

**City of Harrisburg  
Department of Public Works  
Advanced Wastewater Treatment Facility**



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**BUREAU OF SEWERAGE  
MONTHLY REPORT  
JANUARY 2011**

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PHOTO: Primary Settling Tanks.

## **GENERAL**

During the month of January, the AWTF met all monthly average NPDES permit requirements, with the exception of the quality limit for effluent suspended solids. The hydraulic loading to the facility averaged 16.5 MGD while achieving removal reductions of 91.8 percent CBOD, 79.4 percent Suspended Solids, and 63.7 percent Phosphorus (Exhibit A).

Contained in the body of this report are significant events that have transpired since last reporting. Factual information can be found in the attached exhibits.

## **OPERATIONS**

During the period of December 29, 2010 through January 29, 2011 the Number 1 or Number 2 Enginotor operated a total of 87 percent of the time for an average daily kWh output of 6,594 or a total production of 204,400 kWh. January revenue is anticipated to be approximately \$29,842.40(Exhibit D).

Included in this report is flow information collected by ADS equipment and other monitoring devices. Data collected through January 2011 is presented in Exhibit B with flow in million gallons per day (MGD) broken down into Total, City, Suburbs and ten (10) drainage regions.

During the month of January, a total of 1,082,200 gallons of waste were delivered by the contract waste haulers to the AWTF (Exhibit G). Income, for the same period, amounted to \$60,945.60 (Exhibit G).

## **JANUARY ACCOMPLISHMENTS**

### **Operations:**

- Put the Polymer Feed System into service at the Chemical Storage Building to increase settling performance in the Final Clarifiers.
- Used the portable chlorine system for temporary chlorination of plant effluent while the utility water system was being upgraded.
- Assisted plant maintenance crew with the relocation of the GT Mixer for Belt Filter Press Number 1.
- Cleaned and replaced the tubing for the sample line for the Secondary Effluent Composite Sampler.
- Continued night and weekend monitoring of the Sidestream Treatment and UNOX Pilot Trailers.
- Completed inventory for all of Operations Division's parts and supplies..
- Removed Return Sludge Pump Number 1 from service for maintenance repairs and put Return Sludge Pump Number 2 into service.

### **Laboratory:**

- Received notification of laboratory accreditation renewal under PA Act 252.
- Posted the laboratory vacation schedule as required by the AFSCME labor contract.
- Issued new quality assurance and quality control (QA/QC) log books as required for laboratory accreditation under PA Act 252.
- Performed weekly nutrient sampling and testing of our influent and effluent as required by our NPDES permit.
- Performed additional testing for the BNR pilot study.
- Performed a data audit of the AWTF laboratory's daily analysis work sheets.

### **Industrial Waste Program:**

- Reviewed self monitoring reports submitted for December and the fourth quarter 2010.
- Updated the applicable excess strength of waste surcharge rate for Ames True Temper Incorporated, Harrisburg Dairies, Inc., Hershey Creamery Company, and Orgrain Bakeries Manufacturing, Inc.
- Completed the fourth quarter 2010 significant noncompliance (SNC) evaluations as required by the Industrial Waste Pretreatment Program.
- Updated industrial user activity files.
- Completed Contract Waste Hauling and Pretreatment laboratory report preparation, and Quickbooks billing.
- Collected ADS flow monitoring data and updated the exhibit for the AWTF's monthly report.

### **Maintenance:**

- Removed the GT Mixer from the Control Building basement and moved it to the Belt Filter Press Building basement for polymer addition to Belt Filter Press Number 2.
- Repaired the hot water pressure washer in the Belt Filter Press Garage.
- Replaced the sluice gate, shaft, and operator for Oxygenation Tank Number 3 at the Distribution Box.
- Replaced the instrument air line in the compressor shed for the UNOX system at the Chemical Storage Building.
- Repaired the coolant leak on Recirculation Pump Number 1 for the enginators in the Cogeneration Building.

- Installed street ells and replaced one foot of copper tubing on the high pressure gas lines for Gas Compressor Number 1 in the Compressor Building.
- Replaced the fan motor on the heater outside the Operator's Room in the Control Building.
- Replaced the latches on Sludge Grinder Number 2 in the basement of the Control Building.
- Installed air filter media in the ventilators in the Laboratory.
- Replaced the pressure switch on the large air compressor on the first floor of the Digested Sludge Pump Station.
- Replaced the belts on the backup compressor in the basement of the Digested Sludge Pump Station.
- Replaced the belt on the ventilator fan for the wet well at the Front Street Pump Station.
- Replaced the out board bearing and purged the other bearing and coupling on Hoffman Blower Number 1 in the basement of the Settled Sewage Pump Station.

