



## 2005 ANNUAL CSO REPORT

### PREPARED FOR THE WASHINGTON STATE DEPARTMENT OF ECOLOGY

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April 2006

TO COMPLY WITH  
CONDITION S11 OF NPDES PERMIT NO. WA-0023973  
AND  
WAC 173-245-090(1)

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Prepared By: Stephen Sperr, P.E., Engineering Manager

A handwritten signature in cursive script, appearing to read "Gary W. Kenworthy".

Approved By: Gary W. Kenworthy, P.E., City Engineer

## A. SUMMARY

This Report addresses the period from January 1, 2005 through December 31, 2005 with regards to the reporting requirements in the NPDES Permit. The City has four Combined Sewer Overflow (CSO) sites\* that are continuously monitored by Geotivity Qtrek2 flow recorders. The City has a service contract with Geotivity, Inc., where raw data is uploaded via cellular phone service to Geotivity's website every 5 minutes. Geotivity verifies the data, issues CSO flow event start and end emails, and convert it to a format that can produce reports of varying length, as well as graphs.

The four CSO discharge outfalls are as follows:

- 006 - Oak & Railroad, discharges into Port Angeles Harbor
- 007 - Laurel & Railroad, discharges into Port Angeles Harbor
- 008 - ½ Alley & Lincoln, discharges into Peabody Creek culvert which discharges into Port Angeles Harbor
- 010 - Francis Street Park, discharges into Port Angeles Harbor

\* CSO site 001 at Pump Station #1 was physically disconnected from the sanitary sewer system in January, 2005 (when PS#1 was also eliminated), but changes to the upstream hydraulics in December 2004 had eliminated the possibility of having an overflow before January 1, 2005. For reasons of clarity, therefore, this 2005 Annual Report only refers to four CSO sites.

In Appendix A is a map showing the locations of the four CSO sites.

## B. CSO DISCHARGES – DATE, DURATION AND VOLUME

Appendix B includes tables that detail for each site the date, total volume and duration for each CSO event. Table 1 below summarizes the total number of CSO events and volume for each of the four remaining CSO sites in the last three years. Table 2 compares the number of monthly CSO events and volumes for each CSO site in the last two years.

**Table 1 – Total Events and Volumes for Each CSO Site, 2003-05**

	2003		2004		2005	
	Events	Volume	Events	Volume	Events	Volume
006	6	1,166,421	11	99,169	30	2,157,945
007	10	5,958,953	15	586,688	37	15,143,072
008	2	1,201,531	0	0	9	45,767
010	12	21,400,462	3	1,096,603	34	15,788,946
Total	30	29,727,367	29	1,796,488	110	33,135,730

**Table 2 – Comparison of Monthly CSO Events, 2004 and 2005\***

Month	CSO 006		CSO 007		CSO 008		CSO 010	
	Events	Volume**	Events	Volume	Events	Volume	Events	Volume
Jan. 2004	2	64,989	3	336,884	0	0	0	0
Jan. 2005	0	0	5	18,732	0	0	3	109,594
Feb. 2004	0	0	1	394	0	0	0	0
Feb. 2005	1	2,104,289	2	12,438,436	0	0	1	2,535
Mar. 2004	0	0	0	0	0	0	0	0
Mar. 2005	4	6,445	4	8,083	2	1,994	6	406,876
Apr. 2004	2	4,595	0	0	0	0	0	0
Apr. 2005	9	9,626	5	52,932	0	0	6	98,022
May 2004	0	0	0	0	0	0	0	0
May 2005	1	4,181	2	52,527	1	30,375	5	2,131,769
Jun 2004	0	0	0	0	0	0	0	0
Jun 2005	2	4,785	3	65,398	0	0	2	167,194
Jul 2004	0	0	0	0	0	0	0	0
Jul 2005	0	0	1	6,878	0	0	1	40,949
Aug 2004	2	27,968	0	0	0	0	0	0
Aug 2005	2	187	2	247	1	32	1	793
Sep 2004	1	1,600	1	1,000	0	0	1	69,043
Sep 2005	1	2	1	97	1	1	1	78
Oct 2004	1	15	2	7,187	0	0	0	0
Oct 2005	1	8	2	189	0	0	0	0
Nov. 2004	3	2	4	66,000	0	0	0	0
Nov. 2005	4	15,428	5	796,162	3	13,365	3	2,128,305
Dec. 2004	0	0	4	175,223	0	0	2	1,027,560
Dec. 2005	5	12,994	5	1,303,391	1	930	5	10,702,831

\* 2003 data is not included in Table 2 because the raw data is no longer available to break it down by month.

\*\* Volume = total volume of CSO flows in a given month, in gallons

**C. CSO REDUCTION ACCOMPLISHMENTS IN 2005**

The following projects were completed or initiated in 2005 as part of the City's CSO Reduction Plan:

1. Installation of 1700 feet of new 8-inch sewer main along Park Avenue between Race Street and Porter Street, replacing an existing main that had extensive infiltration and inflow problems.
2. Approximately \$50,000 was spent on disconnecting existing storm inlets/catch basins from sanitary sewer system.
3. A monthly maintenance program for the Qtrek2 flow monitoring devices was extended for 2005. The City contracts with Geotivity, Inc. to not only host the CSO flow information on a website, but also inspect and service the flow recorders on a monthly basis to ensure that they stay in service.
4. In December, 2005 the City began a project to install linings for the outfall pipes at CSO sites 006 and 007, to address cracks and leaks in these pipes. The linings were needed to eliminate saltwater intrusion that was still plaguing the sites during some of the extreme high tide events, triggering erroneous CSO flow recordings.

Completion of the installation work at both sites occurred in March 2006, so the 2006 Annual CSO Report will address how this impacted CSO flows.

#### D. CSO PROJECTS PLANNED FOR 2006

1. Selection of an engineering consultant to design the Francis Street sewer main, the second major project identified in the City's CSO Reduction Plan. Following selection, anticipated to be complete in May 2006, the design is scheduled to be complete before the end of 2006, for construction in 2007.
2. Installation of a storm sewer along Lincoln Street from 4<sup>th</sup> Street to 8<sup>th</sup> Street, separating stormwater from the sanitary sewer in this area. This should reduce or eliminate CSO flows at CSO 008.
3. Continuation of the disconnection program (\$50,000 per year on average) for storm inlets/catch basins and incorporate disconnections into adjacent public works projects.
4. Completion of an update to, and obtain approval of, the General Sewer Plan that incorporates the CSO Reduction Plan and Re-rating of the wastewater treatment plant (WWTP).

#### E. NINE MINIMUM CONTROLS

The nine minimum controls as described in S11.B.1 to 9 of the permit are being followed as described in the Port Angeles WWTP Combined Sewer Overflow Pollution Prevention Plan, dated September 2004, which was submitted per item 7 of order DE 04WQSR-6042. The Plan was submitted along with a revised Sampling and Analysis Plan per item 5 of the same order. Ecology has acknowledged receipt of these documents and that they meet the requirements in the order.

The following is a summary of activities in 2005 supporting the nine minimum controls:

1. Proper operation and regular maintenance program for the sewer system

Wastewater Collections and WWTP staff have performed maintenance at all the lift stations according to the work orders set up in the City of Port Angeles HTE software program. Visual inspections of CSO outfalls, regulator structures, and signs are also tracked in the City of Port Angeles HTE software. WWTP Staff are using CSO survey and inspection forms to record information found after each overflow event that occurs during our regular work week, as per the sampling plan. Work orders to perform these tasks print out periodically at the WWTP office and are forwarded to work crews. Finished work orders are used to update the HTE work orders system maintained by WWTP staff. Finished work orders are then filed in the appropriate year 'CSO field reports' file in the Superintendent's office. The WWTP Superintendent also collects data from the Wastewater Collections crew monthly, and for 2005: 47,777 feet of sanitary sewer was jetted, 1,520 feet of storm sewer

was jetted, 300 feet of sanitary sewer was root foamed, 22 backed up sewers were called in (in the City), and 23 backed up sewers were called in on private property.

## 2. Maximum use of the collection system for storage

The leachate ponds at the Port Angeles Landfill (PALF) have been converted to stormwater ponds and were not used for flow retention in 2005. Leachate flow is now piped directly to the sanitary sewer system. We have not added any significant storage to the collection system in 2005. The collection system does not have any appreciable oversized sewers or wet wells at pump stations to provide storage capacity.

## 3. Review and modification of pretreatment requirements to assure CSO impacts are minimized

In 2005, the WWTP received 1.06 million gallons of sewage from septage pumpers through the use of long term and annual contracts. This is a large increase from the previous year. The WWTP has also begun taking pumper waste from restaurant grease separators on an interim basis. 2.22 million gallons of leachate from the Rayonier landfill and 3.93 million gallons of leachate from the City of Port Angeles landfill was treated at the WWTP in 2005. With landfilling being replaced by a transfer station at the end of this year, we are expecting the leachate flows from the City of Port Angeles landfill to be greatly reduced after 2007. The 2005 Pretreatment Report was mailed to Ecology on October 27, 2005 and it reflected one new short term IWA permit. This was issued to PA Hardwoods to treat spent boiler treatment diluted product.

Enforcement for the pretreatment program has consisted of 33 telephone calls and 14 meetings for the year. The WWTP had only 14 permits in effect in 2005. None of the local limits in the City's sewer ordinance were exceeded. The WWTP has not had any biological upsets or any pass through events. Sampling and monitoring of CSO sites have shown no appreciable impacts as is noted later in the report.

## 4. Maximization of flow to the publicly owned treatment works (POTW) for treatment

The City of Port Angeles has finished the control improvements described in the 2004 Annual CSO report in 2005. This included controls for the Tricking Filter recycling and secondary bypass system. The secondary bypass controls will allow us to treat and disinfect/dechlorinate flows above 10.6 mgd. A flow recorder was also installed on the secondary bypass line. The emergency secondary bypass line is no longer used except in the event of a process failure. This work was completed in 2005. The WWTP has had all units on line and taken the maximum flow delivered from the sanitary sewer system in 2005. The average flow for 2005 was 2.32 MGD with a peak daily flow of 5.93 MGD.

## 5. Prohibition of CSOs during dry weather

Dry weather overflows are treated like a spill investigation and a City of Port Angeles "Pollution Investigation Checklist" is always used to report these. There were no dry weather overflows in 2005. The CSO internet notification system from Geotivity has been set up since September 2004. We are continuing to receive reports from Geotivity on flows

at the CSO sites and checking them for any dry weather flows. Their records showed no dry weather overflows.

#### 6. Control of solid and floatable materials in CSOs

WWTP staff inspect the baffles and discharge areas after each overflow event. Survey reports show the baffles have successfully kept the floatables and solids out of the overflow discharge pipes. Inspection of the beach areas have detected no floatables or solids.

#### 7. Pollution Prevention

In 2005, the City of Port Angeles Street and Parks Division removed 556.27 wet tons of material through street sweeping maintenance. A total of 4,583 miles of road surface was swept in 2005. They also removed (by educting) 156.2 wet tons of combined catch basin material. A total of 751 catch basins were cleaned in 2005. These materials were dumped into the active pit at the Port Angeles Landfill (PALF). A household hazardous waste collection event was held in Port Angeles on September 23rd and 24th (along with one in Sequim on September 25th) and a total of 110,000 pounds of waste was collected in Clallam County. Staff have labeled new catch basins for no dumping. They have also maintained the daily pickup of the downtown receptacles. Funding for the City of Port Angeles Pollution Prevention Plan has been maintained through sewer and stormwater billing to provide these services.

#### 8. Public notification to ensure that the public receives adequate notification of CSO occurrences and impacts

Geotivity has maintained the internet notification system that emails stakeholders whenever a CSO event begins or ends. The WWTP has received no complaints on the operation of this system and it works well. The CSO notification signs located at each of the four remaining discharge sites, as well as at Hollywood Beach and the City Pier, have been maintained. The signs are being checked by the Wastewater Collection crew and a record of the inspection is entered using the HTE monthly work orders. Signs that are destroyed or missing are promptly replaced by WWTP staff. Four signs and two posts were replaced in 2005. In addition, there are handouts explaining the status of the City of Port Angeles CSO program at the front counter where citizens pay bills and take out permits. This information was mailed in the September 2005 utility billing. We also have that information available on the City of Port Angeles web site located at [www.cityofpa.us](http://www.cityofpa.us).

#### 9. Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls

As of October 1, 2004, WWTP staff have been using the CSO survey and inspection forms to record information regarding each overflow event, as per the sampling plan. This sampling and survey information is kept in a binder in the WWTP Lab and is updated anytime a new survey or sampling event is performed. Tables 3 and 4 summarize CSO sampling data gathered in 2005. In 2005 many of the heavier rain events occurred on weekends and after hours, resulting in very few actual samples being taken (2).

**Table 3 – Suspended Solids (mg/L)\***

Date	CSO 006		CSO 007		CSO 008		CSO 010	
	Manhole*	Strait**	Manhole	Strait	Manhole	Strait	Manhole	Strait
5/19/05	164	431	N/A	N/A	N/A	N/A	N/A	N/A
12/28/05	no flow	no flow	N/A	N/A	N/A	N/A	N/A	N/A

\* Manhole = the CSO manhole

\*\* Strait = receiving water of the CSO outfall, in this case Port Angeles Harbor

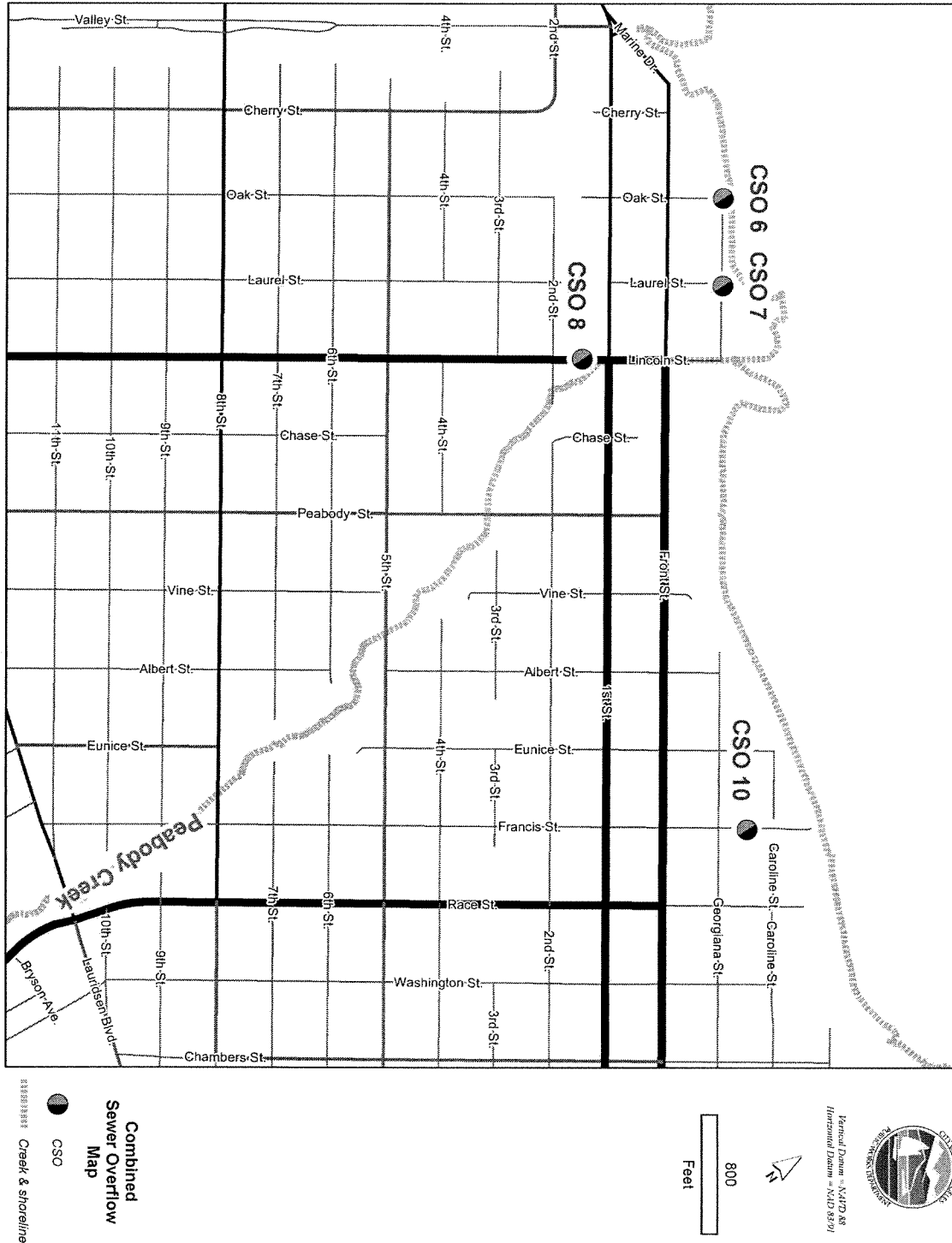
**Table 4 – Fecal Coliform (mg/100mL)\***

