3/13/95	Other Storm	0.23		24	Slip Ag	random grab	No		4	< 5	< 5	< 10	
210	SDN1	SDN1 040595	1995	4/4/95	NPDES Storm	0.17		270	Slip Ag		No		5	< 5	< 5	< 10	
211	SDN1	SDN1 040795	1995	4/6/95	NPDES Storm	0.61		60	NPDES		No		40	< 5	< 5	< 10	
212	SDN1	SDN1 020496	1996	2/3/96	NPDES Storm	1.6			NPDES	flow-wt comp	Yes		15	< 5	< 5	< 10	
213	SDN1	SDN1 040596 GRAB	1996	4/5/96	baseflow				Slip Ag	first flush grab	No		44	< 5	< 5	< 10	baseflow, no storm
214	SDN1	SDN1 041296	1996	4/11/96	Other Storm	0.21		110	Slip Ag	flow-wt comp	No	17	15	< 5	< 5	< 10	
215	SDN1	SDN1 041696	1996	4/15/96	NPDES Storm	0.49			Slip Ag	flow-wt comp	No		< 4	< 5	< 5	< 10	
216	SDN1	SDN1 042296	1996	4/22/96	NPDES Storm	2.83			NPDES	flow-wt comp	No		9	< 5	< 5	< 10	
217	SDN1	SDN1 042596	1996	4/25/96	Other Storm	0.31		18	Slip Ag	flow-wt comp	No	5	2	< 5	< 5	< 10	
218	SDN1	SDN1 051396	1996	5/13/96	NPDES Storm	0.99		12	Slip Ag	flow-wt comp	No	2	4	< 5	< 5	< 10	
219	SDN1	SDN1 052296 GRAB	1996	5/21/96	NPDES Storm	0.31			Slip Ag	random grab	No		12	< 5	< 5	< 10	
220	SDN1	SDN1 052296	1996	5/21/96	NPDES Storm	0.31			Slip Ag	flow-wt comp	No		10	< 5	< 5	< 10	xtra NPDES/Slip Ag

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Deicing Event Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS									CONCENTRATION, mg/L				
Seq	Out fall	Sample ID	Reported	Storm Date	Type	Dpth in	Maxint in/hr	Dryant hr	Purpose	Type	Ground Deice?	Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	Comments
221	SDN1	SDN1 062396	1996	6/23/96	NPDES Storm	0.46			Slip Ag	flow-wt comp	No		20	< 5	< 5	< 10	xtra NPDES/Slip Ag
222	SDN1	SDN1 070496	1997	7/3/96	NPDES Storm	0.23			NPDES	flow-wt comp	No		11	< 5	< 5	< 10	
223	SDN1	SDN1 071796	1997	7/17/96	NPDES Storm	0.27			Slip Ag	flow-wt comp	No		25	< 5	< 5	< 10	
224	SDN1	SDN1 080296	1997	8/2/96	NPDES Storm	1.01		325	Slip Ag	flow-wt comp	No	1	14	< 5	< 5	< 10	
225	SDN1	SDN1 090396	1997	9/3/96	NPDES Storm	0.29		76	Slip Ag	flow-wt comp	No	3	10	< 5	< 5	< 10	
226	SDN1	SDN1 091496	1997	9/13/96	NPDES Storm	0.72		144	Slip Ag	flow-wt comp	No	0	10	< 5	< 5	< 10	
227	SDN1	SDN1 091996	1997	9/18/96	NPDES Storm	0.38		28	Slip Ag	flow-wt comp	No	0	< 4	< 5	< 5	< 10	
228	SDN1	SDN1 100496	1997	10/4/96	Other Storm	0.59		18	Slip Ag		No	2	8	< 5	< 5	< 10	paired up/down sample
229	SDN1up	SDN1 121597	1998	12/15/97	NPDES Storm	1		87	NPDES	flow-wt comp	No	30	5	< 2	< 2	< 4	
230	SDN1up	SDN1 091898	1999	9/18/98	Other Storm	0.19	0.16	456	NPDES	flow-wt comp	No	5	9	< 2	< 2	< 4	
231	SDN1up	SDN1 122598	1999	12/24/98	NPDES Storm	1.19	0.16	153	NPDES	flow-wt comp	Yes	373	116	14	12	26	
232	SDN1up	SDN1 111699	2000	11/16/99	NPDES Storm	0.6	0.07	23	NPDES	flow-wt comp	No	10	5	< 2	< 2	< 4	
233	SDN1up	SDN1 041300	2000	4/13/00	NPDES Storm	0.34	0.08	74	NPDES	flow-wt comp	No	16	7	< 2	< 2	< 4	glycols not reqd
234	SDN1up	SDN1 031501	2001	3/15/01	NPDES Storm	0.32	0.05	43	NPDES	flow-wt comp	No	50	6	< 2	< 2	< 4	glycols not reqd
235	SDN2	SDN2 111994	1995	11/19/94	NPDES Storm	0.42		52	NPDES		No		10	< 5	< 5	< 10	
236	SDN2	SDN2 030595	1995	3/4/95	NPDES Storm	0.18		158	Slip Ag		No		> 12	36	< 5	36	
237	SDN2	SDN2 031595	1995	3/13/95	Other Storm	0.23		24	Slip Ag	random grab	No		5	< 5	< 5	< 10	
238	SDN2	SDN2 040795	1995	4/6/95	NPDES Storm	0.61		60	Slip Ag		No		15	< 5	< 5	< 10	
239	SDN2	SDN2 041295	1995	4/10/95	NPDES Storm	0.29		56	NPDES		No		30	< 5	19	19	
240	SDN2	SDN2 121095	1996	12/9/95	Other Storm	0.82			SES	flow-wt comp	No			< 5	< 5	< 10	
241	SDN2	SDN2 012296 AVG	1996	1/19/96	Other Storm	1.8			R/W W/O	avg of time comp	Yes		21	22	24	44	4-day avg of 17 time-composite samples 8 glycol, 5NH3, and 5 BOD<MDL
242	SDN2	SDN2 020496 GRAB	1996	2/3/96	NPDES Storm	1.6			R/W W/O	first flush grab	Yes		180	18	26	44	storm after runway deice
243	SDN2	SDN2 020696 AVG	1996	2/3/96	Other Storm	1.6			R/W W/O	avg of time comp	Yes		108	9	14	23	2.5-day avg of 8 time-composite samples 3 glycol, 6 NH3 <MDL
244	SDN2	SDN2 021796	1996	2/17/96	NPDES Storm	1.29			NPDES	flow-wt comp	No		6	6	11	17	
245	SDN2	SDN2 032996 GRAB	1996	3/29/96	Other Storm	0.13		120	Slip Ag	first flush grab	No		10	< 5	< 5	< 10	
246	SDN2	SDN2 040596 GRAB	1996	4/5/96	baseflow				Slip Ag	first flush grab	No		< 1	< 5	< 5	< 10	baseflow, no storm
247	SDN2	SDN2 041696	1996	4/15/96	NPDES Storm	0.49			Slip Ag	flow-wt comp	No		< 4	< 5	< 5	< 10	
248	SDN2	SDN2 041996	1996	4/19/96	Other Storm	0.09		16	Slip Ag		No	6	< 4	< 5	< 5	< 10	
249	SDN2	SDN2 042296	1996	4/22/96	NPDES Storm	2.83			NPDES	flow-wt comp	No		7	< 5	< 5	< 10	