**Field Maintenance:**

- Cleaned the scum off the siphon basins on the Paxton Creek Chambers.
- Completed the semi-annual inspection of the Front Street CSO'S.
- Fabricated and installed a bar screen in the diversion chamber and removed the V box from the regulator chamber at CSO Number 062.
- Removed rags and debris from CSO Chambers Numbers 033, 061, and 062.
- Replaced the overflow detection devices at CSO Chamber Number 006, 008, 010, 011, 018, 020, 025, 026, 028, 038, 040, 043, 044, 051, 052, 053, 054, 055, 061, 063, and 064.
- Vactored and flushed the scum box and lines at Final Settling Tanks Number 3 and 4.

## **FEBRUARY GOALS**

- Combine bi-monthly sampling and testing of biosolids for pollutants and fecal coliforms as required by our beneficial reuse (PAG08) permit with local limits sampling and testing required by our NPDES permit.
- Continue work on the US EPA pretreatment annual report.
- Issue Contract Waste Hauler permits and renewal letters.
- Repair the gate operator for Sewage Pump Number 1 at the Front Street Pump Station.
- Repair the corner sweeps in Final Settling Tank Number 1.
- Compile information for completion of the 2010 AWTF Annual Report.

EXHIBIT A

CITY OF HARRISBURG  
ADVANCED WASTEWATER TREATMENT FACILITY

Process Control - 2011

Parameters	January	February	March	April	May	June	July	August	September	October	November	December	Average	NPDES Limits
Volume, MGD	16.5												16.5	37.7
Carbonaceous Biochemical Oxygen Demand														
Influent, mg/l	196												196	---
Effluent, mg/l	15												15	25
Percent Removal, %	91.8												91.8	---
Effluent Loading, lb/d	2,106												2,106	7,860
Suspended Solids:														
Influent, mg/l	207												207	---
Effluent, mg/l	41												41	30
Percent Removal, %	79.4												79.4	---
Effluent Loading, lb/d	5,547												5,547	9,433
Nitrogen														
Total-N														
Influent, mg/l	18												18	---
Effluent, mg/l	23												23	Monitor
Effluent Loading, lb/d	3,258												3,258	---
NH3-N														
Influent mg/l	16												16	---
Effluent, mg/l	21												21	17 (2)
Effluent Loading, lb/d	2,931												2,931	4,716
Phosphorus:														
Influent, mg/l	4.4												4.4	---
Effluent, mg/l	1.6												1.6	2.0
Percent Removal, %	63.7												63.7	---
Effluent Loading, lb/d	213												213	629
pH:														
Influent, Std. Units	7.3												7.3	---
Effluent, Std. Units	7.0												7.0	6.0 - 9.0
Dissolved Oxygen:														
Effluent Minimum, mg/l	8.6												8.6	5.0 Min.
Fecal Coliform:														
Effluent, No./100 ml	13												13	200/100 ml (1)
Chlorine Residual:														
Effluent, mg/l	0.19												0.19	0.50

(1) Seasonal limit 2,000/100 ml Oct. 1 to Apr. 30 and 200/100 ml May 1 to Sept. 30.

(2) Seasonal Limit May 1 to Nov.1.

EXHIBIT B

CITY OF HARRISBURG  
ADVANCED WASTEWATER TREATMENT FACILITY

Flow Monitoring Information, MGD - 2010

Month	Total Flow	City Regions					Suburb Regions					Total Precip inches
		1	2	3	4	5	6	7	8	9	10	
January	16.500	5.091	0.112	0.152	1.014	0.321	1.818	2.648	1.797	3.411	0.136	1.530
February	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
March	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
April	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
June	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
July	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
August	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
September	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
October	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
November	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
December	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Average	16.50	6.69	9.81									1.53
Percent	100.00	40.55	59.45									1.53