Date	CSO 006		CSO 007		CSO 008		CSO 010	
	Manhole*	Strait**	Manhole	Strait	Manhole	Strait	Manhole	Strait
5/19/05	440,000	8	N/A	N/A	N/A	N/A	N/A	N/A
12/28/05	no flow	no flow	N/A	N/A	N/A	N/A	N/A	N/A

\* Manhole = the CSO manhole

\*\* Strait = receiving water of the CSO outfall, in this case Port Angeles Harbor

# Appendix A Site Map of CSO Locations



## Appendix B

### Summary of 2005 CSO Events at Each Site

#### CSO 006, Oak & Railroad

Date (start of event)	Duration (hours)	Total Volume (gallons)
January	none	0
February 4, 6:05am	2.0	2,104,289
March 1, 5:05am	0.9	2,445
March 3, 5:30am	1.2	82
March 28, 2:25am	33.2	3,898
March 31, 9:35am	0.1	20
April 1, 4:45am	7.9	2,925
April 2, 7:05pm	11.2	2,389
April 5, 9:30am	4.0	1,034
April 8, 6:05pm	0.1	57
April 11, 4:10am	1.0	161
April 12, 6:40pm	0.1	49
April 18, 7:55am	0.3	2,911
April 22, 10:05pm	4.7	32
April 25, 2:10am	28.1	68
May 19, 11:10am	1.5	4,181
June 10, 8:00am	0.3	553
June 16, 5:10pm	8.5	4,232
July	none	
August 17, 5:10am	1.4	186
August 28, 3:50pm	0.4	1
September 29, 2:45pm	0.5	2
October 31, 1:55am	0.4	8
November 4, 12:40pm	1.1	4,088
November 5, 4:20pm	2.8	50
November 11, 12:45pm	2.6	6,585
November 25, 7:10am	2.8	4,705
December 20, 4:10pm	3.8	1,708
December 22, 2:50am	15.4	3,137
December 25, 12:10am	1.2	8,115
December 28, 10:25am	0.4	15
December 31, 5:00am	0.4	19
Total Events = 30,		Total Volume = 2,157,945

