

# STORM WATER ANNUAL REPORT

## ATTACHMENT



### **Neary Lagoon Summary Report**

Dry Weather Diversion to WWTF

Dry Season: Line Cleaning, Monitoring Data

Wet Season: Pumping Summary, Discharge Report Forms,  
Beach Posting Summary

**Neary Lagoon Summary**  
**Dry Weather Diversion**  
**Dry & Wet Season Summaries**  
**Beach Postings**  
**FY2015-2016**

**Dry Weather Diversion to WWTF**

*Dry Weather Diversion from Neary Lagoon to Wastewater Treatment Facility (previously SWMP BMP #MO-17)*

During the dry season, Neary Lagoon discharge is diverted to the Wastewater Treatment Facility (WWTF) via a 12-inch bypass line (located just below the weir) so that this water is treated prior to discharge into the Pacific Ocean. The bypass line runs only if the water level is high enough in the lagoon. The City may divert lagoon water to the WWTF during the “wet weather season” if the treatment plant has adequate capacity, including both hydraulic and organic loading, at that time. This is done upon occasion to maintain consistent lagoon levels, and to minimize pump operation and discharges to the beach, in addition to treating the water prior to discharge. Thus, lagoon water is diverted to the WWTF until rains force the gravity outlet opening. Diversion also occurs during periods of dry weather in the winter and spring months.

The dry weather diversion is important for receiving water quality because in spring and summer the bacteria levels in Neary Lagoon tend to increase due to the reduced freshwater flows into the lagoon and the presence of many birds and fish at the lagoon. Thus, this water is diverted to the treatment plant in lieu of being discharged at Cowell Beach.

During the permit year, lagoon water was diverted to the WWTF on the following dates: 6/30/15 to 1/05/16 and 3/30/16 to 6/30/16. Thus, lagoon water was diverted approximately 310 days.

**Dry Season**

*Clean Neary Lagoon Storm Drain Lines and Discharge Bacteria Laden Water to the Sanitary Sewer System (previously SWMP BMP #MO-18)*

Public Works Wastewater/Storm Water Collection staff cleans the Neary Lagoon 66” force main and 66” gravity lines by a flushing process annually in order to clean the lines prior to the rainy season. This effort is done to reduce bacteria levels that may have built up in the lines over the summer months, and thus prevent the discharge of bacterial laden water to Cowell Beach if/when pump operations occur or the gravity line opens during the winter months. The water in the pipelines and from the flushing process is discharged to the sanitary sewer system. This year, maintenance efforts, discharge volume, and monitoring are summarized as follows:

A. Neary Lagoon storm drain maintenance:

- Line Flushing was conducted on September 28, 2015
- The line flushing process discharged approximately 100,000 gallons of water to the sanitary sewer

- The pump station was cleaned the week of July 13-July 17, 2015

#### B. Monitoring:

- Environmental Compliance/Laboratory staff collected the “before” line cleaning samples on 9/28/15 just prior to the Wastewater/Storm Water Collection Division cleaning/flushing of the Neary storm drain pipelines. Staff then collected the “after” samples on October 5, 2015. Please see the attached laboratory data reports/results for both events.

Please note that the installation of the slide gates on the Neary Lagoon storm drain culverts, which run under the railroad tracks, in late Spring 2014, as part of a Clean Beaches Initiative Grant project, has allowed the City to better clean both 66" gravity and force main pipelines.

### Wet Weather Season

The City Wastewater /Storm Water Collection staff manually turns on the pump station pumps as needed during the wet season to prevent flooding. The brief operation of the pumps helps to remove the accumulation of sand blocking the Neary gravity storm drain line pipe opening at the beach outlet vault and thus allows lagoon water to flow/exit from this pipeline at Cowell Beach. Pump operation is typically about 10 minutes each time. During the permit year, the pumps were operated multiple times during the wet season as follows:

#### A. Neary Lagoon Pump Operations:

- The Neary slide gates were opened on 11/20/15 although Neary flows were still being diverted to the WWTF at this time.
- There were a total of 10 pumping events. Pumping operations occurred on the following dates:
  - January 2016: 1/5/16, 1/13/16, 1/15/16, 1/18/16, 1/19/16, 1/22/16
  - March 2016: 3/4/16, 3/5/16, 3/6/16, 3/7/16
- Note: A notification of planned pump operations was sent via email/fax on 12/20/15 however, due to a problem with the pumps, the pumps were not turned on. Also, notifications of planned pump operations were sent on 12/21/2015 and 12/28/2015 however the gravity line opened naturally just prior to the planned pumping time. Thus pumping was unnecessary and did not occur.
- Please see the attached Neary Lagoon Discharge Report Forms for details of each pumping event.