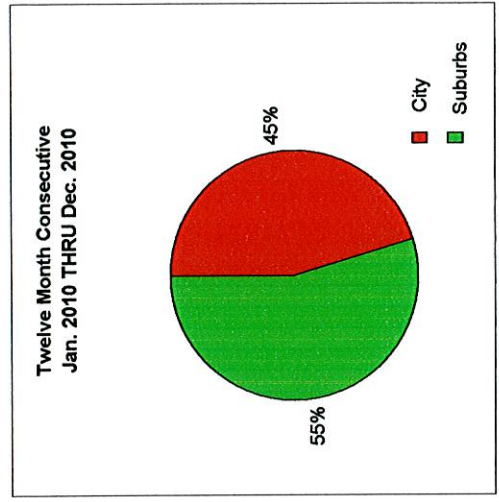
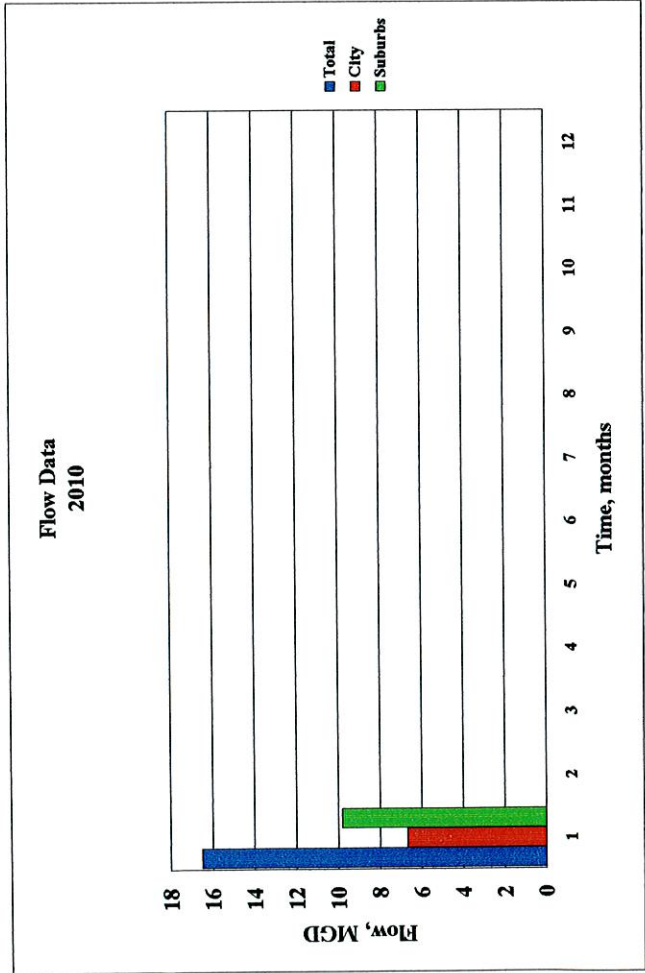


EXHIBIT C

CITY OF HARRISBURG  
**ADVANCED WASTEWATER TREATMENT FACILITY**

Treatment Utility and Chemical Usage - 2011

Utility / Chemical	January	February	March	April	May	June	July	August	September	October	November	December	Average	Total
Electric	*													
Total, kWh													#DIV/0!	0
Average, kWh/Day													#DIV/0!	-----
Cost, Dollars													#DIV/0!	\$0.00
Fuel Oil														
Total, Gals.	0												0	0
Average, Gals./Day	0												0	-----
Cost, Dollars	\$0.00												\$0.00	\$0.00
Natural Gas														
Total, Cu Ft	857.8												858	858
Average, Cu Ft/Day	27.7												28	-----
Cost, Dollars	\$12,807.18												\$12,807.18	\$12,807.18
Water														
Total, Gal	661,000												661,000	661,000
Average, Gal./Day	21,323												21,323	-----
Cost, Dollars	\$5,939.33												\$5,939.33	\$5,939.33
Chlorine Disinfection														
Total, Lbs.	7,525												7,525	7,525
Average, Lbs./Day	243												243	-----
Avg Residual, mg/l	0.18												0.18	-----
Cost, \$/Lbs.	\$0.36												\$0.36	-----
Total Cost, Dollars	\$2,735.34												\$2,735.34	\$2,735.34
Phosphorous Removal														
Total FeSO4, Gals.	44,032												44,032	44,032
Avg FeSO4, Gals./Day	1,420												1,420	-----
FeSO4 Cost, \$/Gal	\$0.54												\$0.54	-----
FeSO4 Total Cost, Dollar	\$23,865.34												\$23,865.34	\$23,865.34

\* No data at time of report

EXHIBIT D

CITY OF HARRISBURG  
ADVANCED WASTEWATER TREATMENT FACILITY

Cogeneration Electrical Production: 2010 - 2011

Period	Percent Run Time	Daily Avg Kilowatt	Kilowatt Hours Produced	Revenue Collected
Dec 29th - Jan 29th, 2010	85	7,177	222,500	\$32,485.00
Jan 29th - Feb 28th, 2010	62	5,329	149,200	\$21,783.20
Feb 28th - Mar 29th, 2010	77	5,832	180,790	\$26,395.34
Mar 29th - Apr 29th, 2010	75	5,467	164,000	\$23,944.00
Apr 29th - May 30th, 2010	100	8,058	249,800	\$36,470.80
May 30th - Jun 27th, 2010	79	6,890	206,700	\$30,178.20
Jun 27th - Jul 27th, 2010	59	3,945	122,300	\$17,855.80
Jul 27th - Aug 27th, 2010	49	2,335	72,400	\$10,570.40
Aug 27th - Sep 27th, 2010	38	1,750	52,500	\$7,665.00
Sep 27th - