

MONITORING FECAL INDICATOR BACTERIA
AT SIESTA BEACH IN
SARASOTA COUNTY, FLORIDA
2004-2013

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Monitoring Fecal Indicator Bacteria at
Siesta Beach in
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Executive Summary

Siesta Beach is located on the southwest coast of Florida in Sarasota County. Its unique white quartz sand and numerous amenities have distinguished it as a popular tourist destination that attracts visitors from all over the nation and the world. This beach along with the fifteen other county beaches is vital to the local economy.

Each week the Florida Department of Health in Sarasota County (DOH-Sarasota), under the Florida Healthy Beaches Program, collects samples for fecal indicator bacteria (FIB) from the Gulf of Mexico at Siesta Beach and fifteen other area public beaches. Occasionally, bacteria values exceed the standards established to protect public health and a “No-Swim” advisory is issued. The advisory remains in place until bacteria levels return to acceptable levels.

In April 2004, a two-day “No-Swim” Advisory was posted for Siesta Beach when fecal coliform and *enterococci* bacteria levels in the Gulf of Mexico when exceeded state recreational water quality standards. The Beach Road drainage and stormwater treatment system was identified as a possible source of the bacteria. The original system, constructed in the 1980’s to transport stormwater runoff from Beach Road and the Siesta Beach parking lot, consisted of stormwater pipes, inlets, and manholes along Beach Road, a stormwater vault, a treatment pond, and a network of shallow, open ditches that merged together and discharged to the south end of the public beach. To determine if the drainage system could be contributing bacteria to the Gulf, a plan to monitor the bacteria levels in the entire system upstream of the outfall was implemented. Sample results confirmed that the system contained bacteria levels considerably above state water quality standards. It was hypothesized that accumulated sediments, especially in the pipes, could act as an incubator for bacterial growth and persistence. While the high numbers were an indication of fecal contamination, the tests could not distinguish between human and non-human sources.

A Microbial Source Tracking (MST) study was conducted to rule out human sources and to potentially identify non-human sources. The study concluded that: 1) There was no evidence that the indicator bacteria in the drainage system were from human sources; 2) There was evidence that the drainage system (especially the pipes) was acting as a reservoir, or “breeding ground” for indicator bacteria; 3) Rainfall flushed high bacterial loads through the system and probably re-suspended bacteria living in the sediments, further increasing the load delivered to the Gulf; 4) The microbial pollution delivered to the beach probably did not carry the same level of risk that it would if it came from human sewage; 5) Other animals sometimes shed pathogens in their feces that could infect humans; and 6) Diverting the flow from the beach should minimize the occasional instances of elevated bacteria levels at the beach; however, the diverted runoff should be treated if it is directed to surface waters subject to human contact.

As a result of the drainage system evaluation and source tracking study, a feasibility study was conducted to determine potential improvements to the Beach Road drainage system; to evaluate options for alternative discharge points; and to evaluate treatment and disinfection methods to improve the water quality prior to discharge. After several options were evaluated, a “treatment train” approach to treat and disinfect both base flow and stormwater runoff and redirect the flow to the Grand Canal was recommended. Since the vault, pond, and ditches were located on property adjacent to Siesta Beach and owned by Sarasota County Parks and Recreation, the project was delayed so that it could be incorporated into the Siesta Beach Improvements Project design. In the meantime, the project was re-designed to construct a larger pond for increased solar UV treatment and filtration capacity, disinfect the water with a UV light system, and discharge it through a pipeline into the Gulf of Mexico. Construction began mid-2013 and was completed in July 2014.

In an effort to prevent future advisories and protect human health, a long-term sampling plan was designed to proactively collect monthly fecal coliform bacteria samples from the stormwater pipes along Beach road (via manholes), the vault, detention pond, and ditch system until the new treatment system could be constructed. The monitoring program, the subject of this report, resulted in the following observations:

- There appeared to be a direct correlation between sediment accumulation, rainfall, and bacteria levels in the pipes along Beach Road.
- The pond reduced the bacterial levels in the flow from the vault; however, bacteria levels often increased in the ditch between the pond and the beach.
- Bacteria levels in the Grand Canal appeared to be rainfall driven because they were normally very low and increased during rainfall events since runoff washes bacteria from the land directly into the canal.
- Most of the time, stormwater was contained in the pond and ditch system and could not be contributing bacteria to the Gulf of Mexico because stormwater flowed to the beach and Gulf only during significant rainfall events.
- High chloride levels would prevent using the pond water for irrigation of the newly landscaped areas associated with the Siesta Beach Improvements Project. Chloride levels greater than 600 mg/L render water unsuitable for irrigation. Chloride values, which never fell below 600 mg/L, ranged widely from a low of 3186 mg/L to a high of 16,418 mg/L.

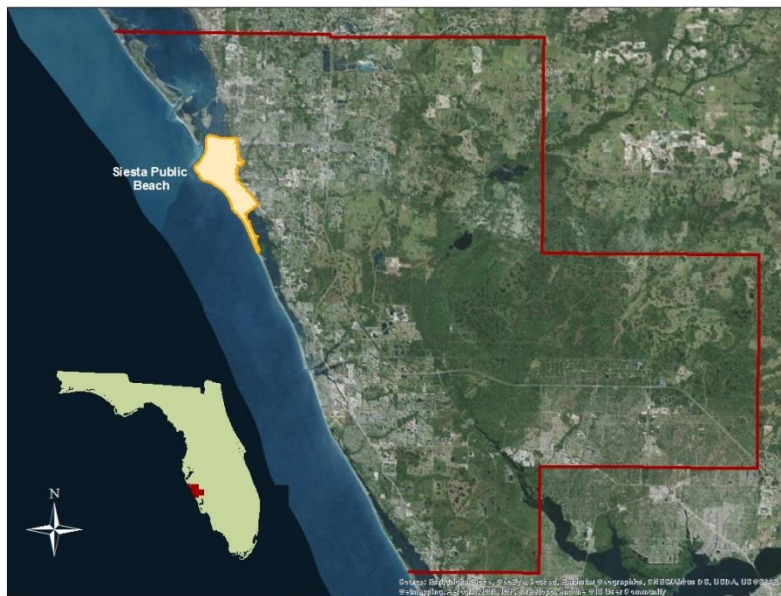
The monitoring program ended in December 2013. Monitoring of the stormwater treatment system continues as part of the operation of the facility, but is not included in this report.

As the monitoring data showed, it was necessary to remove the stormwater runoff, a confirmed source of non-human fecal indicator bacteria, from Siesta Beach to protect human health and prevent future “No-Swim” advisories. The new treatment system has the capacity to detain and treat a greater volume of stormwater. The flow has been re-directed 1500 feet from Siesta Beach into the Gulf of Mexico, and the added UV treatment is designed to meet bacteria standards and eliminate the stormwater system as a source of bacteria in recreational waters around Siesta Key. In addition, ongoing compliance monitoring of the new treatment system will be conducted.

Background

Siesta Beach, 948 Beach Road, Sarasota, Florida, is located on the southwest coast of Florida in Sarasota County on Siesta Key (**Figure 1**). Its pristine white quartz sand has distinguished it as one of the most beautiful and popular beaches in the world. In 2011, it was designated by “Dr. Beach” as the No. 1 Beach in America, and in 2014, it received the Sarasota Herald Tribune’s Reader’s Choice first place award as Sarasota’s Best Local Tourist Attraction. Its aesthetic appeal, many recreational opportunities such as swimming, fishing, wind surfing, and parasailing, and environmental value as sea turtle and migratory bird nesting habitat attract visitors from all over the country and the world. Those visitors contribute millions of dollars into the local economy.

Figure 1. Project Location



Each week the Florida Department of Health in Sarasota County (DOH-Sarasota), under the Florida Healthy Beaches Program, collects samples for fecal indicator bacteria (FIB) from the Gulf of Mexico at Siesta Beach and fifteen other area public beaches. Occasionally, bacteria values exceed the standards established to protect public health and a “No-Swim” advisory is issued. The advisory remains in place until bacteria levels return to acceptable levels.

In April 2004, a two-day ‘No-Swim’ Advisory was posted for Siesta Beach when fecal coliform and *enterococci* bacteria levels in the Gulf of Mexico when exceeded state recreational water quality standards. This event prompted an intense investigation that led to the drainage systems improvements project. The Beach Road drainage and stormwater treatment system was identified as a possible source of the bacteria. The original system, constructed in the 1980’s to deliver stormwater runoff from Beach Road and the Siesta Beach parking lot, consisted of stormwater pipes, inlets, and manholes along Beach Road, a stormwater vault, a treatment pond, and a network of shallow, open ditches that merged together and discharged to the south end of the public beach. Since the pond was designed to retain the first 1.5 inches of rainfall for up to 72 hours, untreated stormwater would occasionally bypass the pond and flow directly to the beach and the Gulf of Mexico when rainfall values exceeded that amount. To determine if the drainage system could be contributing bacteria to the Gulf, a plan to monitor the bacteria levels in the entire system upstream of the outfall was developed and implemented. To try to rule out human impacts, the Siesta Key Utility Authority (SKUA) conducted smoke tests and inspections of the sanitary sewer infrastructure which ruled out sewage leaks into the system. Septic tanks were also ruled out as a source since none were located on Siesta Key. Sample results confirmed that the system contained bacteria levels considerably above state water quality standards, and it

was hypothesized that accumulated sediments, especially in the pipes, could act as an incubator for bacterial growth and persistence. While the high numbers were an indication of fecal contamination, the tests could not distinguish between human and non-human sources.

Sarasota County contracted Post, Buckley, Schuh, and Jernigan (PBS&J) to conduct an evaluation of the drainage system and a Microbial Source Tracking (MST) study to determine the source of the bacteria. MST is an investigative strategy that uses an array of methods to examine known genetic markers to determine whether fecal indicator bacteria are from human, or non-human (wildlife, farm animals, and domestic pets) sources. In May, 2005 PBS&J provided the results in a final report entitled “Siesta Key Beach Water Quality Sampling to Determine Sources of Fecal Indicator Bacteria” (Harwood, et al.). The study concluded that: 1) There was no evidence that the indicator bacteria in the drainage system were from human sources; 2) There was evidence that the drainage system (especially the pipes) was acting as a reservoir, or “breeding ground” for indicator bacteria; 3) Rainfall flushed high bacterial loads through the system and probably re-suspended bacteria living in the sediments, further increasing the load delivered to the Gulf; 4) The microbial pollution delivered to the beach probably did not carry the same level of risk that it would if it came from human sewage; 5) Other animals sometimes shed pathogens in their feces that could infect humans; and 6) Diverting the flow from the beach should minimize the occasional instances of elevated bacteria levels at the beach; however, treatment of the diverted runoff should be considered if it was directed to other surface waters subject to human contact.

Since county staff had suspected the system was a source and the MST study concluded that the bacteria was growing in sediments in the stormwater pipes, a thorough cleaning of the system the entire length of Beach Road from its junction with Ocean Boulevard to the stormwater vault was conducted. As a result, bacteria levels fell significantly which confirmed that sediments in the pipes had been acting as a culture medium for bacterial growth and persistence.

As a result of the drainage system evaluation and source tracking study, Wilson Miller and PBS&J were contracted to conduct a feasibility study for improvements to the Beach Road drainage system; to evaluate options for alternative discharge points; and to evaluate treatment and disinfection methods to improve the water quality prior to discharge. In December 2005, the results were provided in a final report entitled “Beach Road Drainage Improvements Feasibility Study.” After several options were evaluated, a “treatment train” approach to treat and disinfect both base flow and stormwater runoff and redirect the flow to the Grand Canal was recommended. Since the vault, pond, and ditches were located on property adjacent to Siesta Beach and owned by Sarasota County Parks and Recreation, the project was delayed so that it could be incorporated into the Siesta Beach Improvements Project design. In the meantime, the project was re-designed to construct a larger pond for increased treatment capacity, disinfect the water with a ultraviolet (UV) light system, and discharge it through a pipeline approximately 1800 feet from the beach into the Gulf of Mexico. Construction began mid-2013 and was completed in July 2014.

Water Quality Monitoring

In an effort to prevent future advisories and protect human health, a long-term sampling plan was designed to proactively collect monthly fecal coliform bacteria samples from the stormwater pipes along Beach road (via manholes), the vault, detention pond, and ditch system (**Figure 2**). The sampling results helped inform and support the appropriate management actions. Monitoring the pipes for sediment accumulation was also conducted, since bacteria levels usually increased with an increase in sedimentation. The piped system was subsequently placed on a regular maintenance schedule for cleanout at the beginning and end of the rainy season when sediment levels were normally at their highest. A list of the sites is contained in **Appendix A**. Monitoring protocols and procedures are contained in **Appendix B**. Photos of sample sites are contained in **Appendix C**.

Figure 2. Beach Road Monitoring Stations



In addition to monthly monitoring of the system, county staff coordinated efforts with DOH-Sarasota sampling staff. When DOH bacteria results were above standards, county staff would inspect the drainage system to see if runoff had flowed to the Gulf. If it had, samples were taken to determine if the system could have been a contributing factor. If the system had not discharged to the Gulf, it was ruled out as a source.

The monitoring plan required several modifications after its inception. Sample site locations were adjusted and some parameters were added as additional monitoring needs were identified.

Samples were collected in the ditch system downstream of the pond at sites SKD-B, SKD-D, and SKD-E to establish a treatment relationship between the pond and ditches. Sampling at those sites was discontinued in mid-2006 since results confirmed that bacteria levels were increasing in the ditch system between the pond and outfall. Sampling continued at a point upstream of the beach outfall (SKD-F), but was discontinued when shoreline vegetation grew too dense to allow access. Site SKD-I was added in the ditch closer to the beach outfall.

Since the initial project design redirected flow to the Grand Canal, two sample sites to collect data for ambient background conditions in the canal were added to the plan. The first site (SKD-Q) was located at the proposed discharge point; the second site (SKD-T1) was a reference site located upstream of SKD-Q.

It was important to establish baseline water quality conditions in the detention pond and projected receiving waters. Therefore, the following parameters were added for the two Grand Canal sites and the detention pond: Total Kjeldahl Nitrogen (TKN), Nitrite+Nitrate (NOX), Total Nitrogen (TN), Ammonia Nitrogen (NH₄), Orthophosphate (PO₄), Total Phosphate (TP), Chlorophyll α , Pheophytin, Turbidity, Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD), and Color. Sampling of the two Grand Canal sites was discontinued in April 2012 after the new plan to redirect flow to the Gulf of Mexico was approved.

In mid-2008, sampling for chloride levels in the detention pond was added to the plan to determine if the salinity was low enough for the water to be used for irrigation of the surrounding landscape plantings associated with the drainage system and public beach improvements projects. Chloride levels greater than 600 mg/L render water unsuitable for irrigation.

In mid-2011, the DOH-Sarasota discontinued testing for fecal coliform bacteria and sampled only for *enterococci* bacteria. As a result, sampling for *enterococci* bacteria was added to the county monitoring plan in support the DOH effort and to be able to compare and correlate the bacteria levels in the system with those in the Gulf of Mexico.

The monitoring program ended in December 2013. By the end of November, the installation of a 2000 foot pipeline from the treatment system to the Gulf of Mexico was completed; construction of the larger detention pond was completed; the original pond was filled in; and the vault was taken offline. Because of the increased storage capacity of the new pond and minor rainfall amounts in the area, there have been minimal flows to the ditch system. Since the project completion in July 2014, only treated stormwater is discharged 1500 feet off of Siesta Beach into the Gulf of Mexico. As the project was designed, the only time untreated stormwater may flow to the beach and Gulf is during significant rainfall events such as those associated with fronts, tropical storms, and hurricanes.

Observations

The following observations were made over the sampling period:

1. There appeared to be a direct correlation between sediment accumulation, rainfall, and bacteria levels in the pipes. Rainfall and bacteria data are contained in **Appendix D**.
2. The Beach Road stormwater pipes contained consistently high levels of bacteria even during periods of dry weather prior to the initial clean-out in January-February 2005, after which the levels fell significantly. The warm, wet, stagnant sediments had provided a breeding medium for microbes.
3. Subsequent samples indicated that bacteria levels responded to rainfall by increasing and would subsequently decrease during dry weather.
4. Sediments eventually began to accumulate in the pipes during the rainy season, and a direct correlation between rainfall and bacteria levels in the pipes was noted.
5. Sediments were removed during routine maintenance and values would again go down
6. The pond was effective in reducing the bacterial levels in the flow from the vault 83% of the time (21 out of 24 samples); however, bacteria levels increased in the ditch between the pond and the beach 75% of the time (18 out of 24 samples). The data is contained in **Table 1**. It was surmised that ditch sediments were providing a medium for bacterial re-growth, since dense shoreline vegetation and canopy cover blocked UV light penetration that would naturally kill off the bacteria.