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail

Deicing Event Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS									CONCENTRATION, mg/L				
Seq	Out fall	Sample ID	Reported	Storm Date	Type	Dpth in	MaxInt in/hr	Dryant hr	Purpose	Type	Ground Deice?	Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	Comments
250	SDN2	SDN2 042596	1996	4/25/96	Other Storm	0.31		18	Slip Ag	flow-wt comp	No	5	2	< 5	< 5	< 10	
251	SDN2	SDN2 051396	1996	5/13/96	NPDES Storm	0.99		12	Slip Ag	flow-wt comp	No	2	5	< 5	< 5	< 10	
252	SDN2	SDN2 052296 GRAB	1996	5/21/96	NPDES Storm	0.31			Slip Ag	random grab	No		6	< 5	< 5	< 10	
253	SDN2	SDN2 052296	1996	5/21/96	NPDES Storm	0.31			Slip Ag	flow-wt comp	No		6	< 5	< 5	< 10	xtra NPDES/Slip Ag
254	SDN2	SDN2 062396	1996	6/23/96	NPDES Storm	0.46			Slip Ag	flow-wt comp	No		18	< 5	< 5	< 10	xtra NPDES/Slip Ag
255	SDN2	SDN2 070396	1997	7/3/96	NPDES Storm	0.23			Slip Ag	failed comp	No		21	< 5	< 5	< 10	
256	SDN2	SDN2 071796	1997	7/17/96	NPDES Storm	0.27			Slip Ag	time-comp	No		18	< 5	< 5	< 10	flow-wt comp failed, reset to 20 min time comp
257	SDN2	SDN2 102196	1997	10/21/96	NPDES Storm	0.68		64	NPDES	flow-wt comp	No	18	4	< 5	< 5	< 10	
258	SDN2	SDN2 112896 AVG	1997	11/20/96	Other Storm	0.45	0.07	16	R/W W/O	avg of time comp	Yes	260	249	31	134	165	9-day avg of 33 time-composite samples. 2 glycol, all NH3 <MDL
259	SDN2	SDN2 123196 AVG	1997	12/26/96	Other Storm	1.12			R/W W/O	avg of time comp	Yes	256	1180	315	370	684	6-day avg of 20 time-composite samples. 1 BOD and 17 NH3 <MDL
260	SDN2	SDN2 010297 AVG	1997	12/26/96	Other Storm	1.12			R/W W/O	avg of time comp	Yes	256	54	11	27	37	2-day avg of 7 time-composite samples. 1 glycol and 3 BOD<MDL
261	SDN2	SDN2 011697	1997	1/16/97	NPDES Storm	1.21		154	NPDES	flow-wt comp	No	136	120	< 5	51	51	
262	SDN2	SDN2 013197 GRAB	1997	1/31/97	Other Storm				Other	random grab	No		4	< 5	< 5	< 10	requested by Tom Hubbard via City of Seatac concern about foam seen at 154th outfall
263	SDN2	SDN2 041997	1997	4/19/97	NPDES Storm	1.16		64	NPDES	flow-wt comp	No	9	< 4	< 5	< 5	< 10	
264	SDN2	SDN2 110498 GRAB	1999	11/3/98	NPDES Storm	1.62	0.48	35	NPDES	first flush grab	No	11	< 4	< 2	< 2	< 4	N cargo (IWS) pump station bypass
265	SDN2	SDN2 112598 GRAB	1999	11/25/98	Other Storm	3.45	0.32	8	NPDES	first flush grab	No	15	< 4	< 2	< 2	< 4	N cargo (IWS) pump station bypass
266	SDN2	SDN2 012899 GRAB	1999	1/28/99	Other Storm	1.16	0.1	33	NPDES	first flush grab	No	56		< 2	< 2	< 4	N. cargo (IWS) pump station bypass, storm<<design, maint notified (o&m in progress)
267	SDN2	SDN2 062499 GRAB	1999	6/24/99	NPDES Storm	1.12	0.35	10	NPDES	first flush grab	No	2		< 2	< 2	< 4	N cargo (IWS) pump station bypass (30 min)
268	SDN2	SDN2 121599 grab	2000	12/15/99	Other Storm	1.26	0.32	8	NPDES	first flush grab	No	3		4	< 2	5	N cargo (IWS) pump station bypass
269	SDN3	SDN3 111994	1995	11/19/94	NPDES Storm	0.42		52	NPDES		No		4	< 5	< 5	< 10	
270	SDN3	SDN3 020895	1995	2/8/95	baseflow	0			NPDES		No			< 5	< 5	< 10	
271	SDN3	SDN3 021395	1995	2/13/95	baseflow	0			NPDES		Yes		3	< 5	< 5	< 10	
272	SDN3	SDN3 021695	1995	2/15/95	NPDES Storm	1.1		86	NPDES		Yes		> 90	< 5	< 5	< 10	
273	SDN3	SDN3 030695	1995	3/4/95	NPDES Storm	0.18		158	Slip Ag		No		3	< 5	< 5	< 10	

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail

AR 022756

Deicing Event Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS									CONCENTRATION, mg/L				
Seq	Out fall	Sample ID	Reported	Storm Date	Type	Dpth in	MaxInt in/hr	Dryant hr	Purpose	Type	Ground Deice?	Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	Comments
274	SDN3	SDN3 030995	1995	3/8/95	NPDES Storm	2.16		88	Slip Ag		No		3	< 5	< 5	< 10	
275	SDN3	SDN3 031595	1995	3/13/95	Other Storm	0.23		24	Slip Ag	random grab	No		5	< 5	< 5	< 10	
276	SDN3	SDN3 040595	1995	4/4/95	NPDES Storm	0 17		270	Slip Ag		No		3	< 5	< 5	< 10	
277	SDN3	SDN3 011496	1996	1/13/96	NPDES Storm	0.37			NPDES	flow-wt comp	No		5	< 5	< 5	< 10	
278	SDN3	SDN3 012096 AVG	1996	1/19/96	Other Storm	1 8			Slip Ag	avg of time comp	Yes		30	2	2	5	36-hr avg of 4 time-composite samples all glycol <MDL
279	SDN3	SDN3 020496	1996	2/3/96	NPDES Storm	1.6			Slip Ag	flow-wt comp	Yes			< 5	< 5	< 10	storm after runway deice
280	SDN3	SDN3 033096 GRAB	1996	3/29/96	Other Storm	0 13		120	Slip Ag	first flush grab	No		5	< 5	< 5	< 10	
281	SDN3	SDN3 040196	1996	3/31/96	NPDES Storm	0 64			Slip Ag	flow-wt comp	No		5	< 5	< 5	< 10	xtra NPDES/Slip Ag
282	SDN3	SDN3 040596 GRAB	1996	4/5/96	baseflow				Slip Ag	first flush grab	No		5	< 5	< 5	< 10	baseflow, no storm
283	SDN3	SDN3 041296 GRAB	1996	4/11/96	Other Storm	0.21		110	Slip Ag	first flush grab	No	17	4	< 5	< 5	< 10	
284	SDN3	SDN3 041696	1996	4/15/96	NPDES Storm	0.49			NPDES	flow-wt comp	No		< 4	< 5	< 5	< 10	
285	SDN3	SDN3 041996	1996	4/19/96	Other Storm	0.09		16	Slip Ag		No	6	< 4	< 5	< 5	< 10	
286	SDN3	SDN3 042296	1996	4/22/96	NPDES Storm	2.83			Slip Ag	flow-wt comp	No		7	< 5	< 5	< 10	xtra NPDES/Slip Ag
287	SDN3	SDN3 042596	1996	4/25/96	Other Storm	0.31		18	Slip Ag	flow-wt comp	No	5	< 2	< 5	< 5	< 10	
288	SDN3	SDN3 050796 GRAB	1996	5/7/96	baseflow				Slip Ag	random grab	No		< 4	< 5	< 5	< 10	
289	SDN3	SDN3 051096 GRAB	1996	5/10/96	baseflow				Slip Ag	random grab	No		< 4	< 5	< 5	< 10	base flow
290	SDN3	SDN3 051396	1996	5/13/96	NPDES Storm	0 99		12	Slip Ag	flow-wt comp	No	2	< 4	< 5	< 5	< 10	
291	SDN3	SDN3 052296	1996	5/21/96	NPDES Storm	0.31			Slip Ag	flow-wt comp	No		< 4	< 5	< 5	< 10	
292	SDN3	SDN3 120496	1997	12/4/96	NPDES Storm	0.82		44	NPDES	flow-wt comp	No	92	< 4	< 5	< 5	< 10	
293	SDN3	SDN3 122196	1997	12/19/96	NPDES Storm	0 36		103	NPDES	flow-wt comp	No	76	< 8	< 5	< 5	< 10	
294	SDN3	SDN3 030597	1997	3/5/97	NPDES Storm	0.39		42	NPDES	flow-wt comp	No	51	< 4	6	< 5	8	
295	SDN3	SDN3 121697	1998	12/15/97	NPDES Storm	1		87	NPDES	flow-wt comp	No	30	< 4	< 2	< 2	< 4	
296	SDN3	SDN3 122498	1999	12/24/98	NPDES Storm	1.19	0 16	153	NPDES	flow-wt comp	Yes	373	222	< 2	14	15	
297	SDN4	SDN4 120496	1997	12/4/96	NPDES Storm	0.82		44	NPDES	flow-wt comp	No	92	8	< 5	< 5	< 10	
298	SDN4	SDN4 030597	1997	3/5/97	NPDES Storm	0.39		42	NPDES	flow-wt comp	No	51	< 4	< 5	< 5	< 10	
299	SDN4	SDN4 102897	1998	10/28/97	NPDES Storm	0.47		26	NPDES	flow-wt comp	No	9	7	< 2	< 2	< 4	
300	SDN4	SDN4 121697	1998	12/15/97	NPDES Storm	1		87	NPDES	flow-wt comp	No	30	5	< 2	< 2	< 4	
301	SDN4	SDN4 011298	1998	1/12/98	Other Storm	1 13		123	NPDES	time-comp	Yes	457	120	< 2	< 2	< 4	24-hour time composite

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail
c:\ENV-apps\EMIS\POSDEV\EMISMain.mdb/rptSWNPDESDeicingEvents

Deicing Event Sample Data 9/1/94 - 6/30/01

Seq	Out fall	Sample ID	Reported	Storm Date	Type	Dpth in	MaxInt in/hr	Dryant hr	Purpose	Type	Ground Deice?	Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	Comments
SAMPLE DATA				STORM CHARACTERISTICS									CONCENTRATION, mg/L				
302	SDN4	SDN4 030198	1998	3/1/98	NPDES Storm	0.98		6	NPDES	flow-wt comp	No	11	< 4	< 2	< 2	< 4	
303	SDN4	SDN4 030998	1998	3/8/98	NPDES Storm	0.86		132	NPDES	flow-wt comp	No	154	4	< 2	< 2	< 4	backup monhtly sample in case 3/1/98 sample didn't qualify under new permit
304	SDN4	SDN4 052598	1998	5/24/98	NPDES Storm	0.58		87	NPDES	flow-wt comp	No	7	5	< 2	< 2	< 4	
305	SDN4	SDN4 092598	1999	9/24/98	NPDES Storm	0.47	0 26	148	NPDES	flow-wt comp	No	3	7	< 2	2	3	glycols may be high biased, dupe was <mdl
306	SDN4	SDN4 100398	1999	10/3/98	NPDES Storm	0 4	0 22	36	NPDES	flow-wt comp	No	3	< 4	< 2	< 2	< 4	
307	SDN4	SDN4 102798	1999	10/27/98	NPDES Storm	0.64	0 19	72	NPDES	failed comp	No	16	5	< 2	< 2	< 4	not representative, insufficient duration (~1hr)
308	SDN4	SDN4 110498	1999	11/3/98	NPDES Storm	1 62	0 48	35	NPDES	flow-wt comp	No	11	< 4	< 2	< 2	< 4	
309	SDN4	SDN4 111398	1999	11/11/98	NPDES Storm	0.98	0 15	31	NPDES	flow-wt comp	No	26	< 4	< 2	< 2	< 4	concurrent WET sample
310	SDN4	SDN4 121798	1999	12/17/98	Other Storm	0 11	0 03	33	NPDES	flow-wt comp	No	33		< 2	< 2	< 4	
311	SDN4	SDN4 122598	1999	12/24/98	NPDES Storm	1 19	0 16	153	NPDES	flow-wt comp	Yes	373	168	7	27	34	
312	SDN4	SDN4 011499	1999	1/13/99	NPDES Storm	1.07	0.16	85	NPDES	flow-wt comp	No	37	< 4	< 2	< 2	< 4	concurrent WET sample
313	SDN4	SDN4 020499	1999	2/3/99	NPDES Storm	0 28	0 07	27	NPDES	flow-wt comp	No	18	< 4	< 2	< 2	< 4	
314	SDN4	SDN4 031399	1999	3/12/99	NPDES Storm	0.83	0.07	71	NPDES	flow-wt comp	No	69	< 4	< 2	< 2	< 4	
315	SDN4	SDN4 032899	1999	3/27/99	NPDES Storm	0.24	0 07	26	NPDES	flow-wt comp	No	17	< 4	< 2	< 2	< 4	
316	SDN4	SDN4 110699	2000	11/5/99	NPDES Storm	0 68	0 11	44	NPDES	flow-wt comp	No	22	7	< 2	< 2	< 4	
317	SDN4	SDN4 111699	2000	11/16/99	NPDES Storm	0 6	0 07	23	NPDES	flow-wt comp	No	10	4	< 2	< 2	< 4	
318	SDN4	SDN4 120999	2000	12/8/99	NPDES Storm	0 49	0.09	40	NPDES	flow-wt comp	No	43	5	< 2	2	3	
319	SDN4	SDN4 121799	2000	12/17/99	NPDES Storm	0.34	0 08	26	NPDES	flow-wt comp	No	11	< 4	< 2	< 2	< 4	
320	SDN4	SDN4 013100	2000	1/31/00	NPDES Storm	1 76	0 15	9	NPDES	flow-wt comp	No	12	< 4	< 2	< 2	< 4	
321	SDN4	SDN4 031400	2000	3/13/00	NPDES Storm	0.47	0.13	49	NPDES	flow-wt comp	No	44	4	< 2	< 2	< 4	
322	SDN4	SDN4 041300	2000	4/13/00	NPDES Storm	0.34	0 08	74	NPDES	flow-wt comp	No	16	6	< 2	< 2	< 4	
323	SDN4	SDN4 101800	2001	10/17/00	NPDES Storm	0 36	0 12	27	NPDES	flow-wt comp	No	4	7	< 2	< 2	< 4	
324	SDN4	SDN4 110800	2001	11/8/00	NPDES Storm	0 77	0 18	54	NPDES	flow-wt comp	No	21	4	5	< 2	6	
325	SDN4	SDN4 112300	2001	11/23/00	NPDES Storm	0.37	0.1	330	NPDES	flow-wt comp	No	292	9	< 2	6	7	
326	SDN4	SDN4 113000	2001	11/29/00	NPDES Storm	0 29	0 06	54	NPDES	flow-wt comp	No	80	5	< 2	< 2	< 4	
327	SDN4	SDN4 121400	2001	12/14/00	NPDES Storm	0.29	0 08	123	NPDES	flow-wt comp	No	245	28	3	10	13	
328	SDN4	SDN4 020801 GRAB	2001	2/8/01	NPDES Storm	0.3	0 14	55	NPDES	first flush grab	Yes	301	681	101	351	452	
329	SDN4	SDN4 020901	2001	2/8/01	NPDES Storm	0.3	0.14	55	NPDES	time-comp	Yes	301	211	28	116	144	
330	SDN4	SDN4 021601-B1-2	2001	2/16/01	NPDES Storm	0 46	0.14	29	NPDES	time-comp	Yes	336	11	6	6	12	18-hr time comp, bottles 1+2 of 7, coincided with major (runway)deicing event
331	SDN4	SDN4 021701-B3	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	368	8	24	33	12-hr time comp, bottle 3 of 7, coincided with major (runway)deicing event

Full Data Set (No Values Trimmed)
R=Rejected Non-Representative Data - Refer to line comment for detail

AR 022758

Deicing Event Sample Data 9/1/94 - 6/30/01

SAMPLE DATA				STORM CHARACTERISTICS									CONCENTRATION, mg/L				
Seq	Out fall	Sample ID	Reported	Storm Date	Type	Dpth in	MaxInt in/hr	Dryant hr	Purpose	Type	Ground Deice?	Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	Comments
332	SDN4	SDN4 021701-B4	2001	2/16/01	NPDES Storm	0 46	0 14	29	NPDES	time-comp	Yes	336	< 4	< 2	< 2	< 4	111 hr time comp, bottle 4of 7, coincided with major (runway)deicing event
333	SDN4	SDN4 021801-B5	2001	2/16/01	NPDES Storm	0.46	0.14	29	NPDES	time-comp	Yes	336	29	< 2	< 2	< 4	14-hr time comp, bottle 5 of 7, coincided with major (runway)deicing event
334	SDN4	SDN4 021801-B6	2001	2/16/01	NPDES Storm	0 46	0 14	29	NPDES	time-comp	Yes	336	10	< 2	< 2	< 4	14-hr time comp, bottle 6 of 7, coincided with major (runway)deicing event
335	SDN4	SDN4 021901-B7	2001	2/16/01	NPDES Storm	0 46	0 14	29	NPDES	time-comp	Yes	336	6	< 2	< 2	< 4	12-hr time comp, bottle 7 of 7, coincided with major (runway)deicing event
336	SDN4	SDN4 021901	2001	2/16/01	NPDES Storm	0 46	0 14	29	NPDES	time-comp	Yes	336	100	< 2	6	7	overall event 86-hr time comp of bottles 1-7, coincided with major (runway) deicing event
337	SDN4	SDN4 030201	2001	3/1/01	NPDES Storm	0.27	0.11	127	NPDES	flow-wt comp	No	91	8	< 2	< 2	< 4	
338	SDN4	SDN4 031601	2001	3/15/01	NPDES Storm	0 32	0.05	43	NPDES	flow-wt comp	No	50	10	< 2	2	3	
339	SDN4	SDN4 040601 COMP	2001	4/5/01	NPDES Storm	0 23	0 05	32	NPDES	flow-wt comp	No		< 4	< 2	< 2	< 4	
340	SDN4	SDN4 051401 COMP	2001	5/14/01	NPDES Storm	0.48	0 08	24	NPDES	flow-wt comp	No		8	< 2	< 2	< 4	
341	EY	EY 013100	2000	1/31/00	NPDES Storm	1 76	0 15	9	NPDES	flow-wt comp	No	12	24	< 2	< 2	< 4	glycol and metals data not reqd, analyzed for dupe only
342	TY	TY 030495	1995	3/4/95	NPDES Storm	0.18		158	NPDES		No			< 5	< 5	< 10	glycol data not reqd