**CSO 007, Laurel & Railroad**

Date (start of event)	Duration (hours)	Total Volume (gallons)
January 1, 10:35am	1.2	1,384
January 7, 11:15am	24.8	1,755
January 12, 1:05pm	0.2	6,290
January 17, 6:50am	32.2	8,641
January 22, 3:00pm	0.6	662
February 4, 3:50am	4.3	12,394,399
February 6, 3:20pm	1.4	444,037
March 16, 10:25am	1.7	1,437
March 20, 5:05am	10.4	1,190
March 26, 5:55am	35.8	4,444
March 29, 11:15am	0.7	1,012
April 1, 6:10pm	0.9	8,514
April 3, 4:15pm	1.4	11,785
April 11, 1:00pm	5.4	8,805
April 16, 5:45am	0.7	5,207
April 18, 6:25am	2.4	18,621
May 16, 8:05am	0.8	8,094
May 19, 10:45pm	14.2	44,433
June 10, 7:25pm	1.2	24,900
June 17, 12:25am	2.6	38,207
June 26, 8:45pm	0.2	2,291
July 8, 12:50pm	0.4	6,878
August 17, 3:20am	3.5	175
August 28, 3:00pm	1.7	72
September 29, 2:35pm	3.1	97
October 16, 11:25pm	0.9	36
October 31, 1:45am	2.0	153
November 4, 10:10am	20.9	410,355
November 10, 10:10am	0.2	2,178
November 11, 12:30pm	5.4	216,464
November 13, 1:40am	14.9	27,952
November 25, 7:10am	4.3	139,213
December 20, 4:05pm	4.2	143,020
December 22, 2:50am	15.6	225,421
December 24, 11:50pm	8.4	290,817
December 28, 10:20am	0.9	265,434
December 30, 2:25pm	31.0	378,699
<b>Total Events = 37,</b>	<b>Total Volume =</b>	<b>15,143,072</b>

**CSO 008, ½ Alley & Lincoln**

Date (start of event)	Duration (hours)	Total Volume (gallons)
January	none	
February	none	
March 26, 6:25am	0.2	1,516
March 29, 11:25am	0.1	478
April	none	
May 19, 11:05am	1.8	30,375
June	none	
July	none	
August 17, 4:40am	1.4	32
September 29, 2:45pm	2.1	1
October	none	
November 4, 12:40pm	0.2	824
November 11, 12:40pm	1.8	5,679
November 25, 7:05am	0.2	6,862
December 20, 4:10pm	0.1	930
Total Events = 9,		Total Volume = 45,767

**CSO 010, Francis Street Park**

Date (start of event)	Duration (hours)	Total Volume (gallons)
January 18, 3:55pm	31.5	26,429
January 23, 12:25am	4.2	1,346
January 29, 11:10pm	23.8	81,819
February 4, 6:25am	0.1	2,535
March 9, 3:20am	0.6	507
March 11, 2:25am	0.1	32
March 16, 10:00am	11.4	67,943
March 19, 4:25pm	30.4	139,993
March 26, 5:40am	38.9	139,661
March 29, 8:30am	30.3	58,740
April 1, 4:15am	21.3	89,975
April 3, 7:15am	12.3	7,099
April 11, 6:10am	0.1	31
April 18, 7:25am	1.1	874
April 22, 12:45am	0.1	22
April 24, 5:15pm	0.1	21
May 4, 6:15am	1.2	125,313
May 15, 2:10am	39.7	687,577
May 18, 10:45pm	14.0	1,174,172
May 20, 6:15am	0.2	19,385
May 22, 6:10am	10.9	125,322
June 10, 7:10pm	23.0	95,428
June 16, 11:35pm	6.1	71,766
July 8, 11:40am	1.4	40,949
August 17, 5:40am	0.7	793
September 29, 3:00pm	0.1	78
October	none	
November 4, 12:35am	0.4	434,432
November 11, 12:30pm	6.1	1,569,909
November 25, 7:20am	13.5	123,964
December 3, 1:15am	11.4	8,423,826
December 20, 4:10pm	3.9	511,100
December 22, 2:55am	14.9	971,003
December 25, 12:20am	0.7	672,615
December 31, 5:00am	0.2	124,287
<b>Total Events = 34,</b>	<b>Total Volume =</b>	<b>15,788,946</b>