Table 1. Vault, Pond, and Ditch Bacteria Data

Fecal Coliform (CFU/100mL)				Fecal Coliform (CFU/100mL)			
Date	SKD-V Vault	SKD-C Pond	SKD-I Ditch	Date	SKD-V Vault	SKD-C Pond	SKD-I Ditch
11/3/2011	1300	410	1700	12/3/2012	50	10	300
12/1/2011	380	10	590	1/3/2013	300	10	260
1/4/2012	200	10	40	2/8/2013	140	40	170
2/1/2012	30	270	10	3/7/2013	40	50	340
3/1/2012	20	10	490	4/3/2013	10	50	120
4/5/2012	57000	300	60	5/2/2013	200,000	3,500	2000
5/3/2012	200	10	100	6/6/2013	3000	1600	5200
6/7/2012	8000	20	700	7/2/2013	57,000	5000	2000
7/5/2012	1000	10	90	8/5/2013	200,000	4500	600
9/6/2012	200	10	50	9/5/2013	27,000	6400	200,000
10/4/2012	7000	10	1000	10/3/2013	280	10	230
11/1/2012	230	10	300	11/7/2013	10	320	100

Figures 3 and 4 illustrate the percent decline in bacteria values from the vault to the pond and the percent increase in bacteria values in the ditch between the pond and the beach, respectively.

Figure 3. Percent Bacteria Decline in Pond

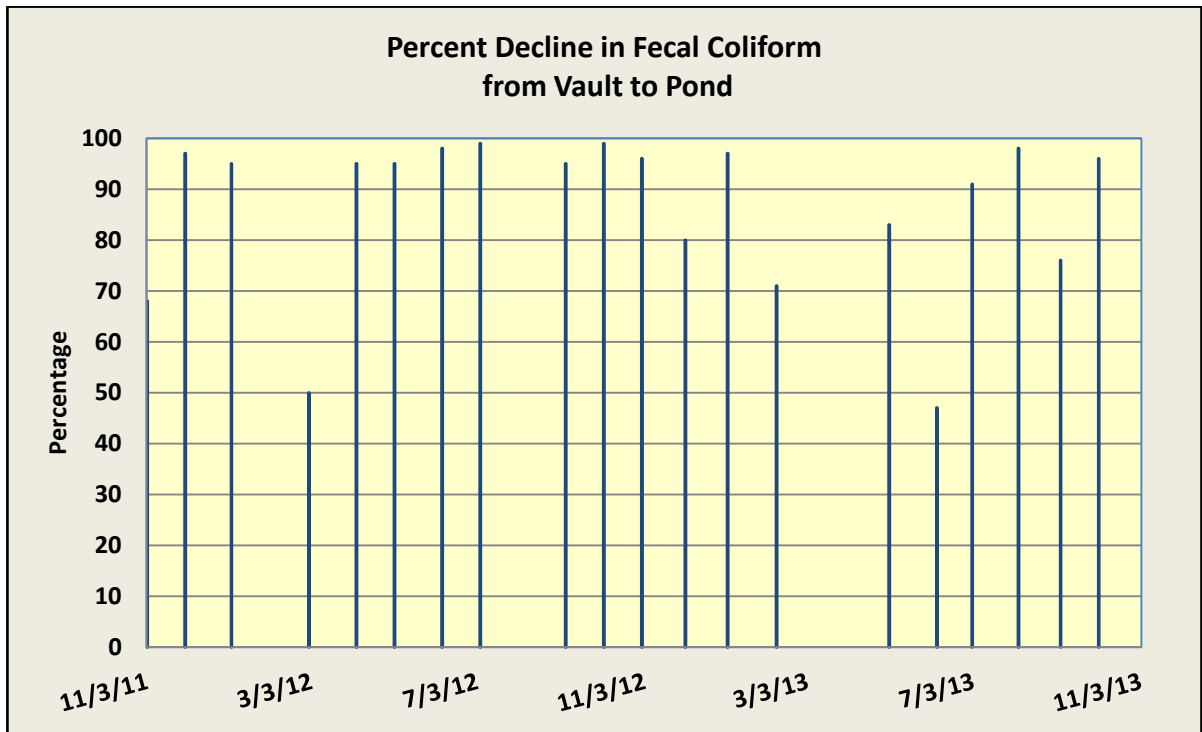
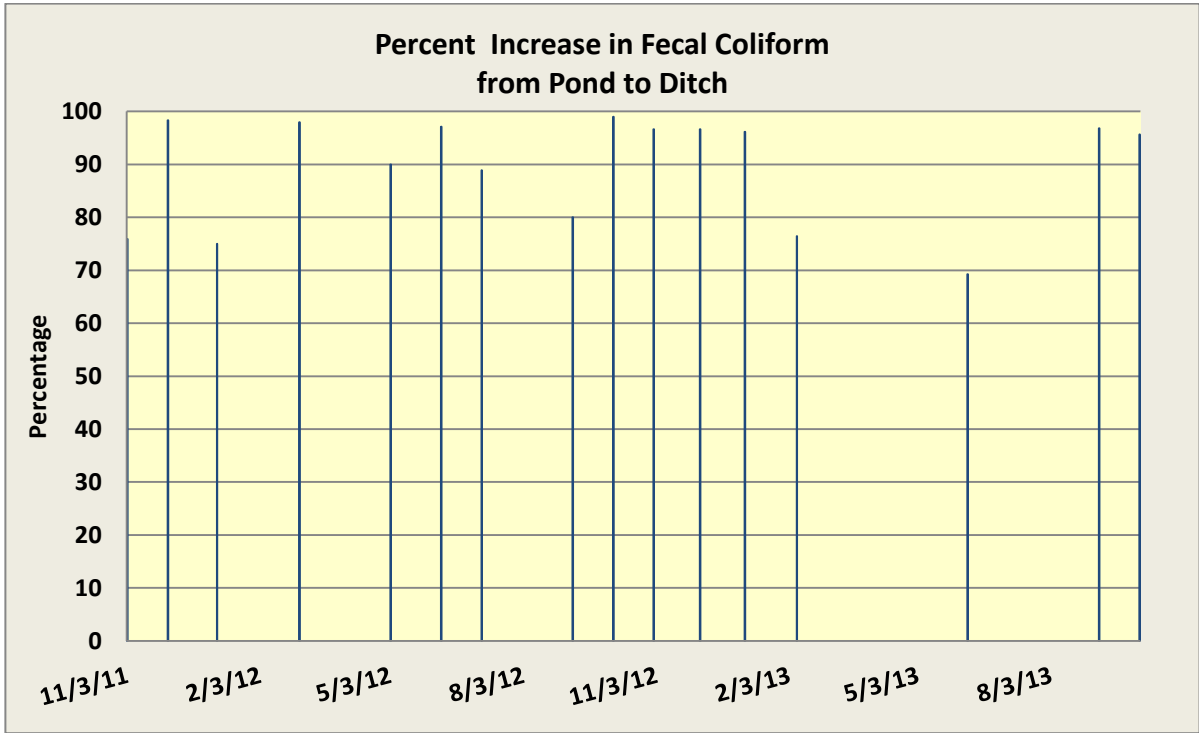


Figure 4. Percent Bacteria Increase in Ditch



Bacteria levels in the Grand Canal appeared to be rainfall driven. They were normally very low and increased during rainfall events since bacteria were washed off the land directly into the canal. Ninety-nine percent of the 72 bacteria samples were below the recreational water quality standard of 400 CFU/100mL; 71% were below 50 CFU/100mL at the Azure Road site; and 68% were below 50 CFU/100mL at the Avenida de Mayo reference site. **Figures 4 and 5** illustrate that high rainfall = high bacteria levels. These data also show that elevated bacteria levels in the Grand Canal occur only during and immediately post rainfall events.

Figure 4. Grand Canal - SKD-Q: Fecal Coliform vs Rainfall

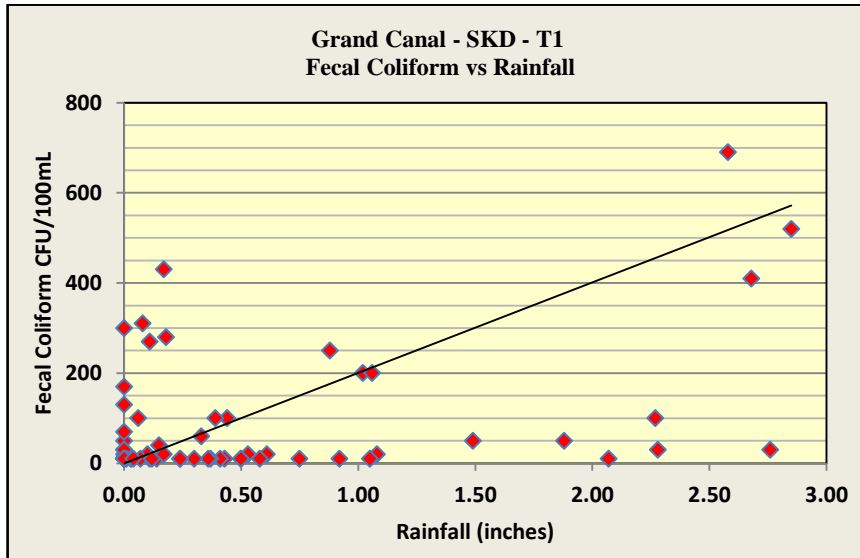
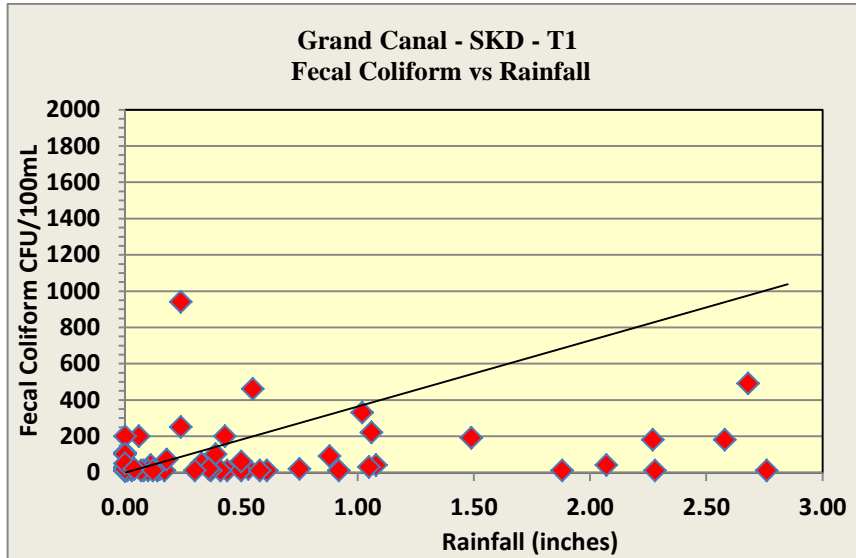


Figure 5. Grand Canal – SKD-T1: Fecal Coliform vs Rainfall



Stormwater Outfall to Beach

Most of the time, stormwater was contained in the pond and ditch system with infrequent flow to the Gulf. Stormwater flowed to the beach and Gulf only during significant rainfall events. The runoff after long periods of dry weather usually contained accumulated contaminants, debris, and algae that degraded water quality. After the system was flushed out with subsequent rainfall, contaminants would be reduced and the flow would be clear. See photos in **Figure 6**.

Figure 6. Stormwater Outfall to Siesta Beach



1-Stormwater Outfall at Beach 4-1-2008



2- Flow from Outfall to Beach 6-16-2006

3-Flow from Outfall to Beach 1-25-2008



4-Flow to Gulf of Mexico 7-2-2009



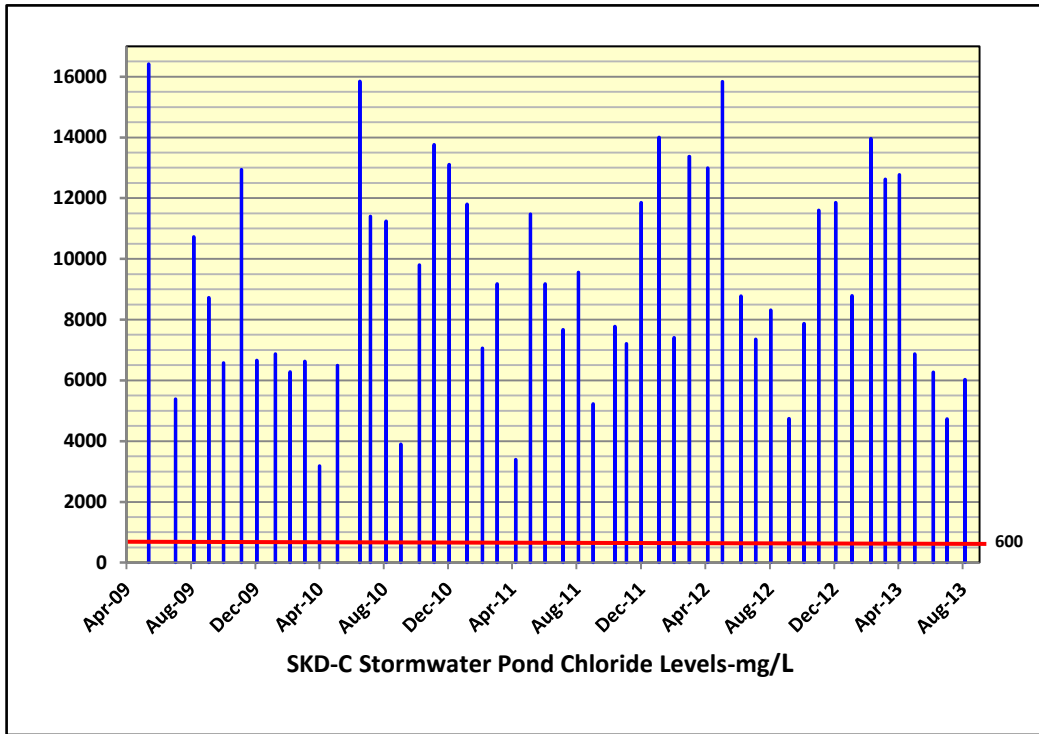
5-Outfall and Flow Path to Gulf Aerial



Stormwater Pond as an Irrigation Source

Additional monitoring of the stormwater pond was added to determine if it could be used for irrigating the surrounding landscape. This would further reduce stormwater flow to the beach and Gulf. Chloride levels are typically used to gauge the suitability of water for irrigation, and water containing chloride levels below 600 mg/L is considered safe. **Figure 7** depicts chloride values, which never fell below 600 mg/L and ranged widely from a low of 3186 mg/L to a high of 16,418 mg/L with a median of 8751.5 mg/L. These high levels prevented the use of the pond water for irrigation.

Figure 7. Chloride Levels in Pond



Conclusion

As the monitoring data showed, it was necessary to remove the stormwater runoff, a confirmed source of non-human fecal indicator bacteria, from Siesta Beach to protect human health and prevent future “No-Swim” advisories. The new treatment system has the capacity to detain and treat a greater volume of stormwater. Although the flow has been re-directed approximately 1500 feet from Siesta Beach into the Gulf of Mexico, the added UV treatment should reduce and maintain bacteria levels within Recreational Water Quality Standards.

Acknowledgements

The following Sarasota County staff provided support and guidance for the project: Theresa Connor, John Ryan, Laura Ammeson, and Peter Peduzzi. Other county staff provided valuable assistance with sampling the drainage system over the nine-year period: Bruce Maloney, Rene Janneman, Jon Perry, and Amanda Dominguez. County Operations and Maintenance staff responded quickly to clean out the system when bacteria levels began to increase: Phil Bergstresser, Jason Brown, and Timothy Kirby

Thanks to Valerie Harwood, Ph.D, Stephaney Shehand, Ph.D, Miriam Brownell, and Mariya Dontchev of the University of South Florida Biology Department and Raymond Kurz, Ph.D. of Post, Buckley Shuh and Jernigan for conducting and reporting on the Microbial Source Tracking Study. Also, thanks to Wilson Miller and Post, Buckley, Shun, and Jernigan staff for conducting and reporting results of the project feasibility study.

Literature Cited

Harwood, Valerie J., Ph.D., S. Shehane, Ph.D., R. C. Kurz, Ph.D., M. Brownell, M. Dontchev, 2005. *Siesta Key Beach Water Sampling to Determine Sources of Fecal Indicator Bacteria*. Sarasota, FL.

WilsonMiller and Post, Buckley, Shuh, and Jernigan, 2005. *Beach Road Drainage Improvements Feasibility Study*. Sarasota, FL.

Appendix A

Water Quality Sampling Sites

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Table 2. Water Quality Sampling Locations

Sta_ID	Location	Latitude	Longitude
SKD-B	Ditch Between Pond and Maintenance Facility	27.26673	-82.54894
SKD-C	Stormwater Pond at Maintenance Facility	27.26649	-82.54887
SKD-D	Ditch 1/3 Way to Beach	27.26601	-82.54829
SKD-E	Ditch 1/2 Way to Beach	27.26558	-82.54848
SKD-F	Stormwater Ditch at Wooden Bridge	27.26427	-82.54966
SKD-K	Manhole at Beach Road and Calle del Invierno	27.26937	-82.55775
SKD-L	Manhole at 312 Beach Road	27.27208	-82.56266
SKD-M	Manhole at 460 Beach Road	27.27073	-82.56001
SKD-O	Manhole at Beach Road and Beach Way	27.26727	-82.55160
SKD-V	Stormwater Vault at Pond	27.26707	-82.54894
SKD-I	Ditch at Outfall to Public Beach	27.26407	-82.54993
SKD-Q1	Grand Canal at Azure Way Bridge	27.26918	-82.55134
SKD-T1	Grand Canal at Avenida de Mayo	27.27638	-82.55541

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Appendix B

Monitoring Protocols and Reporting

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Monitoring Protocols and Reporting

Grab samples were collected monthly for the following parameters: Total Kjeldahl Nitrogen (TKN), Nitrite+Nitrate (NOX), Total Nitrogen (TN), Ammonia Nitrogen (NH₄), Orthophosphate (PO₄), Total Phosphate (TP), Chlorophyll a, Turbidity, Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD), and Color. Samples for chloride were only collected from station SKD-C, the stormwater detention pond. All samples were stored on ice and transported to the Sarasota County Natural Resources Quality Assurance Office for delivery to the contract laboratories for analysis. Meter calibrations, sample collection, and field measurements were conducted in accordance with Chapter 62-160 F.A.C. and the Department of Environmental Protection “Standard Operating Procedures (SOPs) for Laboratory Operations and Sample Collection Activities” and equipment manufacturer’s procedures. Sampling staff also followed the instructions outlined in the “Sarasota County Water Quality Sampling, Analysis, and Reporting Procedures Manual.”

Field measurements and observations were recorded on the standardized field data sheets for each site and consisted of the following: Date and time of sampling; Station ID; samplers; GPS locations (decimal degrees); water temperature (°C); dissolved oxygen saturation (%); dissolved oxygen (mg/l); specific conductance (µmhos/cm); salinity (ppt); meter depth (ft); water depth (ft); tidal stage; flow rate and secchi depth (m). Weather condition data consisted of daily and antecedent rainfall (in.), cloud cover (%), air temperature (°C), and wind direction (degree) and speed (mph). Physical characteristics (where applicable) such as stream width (yds), shoreline description, water color, clarity, and odor, stream bottom description, sediment description, and outfall condition (ex. dry, discharging to beach or Gulf, etc.) were also recorded. The field data included biological observations as they applied to water quality and flow such as aquatic and shoreline vegetation, algae blooms, and fish, invertebrate, wildlife populations. Field data sheets were scanned and saved in the appropriate project file. The electronic meter data was downloaded monthly and saved in the appropriate data file.

Photographs were taken at each site during each event. Additional photos were taken to record any unusual or out of the ordinary conditions. Photos of actual samples were taken, as needed, to record any unique or unusual characteristics. Photographs were properly labeled and saved in the appropriate project file.

The analytical data was forwarded in an electronic format and uploaded monthly to the appropriate project file. The analytical reports were reviewed monthly by the County Quality Control/Quality Assurance Office and saved in the appropriate project file.

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Appendix C

Water Quality Sampling Sites
Photos

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SKD-K Manhole at Beach Road and Calle del Invierno



SKD-L Manhole at 312 Beach Road



SKD-M Manhole at 460 Beach Road



SKD-O Manhole at Beach Road and Beach Way



SKD-V Stormwater Vault - Normal Condition



SKD-V Stormwater Vault during Tropical Storm Andrea 6-6-2013



SKD-C Stormwater Pond – West Side



SKD-C Stormwater Pond – East Side



SKD-B Ditch on West Side of Pond



SKD-D Ditch



SKD-E Ditch



SKD-F Ditch



SKD-I Ditch at Outfall to Beach



SKD-I Ditch at Outfall to Beach



SKD-Q Grand Canal at Azure Road Bridge



SKD-T1 Grand Canal at Avenida del Norte

Appendix D

Beach Road Stormwater Pipes Rainfall and Bacteria Data

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Table 3. Beach Road Rainfall and Fecal Coliform Comparison

Fecal Coliform Data (CFU/100mL) - NS = Not Sampled						
Date	Rainfall_In.	SKD-K	SKD-L	SKD-M	SKD-O	Comments
6/10/2004	0.00	1,000	18,000	3,500	NS*	High bacteria levels - no rainfall
6/15/2004	0.00	200,000	500	100	NS	High bacteria levels - no rainfall
6/29/2004	0.00	100,000	58,000	900	NS	High bacteria levels - no rainfall
6/30/2004	0.00	345,000	22,000	6,000	NS	High bacteria levels - no rainfall
7/12/2004	0.50	152,000	NS	NS	106,000	Bacteria responded to rainfall
7/26/2004	0.30	2,600	65,000	1,500	4,700	Bacteria responded to rainfall
8/2/2004	3.90	96,000	190,000	150,000	62,000	Bacteria responded to rainfall
8/9/2004	6.50	25,000	6,300	24,000	4,200	Bacteria responded to rainfall
1/14/2005	0.00	13,100	4,300	10,500	7,300	High bacteria levels - no rainfall
2/10/2005	0.00	6,000	510	5,900	20	High bacteria levels - no rainfall
3/22/2005	0.08	600	500	200	100	System cleaned out for first time
10/6/2005	2.40	410,000	365,000	9,700	8,100	Bacteria responded to rainfall
12/21/2005	0.00	420	340	210	117,000	Lower values without rainfall except for SKD-O
1/9/2006	0.00	90	90	90	180	Lower values without rainfall
2/28/2006	0.24	730	130	3,600	970	Bacteria responded to rainfall
4/26/2006	0.00	60	1,150	40	46,000	Lower values without rainfall except for SKD-O
5/22/2006	0.00	640	500	50	220	Lower values without rainfall
7/10/2006	0.44	200,000	18,000	1,500	6,400	Bacteria responded to rainfall
8/8/2006	0.24	3,000	4,700	380	2,500	Bacteria responded to rainfall
9/7/2006	1.88	720	3,500	590	5,300	Bacteria responded to rainfall
10/3/2006	0.75	350	2,200	50	240	Bacteria responded to rainfall
11/9/2006	0.11	18,800	1,800	6,400	9,100	Bacteria responded to rainfall
12/7/2006	0.00	1,600	310	310	130	Lower values without rainfall
1/3/2007	0.55	40,000	2,200	155,000	4,800	Bacteria responded to rainfall
2/8/2007	0.08	1,800	1,900	3,800	800	Bacteria responded to rainfall
3/7/2007	0.00	120	2,800	260	300	Lower values without rainfall
4/5/2007	0.00	80	10,500	110	1,100	Lower values without rainfall
5/3/2007	0.00	270	1,900	10	2,500	Lower values without rainfall
6/14/2007	0.17	100,000	16,000	2,300	30,500	Bacteria responded to rainfall
7/5/2007	1.72	100,000	100,000	100,000	100,000	Bacteria responded to rainfall
8/9/2007	0.06	10,000	450,000	35,000	65,000	Bacteria responded to rainfall
9/11/2007	0.43	52,500	22,000	900	48,000	System Cleaned Out
11/6/2007	0.39	2,700	2,900	100	200	Bacteria responded to rainfall
12/4/2007	0.00	NS	90	330	280	Lower values without rainfall
1/9/2008	0.00	NS	60	30	50	Lower values without rainfall
3/6/2008	0.11	200,000	4,300	4,300	4,300	Bacteria responded to rainfall
4/1/2008	0.53	11,000	23,000	44,000	44,000	Bacteria responded to rainfall
5/6/2008	0.00	2,300	2,300	20	20	Lower values without rainfall
6/2/2008	0.00	740	6,200	80	80	Lower values without rainfall
7/8/2008	0.33	200,000	10,400	27,000	88,000	Bacteria responded to rainfall
8/5/2008	0.88	52,000	38,000	172,000	137,000	Bacteria responded to rainfall
9/4/2008	2.68	53,000	91,000	67,000	125,000	Bacteria responded to rainfall
10/2/2008	0.61	6,200	2,500	2,400	2,500	Bacteria responded to rainfall
2/4/2009	0.92	2,100	250	3,500	3,700	Bacteria responded to rainfall
4/2/2009	1.08	970	10,300	450	8,000	Bacteria responded to rainfall
7/2/2009	2.85	3,400	10,300	21,000	8,000	Bacteria responded to rainfall
10/1/2009	0.00	22,000	67,000	5,500	38,000	System Cleaned Out
3/4/2010	0.41	20	20	10	130	System Cleaned Out
5/5/2011	0.00	180	14,100	290	84,000	System Cleaned Out
4/5/2012	0.24	200,000	200,000	9,800	160,000	System Cleaned Out

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Appendix E

Water Quality Monitoring Manhole Data

Tables 4-7

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**SARASOTA COUNTY BEACH ROAD DRAINAGE SYSTEM
Stormwater Pipe Bacteria Data**

Table 4. SKD-K Manhole located on Beach Road @ Calle del Invierno

Date	Time	Fecal Coliform (CFU/100mL)	Comments
6/15/2004	1051	200,000	
6/22/2004	1035	900	
6/29/2004	1005	100,000	
6/30/2004	1015	345,000	
7/6/2004	1043	265,000	
7/12/2004	1000	152,000	
7/19/2004	NS	NS	Site Flooded – No Sample
7/26/2004	1031	2,600	
8/2/2004	1009	96,000	
8/9/2004	1015	25,000	
1/11/2005	945	100	
1/14/2005	1020	13,100	
2/10/2005	1120	6,000	
3/22/2005	1041	600	
10/6/2005	1029	410,000	
12/21/2005	1038	420	
1/9/2006	1037	90	
2/28/2006	1120	730	
3/27/2006	1000	150	
4/26/2006	1208	60	
5/22/2006	1224	640	
7/10/2006	1144	200,000	
8/8/2006	1200	3,000	
9/7/2006	1159	720	
10/3/2006	1137	350	
11/9/2006	1105	18,800	
12/7/2006	1105	1,600	
1/3/2007	950	40,000	
2/8/2007	1225	1,800	
3/7/2007	1105	120	
4/7/2007	1142	80	
5/3/2007	1230	270	
6/14/2007	1155	100,000	
7/5/2007	1159	100,000	
8/9/2007	1135	10,000	
9/11/2007	1200	52,500	
11/6/2007	1205	2,700	
12/4/2007	1156	NS	Full of Sediment - No Sample
1/9/2008	1155	NS	Full of Sediment - No Sample
2/7/2008	1131	NS	Full of Sediment - No Sample
3/6/2008	1207	200,000	
4/1/2008	1204	11,000	
5/6/2008	1141	2,300	
6/2/2008	1232	740	
7/8/2008	1158	200,000	
8/5/2008	1203	52,000	
10/1/2009	1128	22,000	
3/4/2010	1206	20	
5/5/2011	1401	180	
4/5/2012	1305	200,000	
4/5/2012	1305	200,000	

**SARASOTA COUNTY BEACH ROAD DRAINAGE SYSTEM
Stormwater Pipe Bacteria Data**

Table 5. SKD-L Manhole located at 312 Beach Road

Date	Time	Fecal Coliform (CFU/100mL)	Comments
6/15/2004	1105	18,000	
6/22/2004	1042	500	
6/29/2004	1014	4,800	
6/30/2004	1025	58,000	
7/6/2004	1055	22,000	
7/12/2004	1010	140,000	
7/19/2004	NS	NS	Site Flooded - No Sample
7/26/2004	956	65,000	
8/2/2004	945	190,000	
8/9/2004	955	6,300	
1/11/2005	924	100	System Partially Cleaned
1/14/2005	NS	4,300	
2/10/2005	1122	510	System Cleaned Out
3/22/2005	1048	500	
10/6/2005	1013	365,000	
12/21/2005	1016	340	
1/9/2006	1006	90	
2/28/2006	1058	130	
3/27/2006	1008	340	
4/26/2006	1008	1,150	
5/22/2006	1031	500	
7/10/2006	0954	18,000	
8/8/2006	0951	4,700	
9/7/2006	0953	3,500	
10/3/2006	0945	2,200	
11/9/2006	0946	1,800	
12/7/2006	0940	310	
1/3/2007	0850	2,200	
2/8/2007	1117	1,900	
3/7/2007	1004	2,800	
4/5/2007	1022	10,500	
5/3/2007	1900	1,900	
6/14/2007	1025	16,000	
7/5/2007	1035	100,000	
8/9/2007	1013	450,000	
9/11/2007	1033	22,000	
11/6/2007	1058	2,900	
12/4/2007	1055	90	
1/9/2008	1100	60	
2/7/2008	1034	240	
3/6/2008	1050	4,300	
4/1/2008	1100	23,000	
5/6/2008	1037	2,300	
6/2/2008	1110	6,200	
7/8/2008	1105	10,400	
8/5/2008	1108	38,000	
9/4/2008	1010	91000	
10/2/2008	1058	2,500	
2/4/2009	1159	250	
4/2/2009	1000	10,300	
7/2/2009	1025	10,300	
10/1/2009	1031	67,000	
3/4/2010	1211	20	
5/5/2011	1225	14,100	
4/5/2012	1206	200,000	

SARASOTA COUNTY BEACH ROAD DRAINAGE SYSTEM
Stormwater Pipe Bacteria Data

Table 6 SKD-M Manhole located at 460 Beach Road

Date	Time	Fecal Coliform (CFU/100mL)	Comments
6/15/2004	1117	3,500	
6/22/2004	1048	100	
6/29/2004	1018	300	
6/30/2004	1045	900	
7/6/2004	1106	6,000	
7/12/2004	1018	4,000	
7/19/2004	NS	NS	Site Flooded
7/26/2004	1015	1,500	
8/2/2004	952	150,000	
8/9/2004	1000	24,000	
1/11/2005	930	500	System Partially Cleaned
1/14/2005	1015	10,500	
2/10/2005	1116	5,900	System Cleaned Out
3/22/2005	1057	200	
10/6/2005	1017	9,700	
12/21/2005	1021	210	
1/9/2006	1022	90	
2/28/2006	1103	3,600	
3/27/2006	935	340	
4/26/2006	1013	40	
5/22/2006	1037	50	
7/10/2006	1000	1,500	
8/8/2006	1004	380	
9/7/2006	958	590	
10/3/2006	950	50	
11/9/2006	953	6,400	
12/7/2006	945	310	
1/3/2007	900	155,000	
2/8/2007	1124	3,800	
3/8/2007	1010	260	
4/5/2007	1033	110	
5/3/2007	1128	10	
6/14/2007	1031	2,300	
7/5/2007	1037	100,000	
8/9/2007	1020	35,000	
9/11/2007	1038	900	
11/6/2007	1103	<100	
12/4/2007	1102	330	
1/9/2008	1106	30	
2/7/2008	1039	200,000	
2/12/2008	1230	980	
3/6/2008	1100	4,300	
4/1/2008	1106	44,000	
5/6/2008	1043	20	
6/2/2008	1116	80	
7/8/2008	1110	27,000	
8/5/2008	1112	172,000	
9/4/2008	1015	67,000	
10/2/2008	1103	2,400	
2/4/2009	1055	3,500	
4/2/2009	1005	450	
7/2/2009	1030	21,000	
10/1/2009	1036	5,500	
3/4/2010	1236	10	
5/5/2011	1230	290	
4/5/2012	1210	9,800	

**SARASOTA COUNTY BEACH ROAD DRAINAGE SYSTEM
Stormwater Pipe Bacteria Data**

Table 7. SKD-O Manhole located on Beach Rd. @ Beach Way

Date	Time	Fecal Coliform (CFU/100mL)	Comments
7/12/2004	1030	106,000	
7/19/2004	NS	NS	Site Flooded – No Sample
7/26/2004	1024	4,700	
8/2/2004	1000	62,000	
8/9/2004	1007	4,200	
1/11/2005	940	200	System Partially Cleaned
1/14/2005	1018	7,300	
2/10/2005	1113	20	System Cleaned Out
3/22/2005	1035	100	
10/6/2005	1026	8,100	
12/21/2005	1032	117,000	
1/9/2006	1028	180	
2/28/2006	1114	970	
3/27/2006	1051	2,100	
4/26/2006	1114	46,000	
5/22/2006	1139	220	
7/10/2006	1053	6,400	
8/8/2006	1050	2,500	
9/7/2006	1046	5,300	
10/3/2006	1035	240	
11/9/2006	1030	9,100	
12/7/2006	1040	130	
1/3/2007	950	4,800	
2/8/2007	1206	800	
3/8/2007	1043	300	
4/5/2007	1114	1,100	
5/3/2007	1212	2,500	
6/14/2007	1126	30,500	
7/5/2007	1121	100,000	
8/9/2007	1106	65,000	
9/11/2007	1128	48,000	
11/6/2007	1144	200	
12/4/2007	1133	380	
1/9/2008	1144	50	
2/7/2008	1104	70	
3/6/2008	1145	4,300	
4/1/2008	1144	44,000	
5/6/2008	1110	20	
6/2/2008	1150	80	
7/8/2008	1143	88,000	
8/5/2008	1145	137,000	
9/4/2008	1053	125,000	
10/2/2008	1145	2,500	
2/4/2009	1130	3,700	
4/2/2009	1036	8,000	
7/2/2009	1105	8,000	
10/1/2009	1108	38,000	
3/4/2010	1259	130	
5/5/2011	1342	84,000	
4/5/2012	1247	160,000	

Appendix F

Water Quality Monitoring Grand Canal Data

Tables 8-15

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Table 8. Grand Canal Data

Site_ID	Location	Date	Time	Temp. (C)	Dissolved Oxygen Saturation (%)	Dissolved Oxygen (mg/L)	Conductivity (µS)	Salinity (ppt)	pH	Fecal Coliform (CFU/100mL)	Enterocococcus (CFU/100mL)	Color (pcu)	Total Suspended Solids (mg/L)	Turbidity (ntu)	Ammonia Nitrogen (mg/L)
SKD-Q	Azure Road Bridge	3/27/2006	1104	21.40	93.0	6.99	45000	29.10	7.92	10					
		4/26/2006	1126	29.80	33.1	2.10	45500	29.40	7.50	50					
		5/22/2006	1153	28.70	32.2	2.08	49300	32.10	7.34	10					
		7/10/2006	1100	30.77	98.8	6.50	39830	22.46	6.81	100		35	7.20	2.7	0.085
		8/8/2006	1100	31.14	80.2	5.32	39239	21.96	7.65	10		40	6.20	2.5	0.076
		9/7/2006	1052	31.05	71.3	4.64	36890	23.17	7.94	50		20	12.20	2.9	0.025
		10/3/2006	1046	29.31	63.5	4.46	300079	17.00	6.64	10		45	7.00	3.4	0.086
		11/9/2006	1038	23.58	91.1	6.52	44430	29.65	7.18	270		25	5.01	1.2	0.046
		12/7/2006	1051	21.36	82.9	6.17	45040	29.20	6.48	300		15	9.80	3.6	0.218
		1/3/2007	0953	21.89	69.9	5.25	41350	26.53	6.90	3,300		20	6.40	2.7	0.392
		2/8/2007	1210	18.90	115.5	9.25	34615	25.02	7.70	310		20	5.60	2.1	0.112
		3/7/2007	1050	19.97	112.6	8.87	40650	26.05	7.47	130		30	14.00	5.9	0.051
		4/5/2007	1119	26.02	45.1	3.12	45370	28.61	7.22	70		10	14.20	1.7	0.103
		5/3/2007	1218	27.82	54.2	3.81	47440	30.80	7.26	10		15	9.00	2.0	0.144
		6/14/2007	1131	30.03	79.5	5.05	48630	31.60	7.66	430		15	12.80	2.8	0.061
		7/5/2007	1126	NS	NS	NS	NS	NS	NS	2,800		25	19.20	3.5	0.136
		8/9/2007	1113	32.99	57.6	3.52	46780	30.15	8.03	100		35	8.80	2.4	0.075
		9/11/2007	1126	29.53	103.3	6.63	48180	31.28	7.46	10		10	13.00	3.0	0.087
		10/4/2007	1205	29.31	91.1	5.94	44703	28.77	7.85	100		10	7.80	1.5	0.026
	sample lost	11/6/2007	1150	23.54	135.5	9.87	40858	26.16	7.41			25	10.00	2.1	0.025
		12/4/2007	1140	23.71	NS	NS	46420	30.14	8.04	10		15	8.40	2.0	0.113
		1/9/2008	1151	19.21	93.5	7.12	49278	32.38	7.68	30		10	14.60	2.3	0.070
		2/7/2008	1113	23.40	67.7	4.78	49039	32.26	7.56	8200		2	7.40	2.9	0.047
		3/6/2008	1050	22.24	64.2	4.66	47670	31.08	7.63	10		20	8.60	3.4	0.052
		4/1/2008	1150	24.15	48.7	3.41	45400	29.40	7.66	20		25	13.60	2.5	0.088
		5/6/2008	1115	26.90	45.2	3.60	48728	31.76	7.63	10		15	7.20	0.8	0.132
		6/2/2008	1215	30.55	59.2	3.75	47114	30.47	7.92	20		30	25.20	3.1	0.034
		7/8/2008	1152	30.32	90.9	5.78	47166	30.52	7.65	60		30	9.75	3.3	0.045
		8/5/2008	1150	30.51	52.3	3.36	45012	28.96	8.09	250		35	20.00	3.4	0.059
		9/4/2008	1052	30.25	10.0	7.13	42504	27.17	7.97	410		50	5.40	3.4	0.049
		10/2/2008	1142	27.96	74.0	4.98	42802	27.45	7.76	20		60	9.67	3.2	0.035
		11/6/2008	1326	22.50	152.7	11.03	46334	30.11	7.02	10		25	5.20	2.7	0.127
		12/4/2008	1356	19.58	93.6	7.22	46657	30.38	6.82	10		30	23.20	4.3	0.136
		1/8/2009	1232	21.69	113.9	8.46	45498	29.52	6.80	20		25	5.80	3.2	0.138
		2/4/2009	1146	16.67	104.7	8.51	45880	29.79	6.35	10		25	8.40	3.4	0.132
		3/4/2009	1427	17.70	93.3	7.36	46024	29.90	6.69	10		20	8.40	3.2	0.354
		4/2/2009	1041	25.25	48.1	3.32	49046	32.03	5.04	20		20	9.40	1.8	0.150

Table 9. Grand Canal Data

Site_ID	Location	Date	Time	Total Kjeldahl Nitrogen (mg/L)	Total Kjeldahl Nitrogen Code	Total Nitrogen (mg/L)	Total Nitrogen Code	Nitrite Nitrate Nitrogen (mg/L)	Nitrite Nitrate Nitrogen Code	Orthophosphorus (mg/L)	Total Phosphorus (mg/L)	Chlorophyll (mg/m3)	Biochemical Oxygen Demand (mg/L)	Biochemical Oxygen Demand Code
SKD-Q	Azure Road Bridge	3/27/2006	1104	0.571		0.577		0.006			0.154			
		4/26/2006	1126	0.433		0.454		0.021			0.167			
		5/22/2006	1153	0.566		0.597		0.031			0.130			
		7/10/2006	1100	0.396		0.396		0.004		0.118	0.196	26	3.89	
		8/8/2006	1100	2.450		2.450		0.004		0.077	0.165	15.2	3.02	
		9/7/2006	1052	0.701		0.701		0.004		0.023	0.150	22.5	3.63	
		10/3/2006	1046	0.690		0.710		0.020		0.092	0.154	13.3	7.82	
		11/9/2006	1038	0.324		0.332		0.008		0.220	0.088	13.1	2.79	
		12/7/2006	1051	0.452		0.570		0.118		0.058	0.123	22.7	3.66	
		1/3/2007	0953	0.416		0.634		0.218		0.066	0.119	16.9	1.91	
		2/8/2007	1210	0.503		0.698		0.195		0.027	0.104	10.6	2.09	
		3/7/2007	1050	0.337		0.337		0.004		0.002	0.077	10.3	3.94	
		4/5/2007	1119	0.277		0.305		0.028		0.046	0.114	5.4	2.01	
		5/3/2007	1218	0.340		0.345		0.005		0.048	0.104	8.49	3.38	
		6/14/2007	1131	0.343		0.343		0.004		0.046	0.100	11.5	2.83	
		7/5/2007	1126	1.120		1.120		0.004		0.043	0.135	15.9	4.53	
		8/9/2007	1113	0.345		0.345		0.004		0.073	0.137	20.8	2.92	
		9/11/2007	1126	0.232		0.247		0.015		0.050	0.102	13.5	2.00	
		10/4/2007	1205	0.187		0.187		0.004		0.039	0.087	5.09	2.67	
	sample lost	11/6/2007	1150	0.318		0.318		0.004		0.021	0.087	15.00	2.66	
		12/4/2007	1140	0.176		0.176		0.004		0.005	0.071	43.40	3.60	
		1/9/2008	1151	0.281		0.320		0.039		0.032	0.079	8.15	2.28	
		2/7/2008	1113	0.281		0.324		0.043		0.024	0.059	8.12	1.88	
		3/6/2008	1050	0.215		0.245		0.030		0.021	0.043	11.20	1.85	
		4/1/2008	1150	0.357		0.366		0.009		0.030	0.064	8.20	2.22	
		5/6/2008	1115	0.224		0.224		0.004		0.043	0.066	3.05	1.28	
		6/2/2008	1215	0.238		0.238		0.004		0.050	0.059	14.30	3.23	
		7/8/2008	1152	0.426		0.426		0.004		0.052	0.098	24.00	4.20	
		8/5/2008	1150	0.614		0.614		0.004		0.089	0.149	20.70	4.95	
		9/4/2008	1052	0.425		0.425		0.004		0.089	0.141	34.70	4.14	
		10/2/2008	1142	0.508		0.508		0.004		0.072	0.094	32.00	3.35	
		11/6/2008	1326	0.221		0.221		0.004		0.037	0.070	17.00	2.18	
		12/4/2008	1356	0.365		0.370		0.015		0.033	0.091	28.30	1.60	
		1/8/2009	1232	0.346		0.346		0.004		0.042	0.099	20.20	1.81	
		2/4/2009	1146	0.293		0.315		0.022		0.025	0.074	19.30	1.98	
		3/4/2009	1427	0.449		0.482		0.033		0.074	0.109	17.60	1.73	
		4/2/2009	1041	0.379		0.462		0.083		0.125	0.197	6.74	1.70	

Table 10. Grand Canal Data

Site_ID	Location	Date	Time	Temp. (C)	Dissolved Oxygen Saturation (%)	Dissolved Oxygen (mg/L)	Conductivity (µS)	Salinity (ppt)	pH	Fecal Coliform (CFU/100mL)	Enterococcus (CFU/100mL)	Color (pcu)	Total Suspended Solids (mg/L)	Turbidity (ntu)	Ammonia Nitrogen (mg/L)
SKD-Q	Azure Road Bridge	5/12/2009	1236	29.34	75.4	4.81	50889	33.72	7.40	10		25	6.60	1.8	0.147
		6/10/2009	1110	29.84	134.1	8.77	43592	27.96	7.56	100		25	8.20	2.8	0.151
		7/2/2009	1101	28.86	64.8	4.23	44082	28.34	6.94	520		25	6.20	2.5	0.075
		8/6/2009	1122	31.09	63.8	4.03	45620	29.38	7.74	10		30	9.80	3.5	0.377
		9/3/2009	1112	30.32	45.3	2.93	43194	27.66	7.84	40		20	5.60	3.3	0.249
		10/1/2009	1115	29.31	0.09	0.05	NS	NS	7.74	30		40	4.80	2.4	0.110
		11/4/2009	1121	26.00	NS	NS	NS	NS	7.77	10		40	12.60	4.9	0.072
		12/3/2009	1118	21.86	88.9	6.68	41414	26.58	7.16	200		30	10.40	3.9	0.091
		1/7/2010	1227	14.18	78.3	6.89	37889	24.10	7.73	10		30	4.00	1.3	0.372
		2/4/2010	1252	18.76	63.2	5.04	40036	25.64	7.39	30		20	11.80	3.1	0.209
		3/4/2010	1230	16.38	119.6	9.93	42081	27.09	8.04	10		25	13.40	4.2	0.077
		4/1/2010	1246	21.48	108.6	8.46	34245	21.54	7.94	10		30	12.40	4.9	0.067
		5/5/2010	1119	27.61	85.9	5.91	40889	26.11	7.02	10		30	17.40	4.4	0.027
		6/16/2010	1127	32.99	112.9	6.86	49556	32.16	7.87	10		30	12.80	3.9	0.031
		7/6/2010	1138	28.39	83.3	5.84	41415	26.44	7.61	50		40	5.00	2.1	0.066
		8/5/2010	1153	32.65	94.5	5.79	47285	30.64	7.88	10		50	12.20	3.2	0.049
		9/2/2010	1119	31.11	119.4	8.03	29043	17.80	8.20	200		40	8.80	2.3	0.064
		10/7/2010	1126	25.41	41.1	2.83	41977	26.92	7.38	10		40	9.40	3.7	0.035
		11/4/2010	1132	26.63	51.7	3.54	46108	29.86	7.78	10		20	12.40	4.5	0.039
		12/2/2010	1034	19.76	10.3	7.89	46004	29.91	7.77	20		40	15.20	8.7	0.033
		1/5/2011	938	17.99	84.8	6.71	45745	29.71	7.31	10		15	7.20	3.5	0.011
		2/3/2011	1337	20.65	54.2	4.18	42150	27.12	7.04	10		20	11.00	5.6	0.384
		3/3/2011	1255	22.78	70.0	5.44	44462	28.75	7.72	10		25	21.60	5	0.147
		4/4/2011	1301	24.77	89.4	6.76	29177	18.02	7.94	10		35	10.40	4.7	0.056
		5/5/2011	1346	27.95	64.0	4.30	42556	27.27	7.84	170		25	23.80	4.5	0.024
		6/2/2011	1059	28.32	645.0	4.26	48107	31.26	7.72	280		35	10.20	4.2	0.061
		7/6/2011	1117	30.65	150.4	9.68	42828	27.39	8.13	690		25	10.20	4.4	0.008
		8/4/2011	1200	33.25	108.0	6.65	44367	28.4	7.93	10		45	26.40	4.6	0.008
		9/1/2011	1051	29.27	142.2	9.53	37034	23.34	7.98	30	10	40	7.20	3.2	0.012
		10/12/2011	1055	27.31	91.0	6.24	41544	26.56	7.76	10	10	60	9.80	5.4	0.089
		11/3/2011	1100	23.46	73.8	5.29	46637	30.31	7.43	10	30	60	9.80	5.4	0.089
		12/1/2011	1121	20.29	107.4	8.16	45039	29.19	7.44	10	20	25	8.40	4.1	0.127
		1/4/2012	1128	16.36	63.5	5.25	44344	28.69	7.25	10	200	20	5.80	2.4	0.391
		2/1/2012	1055	19.92	79.5	6.14	45265	29.32	7.38	10	20	25	8.60	3.0	0.017
		3/1/2012	1155	25.21	57.2	4.00	47606	30.99	7.49	10	10	20	6.80	2.6	0.017
	Stopped Sampling	4/5/2012	1258	27.84	97.6	6.44	47998	31.20	7.68	10	10	25	11.20	2.4	0.008

Table 11. Grand Canal Data

Site_ID	Location	Date	Time	Total Kjeldahl Nitrogen (mg/L)	Total Kjeldahl Nitrogen Code	Total Nitrogen (mg/L)	Total Nitrogen Code	Nitrite Nitrate Nitrogen (mg/L)	Nitrite Nitrate Nitrogen Code	Orthophosphorus (mg/L)	Total Phosphorus (mg/L)	Chlorophyll (mg/m3)	Biochemical Oxygen Demand (mg/L)	Biochemical Oxygen Demand Code
SKD-Q	Azure Road Bridge	5/12/2009	1236	0.144		0.170		0.026		0.100	0.129	6.40	1.35	
		6/10/2009	1110	0.546		0.550		0.004		0.040	0.123	8.68	3.33	
		7/2/2009	1101	0.535		0.680		0.142		0.044	0.106	20.80	1.28	
		8/6/2009	1122	0.857		0.857		0.004		0.065	0.159	13.90	4.70	
		9/3/2009	1112	0.525		0.571		0.046		0.082	0.121	12.50	1.56	
		10/1/2009	1115	0.688		0.688		0.004		0.075	0.125	14.00	2.44	
		11/4/2009	1121	0.648		0.648		0.004		0.030	0.065	39.90	5.53	
		12/3/2009	1118	0.590		0.603		0.013		0.013	0.040	17.80	2.42	
		1/7/2010	1227	0.571		0.743		0.172		0.057	0.089	6.31	1.74	
		2/4/2010	1252	0.739		0.892		0.153		0.056	0.093	8.97	1.95	
		3/4/2010	1230	0.585		0.698		0.113		0.019	0.085	13.7	3.35	
		4/1/2010	1246	0.638		0.65		0.012		0.042	0.105	23.4	2.51	
		5/5/2010	1119	0.689		0.686		0.007		0.091	0.168	13.2	2.92	
		6/16/2010	1127	0.615		0.615		0.004	U	0.07	0.107	13.5	3.37	
		7/6/2010	1138	0.643		0.703		0.06		0.097	0.144	4.95	2.19	
		8/5/2010	1153	0.688		0.692		0.004		0.038	0.123	17.6	3.41	
		9/2/2010	1119	0.750		0.750		0.004		0.074	0.155	11.1	3.37	
		10/7/2010	1126	0.727		0.727		0.004		0.057	0.136	14.2	3.98	
		11/4/2010	1132	0.789		0.827		0.038		0.046	0.123	20.4	3.98	
		12/2/2010	1034	0.787		0.833		0.046		0.034	0.135	33.6	3.04	
		1/5/2011	938	0.568		0.582		0.014		0.019	0.076	11.5	2.34	
		2/3/2011	1337	0.819		0.911		0.092		0.045	0.137	19.2	3.08	
		3/3/2011	1255	0.533		0.533		0.004		0.025	0.085	15.8	2.76	
		4/7/2011	1301	0.786		0.885		0.099		0.045	0.123	20.5	3.15	
		5/5/2011	1346	0.773		0.869		0.096		0.056	0.111	17.2	3.68	
		6/2/2011	1059	0.456		0.507		0.051		0.043	0.128	25.3	3.14	
		7/6/2011	1117	0.760		0.760		0.004		0.06	0.121	21.5	3.56	
		8/4/2011	1200	0.824		0.844		0.02		0.095	0.235	55.8	7.76	
		9/1/2011	1051	0.972		0.981		0.009		0.122	0.199	38.9	4.6	
		10/12/2011	1055	0.693		0.827		0.134		0.031	0.094	20.1	2.31	
		11/3/2011	1100	0.693		0.827		0.134		0.053	0.108	17.4	2.81	
		12/1/2011	1121	0.629		0.753		0.124		0.069	0.116	19.3	1.35	
		1/4/2012	1128	0.719		0.889		0.17		0.048	0.09	18.5	2.10	
		2/1/2012	1055	0.568		0.647		0.079		0.039	0.10	23.5	1.88	
		3/1/2012	1155	0.554		0.592		0.038		0.089	0.11	9.53	1.72	
	Stopped Sampling	4/5/2012	1258	0.500		0.520		0.020		0.067	0.11	13.9	2.16	

Table 12. Grand Canal Data

Site_ID	Location	Date	Time	Temp. (C)	Dissolved Oxygen Saturation (%)	Dissolved Oxygen (mg/L)	Conductivity (µS)	Salinity (ppt)	pH	Fecal Coliform (CFU/100mL)	Enterocococcus (CFU/100mL)	Color (pcu)	Total Suspended Solids (mg/L)	Turbidity (ntu)	Ammonia Nitrogen (mg/L)
SKD-T1	Avenida de Mayo @	3/27/2006	1122	20.40	96.6	7.30	47,900	31.20	7.90	10					
	Avenida del Norte	4/26/2006	1143	29.70	66.6	4.17	50,400	32.90	7.42	10					
		5/22/2006	1207	35.40	35.4	2.25	49,400	32.20	7.06	20					
		7/10/2006	1125	30.77	96.4	6.30	42,859	24.30	7.75	10		15	7.40	2.1	0.140
		8/8/2006	1140	31.40	111.8	7.24	41,000	25.05	7.40	250		30	9.40	0.1	0.012
		9/7/2006	1134	30.60	58.3	3.82	38,560	24.37	7.69	10		20	11.80	3.9	0.087
		10/3/2006	1124	28.51	57.0	3.98	30,868	17.77	6.85	20		50	14.60	3.9	0.185
		11/9/2006	1118	23.66	110.2	7.84	45,658	30.48	7.20	40		20	12.40	0.9	0.036
		12/7/2006	1115	21.29	86.5	6.52	42,840	27.75	7.47	100		10	5.80	1.8	0.188
		1/3/2007	1020	21.96	83.8	6.30	40,670	26.03	7.32	460		15	8.00	1.9	0.311
		2/8/2007	1232	18.95	104.7	8.44	32,829	23.50	7.60	10		10	3.20	1.3	0.153
		3/7/2007	1107	19.11	120.0	9.41	43,170	27.85	7.55	10		10	6.20	1.7	0.076
		4/5/2007	1151	26.32	74.3	5.09	47,380	30.81	7.51	20		5	14.60	1.2	0.046
		5/3/2007	1249	27.82	54.2	3.81	47440	30.80	7.26	10		10	5.60	1.1	0.182
		6/14/2007	1205	27.96	81.9	5.37	48,780	31.76	7.45	3100		5	7.60	1.3	0.060
		7/5/2007	1204	29.85	66.3	4.18	50,660	33.10	7.54	>100,000		15	7.00	2.6	0.157
		8/9/2007	1143	32.33	75.8	4.70	46,690	31.10	8.09	200		30	5.60	2.2	0.060
		9/11/2007	1208	29.31	101.3	6.41	50,230	29.31	7.34	200		5	8.60	2.5	0.236
		10/4/2007	1222	29.55	79.0	5.13	44,794	28.83	7.86	100		10	5.80	1.4	0.048
		11/6/2007	1217	23.49	125.3	9.15	40,207	25.62	7.51	<100		20	9.60	1.7	0.036
		12/4/2007	1205	23.63	NS	NS	46,916	30.50	7.86	20		2	4.40	2.0	0.043
		1/9/2008	1208	19.52	98.1	7.45	49086	32.14	7.73	20		10	14.60	2.3	0.070
		2/7/2008	1125	23.45	90.6	6.37	48789	31.88	7.65	20		2	5.40	2.7	0.032
		3/6/2008	1214	21.93	60.4	4.38	49589	32.49	7.66	2800		20	8.60	3.4	0.052
		4/1/2008	1218	24.50	64.9	4.52	47031	30.58	7.76	20		15	5.60	2.4	0.086
		5/6/2008	1151	26.91	65.0	4.30	51957	34.08	7.82	10		15	26.80	1.3	0.141
		6/2/2008	1240	31.31	39.5	2.53	48171	31.21	7.82	10		25	8.20	2.0	0.046
		7/8/2008	1206	30.68	84.2	5.29	47732	30.92	7.49	50		25	39.50	2.6	0.065
		8/5/2008	1210	30.88	62.3	3.98	43900	30.88	8.15	90		35	7.40	2.6	0.072
		9/4/2008	1125	30.46	115.5	7.51	42097	26.87	7.96	490		50	20.20	2.2	0.118
		10/2/2008	1205	26.28	90.1	6.10	41289	26.25	7.87	10		50	4.60	2.0	0.053
		11/6/2008	1350	22.61	137.5	9.98	45062	29.17	7.75	10		15	4.40	3.1	0.165
		12/4/2008	1412	19.06	84.9	6.58	46279	30.10	7.65	10		8	2.80	1.9	0.102
		1/8/2009	1251	20.95	79.6	5.92	47717	31.12	7.65	10		15	6.80	2.0	0.132
		2/4/2009	1210	16.66	86.8	7.06	45150	29.35	7.27	10		15	1.40	1.1	0.088
		03/04/09	1445	16.44	97.5	7.78	50508	33.14	7.79	10		10	3.60	1.2	0.281
		04/02/09	1103	25.37	70.4	4.83	48727	31.77	6.62	40		15	2.20	1.2	0.154

Table 13. Grand Canal Data

Site_ID	Location	Date	Time	Total Kjeldahl Nitrogen (mg/L)	Total Kjeldahl Nitrogen Code	Total Nitrogen (mg/L)	Total Nitrogen Code	Nitrite Nitrate Nitrogen (mg/L)	Nitrite Nitrate Nitrogen Code	Orthophosphorus (mg/L)	Total Phosphorus (mg/L)	Chlorophyll (mg/m3)	Biochemical Oxygen Demand (mg/L)	Biochemical Oxygen Demand Code
SKD-T1	Avenida de Mayo @	3/27/2006	1122	0.402		0.417		0.015			0.118			
	Avenida del Norte	4/26/2006	1143	0.263		0.263		0.004			0.103			
		5/22/2006	1207	0.467		0.545		0.078			0.082			
		7/10/2006	1125	0.290		0.290		0.004		0.133	0.174	13.30	3.32	
		8/8/2006	1140	0.121		0.126		0.005		0.090	0.208	16.30	2.02	
		9/7/2006	1134	0.590		0.608		0.018		0.047	0.144	117.40	2.69	
		10/3/2006	1124	0.615		0.633		0.018		0.095	0.162	6.46	3.87	
		11/9/2006	1118	0.275		0.327		0.052		0.033	0.092	9.08	2.70	
		12/7/2006	1115	0.421		0.698		0.277		0.043	0.129	3.35	2.31	
		1/3/2007	1020	0.400		0.464		0.064		0.710	0.165	12.90	2.09	
		2/8/2007	1232	0.421		0.538		0.117		0.600	0.132	2.90	1.80	
		3/7/2007	1107	0.337		0.337		0.004		0.045	0.093	4.55	1.66	
		4/5/2007	1151	0.196		0.215		0.019		0.041	0.110	2.27	1.41	
		5/3/2007	1249	0.434		0.511		0.077		0.042	0.780	1.82	1.50	
		6/14/2007	1205	0.251		0.251		0.004		0.055	0.082	4.93	1.65	
		7/5/2007	1204	1.720		0.172		0.004		0.065	0.122	12.10	3.10	
		8/9/2007	1143	0.241		0.241		0.004		0.068	0.127	11.10	2.47	
		9/11/2007	1208	0.240		0.270		0.030		0.054	0.091	3.55	1.25	
		10/4/2007	1222	0.184		0.184		0.004		0.053	0.099	10.10	1.98	
		11/6/2007	1217	0.271		0.271		0.004		0.030	0.085	9.45	1.90	
		12/4/2007	1205	0.214		0.242		0.028		0.030	0.076	3.73	1.09	
		1/9/2008	1208	0.281		0.320		0.039		0.032	0.079	8.15	2.28	
		2/7/2008	1125	0.206		0.251		0.045		0.021	0.052	3.49	1.52	
		3/6/2008	1214	0.215		0.245		0.030		0.021	0.043	11.20	1.85	
		4/1/2008	1218	0.303		0.303		0.004		0.029	0.051	3.94	1.59	
		5/6/2008	1151	0.219		0.225		0.006		0.042	0.063	3.91	1.20	
		6/2/2008	1240	0.153		0.153		0.004		0.035	0.063	6.99	2.12	
		7/8/2008	1206	0.271		0.271		0.004		0.052	0.066	10.60	1.80	
		8/5/2008	1210	0.364		0.391		0.027		0.159	0.187	23.20	2.31	
		9/4/2008	1125	0.301		0.301		0.004		0.087	0.123	32.70	0.52	
		10/2/2008	1205	0.424		0.424		0.004		0.114	0.120	16.40	2.09	
		11/6/2008	1350	0.318		0.325		0.007		0.086	0.119	4.75	1.19	
		12/4/2008	1412	0.301		0.362		0.061		0.066	0.100	6.69	1.12	
		1/8/2009	1251	0.187		0.198		0.011		0.064	0.097	3.10	1.06	
		2/4/2009	1210	0.208		0.301		0.093		0.070	0.094	2.99	0.15	
		03/04/09	1445	0.316		0.341		0.025		0.087	0.111	1.72	0.90	
		04/02/09	1103	0.277		0.333		0.056		0.127	0.187	4.81	1.61	

Table 14. Grand Canal Data

Site ID	Location	Date	Time	Temp. (C)	Dissolved Oxygen Saturation (%)	Dissolved Oxygen (mg/L)	Conductivity (µohm)	Salinity (ppt)	pH	Fecal Coliform (CFU/100mL)	Enterococcus (CFU/100mL)	Color (pcu)	Total Suspended Solids (mg/L)	Turbidity (ntu)	Ammonia Nitrogen (mg/L)
SKD-T1	Avenida de Mayo @	5/12/2009	1256	29.08	72.4	4.57	53901	35.52	7.70	30		15	5.60	2.2	0.085
	Avenida del Norte	6/10/2009	1134	29.62	91.0	5.86	46396	30.00	7.74	180		20	7.40	3.0	0.210
		7/2/2009	1124	28.65	53.1	3.59	31978	19.52	7.28	5900		30	4.00	3.3	0.130
		8/6/2009	1144	31.04	60.6	3.77	48241	31.28	7.84	30		20	10.80	4.5	0.105
		9/3/2009	1133	30.02	42.4	2.73	45547	29.36	7.85	20		30	13.20	2.8	0.024
		10/1/2009	1139	29.21	3.3	0.24	40443	25.73	7.77	10		30	6.80	2.5	0.11
		12/3/2009	1137	22.09	75.9	5.71	39816	25.44	7.43	330		25	8.60	3.5	0.115
		1/7/2010	1249	13.83	89.8	7.98	39317	25.08	7.83	10		20	3.00	1.05	0.213
		2/4/2010	1314	18.27	73.8	5.88	41556	26.70	7.48	10		15	4.20	1.9	0.197
		3/4/2010	1315	16.14	103.0	8.47	44942	29.14	7.94	10		10	9.40	2.3	0.037
		4/1/2010	1308	20.99	94.9	7.34	37643	23.92	7.86	30		25	8.80	4.9	0.046
		5/5/2010	1132	28.28	74.3	5.01	41052	26.19	7.33	200		20	5.80	2.4	0.016
		6/16/2010	1141	32.34	87.6	5.33	49723	32.32	7.90	10		20	8.80	4.4	0.094
		7/6/2010	1154	28.70	72.3	4.84	40607	25.83	7.54	190		40	8.80	2.9	0.352
		8/5/2010	1213	32.98	72.9	4.11	47952	31.01	7.82	10		20	6.60	2.6	0.221
		9/2/2010	1133	30.28	133.0	9.11	28312	17.32	8.15	220		50	8.00	4.2	0.107
		10/7/2010	1150	24.74	44.6	3.11	45274	29.63	7.89	10		30	11.40	6.2	0.089
		11/4/2010	1202	25.89	61.3	4.26	45024	29.02	7.86	10		25	36.80	13.7	0.105
		12/2/2010	1057	20.10	77.8	5.83	47055	30.67	7.67	10		15	9.80	3.2	0.169
		1/5/2011	955	17.99	87.6	6.97	44776	28.95	7.56	10		5	3.00	1.6	0.018
		2/3/2011	1358	10.90	70.6	5.87	43153	27.83	7.36	100		10	4.40	2.6	0.293
		3/3/2011	1315	23.16	58.4	4.20	45854	29.75	7.73	20		15	12.80	4.5	0.092
		4/7/2011	1322	24.23	89.5	6.73	32870	20.55	6.60	40		30	10.80	5.8	0.099
		5/5/2011	1407	28.09	57.2	3.72	46952	30.43	7.74	50		20	7.80	3.9	0.045
		6/2/2011	1113	27.64	48.8	3.18	52082	34.20	7.70	70		25	11.00	5.8	0.161
		7/6/2011	1135	30.59	98.3	2.01	42180	26.93	7.89	180		30	8.80	3.6	0.028
		8/4/2011	1221	33.45	106.7	6.52	44127	28.20	7.75	20		25	8.80	3.2	0.008
		9/1/2011	1114	29.37	139.1	9.41	36789	23.16	7.78	10	10	40	6.60	3.9	0.034
		10/12/2011	1112	27.53	70.2	4.88	42172	26.99	7.67	60	10	40	9.40	5.5	0.022
		11/3/2011	1117	22.95	63.7	4.61	46705	30.36	7.53	10	30	20	5.40	3.5	0.234
		12/1/2011	1138	19.86	138.2	10.58	45607	29.61	7.55	10	20	20	5.20	3.0	0.197
		1/4/2012	1144	16.18	63.0	5.18	45670	29.59	7.09	20	10	10	2.40	1.5	0.470
		2/1/2012	1110	20.26	80.9	6.17	44958	29.12	7.41	10	10	12.5	4.60	2.0	0.061
		3/1/2012	1210	25.01	65.1	4.58	47187	30.76	7.32	10	10	10	112.40	3.1	0.026
	Stopped Sampling	4/5/2012	1318	28.21	79.5	5.18	48517	31.57	7.66	940	20	15	10.40	1.5	0.008