#### B. Beach Postings: As required, coinciding with the first discharge of the wet weather season that requires operation of the flood control pumps, staff posted Cowell Beach as follows:

- Wastewater Collection/Storm Water Collection staff placed a Notice on the metal railing near the concrete stairs leading to Cowell Beach with the following wording: “Please stay

out of flow to ocean. This water may have elevated bacteria levels. This may elevate bacteria levels in the ocean.” The Notice was posted just prior to the first planned pump operation of the wet season on December 21, 2015, however the gravity line opened naturally before the planned pump operation time and thus the pumps were not turned on. However, staff kept the Notice posted due to the flow from the gravity line along the beach to the water. In fact, due to the continual storms in late December 2015, staff kept the Notice posted for the remainder of December as the gravity line continued to flow onto the beach. As required, this Notice was posted prior to the first pump operation of the wet season on January 5, 2016. The Notice was posted for a minimum of 48 hours after the release due to pump operation as required. In fact, Staff kept the Notice posted due to the many storms in January and repeated operation of the pumps and flow on the beach. WW Mains staff also posted this Notice when the pumps were operated in March.

- Parks and Recreation Wharf staff also placed signage near and adjacent to the storm water discharge channel/flow from the Neary Lagoon beach outlet vault to Cowell Beach and Monterey Bay at the natural breach of the gravity line opening on December 21, 2015 and first operation of the pumps on January 5, 2016. One sign was placed in the sand adjacent to the Neary Lagoon storm water discharge channel/flow, and another sign was placed near the concrete staircase to the beach. The signs were adjusted if there were high tides or big waves present. The signs remained posted for a minimum of 48 hours after both the natural breach and the first pump operations release. Actually, due to the frequent storms in both end-December and mid-January, staff left the signs up as there continued to be flow from the gravity line onto the beach.

As required, this signage has a graphic illustrating a child playing/recreating at the beach with a “stamp out” line through it. The purpose is to notify the public that playing in the discharge flow is not advised. The photo on the right shows the signage just after it was custom made for the City (note: not a rainy season photo).





**City of Santa Cruz Wastewater Laboratory**

**Client:** City of Santa Cruz - Storm Water Management Program

**Contact:** Akin Babatola for Suzanne Healy

**Project Title:** Storm Water Management Program - Neary Lagoon

**Sampling Event:** 09-28-15

**Samplers:** FB

Analytical Method				SM 5310 B	SM4500-NH3 D	SM 9222 D	EPA 1600	EPA 4500-H+	
Date/Time Collected	Sample Type	Sample Description	LIMS ID	TOC (mg/L)	NH <sub>3</sub> (mg/L as N)	Fecal Coliforms (CFU/100ml)	Enterococcus (CFU/100ml)	Field pH	SAMPLING OBSERVATIONS
09-28-15 @0840	Grab	Force Main	AA69062-64	3.11	<0.10	<2	<2	7.5	no observations
09-28-15 @0850	Grab	Gravity Main	AA69066-67	3.38	0.50	<3	9	7.4	no observations
09-28-15 @0915	Grab	Beach Vault	AA69068-70	3.14	<0.10	<2	<2	7.8	Ocean calm/flat, 2 seagulls nearby
09-28-15 @0940	Grab	Pump House	AA69071-73	4.85	0.23	53	59	7.2	Two campsites upstream along RR tracks
<b>QC</b>									
<b>Method Blank</b>				<0.30	<0.10	<1	<1		
<b>Media Controls</b>						pass	pass		
<b>CRM %Recovery</b>				94%	99.9%				
<b>Spike %Recovery</b>				103%	98.0%				
<b>Spike RPD</b>				3.4%					
<b>Duplicate RPD</b>				2.0%	8.7%				

**Lab Manager:**

**QC Chemist**



**City of Santa Cruz Wastewater Laboratory**

**Client:** City of Santa Cruz - Storm Water Management Program

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**Sampling Event:** 10-05-15

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Analytical Method				SM 5310 B	SM4500-NH3 D	SM 9222 D	EPA 1600	EPA 4500-H+	
Date/Time Collected	Sample Type	Sample Description	LIMS ID	TOC (mg/L)	NH <sub>3</sub> (mg/L as N)	Fecal Coliforms (CFU/100ml)	Enterococcus (CFU/100ml)	Field pH	SAMPLING OBSERVATIONS
10-05-15 @1100	Grab	Force Main	AA69351-53	3.36	<0.10	17	9	8.3	no observations
10-05-15 @1115	Grab	Gravity Main	AA69355-57	4.52	1.44	4,000	1,150	7.9	campers under trestle, feces near slotted drain
10-05-15 @1038	Grab	Beach Vault	AA69348-50	3.25	0.12	13	4	8.2	1 gull on beach
10-05-15 @1150	Grab	Pump House	AA69358-60	8.38	0.35	740	114	7.8	algae mat growing in channel prior to pump house
<b>QC</b>									
<b>Method Blank</b>				<0.10	<0.10	<1	<1		
<b>Media Controls</b>						pass	pass		
<b>CRM %Recovery</b>				94.8%	96.0%				
<b>Spike %Recovery</b>				104%	104%				
<b>Spike RPD</b>				2.1%					
<b>Duplicate RPD</b>				3.0%	1.7%				

**Lab Manager:**

**QC Chemist**



DEPARTMENT OF PUBLIC WORKS  
WASTEWATER MAINS

NEARY LAGOON DISCHARGE REPORTING FORM

Date form completed: 1-7-2016

Name of person completing form: Chris CAVE

Public Works Division (or other): WW Collection / Flood Control

Date of discharge: 1-5-16

1. Is the flow pump or gravity discharge, or both? Pump
2. Estimated amount of total discharge (gallons). 591,000
3. Estimated duration of total discharge. 18 minutes  
 Pump time: #1 6 hrs min #2 6 hrs min #3 6 hrs min
4. Time of day or night (military time). 0830
5. Treatment plant influent flow rate (gallons) 19.6
6. Weather: Actual Heavy Rain Forecasted Heavy Rain
7. Information indicating a potential flood condition in lagoon area.  
Lagoon level 7.5 msl  
Heavy Rain Predicted
8. Comments and observations on beach usage, signage, ocean conditions, etc.:  
Very High Surf and tide closed off Gravity  
Beach and Ocean clear of swimmers  
Signs posted prior to pumping

\* To be completed as soon as possible following observation of pump operation or gravity discharge on a daily basis. Submit weekly to Assistant Director of Public Works. Annual discharge report to be submitted to Regional Water Quality Control Board by May 15<sup>th</sup> of each year by Assistant Director.



DEPARTMENT OF PUBLIC WORKS  
WASTEWATER MAINS

NEARY LAGOON DISCHARGE REPORTING FORM

Date form completed: 1-7-16

Name of person completing form: Chris Cave

Public Works Division (or other): WW/Storm Water Collection

Date of discharge: 1-6-16

1. Is the flow pump or gravity discharge, or both? Pump
2. Estimated amount of total discharge (gallons). 792,000
3. Estimated duration of total discharge. 24 minutes  
Pump time: #1 12 hrs #2 6 hrs #3 6 hrs  
min min min
4. Time of day or night (military time). 0930
5. Treatment plant influent flow rate (gallons) 19.4
6. Weather: Actual Heavy Rain Forecasted Moderate Rain
7. Information indicating a potential flood condition in lagoon area.  
Lagoon level 7.5 MSL  
Continue Rain Predicted
8. Comments and observations on beach usage, signage, ocean conditions, etc.:  
Very High Surf and Tide Closed off Gravity  
Beach and Ocean Clear of Swimmers  
Signs posted prior to and during Discharge

\* To be completed as soon as possible following observation of pump operation or gravity discharge on a daily basis. Submit weekly to Assistant Director of Public Works. Annual discharge report to be submitted to Regional Water Quality Control Board by May 15<sup>th</sup> of each year by Assistant Director.





DEPARTMENT OF PUBLIC WORKS  
WASTEWATER MAINS

NEARY LAGOON DISCHARGE REPORTING FORM

Date form completed: 1-13-16

Name of person completing form: CHRIS CAVE

Public Works Division (or other): WW STORWATER COLLECTION

Date of discharge: 1-13-16

1. Is the flow pump or gravity discharge, or both? Pump
2. Estimated amount of total discharge (gallons). 591,000
3. Estimated duration of total discharge. 18 minutes  
Pump time: #1 6 hrs #2 6 hrs #3 6 hrs  
min min min
4. Time of day or night (military time). 0600
5. Treatment plant influent flow rate (gallons) \_\_\_\_\_
6. Weather: Actual Heavy Rain Forecasted RAIN
7. Information indicating a potential flood condition in lagoon area.  
7.0 msl AT LAGOON. RAIN Predicted  
TO LAST Through The week.
8. Comments and observations on beach usage, signage, ocean conditions, etc.:  
Ocean Clear of Swimmers  
All signs Posted

\* To be completed as soon as possible following observation of pump operation or gravity discharge on a daily basis. Submit weekly to Assistant Director of Public Works. Annual discharge report to be submitted to Regional Water Quality Control Board by May 15<sup>th</sup> of each year by Assistant Director.



DEPARTMENT OF PUBLIC WORKS  
WASTEWATER MAINS

NEARY LAGOON DISCHARGE REPORTING FORM

Date form completed: 1-20-16

Name of person completing form: CHRIS CAVE

Public Works Division (or other): WASTEWATER STORMWATER

Date of discharge: 1-15-16

1. Is the flow pump or gravity discharge, or both? Pump
2. Estimated amount of total discharge (gallons). 396,000
3. Estimated duration of total discharge.  
Pump time: #1 6min hrs #2 0 hrs #3 6min hrs 12 minutes
4. Time of day or night (military time). 0600
5. Treatment plant influent flow rate (gallons) \_\_\_\_\_
6. Weather: Actual Rain Forecasted RAIN
7. Information indicating a potential flood condition in lagoon area.  
LAGOON AT 715 MSL  
VERY HIGH TIDE CLOSED GRAVITY OUTLET
8. Comments and observations on beach usage, signage, ocean conditions, etc.:  
Beach CLEAR. NO SWIMMERS AT ALL  
Signage POSTED

\* To be completed as soon as possible following observation of pump operation or gravity discharge on a daily basis. Submit weekly to Assistant Director of Public Works. Annual discharge report to be submitted to Regional Water Quality Control Board by May 15<sup>th</sup> of each year by Assistant Director.



DEPARTMENT OF PUBLIC WORKS  
WASTEWATER MAINS

NEARY LAGOON DISCHARGE REPORTING FORM

Date form completed: 1-20-16

Name of person completing form: CHRIS CAJE

Public Works Division (or other): WASTEWATER/STORMWATER COLLECTION

Date of discharge: 1-18-16

1. Is the flow pump or gravity discharge, or both? Pump
2. Estimated amount of total discharge (gallons). 396,000
3. Estimated duration of total discharge.  
Pump time: #1 6 min #2 6 min #3 0 hrs
4. Time of day or night (military time). 0600
5. Treatment plant influent flow rate (gallons) \_\_\_\_\_
6. Weather: Actual RAIN Forecasted RAIN
7. Information indicating a potential flood condition in lagoon area.  
VERY HIGH TIDE CLOSED GRAVITY OUTLET
8. Comments and observations on beach usage, signage, ocean conditions, etc.:  
Beach CLEAR, SWIMMERS NOTIFIED. ALL SIGNAGE POSTED

\* To be completed as soon as possible following observation of pump operation or gravity discharge on a daily basis. Submit weekly to Assistant Director of Public Works. Annual discharge report to be submitted to Regional Water Quality Control Board by May 15<sup>th</sup> of each year by Assistant Director.



DEPARTMENT OF PUBLIC WORKS  
WASTEWATER MAINS

NEARY LAGOON DISCHARGE REPORTING FORM

Date form completed: 3-7-16

Name of person completing form: CHRIS CAVE

Public Works Division (or other): P.W WW Collection

Date of discharge: 3-4-16

1. Is the flow pump or gravity discharge, or both? Pump

2. Estimated amount of total discharge (gallons). 594,000

3. Estimated duration of total discharge.  
Pump time: #1 6 hrs min #2 6 hrs min #3 6 hrs min 18 min

4. Time of day or night (military time). 0900

5. Treatment plant influent flow rate (gallons) \_\_\_\_\_

6. Weather: Actual RAIN Forecasted HEAVY RAIN

7. Information indicating a potential flood condition in lagoon area.  
LAGOON LEVEL 5.7 MSL, VERY HEAVY RAIN (RED FORECAST) THROUGH THE WEEKEND

8. Comments and observations on beach usage, signage, ocean conditions, etc.:  
ALL SIGNS POSTED. OCEAN CLEAR OF SWIMMERS. BEACH AREA CLEAR.

\* To be completed as soon as possible following observation of pump operation or gravity discharge on a daily basis. Submit weekly to Assistant Director of Public Works. Annual discharge report to be submitted to Regional Water Quality Control Board by May 15<sup>th</sup> of each year by Assistant Director.



DEPARTMENT OF PUBLIC WORKS  
WASTEWATER MAINS

NEARY LAGOON DISCHARGE REPORTING FORM

Date form completed: 3-7-16

Name of person completing form: CHRIS CAVE

Public Works Division (or other): P.W W W COLLECTION

Date of discharge: 3-5-16

1. Is the flow pump or gravity discharge, or both? Pump
2. Estimated amount of total discharge (gallons). 396,000
3. Estimated duration of total discharge. 12 min  
Pump time: #1 6 hrs #2 0 hrs #3 6 hrs  
min min min
4. Time of day or night (military time). 1030
5. Treatment plant influent flow rate (gallons) \_\_\_\_\_
6. Weather: Actual RAIN Forecasted HEAVY RAIN
7. Information indicating a potential flood condition in lagoon area.  
LAGOON LEVEL 617 MSL, CONTINUED HEAVY RAIN  
HIGH SURF BLOCKING OUTFALL
8. Comments and observations on beach usage, signage, ocean conditions, etc.:  
ALL SIGNS POSTED, OCEAN BEACH SWIMMERS NOTIFIED  
BEACH AREA CLEAR DURING PUMPING

\* To be completed as soon as possible following observation of pump operation or gravity discharge on a daily basis. Submit weekly to Assistant Director of Public Works. Annual discharge report to be submitted to Regional Water Quality Control Board by May 15<sup>th</sup> of each year by Assistant Director.



DEPARTMENT OF PUBLIC WORKS  
WASTEWATER MAINS

NEARY LAGOON DISCHARGE REPORTING FORM

Date form completed: 3-7-16

Name of person completing form: CHRIS CAVE

Public Works Division (or other): PW WW COLLECTION

Date of discharge: 3-6-16

1. Is the flow pump or gravity discharge, or both? Pump
2. Estimated amount of total discharge (gallons). 198,000
3. Estimated duration of total discharge.  
Pump time: #1 0 hrs #2 6 hrs #3 0 hrs  
min
4. Time of day or night (military time). 1400
5. Treatment plant influent flow rate (gallons) \_\_\_\_\_
6. Weather: Actual Rain Forecasted Rain
7. Information indicating a potential flood condition in lagoon area.  
Lagoon level 6.8 MSL, Outfall blocked with sand  
Due to high surf.
8. Comments and observations on beach usage, signage, ocean conditions, etc.:  
All signs posted. Swimmers notified. Beach area  
cleared during pumping.

\* To be completed as soon as possible following observation of pump operation or gravity discharge on a daily basis. Submit weekly to Assistant Director of Public Works. Annual discharge report to be submitted to Regional Water Quality Control Board by May 15<sup>th</sup> of each year by Assistant Director.