"Dryant aircraft" = total number of aircraft deiced at STIA in dry period prior to and including day of sampling

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Deicing Event Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

		Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol
All Outfalls	Count	188	300	342	342	344
	Max	457	1180	320	5900	6220
	95th	360	249	22.5	115.4	135.6
	75th	136	26	2.5	5.7	9.7
	Median	31	8	3	3	5
	25th	11	5	1.0	1.0	2.0
	Min	1	1	1	1	2
	SD	135	134	29.9	358.5	376.0
	CV%	119%	251%	393%	794%	718%
	#NonDetects	0	52	263	235	227
	%NonDetects	0%	17%	77%	69%	66%
SDE4 (002)	Count	47	60	67	67	68
	Max	457	335	21	71	92
	95th	326	132	13.4	34.6	43.3
	75th	141	14	2.5	5.2	8.0
	Median	31	8	1	3	5
	25th	16	5	1.0	1.0	2.0
	Min	2	2	1	1	2
	SD	134	56	4.2	12.8	15.3
	CV%	113%	208%	139%	193%	163%
	#NonDetects	0	11	54	46	45
	%NonDetects	0%	18%	81%	69%	66%
SDS1 (003)	Count	24	28	46	46	46
	Max	457	690	320	5900	6220
	95th	331	369	96.6	654.3	875.2
	75th	205	100	4.7	21.0	33.0
	Median	65	20	3	3	5
	25th	18	7	1.0	1.0	2.0
	Min	1	2	1	1	2
	SD	131	152	61.6	955.1	999.8
	CV%	119%	177%	290%	420%	403%
	#NonDetects	0	2	30	28	26
	%NonDetects	0%	7%	65%	61%	57%

Full Data Set (No Values Trimmed)
Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.

Deicing Event Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

		Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	
SDS3 (005)	Count	42	63	71	71	71	
	Max	457	927	96	536	548	
	95th	334	448	24.8	219.5	233.5	
	75th	150	112	5.8	21.4	35.6	
	Median	38	18	3	6	10	
	25th	18	8	1.0	2.5	5.0	
	Min	3	2	1	1	2	
	SD	139	186	13.1	96.4	99.6	
	CV%	104%	179%	191%	228%	204%	
	#NonDetects	0	3	45	30	29	
	%NonDetects	0%	5%	63%	42%	41%	
SDS4 (009)	Count	5	16	16	16	16	
	Max	457	242	14	18	31	
	95th	396	164	13.3	9.9	23.6	
	75th	154	8	2.5	2.5	5.0	
	Median	92	6	3	3	5	
	25th	52	4	2.5	2.5	5.0	
	Min	9	2	1	1	2	
	SD	164	68	3.9	4.1	7.7	
	CV%	107%	200%	109%	114%	108%	
	#NonDetects	0	4	13	13	13	
	%NonDetects	0%	25%	81%	81%	81%	
SDS7 (010)	Count		1	1	1	1	Former location downstream, ends 10/1996
	Max		76	6	6	12	
	95th		5	5.0	5.0	5.0	
	75th		5	5.0	5.0	5.0	
	Median		76	6	6	12	
	25th		5	5.0	5.0	5.0	
	Min		76	6	6	12	
	SD		0	0.0	0.0	0.0	
	CV%		0%	0%	0%	0%	
	#NonDetects		0	0	0	0	
	%NonDetects		0%	0%	0%	0%	

Full Data Set (No Values Trimmed)

Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.

Deicing Event Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

Outfall	Statistic	Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol	Notes
SDN1 (006)	Count	12	32	33	33	33	Includes both SDN1 and SDN1up
	Max	373	116	14	12	26	
	95th	195	42	3.9	2.5	5.4	
	75th	20	14	2.5	2.5	5.0	
	Median	8	9	3	3	5	
	25th	3	5	2.5	2.5	5.0	
	Min	1	2	1	1	2	
	SD	95	21	2.2	1.8	3.9	
	CV%	259%	144%	80%	71%	75%	
	#NonDetects	0	2	31	32	31	
	%NonDetects	0%	6%	94%	97%	94%	
SDN2 (007)	Count	13	30	34	34	34	Pumped to IWS as of late 1997.
	Max	260	1180	315	370	684	
	95th	258	218	32.7	80.1	90.8	
	75th	56	21	3.8	8.9	18.6	
	Median	11	8	3	3	5	
	25th	5	5	2.5	2.5	5.0	
	Min	2	1	1	1	2	
	SD	104	218	53.7	66.1	118.2	
	CV%	136%	311%	359%	308%	327%	
	#NonDetects	0	6	25	25	23	
	%NonDetects	0%	20%	74%	74%	68%	
SDN3 (008)	Count	9	26	28	28	28	
	Max	373	222	6	14	15	
	95th	261	75	2.5	2.5	5.8	
	75th	76	5	2.5	2.5	5.0	
	Median	30	3	3	3	5	
	25th	6	2	2.5	2.5	5.0	
	Min	2	1	1	1	2	
	SD	112	46	0.8	2.2	2.0	
	CV%	155%	284%	32%	78%	38%	
	#NonDetects	0	11	26	26	25	
	%NonDetects	0%	42%	93%	93%	89%	

Full Data Set (No Values Trimmed)

Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.

Deicing Event Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

		Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol
SDN4 (011)	Count	35	43	44	44	45
	Max	457	661	101	351	452
	95th	347	207	8.3	26.9	34.0
	75th	86	10	1.0	2.2	3.2
	Median	30	5	1	1	2
	25th	12	2	1.0	1.0	2.0
	Min	3	2	1	1	2
	SD	144	119	15.5	55.1	69.8
	CV%	114%	275%	345%	411%	397%
	#NonDetects	0	13	37	33	33
	%NonDetects	0%	30%	84%	75%	73%
EY (012)	Count	1	1	1	1	1
	Max	12	24	1	1	2
	95th	12	2	2.0	2.0	2.0
	75th	12	2	2.0	2.0	2.0
	Median	12	24	1	1	2
	25th	12	2	2.0	2.0	2.0
	Min	12	24	1	1	2
	SD		0	0.0	0.0	0.0
	CV%		0%	0%	0%	0%
	#NonDetects	0	0	1	1	1
	%NonDetects	0%	0%	100%	100%	100%
TY (013)	Count			1	1	1
	Max			3	3	5
	95th			2.0	2.0	2.0
	75th			2.0	2.0	2.0
	Median			3	3	5
	25th			2.0	2.0	2.0
	Min			3	3	5
	SD			0.0	0.0	0.0
	CV%			0%	0%	0%
	#NonDetects			1	1	1
	%NonDetects			100%	100%	100%

Full Data Set (No Values Trimmed)

Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.