Table 15. Grand Canal Data

Site_ID	Location	Date	Time	Total Kjeldahl Nitrogen (mg/L)	Total Kjeldahl Nitrogen Code	Total Nitrogen (mg/L)	Total Nitrogen Code	Nitrite Nitrate Nitrogen (mg/L)	Nitrite Nitrate Nitrogen Code	Orthophosphorus (mg/L)	Total Phosphorus (mg/L)	Chlorophyll (mg/m3)	Biochemical Oxygen Demand (mg/L)
SKD-T1	Avenida de Mayo @	5/12/2009	1256	0.348		0.356		0.008		0.042	0.061	6.77	1.40
	Avenida del Norte	6/10/2009	1134	0.516		0.516		0.004		0.054	0.115	10.6	1.91
		7/2/2009	1124	0.530		0.548		0.018		0.086	0.114	6.35	1.07
		8/6/2009	1144	0.554		0.575		0.025		0.047	0.106	14.9	1.22
		9/3/2009	1133	0.699		0.699		0.004		0.060	0.129	26.1	4.31
		10/1/2009	1139	0.501		0.690		0.189		0.077	0.115	13.5	1.64
		12/3/2009	1137	0.536		0.699		0.163		0.024	0.042	11.10	1.94
		1/7/2010	1249	0.486		0.857		0.371		0.059	0.101	3.15	1.58
		2/4/2010	1314	0.520		0.674		0.154		0.054	0.084	2.26	1.19
		3/4/2010	1315	0.387		0.669		0.282		0.041	0.078	2.73	1.58
		4/1/2010	1308	0.519		0.577		0.058		0.056	0.118	4.55	2.14
		5/5/2010	1132	0.604		0.604		0.004		0.076	0.126	7.30	2.44
		6/16/2010	1141	0.603		0.603		0.004	U	0.071	0.114	19.20	2.48
		7/6/2010	1154	0.966		1.087		0.121		0.104	0.188	9.25	3.93
		8/5/2010	1213	0.531		0.551		0.020		0.076	0.144	7.63	1.60
		9/2/2010	1133	0.801		0.808		0.007		0.076	0.194	20.70	3.23
		10/7/2010	1150	0.625		0.656		0.031		0.048	0.136	9.18	2.23
		11/4/2010	1202	0.105		0.751		1.012		0.117	0.186	6.59	3.70
		12/2/2010	1057	0.539		0.623		0.084		0.053	0.103	4.39	1.27
		1/5/2011	0955	0.446		0.466		0.020		0.028	0.083	8.25	1.77
		2/3/2011	1358	0.670		0.742		0.072		0.048	0.099	3.72	1.77
		3/3/2011	1315	0.433		0.490		0.057		0.035	0.034	9.82	1.98
		4/7/2011	1322	0.747		0.898		0.151		0.075	0.142	12.10	2.09
		5/5/2011	1407	0.622		0.739		0.116		0.065	0.105	4.67	1.96
		6/2/2011	1113	0.341		0.382		0.041		0.059	0.138	17.30	1.83
		7/6/2011	1135	0.680		0.680		0.004		0.060	0.120	14.00	2.73
		8/4/2011	1221	0.773		0.717		0.044		0.150	0.230	13.20	2.25
		9/1/2011	1114	0.776		0.800		0.024		0.130	0.178	22.60	2.50
		10/12/2011	1112	0.742		0.821		0.089		0.053	0.125	15.10	1.97
		11/3/2011	1117	0.505		0.673		0.168		0.073	0.122	5.64	1.55
		12/1/2011	1138	0.521		0.637		0.116		0.104	0.140	7.11	0.83
		1/4/2012	1144	0.724		0.966		0.242		0.093	0.143	2.92	2.00
		2/1/2012	1110	0.458		0.549		0.091		0.086	0.135	4.31	0.72
		3/1/2012	1210	0.501		0.549		0.048		0.115	0.141	6.06	1.16
		4/5/2012	1318	0.415		0.462		0.047		0.056	0.072	4.41	1.40

Appendix G

Rainfall Data

Data Sources: SWFWMD Hydro TR6-1 Gauge
And Siesta Key Utility Authority

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Table 16. Rainfall Data

DAY	May_04	June_04	July_04	Aug_04	Sep_04	Oct_04	Jan_05	Feb_05	Mar_05	Sep_05	Oct_05	Nov_05	Dec_05	Jan_06
1	0.10	0.00	1.8	3.4	0.00	0.08	0.00	0.00	0.00	0.00	0.20	0.79	0.04	0.04
2	0.00	0.00	0.0	1.0	0.08	0.00	0.00	0.00	0.00	0.00	0.10	0.04	0.00	0.00
3	2.00	0.00	0.0	0.0	0.12	0.04	0.00	0.00	0.00	0.10	0.00	0.00	0.04	0.04
4	0.00	0.10	0.0	0.8	0.08	0.12	0.00	0.00	0.00	0.00	0.20	0.00	0.04	0.00
5	0.00	0.20	0.0	0.3	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.0	0.4	0.00	0.24	0.00	0.00	0.00	0.00	1.90	0.00	0.00	0.00
7	0.00	0.40	0.0	3.6	0.00	0.18	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00
8	0.00	0.40	0.0	1.4	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
9	0.00	0.00	0.0	0.0	0.51	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.00
10	0.00	0.00	0.0	0.0	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
11	0.00	0.00	0.5	0.0	0.04	0.08	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00
12	0.00	0.00	0.0	0.0	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.04	0.00	0.00
13	0.00	0.70	0.0	1.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.20	0.0	0.9	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00
16	0.00	1.10	0.0	0.0	0.04	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00
17	2.40	0.00	0.0	0.0	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.9	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.16
19	0.00	0.00	3.5	0.0	0.00	0.04	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.00
20	0.00	0.00	2.0	0.0	0.35	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00
21	0.00	0.00	0.0	0.0	0.12	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
22	0.00	0.00	0.0	0.0	0.20	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00
23	0.00	0.00	0.0	0.0	0.00	0.87	0.00	0.00	0.04	0.00	0.87	0.00	0.00	0.00
24	0.00	0.90	0.3	0.0	0.04	1.18	0.00	0.00	0.00	0.00	1.18	0.00	0.00	0.00
25	0.00	0.00	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00
26	0.00	0.00	0.3	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.0	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.3	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00
29	0.00	0.30	0.0	0.0	0.00	0.00	0.00		0.04	0.00	0.00	0.79	0.00	0.00
30	0.00	0.00	0.2	0.0	0.08	0.00	0.00		0.00	0.08	0.00	0.00	0.00	0.00
31	0.00		0.0	0.0		0.00	0.00		0.00		0.00		0.00	0.00
TOTAL	4.50	4.30	9.8	13.1	1.86	2.87	0.00	0.00	0.24	1.68	4.69	2.18	0.44	0.24

Table 17. Rainfall Data

DAY	Feb_06	Mar_06	Apr_06	May_06	June_06	July_06	Aug_06	Sept_06	Oct_06	Nov_06	Dec_06	Jan_07	Feb_07	Mar_07	Apr_07
1	0.00	0.00	0.00	0.00	0.16	0.12	0.00	0.08	0.00	0.00	0.00	0.55	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00
3	0.40	0.00	0.00	0.00	0.00	0.04	0.20	0.47	0.04	0.00	0.00	0.00	0.04	0.00	0.00
4	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.04	0.00	0.32	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.43	0.75	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.12
10	0.00	0.00	0.00	0.00	0.04	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.65
11	0.55	0.00	0.00	0.04	0.16	0.04	1.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.04
12	0.00	0.00	0.00	0.00	3.86	0.40	0.00	1.38	0.00	0.00	0.00	0.00	0.31	0.00	0.31
13	0.00	0.00	0.04	0.00	0.12	0.04	2.20	0.39	0.00	0.00	0.04	0.00	0.55	0.00	0.00
14	0.00	0.00	0.00	0.00	0.08	0.00	0.43	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24
16	0.00	0.00	0.00	0.59	0.00	0.39	0.47	0.00	0.00	1.06	0.00	0.00	0.00	0.35	0.00
17	0.00	0.00	0.00	0.08	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.91	0.08	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.24	0.04	2.09	0.00	1.06	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.16	0.00	0.12	0.16	0.00	0.04	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.04	0.47	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.04	0.00	0.20	0.04	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	1.06	1.22	0.00	0.00	0.00	0.00	1.18	0.24	0.00	0.00	0.00
26	0.24	0.00	0.00	0.00	0.04	0.59	0.12	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29		0.00	0.00	0.00	0.00	0.00	0.20	0.04	0.00	0.00	0.00	0.39		0.00	0.00
30		0.00	0.00	0.00	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00		0.00	0.00
31		0.00		0.00					0.00		0.00	0.00		0.00	
TOTAL	2.17	0.00	0.47	1.50	5.76	6.61	5.49	8.61	0.08	2.28	1.58	1.54	2.48	0.35	2.36

Table 18. Rainfall Data

DAY	May_07	June_07	July_07	Aug_07	Sept_07	Oct_07	Nov_07	Dec_07	Jan_08	Feb_08	Mar_08	Apr_08	May_08	June_08	July_08
1	0.00	0.98	0.00	0.25	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.02	0.00	0.54	0.00	0.38	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.13
3	0.00	0.00	0.00	0.13	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.22	0.00	0.00	0.03
4	0.00	0.00	0.63	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.06	0.05	0.00	0.00	0.00	0.00	0.06	0.63	0.00	0.00	0.00
6	0.00	0.00	0.01	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	1.65	0.00	0.12	0.05
7	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.23	0.01	0.00	0.12
8	0.04	0.00	0.00	0.06	0.18	0.00	0.00	0.00	0.00	0.70	0.35	0.00	0.00	0.09	0.01
9	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00
10	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.26	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04
12	0.00	0.14	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.41	0.04	0.00	0.00	0.10	0.00
13	0.00	0.03	0.00	0.08	0.04	0.00	0.00	0.00	0.26	0.02	0.00	0.00	0.00	0.58	2.53
14	0.23	0.49	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00	0.08	0.00	0.00	0.02	0.00
15	0.00	0.01	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.77
16	0.00	0.00	1.89	0.88	1.36	0.00	0.00	0.05	0.00	0.02	0.00	0.00	0.00	0.53	0.73
17	0.00	0.00	0.08	0.00	0.03	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.00	0.00	0.21
18	0.00	0.00	0.01	0.48	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.27	0.00
19	0.00	0.00	0.00	0.02	0.29	0.04	0.00	0.00	0.91	0.00	0.00	0.00	1.41	0.43	0.00
20	0.01	0.00	0.10	0.00	0.69	0.16	0.00	0.00	0.00	0.01	0.17	0.00	1.66	0.00	0.00
21	0.00	0.13	1.90	0.00	0.77	0.12	0.00	0.65	0.01	0.01	0.00	0.00	0.01	2.34	0.00
22	0.00	0.00	0.02	0.00	0.21	0.00	0.00	0.00	0.00	0.00	0.65	0.00	0.01	0.03	0.00
23	0.00	0.00	0.75	0.00	0.46	0.02	0.23	0.00	0.15	0.08	0.01	0.01	0.01	0.00	0.00
24	0.00	0.00	0.04	0.42	0.13	2.94	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.21
25	0.00	0.00	0.00	1.00	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00
26	0.00	0.00	0.00	0.00	0.55	0.25	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
27	0.06	0.14	0.00	0.01	0.01	0.01	0.00	0.00	0.05	0.22	0.00	0.00	0.00	0.00	0.00
28	0.00	0.05	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
29	0.00	1.09	0.00	0.00	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71
30	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.10
31	0.04		0.39	0.77	0.00	0.01		0.00	0.00		0.53		0.00		0.01
TOTAL	0.38	3.08	5.82	5.19	5.13	4.64	0.24	0.73	2.14	1.47	2.17	2.69	3.10	4.85	5.73

Table 19. Rainfall Data

DAY	Aug_08	Sept_08	Oct_08	Nov_08	Dec_08	Jan_09	Feb_09	Mar_09	Apr_09	May_09	June_09	Jul_09	Aug_09	Sep_09	Oct_09
1	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.14	0.00	0.00	0.00	2.48	0.02	0.04	0.00
2	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.09	0.00
3	0.00	0.52	0.00	0.00	0.00	0.00	0.47	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
4	0.77	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00
5	0.04	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.48	0.00	0.01	0.05	0.00
6	0.01	0.00	0.99	0.00	0.54	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.01	0.09	0.00	0.00	0.00	0.00	1.11	0.16	0.00	0.00	0.00
8	0.54	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.38	0.01	0.00	0.00	0.00
9	1.01	1.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00
10	0.21	2.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
11	0.00	0.00	0.00	0.00	0.86	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94	0.43
12	0.00	0.14	0.05	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.01	1.69	0.01
13	0.06	0.01	0.30	0.02	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
14	0.06	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.60	0.13	0.00	0.00	0.00	0.41	0.03
15	0.00	0.00	0.00	0.07	0.04	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.12	0.03	0.00
16	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.22	0.05	0.35
17	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.76	0.00	0.01	0.01	0.01
18	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.01	0.01	0.04	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.25	0.00	0.00	0.00
20	0.11	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	1.12	0.00	1.10	0.00	0.73	0.00
21	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.00	0.01	0.00	0.05	0.00
22	0.00	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.13	0.00
23	0.25	0.01	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00
24	0.48	0.00	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.97	0.00
25	0.00	0.00	0.37	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.01	0.00	1.05	0.00	0.00
26	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.30	0.01	0.80	0.13	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.03	0.01	0.06	0.00	0.53
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	0.00	0.00
29	0.00	0.47	0.00	0.00	0.00	0.00		1.08	0.00	0.00	0.12	0.00	0.02	0.00	0.00
30	1.48	0.14	0.00	0.42	0.00	0.43		0.00	0.00	0.04	0.22	0.00	0.00	0.00	0.00
31	0.68		0.00		0.00	0.01		0.00		0.00		0.00	0.00		0.00
TOTAL	5.75	6.33	2.73	0.54	1.64	0.85	0.50	1.22	0.71	3.60	4.60	5.65	2.45	6.23	1.43

Table 20. Rainfall Data

DAY	Nov_09	Dec_09	Jan_10	Feb_10	Mar_10	Apr_10	May_10	June_10	July_10	Aug_10	Sep_10	Oct_10	Nov_10	Dec_10	Jan_11
1	0.00	0.00	0.98	1.15	0.00	0.00	0.00	0.04	0.00	0.07	0.00	0.00	0.00	0.02	0.00
2	0.00	0.00	0.00	1.32	0.12	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00
3	0.00	1.02	0.00	0.00	0.00	0.00	0.00	0.09	0.18	0.29	0.01	0.00	0.00	0.00	0.00
4	0.00	1.39	0.00	0.00	0.00	0.00	0.00	0.37	0.42	0.01	0.25	0.00	1.42	0.00	0.01
5	0.00	0.89	0.03	1.46	0.45	0.00	0.00	0.00	0.87	0.00	0.02	0.00	0.01	0.03	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.05	0.00	0.00	0.00	0.55
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00
8	0.00	0.00	0.02	0.04	0.00	0.00	0.00	0.00	0.00	1.03	0.18	0.00	0.00	0.00	0.00
9	0.00	0.00	0.21	0.04	0.00	0.09	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.21	0.00
10	0.12	0.00	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00
11	0.54	0.00	0.00	0.00	0.00	1.06	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.46	1.22	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.05	0.00
14	0.00	0.00	0.00	0.00	0.04	1.58	0.00	0.00	0.16	0.00	0.01	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.97	0.00	0.00	0.00	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.06
17	0.00	0.00	0.00	0.00	0.00	0.00	0.86	0.02	0.00	0.09	0.00	0.00	0.00	0.00	0.01
18	0.00	0.60	0.01	0.00	0.00	0.18	0.01	0.02	0.31	0.00	0.00	0.00	0.00	0.53	0.00
19	0.00	0.00	0.04	0.00	0.00	0.03	0.00	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.02
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.37
22	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.02	0.00	0.00	0.01	0.00
23	0.00	0.00	0.00	1.96	0.04	0.00	0.00	0.00	0.30	3.64	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.17	0.55	0.07	0.00	0.00	0.00	0.00
25	1.78	0.12	0.29	0.00	0.31	0.00	0.02	0.24	0.04	0.79	0.00	0.00	0.00	0.09	1.30
26	0.04	0.00	0.00	0.00	0.00	1.19	0.00	0.19	0.00	0.03	0.33	0.00	0.00	0.01	0.04
27	0.00	0.00	0.00	0.29	0.02	0.00	0.00	0.15	0.00	0.71	0.00	0.00	0.15	0.00	0.00
28	0.00	0.00	0.00	0.00	0.70	0.00	0.00	0.22	0.00	0.11	0.02	0.00	0.00	0.00	0.00
29	0.00	0.00	0.04		0.33	0.04	0.00	0.15	0.00	0.08	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.09		0	0.00	0.00	0.21	0.00	0.15	0.08	0.00	0.00	0.00	0.00
31		0.00					0.00			0.01		0.00		0.00	0.00
TOTAL	2.48	4.02	2.83	6.76	3.66	4.23	0.94	1.72	2.73	8.79	1.97	0.01	1.58	1.07	2.36

