



## **King County**

Department of Natural Resources and Parks  
Wastewater Treatment Division

### **West Section**

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January 9, 2018

Shawn McKone  
Department of Ecology  
Northwest Regional Office  
3190 160th Avenue SE  
Bellevue, WA 98008-5452

**Re:** Hanford Street Regulator / Outfall Station, December 29, 2017 – January 1, 2018  
Revised - This report is an update to a previous document that we had inadvertently omitted clarification on the sequence of events and the proposed improvements that are in process that, once implemented, will help to minimize similar future occurrences.

Dear Mr. McKone:

On December 29, 2017 significant rainfall resulted in CSOs to discharge throughout the area, including from the Hanford Street Outfall Station. As the storm passed and the CSO event ended, the Hanford CSO gate failed to close and remained partially open. The partially open CSO gate was not discovered until plant West Point Operations staff noticed unusually high flows at the Interbay station and initiated an investigation on the morning of December 31, 2017. Investigating staff discovered the open gate at the Hanford station and manually closed the gate on January 1, 2018 at 2 p.m. After its discovery, staff reported the overflow to DOE and the incident was assigned ERTS # 678207.

The Hanford Regulator Station is located at 2999 East Marginal Way South, and the Hanford Outfall Station is located at 2999-1/2 East Marginal Way South. A system flow schematic for that location has been attached for your reference.

In the follow-up to the gate failure, maintenance staff thoroughly examined the station and the event data for the Hanford station and determined that the gate failure was caused by a faulty gate closure relay switch during the event. The event data showed the gate modulating and controlling as required at the start of the CSO event, but the relay appeared to fail and gate modulation stopped mid-event at around 1:20 p.m. on December 29.

Based on the time duration of the open gate, the estimated non-CSO overflow volume was 5.5 million gallons over 15.9 hours. (The non-CSO overflow volume would be a combination of sanitary sewer overflow (SSO) and the return of some of the salt water intrusion which had come in at higher tides.)

Following a storm event, CSOs typically continue for some time as rainwater continues to enter the collection system and the system continues to drain. However, as the collection system transitioned to its normal state, plant staff failed to notice the stuck, partially open gate on the plant SCADA system on the afternoon of the December 29 until the high influent flow was noted at Interbay on the afternoon of December 31.

Collection system and Hanford station flow data indicate the non-CSO discharge started on December 30, at 4:55 p.m. The table below summarizes when there were discharges/overflows (out) from Hanford, during the December 29 through January 1 period. During periods outside of those listed, saltwater intrusion was occurring with water entering the collection system, rather than sewage going out.

<b>Overflow periods (starting and ending times)</b>	<b>CSO or non-CSO</b>	<b>Volume (MG)</b>	<b>Time (Hrs)</b>
12/29 06:45 – 12/30 05:30	CSO	50.0	22.7
12/30 11:15 – 12/30 16:10	CSO	7.3	4.9
12/30 16:55 – 12/31 00:15	Non-CSO	1.6	7.3
12/31 13:30 – 12/31 15:40 (intermittently)	Non-CSO	1.7	1.5
12/31 17:50 – 1/1 00:55	Non-CSO	2.2	7.1

The faulty relay has been replaced and the gate was successfully tested for positive operation.

To help prevent this type of incident in the future, a “gate out of position” alarm will be added to the Hanford and other West Point Offsite CSO gates. A conductivity meter will also be added at Interbay for early detection of salt water intrusion through an open CSO gate. Although there is an existing conductivity meter on the influent line at West Point, a meter at Interbay would allow crews to more quickly narrow their search on locating the source of the intrusion.

To address the delay in the detection of the open CSO gate, Main Control staff have created an offsite station status review check list that they will be required to review, to confirm the closed status of all CSO gates in the West Point offsite system following a storm/CSO event.

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Please feel free to contact me at 206-263-9481, or Eugene Sugita at 206-477-9782, if you have any questions. I look forward to discussing the content of this letter with you and your staff as needed.