Deicing Event Statistics 9/1/94 - 6/30/01

CONCENTRATION, mg/L

		Dryant Aircraft	BOD5	E-Glycol	P-Glycol	Total Glycol
Airfield (SDS3,SDS4,SDN3,SDN4)	Count	91	148	158	158	159
	Max	457	927	101	536	548
	95th	373	335	19.3	119.4	138.6
	75th	102	31	2.5	9.0	11.3
	Median	37	7	3	3	5
	25th	16	4	1.0	1.0	2.0
	Min	2	1	1	1	2
	#NonDetects	0	31	120	101	99
	%NonDetects	0%	21%	76%	64%	62%

Full Data Set (No Values Trimmed)
Values qualified as non-detect (<) calculated at 1/2 the reported detection limit.

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APPENDIX D OTHER SAMPLE DATA

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Field QC Samples 7/1/00 - 6/30/01																				
Outfall	POSID	Purpose	StormDate	Event	SampleType	Comments	TBS	Turb NTU	BOD5	Cu	Pb	Zn	EGlycol	PGlycol	TotalGlycols	Fecals(MPN)	pH	TPH-D	TPH-Dx	TPH-MO
SDS1	SDS1 012901	NPDES	28-Jan 01	NPDES Storm	COMP		93	34		0 022	0 005	0 1	3	4 53	7 53					
SDS1	SDS1 012901D	FldDup	28-Jan-01	NPDES Storm	COMP FldDup		89	35		0 025	0 005	0 095	2	3 06	4 06					
						RPD, %	4%	-3%		-13%	0%	5%	40%	39%	60%					
SDN1up	SDN1 030101	NPDES	01 Mar-01	NPDES Storm	COMP		127	71	10 4	0 04	0 01	0 195								
SDN1up	SDN1 030101D	FldDup	01-Mar 01	NPDES Storm	COMP FldDup		132	75	10 2	0 039	0 01	0 197								
						RPD, %	-4%	-5%		3%	0%	-1%								
SDS3	SDS3 031601	NPDES	16-Mar 01	NPDES Storm	COMP		5 5	6	41 2	0 034	0 001	0 036	2	25	26					
SDS3	SDS3 031601D	FldDup	16-Mar 01	NPDES Storm	COMP FldDup		4	5 5	41 3	0 007	0 001	0 03	2	25 7	26 7					
						RPD, %	32%	9%		132%	0%	18%	0%	-3%	-3%					
SDN4	SDN4 062801-COMP	NPDES	27-Jun-01	NPDES Storm	COMP		4 5	5 6	4 70	0 031	0.001	0 006								
SDN4	SDN4 062801-DUP COMP	FldDup	27-Jun-01	NPDES Storm	COMP FldDup		4	5 1	4 64	0 024	0 001	0 005								
						RPD, %	12%	9%		25%	0%	18%								
SDS7	SDS7 101700	NPDES	17-Oct-00	NPDES Storm	COMP		7 0	5 5		0 006	0.001	0.005								
SDS7	SDS7 101700 D comp	FldDup	17-Oct-00		COMP FldDup		9 4	6 0		0 006	0.001	0 007								
						RPD, %	-29%	-9%		3%	0%	-33%								
	BLANKS																			
SDS3	SDS3 020201B	FldBlank	01-Feb 01	NPDES Storm	COMP Blank			0 19	< 4 00	0 004	< 0 002	0 008	2 73	3 83	5 56					
SDS3	SDS3 020101B GRAB	FldBlank	02-Feb-01	NPDES Storm	GRAB Blank											< 2	7 87	< 0 15	< 0 37	< 0 22
SDS3	SDS3 051501B GRAB	FldBlank	14-May-01	NPDES Storm	GRAB Blank				< 4 00	< 0 002	< 0 002	0 01	< 2 00	< 2 00						
	non-detected, value shown is 1/2 MDL																			

Non-Representative Samples 7/1/00-6/30/01																				
Outfall	POSID	Purpose	StormDate	Event	SampleType	Comments	TSS	Turb NTU	BOD5	Cu	Pb	Zn	EGlycol	PGlycol	Total Glycols	Fecals (MPN)	pH	TPH-D	TPH-MO	TPH-Dx
SDS7up	SDS7 101700	NPDES	10/17/00	NPDES Storm	NonRep COMP	Too Early - Non Representative	7	5 5		0 006	< 0 002	< 0 005								
SDN1up	SDN1 112300	NPDES	11/23/00	NPDES Storm	NonRep COMP	Comp Not Representative-Missed 9 of 18 aliquots	77	36	6 36	0 021	0 009	0 167								
SDS7up	SDS7 113000	NPDES	11/29/00	NPDES Storm	NonRep-COMP	Not Representative-Started too late on hydrograph	3	5		0 006	< 0 002	0 006								
SDS7up	SDS7 101700 grab	NPDES	10/17/00	NPDES Storm	NonRep-GRAB	Too Early - Non Representative										2	7 69	< 0 21	< 0 42	< 0 31
SDS1	SDS1 112300 GRAB	NPDES	11/23/00	NPDES Storm	NonRep-GRAB	Grab Not Representative-Too late							4 41	5 71	10 12	170	7 46	< 0 05	8 70	8 72
SDS7up	SDS7 112900 GRAB	NPDES	11/29/00	NPDES Storm	NonRep-GRAB	Not Representative-Started too late on hydrograph.										8	6 73	< 0 05	0 49	0 51

APPENDIX E OUTFALL INSPECTION SUMMARY

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2000 Dry Weather Inspection for Permitted Outfalls