Table 21. Rainfall Data

DAY	Feb_11	Mar_11	Apr_11	May_11	Jun_11	Jul_11	Aug_11	Sept_11	Oct_11	Nov_11	Dec_11	Jan_12	Feb_12	Mar_12	Apr_12
1	0.00	0.00	0.00	0.00	0.18	0.02	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.01
2	0.00	0.00	0.00	0.00	0.00	1.51	0.00	0.09	0.00	0.00	0.00	0.04	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.44	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.2
5	0.14	0.00	0.00	0.08	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
6	0.01	0.06	0.00	2.14	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.23	0.00	0.00
7	0.24	0.00	0.00	0.01	0.00	0.21	0.00	0.90	0.17	0.00	0.07	0.00	0.01	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	1.26	0.49	0.01	0.13	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.12	0.30	0.00	0.00	0.00	0.00	0.00	0.00
10	0.11	0.93	0.00	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.54	0.00	0.08	0.00	0.09	0.06	0.04	0.51	0.00
12	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.17	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.04	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.81	0.05	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.15	0.00	0.00	0.10	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.01	0.09	0.00	0.12	0.00	0.00	0.01	0.00	0.00	0.01
20	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.04	0.00	0.00	0.00	0.00	0.00	0.08	0.14
21	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.88	0.00	0.49	0.00	0.00	0.00	0.70	0.48
22	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.27	0.00	0.05	0.00	0.00	0.00	0.00	0.02
23	0.01	0.00	0.00	0.00	0.00	0.33	1.05	0.02	0.00	0.28	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.01	0.08	0.01	0.27	0.00	0.00	0.00	0.00	0.01	0.00	0.00
26	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.16	0.00
27	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00	0.00	0.05	0.30	0.00	0.00	0.00
28	0.00	4.67	0.00	0.00	2.89	0.65	0.00	0.00	0.37	0.44	0.00	0.00	0.11	0.00	0.22
29		0.00	0.00	0.00	0.31	0.01	1.35	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01
30		1.23	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00		0.03	0.00
31		0.84		0.00		0.25	0.00		0.19		0.00	0.00			
TOTAL	0.51	7.73	0.01	2.66	3.41	6.88	6.84	3.66	1.58	1.30	0.22	0.51	0.83	1.48	1.11

Table 22. Rainfall Data

DAY	Jun_12	Jul_12	Aug_12	Sept_12	Oct_12	Nov_12	Dec_12	Jan_13	Feb_13	Mar_13	Apr_1	May_13	June_13	July_13	Aug_13
1	2.21	0.00	0.03	0.00	0.00	0.00	0	0.00	0.00	0.00	0.00	0.87	0.00	0.61	0.00
2	0.01	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.01	0.00	0	0.65	2.18	0.00
3	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.05	0.00	0.00	0.00	0.01	0.08	0.18	0.00
4	0.00	0.00	0.00	0.00	0.45	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.55	1.30	0.04
5	0.13	0.26	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	2.74	0.01	2.62	0.21	0.00
6	0.49	0.00	0.89	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	1.11
7	0.37	0.09	0.00	0.00	0.05	0.00	0.00	0.00	0.11	0.00	0.00	0.00	1.39	0.05	0.57
8	1.64	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.01	0.64
9	0.04	0.31	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.76
10	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.05
11	0.00	0.01	0.00	1.36	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.26	0.00
12	0.00	0.00	0.03	0.00	0.00	0.04	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.92	0.00
13	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.02	0.00
14	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.61	0.17
15	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00	0.03	0.27
16	0.00	0.02	0.09	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	1.01	0.31
17	0.00	0.45	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.05	0.23
18	0.00	0.00	0.15	0.25	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.74	0.00	1.92
19	0.00	0.00	0.45	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.35
20	0.56	0.00	0.45	0.01	0.00	0.00	0.39	0.00	0.00	0.32	0.00	0.00	0.00	0.00	0.01
21	0.73	0.13	0.63	0.11	0.00	0.00	0.05	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.78
22	0.04	1.58	0.47	0.16	0.00	0.00	0.00	0.00	0.00	0.22	0.34	0.00	0.28	0.00	0.19
23	1.64	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.01
24	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.85	0.00	1.51
25	2.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.09	0.14
26	0.19	0.00	0.87	0.02	0.00	0.00	0.11	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.37
27	0.12	0.00	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.05
28	0.00	0.00	0.11	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.01
29	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.01	0.35	0.62	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00	0.09	1.60	0.01	0.95
31		0.00	0.00		0.00		0.00	0.10		0.00		0.11		0.00	0.65
TOTAL	12.49	4.83	4.83	2.61	0.55	0.08	1.08	0.09	0.87	1.18	3.143	1.01	9.86	9.08	10.44

Table 23. Rainfall Data

DAY	Sept_13	Oct_13	Nov_13	Dec_13
1	0.23	0.00	0.00	0.00
2	0.00	0.00	0.05	0.00
3	0.15	0.00	0.01	0.00
4	0.84	0.00	0.00	0.00
5	0.60	0.00	0.00	0.00
6	0.71	0.00	0.00	0.00
7	0.00	0.30	0.00	0.00
8	0.00	0.01	0.00	0.00
9	0.01	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00
11	0.24	0.00	0.00	0.00
12	0.01	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
15	0.06	0.00	0.00	0.00
16	1.25	0.00	0.16	0.00
17	0.26	0.00	0.00	0.00
18	0.28	0.00	0.00	0.00
19	0.26	0.09	0.00	0.00
20	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00
22	0.00	0.26	0.00	0.00
23	3.77	0.35	0.00	0.00
24	2.34	0.00	0.00	0.12
25	1.71	0.00	0.00	0.00
26	0.17	0.00	0.30	0.00
27	0.00	0.00	0.07	0.00
28	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.11
30	0.00	0.00	0.00	0.00
31		0.00		0.00
TOTAL	12.89	1.01	0.59	0.23

Appendix H

Water Quality Monitoring
Vault, Pond, and Ditch Data

Tables 24-30

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Table 24. Vault, Pond, and Ditch Data

Site_ID	Location	Date	Fecal Coliform (CFU/100 mL)	Enterococcus (CFU/100mL)	Color (pcu)	Total Suspended Solids (mg/L)	Turbidity (ntu)	Ammonia Nitrogen (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Kjeldahl Nitrogen Code	Total Nitrogen (mg/L)	Total Nitrogen Code	Nitrite Nitrate Nitrogen (mg/L)	Nitrite Nitrate Nitrogen Code	Orthophosphorus (mg/L)	Total Phosphorus (mg/L)	Chlorophyll (mg/m3)	Biochemical Oxygen Demand (mg/L)	Biochemical Oxygen Demand Code	Chloride (mg/L)
SKD-C	Stormwater Pond	5/13/2004	100	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		
		5/18/2004	500	800	NS	NS	8.70	NS	NS		NS		NS		NS	NS	NS	NS		
		5/25/2004	200	100	NS	NS	20.00	NS	NS		NS		NS		NS	NS	NS	NS		
		6/1/2004	100	100	NS	NS	18.10	NS	NS		NS		NS		NS	NS	NS	NS		
		6/10/2004	300	30	NS	NS	6.30	NS	0.610		0.610		0.010		NS	0.120	NS	NS		
		6/15/2004	100	400	NS	NS	13.00	NS	0.790		0.790		0.010		NS	0.110	NS	NS		
		6/22/2004	100	160	NS	NS	15.40	NS	1.130		1.770		0.637		NS	0.140	NS	NS		
	Pond Dry	6/29/2004	NS	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		
		7/6/2004	100	60	NS	NS	2.80	NS	0.730		0.977		0.247		NS	0.040	NS	NS		
	Pond Dry	7/12/2004	NS	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		
	System Cleaned Out	2/10/2005	10	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		
		3/22/2005	200	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		
		3/27/2006	120	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		
		4/26/2006	10	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		
		5/22/2006	90	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		
		7/10/2006	140	NS	60	15.6	25.00	0.301	2.740		2.740		0.004	U	0.118	0.196	26.00	3.890		
		8/8/2006	400	NS	100	34.4	33.00	0.640	3.890		3.890	U	0.004	U	0.002	0.222	236.00	8.110		
		9/7/2006	170	NS	10	18.7	8.00	0.094	1.570		1.570		0.004	U	0.002	0.156	40.10	4.820		
		10/3/2006	20	NS	80	55.3	34.00	0.257	3.240		3.240		0.004	U	0.009	0.223	249.00	8.460		
		11/9/2006	110	NS	70	76.0	3.70	0.069	0.670		0.676		0.006	I	0.002	0.123	15.50	11.100		
		12/7/2006	60	NS	20	3.0	3.20	0.187	0.741		0.773		0.032		0.039	0.121	19.90	3.530		
		1/3/2007	140	NS	40	111.4	4.00	0.633	0.875		0.881		0.006	I	0.067	0.176	74.20	2.400		
		2/8/2007	10	NS	70	39.8	10.00	0.147	1.730		1.730		0.004	U	0.320	0.388	49.10	17.800		
		3/7/2007	20	NS	40	12.2	5.30	0.146	0.700		0.700		0.004	U	0.006	0.124	12.60	7.820		
		4/5/2007	580	NS	100	59.2	56.00	0.477	5.300		5.300		0.004	U	0.153	0.545	98.60	16.200		
		5/3/2007	50	NS	40	7.0	5.20	0.307	0.595		0.599		0.004	I	0.010	0.137	24.90	5.600		
		6/14/2007	21,000	NS	35	19.6	9.50	0.258	1.210		1.220		0.007	I	0.130	0.179	29.50	7.250		
		7/5/2007	100,000	NS	40	28.2	11.50	0.188	1.180		1.180		0.004	U	0.009	0.209	58.20	11.300		
		8/9/2007	14,000	NS	50	12.2	7.50	0.140	0.852		0.852		0.004	U	0.010	0.134	58.60	4.080		
		9/11/2007	300	NS	70	55.0	19.00	0.117	0.902		0.902		0.004	U	0.002	0.200	62.70	13.400		
		10/4/2007	1,300	NS	25	129.0	155.00	0.880	1.820		1.831		0.011		0.011	0.459	112.00	5.870		
		11/6/2007	500	NS	60	33.6	16.50	0.213	1.310		1.310		0.004	U	0.005	0.274	165.00	6.350		
	Pond Dry	12/4/2007	NS	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		
		1/9/2008	120	NS	20	7.8	1.25	0.210	0.321		0.352		0.031		0.053	0.090	4.99	2.710		
	Pond Dry	2/7/2008	NS	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		
		3/6/2008	510	NS	25	7.3	4.50	0.919	0.937		0.955		0.018		0.028	0.069	7.71	0.500		
		4/1/2008	200,000	NS	50	15.8	16.30	0.063	1.210		1.310		0.100		0.002	0.170	13.50	6.040		
	Pond Dry	5/6/2008	NS	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		
		6/2/2008	230	NS	60	36.8	8.40	0.073	0.743		0.743		0.004	U	0.002	0.111	37.10	3.990		
		6/10/2008	250	NS	80	31.4	14.30	0.574	2.340		2.387		0.047		0.088	0.384	9.16	1.770		3542
		7/8/2008	260	NS	80	33.7	11.90	0.260	1.140		1.140		0.004	U	0.005	0.171	123.00	10.000		
		8/5/2008	40	NS	80	24.6	13.90	0.161	1.150		1.150		0.004	U	0.002	0.162	1.13	7.960		
		9/4/2008	30	NS	140	3.0	8.20	0.701	1.580		1.580		0.004	U	0.007	0.161	198.00	6.680		
		10/2/2008	290	NS	250	29.0	24.00	0.554	2.660		2.660		0.004	U	0.034	0.149	266.00	9.140		
		11/6/2008	NS	NS	160	88.4	35.00	0.405	2.510		2.510		0.004	U	0.002	0.202	247.00	15.000		
		12/4/2008	NS	NS	70	30.0	7.20	0.114	1.000		1.000		0.004	U	0.021	0.119	41.30	1.910	I	
		1/8/2009	8,400	NS	100	31.6	9.00	0.196	1.650		1.650		0.004	U	0.023	0.217	20.20	0.500		
		2/4/2009	2,500	NS	35	3.8	1.51	0.696	0.966		1.013		0.047		0.081	0.120	7.25	1.730		
		3/4/2009	10	NS	30	5.8	1.98	0.628	0.644		0.651		0.007		0.106	0.160	7.32	1.210		
		5/12/2009	3,100	NS	35	25.8	7.10	0.330	0.391		0.408		0.017		0.075	0.109	7.26	1.430		16418
		7/2/2009	160	NS	25	2.2	1.12	0.320	0.623		0.685		0.062		0.053	0.069	1.66	1.040		5385
		8/6/2009	300	NS	30	18.6	7.30	0.762	1.110		1.110		0.004	U	0.025	0.059	16.20	1.100		10725
		9/3/2009	10	NS	50	4.6	1.25	0.705	0.903		0.912		0.009		0.073	0.081	2.89	0.650		8726
		10/1/2009	580	NS	40	4.0	1.30	0.583	0.998		1.007		0.009		0.072	0.093	3.33	1.010		6578

Table 25. Vault, Pond, and Ditch Data

Site_ID	Location	Date	Fecal Coliform (CFU/100mL)	Enterococcus (CFU/100mL)	Color (pcu)	Total Suspended Solids (mg/L)	Turbidity (ntu)	Ammonia Nitrogen (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Kjeldahl Nitrogen Code	Total Nitrogen (mg/L)	Total Nitrogen Code	Nitrite Nitrate Nitrogen (mg/L)	Nitrite Nitrate Nitrogen Code	Orthophosphorus (mg/L)	Total Phosphorus (mg/L)	Chlorophyll (mg/m3)	Biochemical Oxygen Demand (mg/L)	Biochemical Oxygen Demand Code	Chloride (mg/L)
SKD-C	Stormwater Pond	11/4/2009	10	NS	40	3.0	1.10	0.375	0.522		0.552		0.030		0.032	0.035	9.04	0.971		12943
		12/3/2009	390	NS	50	22.0	3.90	0.118	0.643		0.732		0.099		0.067	0.078	1.65	0.626		6665
		1/7/2010	10	NS	50	3.6	1.15	0.188	0.528		0.555		0.027		0.042	0.069	2.19	0.500		6869
		2/4/2010	10	NS	40	3.2	0.65	0.178	0.566		0.573		0.007		0.018	0.042	3.09	0.850		6281
		3/4/2010	10	NS	30	0.8	0.80	0.130	0.563		0.545		0.009		0.011	0.041	1.08	0.892		6635
		4/1/2010	10	NS	60	8.4	1.95	0.143	1.020		1.020		0.004	U	0.006	0.036	7.91	1.780		3186
		4/28/2010	50	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		5/5/2010	500	NS	80	24.6	14.30	0.180	1.850		1.854		0.004	U	0.015	0.138	51.30	5.450		6491
		6/16/2010	10	NS	40	10.0	4.80	0.038	0.941		0.946		0.005		0.075	0.077	11.30	2.620		15844
		7/6/2010	10	NS	40	9.4	6.60	0.095	0.827		0.839		0.012		0.017	0.056	22.20	2.470		11404
		8/5/2010	10	NS	50	6.6	5.20	0.114	0.713		0.718		0.005		0.025	0.097	17.40	4.120		11240
		9/2/2010	7,200	NS	120	2.0	1.79	1.670	1.740		1.749		0.009		0.160	0.195	5.50	1.570		3898
		10/7/2010	10	NS	40	4.8	1.39	0.884	1.540		1.719		0.179		0.122	0.159	4.29	1.170		9804
		11/4/2010	260	NS	30	5.4	1.65	0.530	0.858		0.914		0.056		0.082	0.113	3.02	1.670		13765
		12/2/2010	190	NS	30	3.8	1.51	0.391	0.791		0.804		0.013		0.082	0.120	1.24	2.160		13112
		1/5/2011	10	NS	35	4.0	1.03	0.015	0.528		0.533		0.005		0.028	0.066	2.44	1.380		11803
		2/3/2011	10	NS	80	1.8	0.71	0.091	0.873		0.897		0.024		0.085	0.144	1.09	1.520		7066
		3/3/2011	10	NS	35	6.4	21.17	0.076	0.590		0.667		0.077		0.002	0.016	2.54	1.220		9178
		4/7/2011	270	NS	90	12.6	5.10	0.178	1.670		1.782		0.112		0.010	0.151	20.30	6.060		3391
		5/5/2011	970	NS	120	48.5	13.20	0.078	2.230		2.316		0.086		0.031	0.216	95.90	13.400		11476
		6/2/2011	200,000	NS	160	12.7	9.20	0.149	1.610		1.699		0.089		0.043	0.239	39.60	12.800		9185
		7/6/2011	3,000	NS	90	12.2	5.00	0.201	1.640		1.662		0.022		0.084	0.168	32.10	3.770		7669
		8/4/2011	7,400	NS	80	14.4	6.80	0.012	1.450		1.458		0.008		0.036	0.129	62.60	3.960		9559
		9/1/2011	50	70	110	14.8	5.00	0.019	1.530		1.537		0.007		0.054	0.108	53.40	4.620		5230
		10/12/2011	20	30	80	27.2	8.40	0.024	1.550		1.550		0.004	U	0.002	0.153	89.10	8.770		7784
		11/3/2011	410	370	70	14.6	5.00	0.095	1.120		1.129		0.009		0.045	0.097	63.40	3.730		7215
		12/1/2011	10	50	55	5.6	2.60	0.020	0.703		0.703		0.006		0.023	0.055	28.60	2.250		11857
		1/4/2012	10	10	30	21.0	1.91	0.016	0.931		0.931		0.009		0.007	0.054	19.80	3.100		14010
		2/1/2012	270	100	50	56.6	1.42	0.181	0.966		0.977		0.011		0.106	0.162	15.50	7.940		7413
		3/1/2012	10	10	30	3.4	0.43	0.016	0.821		0.821		0.007		0.009	0.048	1.20	0.990		13370
		4/5/2012	300	60	40	12.0	2.70	0.008	0.725		0.735		0.010		0.018	0.061	39.30	4.080		12992
		5/3/2012	10	310	25	7.2	0.75	0.096	0.605		0.616		0.011		0.032	0.033	4.57	1.090		15838
		6/7/2012	20	10	80	6.0	1.80	0.013	0.811		0.826		0.015		0.021	0.027	5.42	4.090		8777
		7/5/2012	10	30	110	0.0	0.80	0.439	1.340		1.349		0.009		0.082	0.126	1.13	1.230		7362
		8/2/2012	10	10	65	3.6	1.40	0.073	0.899		0.904		0.005		0.031	0.073	6.22	0.500		8321
		9/6/2012	10	10	60	3.0	1.15	0.115	1.000		1.019		0.019		0.030	0.026	5.85	1.020		4741
		10/4/2012	10	40	40	13.6	0.82	0.128	0.877		0.902		0.025		0.041	0.080	23.80	0.953		7878
		11/1/2012	10	10	30	5.4	0.35	0.056	0.648		0.672		0.024		0.034	0.048	1.39	0.500		11608
		1/3/2013	10	10	40	4.0	0.90	0.107	0.554		0.565		0.011		0.057	0.084	6.18	1.190	I	8794
		2/8/2013	40	30	35	6.8	2.30	0.154	0.742		0.759		0.017		0.058	0.085	8.78	1.490	I	13966
		3/7/2013	50	30	35	10.6	2.50	0.267	0.772		0.800		0.028		0.046	0.070	9.25	0.965	I	12621
		4/3/2013	50	40	35	7.4	2.60	0.129	0.812		0.839		0.027		0.059	0.083	14.10	1.210	I	12775
		5/2/2013	3,500	660	40	4.6	1.80	0.145	0.525		0.607		0.087		0.050	0.056	0.25	0.898	I	6873
		6/6/2013	1,600	1,300	40	1.4	1.20	0.191	0.724		0.740		0.016		0.093	0.112	1.33	0.815	I	6273
		7/2/2013	5,000	580	90	2.8	2.00	0.021	1.000		1.070		0.070		0.034	0.027	6.50	1.150	I	4739
	Drainage Improvements	8/5/2013	4,500	90	55	5.2	3.20	0.260	0.972		0.986		0.014		0.063	0.067	11.40	1.870	I	6032
	Project Began	9/5/2013	6,400	270	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		10/3/2013	10	10	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		11/7/2013	320	180	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
	Pond filled in	12/3/2013	NS	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS

Table 26. Vault, Pond, and Ditch Data

Site_ID	Location	Date	Fecal Coliform (CFU/100mL)	Enterococcus (CFU/100mL)	Color (pcu)	Total Suspended Solids (mg/L)	Turbidity (ntu)	Ammonia Nitrogen (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Kjeldahl Nitrogen Code	Total Nitrogen (mg/L)	Total Nitrogen Code	Nitrite Nitrate Nitrogen (mg/L)	Nitrite Nitrate Nitrogen Code	Orthophosphorus (mg/L)	Total Phosphorus (mg/L)	Chlorophyll (mg/m3)	Biochemical Oxygen Demand (mg/L)	Biochemical Oxygen Demand Code	Chloride (mg/L)			
SKD-B	Ditch behind Maintenance Bldg.	5/13/2004	200	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS					
		5/18/2004	1,500	640	NS	NS	4.00	NS	NS		NS		NS		NS	NS	NS	NS					
		5/25/2004	100	500	NS	NS	2.60	NS	NS		NS		NS		NS	NS	NS	NS					
		6/1/2004	400	200	NS	NS	4.30	NS	NS		NS		NS		NS	NS	NS	NS					
		6/10/2004	300	1,100	NS	NS	12.00	NS	1.870		1.880		0.011		NS	0.150	NS	NS					
		6/15/2004	200	690	NS	NS	5.40	NS	1.130		1.160		0.028		NS	0.170	NS	NS					
		6/22/2004	100	160	NS	NS	6.40	NS	1.290		1.400		0.111		NS	0.200	NS	NS					
		6/29/2004	NS	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS					
		7/6/2004	300	1,000	NS	NS	2.70	NS	0.610		0.812		0.202		NS	0.150	NS	NS					
		7/12/2004	NS	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS					
		System Cleaned Out	2/10/2005	10	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS					
		3/22/2005	100	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS					
		3/27/2006	10	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS					
		4/26/2006	290	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS					
		5/22/2006	10	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS					
SKD-D	Ditch 1/3 Way to Beach	5/13/2004	2,100	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS				NS		
		5/18/2004	4,900	NS	NS	NS	40.00	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		5/25/2004	300	NS	NS	NS	60.00	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		6/1/2004	200	NS	NS	NS	37.00	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		6/10/2004	3,000	NS	NS	NS	3.90	NS	1.150		1.160		0.011		NS	0.250	NS	NS				NS	
		6/15/2004	300	NS	NS	NS	29.00	NS	2.430		2.430		0.010		NS	0.350	NS	NS				NS	
		6/22/2004	600	NS	NS	NS	6.70	NS	0.740		1.050		0.390		NS	0.170	NS	NS				NS	
		Ditch Dry	6/29/2004	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		7/6/2004	900	NS	NS	NS	5.40	NS	0.800		1.080		0.285		NS	0.170	NS	NS				NS	
		Ditch Dry	7/12/2004	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		2/10/2005	160	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		3/22/2005	800	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		3/27/2006	10	NS	NS	NS	NS	NS	NS	0.381		0.387		0.006		NS	0.055	NS	NS			NS	
		4/26/2006	120	NS	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS				NS	
		5/22/2006	210	NS	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS				NS	
SKD-E	Ditch 1/2 Way to Beach	5/13/2004	700	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS				NS		
		5/18/2004	11,100	NS	NS	NS	17.00	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		5/25/2004	300	NS	NS	NS	7.60	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		6/1/2004	1,000	NS	NS	NS	2.60	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		6/10/2004	4,000	NS	NS	NS	7.90	NS	6.080		6.080		0.010		NS	0.300	NS	NS				NS	
		6/15/2004	800	NS	NS	NS	3.90	NS	1.170		1.190		0.023		NS	0.260	NS	NS				NS	
		6/22/2004	100	NS	NS	NS	5.80	NS	0.840		1.140		0.297		NS	0.180	NS	NS				NS	
		Ditch Dry	6/29/2004	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		7/6/2004	400	NS	NS	NS	5.80	NS	0.630		0.769		0.139		NS	0.190	NS	NS				NS	
		Ditch Dry	7/12/2004	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		System Cleaned Out	2/10/2005	110	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		3/22/2005	300	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		4/26/2006	980	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS				NS	
		5/22/2006	50	NS	NS	NS	NS	NS	NS	0.686		0.706		0.020		NS	0.165	NS	NS				NS

Table 27. Vault, Pond, and Ditch Data

Site_ID	Location	Date	Fecal Coliform (CFU/100mL)	Enterococcus (CFU/100mL)	Color (pcu)	Total Suspended Solids (mg/L)	Turbidity (ntu)	Ammonia Nitrogen (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Kjeldahl Nitrogen Code	Total Nitrogen (mg/L)	Total Nitrogen Code	Nitrite Nitrate Nitrogen (mg/L)	Nitrite Nitrate Nitrogen Code	Orthophosphorus (mg/L)	Total Phosphorus (mg/L)	Chlorophyll (mg/m3)	Biochemical Oxygen Demand (mg/L)	Biochemical Oxygen Demand Code	Chloride (mg/L)
SKD-F	Ditch Before beach	5/13/2004	300	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		5/18/2004	100,000	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		5/25/2004	400	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		6/1/2004	100	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		6/10/2004	700	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		6/15/2004	4,500	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		6/22/2004	100	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		6/29/2004	NS	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		7/6/2004	1,000	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		7/12/2004	NS	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
	System Cleaned Out	2/10/2005	590	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		3/22/2005	200	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		4/26/2006	50	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		5/22/2006	190	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		7/10/2006	280	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		9/7/2006	10	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		10/3/2006	190	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		11/9/2006	540	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		12/7/2006	130	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		1/3/2007	2,900	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		2/8/2007	320	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		3/7/2007	490	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		4/5/2007	630	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		5/3/2007	1,130	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		6/14/2007	4,100	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		7/5/2007	100,000	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		8/9/2007	600	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		9/11/2007	500	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		10/4/2007	200	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		11/6/2007	400	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		12/4/2007	290	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		1/9/2008	3,100	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		2/7/2008	660	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		3/6/2008	6,100	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		4/1/2008	36,000	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		5/6/2008	110	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		6/2/2008	30	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		7/8/2008	310	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		8/5/2008	8,600	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		9/4/2008	810	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		10/2/2008	230	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		11/6/2008	320	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		12/4/2008	200	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		1/8/2009	330	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		2/4/2009	130	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		3/4/2009	30	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		4/2/2009	140	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		5/12/2009	170	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		6/10/2009	850	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		7/2/2009	2,100	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		8/6/2009	170	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		9/3/2009	150	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
	Site Overgrown	10/1/2009	1,200	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
	Switched to SKD-I Site	11/4/2009	40	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS

Table 28. Vault, Ditch, and Pond Data

Site_ID	Location	Date	Fecal Coliform (CFU/100mL)	Enterococcus (CFU/100mL)	Color (pcu)	Total Suspended Solids (mg/L)	Turbidity (ntu)	Ammonia Nitrogen (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Kjeldahl Nitrogen Code	Total Nitrogen (mg/L)	Total Nitrogen Code	Nitrite Nitrate Nitrogen (mg/L)	Nitrite Nitrogen Code	Orthophosphorus (mg/L)	Total Phosphorus (mg/L)	Chlorophyll (mg/m3)	Biochemical Oxygen Demand (mg/L)	Biochemical Oxygen Demand Code	Chloride (mg/L)
SKD-I	Ditch at Outfall to Beach	10/1/2007	430	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		12/3/2009	23,000	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		12/3/2009	23,000	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		1/7/2010	80	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		2/4/2010	30	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		3/4/2010	10	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		4/1/2010	80	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		5/5/2010	20	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		6/16/2010	1,900	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		7/6/2010	10	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		8/5/2010	600	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		9/2/2010	3,100	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		10/7/2010	150	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		11/4/2010	70	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		12/2/2010	540	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		1/5/2011	10	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		2/3/2011	60	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		3/3/2011	2,900	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		4/4/2011	200	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		5/5/2011	53,000	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		6/2/2011	270	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		7/6/2011	2,300	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		8/4/2011	10	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
	HD Samples Entero Only	9/1/2011	50	70	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		10/12/2011	40	580	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		11/3/2011	1,700	670	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		12/1/2011	590	97,000	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		1/4/2012	40	400	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		2/1/2012	10	6,800	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		3/1/2012	490	60	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		4/5/2012	60	180	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		5/3/2012	100	50	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		6/7/2012	700	950	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		7/5/2012	90	240	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		8/2/2012	10	110	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		9/6/2012	50	40	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		10/4/2012	1,000	230	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		11/1/2012	300	120	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		12/3/2012	300	180	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		1/3/2013	260	100	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		2/8/2013	170	200,000	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		2/12/2013	40	88,000	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		3/7/2013	340	3,500	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		4/3/2013	120	180	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		5/2/2013	2,000	4,700	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		6/6/2013	5,200	4,600	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		7/2/2013	2,000	4,600	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		8/5/2013	600	770	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		9/5/2013	200,000	13,000	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		10/3/2013	230	380	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
	Under Construction	11/7/2013	100	70	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
	Ended Sampling	12/3/2013	10,000	3,700	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS

Table 29. Ditch, Pond, and Vault Data

Site_ID	Location	Date	Fecal Coliform (CFU/100mL)	Enterococcus (CFU.100mL)	Color (pcu)	Total Suspended Solids (mg/L)	Turbidity (ntu)	Ammonia Nitrogen (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Kjeldahl Nitrogen Code	Total Nitrogen (mg/L)	Total Nitrogen Code	Nitrite Nitrate Nitrogen (mg/L)	Nitrite Nitrogen Code	Orthophosphorus (mg/L)	Total Phosphorus (mg/L)	Chlorophyll (mg/m3)	Biochemical Oxygen Demand (mg/L)	Biochemical Oxygen Demand Code	Chlorida (mg/L)
SKD-V	Stormwater Vault	10/6/2005	10,100	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		12/21/2005	80	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		1/9/2006	270	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		2/28/2006	260	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		3/27/2006	740	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		4/26/2006	14,100	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		5/22/2006	450	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		7/10/2006	3,600	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		8/8/2006	6,600	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		10/3/2006	400	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		11/9/2006	470	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		12/7/2006	2,300	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		1/3/2007	2,400	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		2/8/2007	1,220	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		3/8/2007	400	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		4/5/2007	300	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		5/3/2007	900	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		6/14/2007	12,500	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		7/5/2007	100,000	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		10/4/2007	1,200	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		11/6/2007	600	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		12/4/2007	40	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		1/9/2008	80	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		2/7/2008	110	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		3/6/2008	740	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		4/1/2008	200,000	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		5/6/2008	110	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		6/2/2008	500	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		7/8/2008	176,000	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		8/5/2008	65,000	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		9/4/2008	182,000	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
		Sample Lost	10/2/2008	NS	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
			11/6/2008	3,400	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
			12/4/2008	370	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
			1/8/2009	530	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
			2/4/2009	190	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
			3/4/2009	1,090	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
			4/2/2009	10,500	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
			5/12/2009	31,000	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
			6/10/2009	2,900	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
			7/2/2009	20,000	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
			8/6/2009	5,400	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS
	9/3/2009	127,000	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS		
	10/1/2009	35,000	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS		
	11/4/2009	180	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS		
	12/3/2009	21,000	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS		
	1/7/2010	70	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS		
	2/4/2010	570	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS		
	3/4/2010	40	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS		
	4/1/2010	10	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS		
	4/28/2010	710	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS		
	5/5/2010	10	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS		
	6/16/2010	10	NS	NS	NS	NS	NS		NS		NS		NS	NS	NS	NS		NS		

Table 30. Vault, Pond, and Ditch Data

Site_ID	Location	Date	Fecal Coliform (CFU/100mL)	Enterococcus (CFU/100mL)	Color (pcu)	Total Suspended Solids (mg/L)	Turbidity (ntu)	Ammonia Nitrogen (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Kjeldahl Nitrogen (mg/L)	Total Nitrogen (mg/L)	Total Nitrogen Code	Nitrite Nitrate Nitrogen (mg/L)	Nitrite Nitrogen Code	Orthophosphorus (mg/L)	Total Phosphorus (mg/L)	Chlorophyll (mg/M3)	Biochemical Oxygen Demand (mg/L)	Biochemical Oxygen Demand (mg/L)	Chloride (mg/L)
SKD-V	Stormwater Vault	7/6/2010	6,400	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		8/5/2010	2,700	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		9/2/2010	1,500	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		10/7/2010	140	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		11/4/2010	10	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		12/2/2010	730	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		1/5/2011	30	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		2/3/2011	360	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		3/3/2011	270	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		4/7/2011	140	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		5/5/2011	4,500	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		6/2/2011	163,000	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		7/6/2011	7,000	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		8/4/2011	3,700	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		9/1/2011	890	650	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		10/12/2011	660	370	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		11/3/2011	1,300	620	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		12/1/2011	380	340	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		1/4/2012	200	3,600	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		2/1/2012	30	140	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		3/1/2012	20	290	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		4/5/2012	57,000	5,900	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		5/3/2012	200	150	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		6/7/2012	8,000	5,200	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		7/5/2012	1,000	390	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
	Couldn't get lid open	8/2/2012	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		9/6/2012	200	340	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		10/4/2012	7,000	3,300	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		11/1/2012	230	280	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		12/3/2012	50	30	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		1/3/2013	300	2,100	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		2/8/2013	140	100	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		3/7/2013	40	70	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		4/3/2013	10	200	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		5/2/2013	200,000	8,900	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		6/6/2013	3,000	20,000	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		7/2/2013	57,000	10,200	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		8/5/2013	200,000	15,000	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		9/5/2013	27,000	13,000	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		10/3/2013	280	600	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
		11/7/2013	10	270	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS
	Not Sampled	12/3/2013	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS		NS	NS	NS	NS		NS