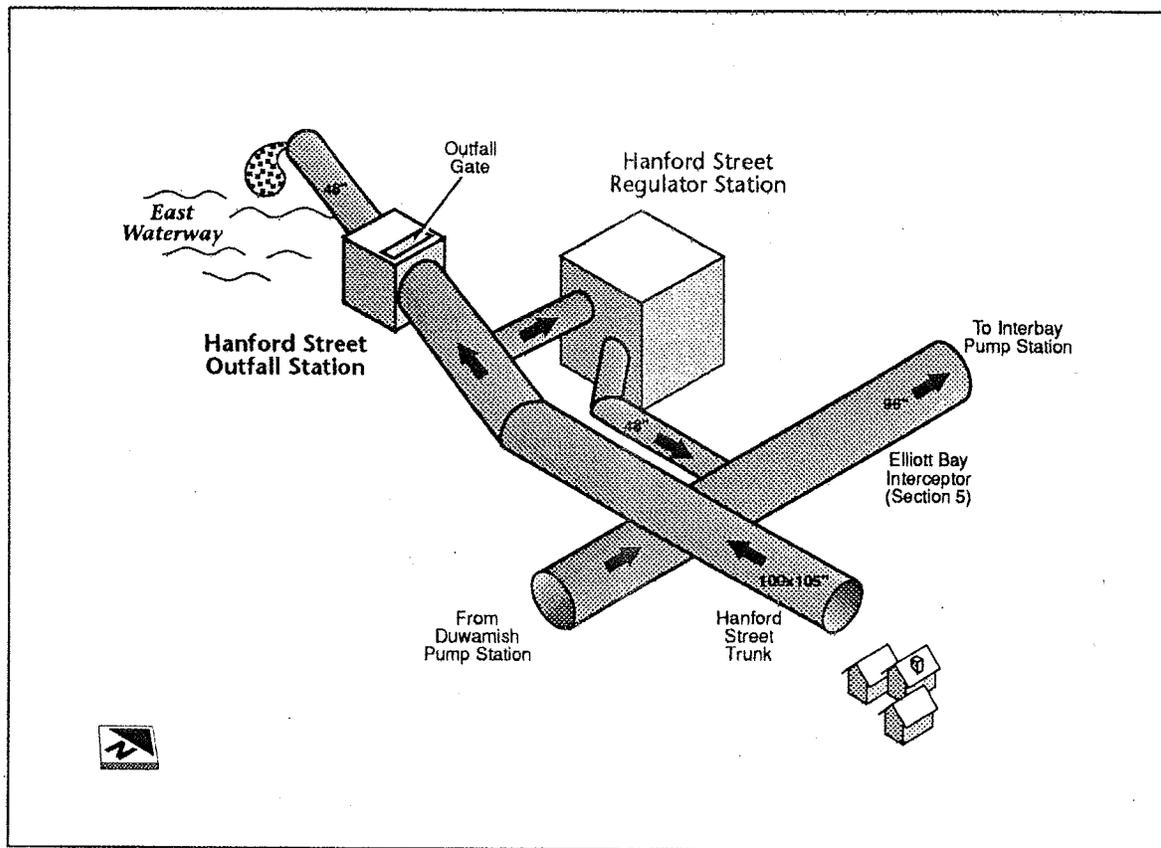
Sincerely,



Robert Waddle  
Section Manager, King County WTD

Enclosure

- cc: - Amy Jankowiak, Compliance Specialist, Department of Ecology (DOE)  
Mark Isaacson, Division Director, Wastewater Treatment Division (WTD),  
Department of Natural Resources and Parks (DNRP)  
Jeff Lafer, Project/Program Manager IV, WTD, DNRP  
Eric Mandel, CSO Program Coordinator / Wastewater Capital Project Manager IV,  
WTD, DNRP  
Karl Zimmer, West Section Assistant Manager, WTD, DNRP  
Al Williamson, West Section Assistant Manager, WTD, DNRP  
Janice Johnson, Engineer III, WTD, DNRP



Flow Schematic

### System Relationship

Excess stormwater overflows from Hanford Street Regulator Station through the station's outfall gate into the East Duwamish Waterway.

### Flow/Construction Information

The Hanford Street Regulator Station and Hanford Street Outfall Station are considered one system. See *Hanford Street Regulator Station* for information.

### Critical Information

Emergency Power:	Standby Generator
Invert Elevation	
Outfall Gate:	98.00 feet
Overflow Location:	Duwamish East Waterway; through a 144- by 96-inch-diameter outfall gate into a 48-inch-diameter submarine outfall 150 feet long