Conducted on 9/27/00
by Scott Tobiason, Port of Seattle

Outfall Name	Outfall #	inspection point (1)	date (2)	depth of flow (3), in.	Visual Observations***: Susp Solids (0-5)	Turbidity (0-5)	Color (hue)	Sheen (0-5)	Odor (type)	Foam (0-5)	other	other	Remarks (4)
SDE4	002	manhole SDE4-47	27-Sep	trickle	0	0	0	0	0	0			insignificant flow (<<1 gpm), no baseflow sample possible
SDS1	003	outfall	27-Sep	no flow	no discharge								no flow, pipe was dry
SDS2	004	outfall	27-Sep	no flow	no discharge								pipe and ditch were dry
SDS3	005	outfall	27-Sep	trickle	0	0	0	0	0	0			insignificant discharge (too little to sample), no problems apparent
SDN1	006	manhole SDN1-22	27-Sep	no flow	no discharge								no flow, pipe was barely damp
SDN2	007	manhole	27-Sep	no flow	no discharge								no flow from pump station
SDN3	008	outfall	27-Sep	trickle	no discharge								pipe was barely damp, no flow
SDS4	009	outfall	27-Sep	no flow	no discharge								no flow onlystanding backwater from creek
SDS7	010	manhole	27-Sep	no flow	no discharge								pipe barely damp, no discharge
SDN4	011	outfall	27-Sep	no flow	no discharge								pipe dry
Eng Yard	012	drain inlet	27-Sep	no flow	no discharge								area dry
Taxi Yard	013	drain inlet	27-Sep	no flow	no discharge								area dry
SDS6	014	outfall	27-Sep	no flow	no discharge								pipe and ditch were dry
SDS5	015	outfall	27-Sep	no flow	no discharge								pipe and ditch were dry

notes:
1 Inspected visually from surface through inlets, or by pumped sample for outfalls with monitoring points requiring confined-space entry (SDE4, SDN1, SDN2, EY, TY)
2 Monthly sampling sites visited on numerous other dates during the period, noted in remarks
3 Depths of flow are approximate, unless registered by local monitoring equipment

*** note presence and magnitude: 0 = absent, 5 = present to considerable degree

Other observations at non-permit locations:

Outfall Name	Outfall #	inspection point (1)	date (2)	depth of flow (3), in.	Susp Solids (0-5)	Turbidity (0-5)	Color (hue)	Sheen (0-5)	Odor (type)	Foam (0-5)	other	other	Remarks (4)
S 28th St outfall	n/a	outfall											optional location not inspected
DM Creek *above* SDS1	n/a	creek	27-Sep	~4"	0	0	0	0	0	0			flow was clear
DM Creek *Weir at Golf Course*	n/a	creek	9/27/00	~4"	0	0	0	0	0	0			flow was clear
DM Creek at SDS4	n/a	creek	27-Sep	~4"	0	0	0	0	0	0			flow was clear
L. Reba outlet	n/a	outlet	27-Sep	~3	0	0	0	0	0	0			flow was clear

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2000-2001
Wet Season Outfall Inspection Summary

outfall	total number of visits	01-Jul-00	03-Jul-00	04-Jul-00	05-Jul-00	08-Jul-00	11-Jul-00	20-Jul-00	21-Jul-00	24-Jul-00	25-Jul-00	04-Aug-00	08-Aug-00
SDE4	48		S								M		M
SDS1	16									M			
SDS2	2		S							M			
SDS3	52					M				M			
SDS4	9							M			M		
SDS5	17								M				
SDS6	9								M				
SDS7	11								M				
SDN1	38	M	S, D							M			
SDN2	19									M			
SDN3	12	M							M				M
SDN4	50						NA		M	M			
EY	14								M				M
TY	9								M				M
N.Cargo	2											DL	

Information from site visit log books, chain-of-custodies, and field data sheets.

S= Sample
D = duplicate sample taken
B = blank sample taken

M = visited for set up, maintenance, or data download
DL= Data download from flowmeter
NA = sample not analyzed

n#: note number
ob#: observation number

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Port of Seattle

2000-2001
Wet Season Outfall Inspection Summary

outfall	09-Aug-00	17-Aug-00	19-Aug-00	08-Sep-00	19-Sep-00	20-Sep-00	25-Sep-00	27-Sep-00	29-Sep-00	06-Oct-00	09-Oct-00	11-Oct-00	12-Oct-00
SDE4						M		M	M	M		M	
SDS1													
SDS2													
SDS3		M	S					M	M			M	M
SDS4	M												
SDS5						M	M		M				
SDS6									M			M	
SDS7													
SDN1	M			M	M								
SDN2	M					M		M			S (n1)	M	M
SDN3													
SDN4	M	M	S									M	M
EY		M	S, D										
TY													
N.Cargo													

Information from site visit log books, chain-of-custodies, and field data sheets.

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NA = sample not analyzed

n#: note number
ob#. observation number

Notes:
1. SDN2 pump station pumps capacity exceeded. Overflow to gravity storm sewer N2 outfall

2000-2001
Wet Season Outfall Inspection Summary

outfall	17-Oct-00	18-Oct-00	19-Oct-00	20-Oct-00	24-Oct-00	31-Oct-00	01-Nov-00	07-Nov-00	08-Nov-00	16-Nov-00	21-Nov-00	22-Nov-00	23-Nov-00
SDE4	M	S (ob1)				M		M	S, D	M		M	M
SDS1												M	M
SDS2													
SDS3	M	S			M			M	S(ob4)	M	M		M
SDS4													
SDS5	M	NA	M	S								M	M
SDS6	M	M	M	S			M						
SDS7	M	S, D										M	
SDN1	M	S (ob2)				M		M				M	M
SDN2						M							
SDN3		M	M	S						M			
SDN4	M	S				M		M	S	M		M	M
EY		M	M	S(ob3)									
TY													
N.Cargo													

Information from site visit log books, chain-of-custodies, and field data sheets.

S= Sample
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DL= Data download from flowmeter
NA = sample not analyzed
n#: note number
ob#: observation number

Observations:
1. SDE4: grab sample high turbidity (3/5)
2. SDN1: grab sample high turbidity (3/5) and solids (3/5)
3. EY: suspended solids 3/5 in grab sample
4. SDS3: white foam observed at outfall. Manual grab taken; analyzed for surfactants, SRP, and TDP

Port of Seattle

2000-2001
Wet Season Outfall Inspection Summary

outfall	24-Nov-00	28-Nov-00	30-Nov-00	08-Dec-00	13-Dec-00	14-Dec-00	15-Dec-00	17-Dec-00	20-Dec-00	21-Dec-00	02-Jan-01	04-Jan-01	05-Jan-01
SDE4	S (ob5)			M	M	S				M	M	S (ob8)	
SDS1	S (ob5)	(ob6)									M	M	
SDS2													
SDS3	S			M	M					M	M	S, D, B	
SDS4		M									M	S	
SDS5						M				S	M	S	
SDS6		M											
SDS7		M	S (n3)			M	S						
SDN1	S(n2,ob5)	M			M	S (obs 7)				M	M	S (ob8)	
SDN2		M		M			M						M
SDN3													
SDN4	S	M	S	M	M	S	B						
EY								M			M	S (ob8)	
TY											M		
N.Cargo									D.L (n4)				

Information from site visit log books, chain-of-custodies, and field data sheets.

S= Sample
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M = visited for set up, maintenance, or data download
DL= Data download from flowmeter
NA = sample not analyzed

n#: note number
ob# observation number

Observations:
5. S1, E4, N1: grab samples high turbidity (3/5)
6. fine grey sediment (concrete outwash) observed (CN, KM)
7. N1: suspended solids (4/5) and turbidity (4/5), dark brown sample
8. N1 grab and comp: susp. solids and turbidity (3/5). EY grab susp. solids and turb. (3/5). E4 grab susp. solids and turb. (3/5)

Notes:
2. SDN1: comp sample un-representative
3. SDS7: sample un-representative
4. N. Cargo flow monitoring equipment removed 12/20/00

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Port of Seattle

2000-2001
Wet Season Outfall Inspection Summary

outfall	11-Jan-01	23-Jan-01	28-Jan-01	29-Jan-01	01-Feb-01	02-Feb-01	07-Feb-01	08-Feb-01	09-Feb-01	14-Feb-01	15-Feb-01	16-Feb-01	17-Feb-01
SDE4							M (n5)	M (n5)	S (n6)		M (n5)	M (n5)	S (n6)
SDS1		M	M	S(ob9), D				S (n6)				S (n6)	S (n6)
SDS2													
SDS3	M	M	M	S	M	S, B	M (n5)	S (ob11)	S (n6)		M (n5)	M (n5)	S (n6)
SDS4													
SDS5													
SDS6													
SDS7													
SDN1	M	M	M	S									
SDN2					M								
SDN3													
SDN4							M (n5)	S(ob11)	S (n6)	M	M (n5)	M (n5)	S (n6)
EY													
TY		M	M	S(ob9)	M	S (ob10)							
N.Cargo													

Information from site visit log books, chain-of-custodies, and field data sheets.

S= Sample
D = duplicate sample taken
B = blank sample taken

M = visited for set up, maintenance, or data download
DL= Data download from flowmeter
NA = sample not analyzed

n#: note number
ob#: observation number

Observations:
9 S1 grab turbidity (4/5), orange-brown color
EY comp turb. 4/5, orange-brown color
10. EY: grab sample only; susp. solids 3/5
11. S3: white foam observed at outfall

Notes:
5. Stations setup for snow/ice de-icing event (time paced composites)
6. Glycol sampling for de-icing event

AR 022776

Port of Seattle

2000-2001
Wet Season Outfall Inspection Summary

outfall	18-Feb-01	19-Feb-01	01-Mar-01	02-Mar-01	08-Mar-01	12-Mar-01	14-Mar-01	15-Mar-01	16-Mar-01	23-Mar-01	27-Mar-01	28-Mar-01	29-Mar-01
SDE4	S (n6)		M		M	M	M	M	S (ob15,16)		M	S	
SDS1			M	S (ob13)			M						
SDS2													
SDS3	S (n6)	S (n6)	M		M	M	M (ob14)	M	S	M	M	S (ob17, n7)	
SDS4						M					M	S	
SDS5							M	M	S				
SDS6													
SDS7							M	M	S				
SDN1			M	S,D (ob12)		M	M	M	S (ob15)				M
SDN2													
SDN3													M
SDN4	S (n6)	S (n6)	M	S		M	M	M	S				M
EY													M
TY													
N.Cargo													

Information from site visit log books, chain-of-custodies, and field data sheets.

S= Sample
D = duplicate sample taken
B = blank sample taken

M = visited for set up, maintenance, or data download
DL= Data download from flowmeter
NA = sample not analyzed

n#: note number
ob#: observation number

Observations:
12. N1: grab and comp sample high turbidity (3/5)
13. S1: small amount of foam observed (approx. 1 sq. ft.)
14. S3: light foam observed at outfall
15. N1, E4: petroleum odor in grab sample
16. E4: comp sample turbidity (3/5)
17. S3. approx. 1/2" thick of foam observed at outfall.

Notes:
6. Glycol sampling for de-icing event
7. Increased flow recorded at outfall after storm hydrogaph. Due to discharge from Lagoon 3 trt. facility on 188th St.

Port of Seattle

2000-2001
Wet Season Outfall Inspection Summary

outfall	05-Apr-01	06-Apr-01	16-Apr-01	17-Apr-01	24-Apr-01	26-Apr-01	08-May-01	13-May-01	14-May-01	15-May-01	16-May-01	11-Jun-01	12-Jun-01
SDE4				M	M		M	M	M	S			
SDS1													
SDS2													
SDS3				M				M	M	S, B			
SDS4													
SDS5													
SDS6													
SDS7													
SDN1	M			M				M	M	S			
SDN2						M		M			M	S (n1)	M
SDN3	M	S	M						M				
SDN4	M	S	M					M	M	S			
EY													
TY													
N.Cargo													

Information from site visit log books, chain-of-custodies, and field data sheets.

S= Sample
D = duplicate sample taken
B = blank sample taken

M = visited for set up, maintenance, or data download
DL= Data download from flowmeter
NA = sample not analyzed

n#: note number
ob#: observation number

Notes:
1. SDN2 pump station pumps capacity exceeded. Overflow to gravity storm sewer N2 outfall

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AR 022778

Port of Seattle

2000-2001
Wet Season Outfall Inspection Summary

...pr-01 24-Apr-01 12-Jun-01 outfall 14-Jun-...

	26-Apr-01	08-May-01	13-May-01	14-May-01	15-May-01	16-May-01	11-Jun-01
SDE4	M		M		M		M
SDS1							
SDS2							
SDS3	M	M					S
SDS4							
SDS5							
SDS6							
SDS7							
SDN1	M				M		S (ob18)
SDN2						M	
SDN3							
SDN4	M		M		M		S, D
EY				M	M		S
TY					M		
N.Cargo							

Information from site visit log books, chain-of-custodies, and field data sheets.

S= Sample
D = duplicate sample taken
B = blank sample taken

M = visited for set up, maintenance, or data download
DL= Data download from flowmeter
NA = sample not analyzed

n#: note number
ob#: observation number

Observations:
18. N1: suspended solids (3/5); turbidity (4/5)

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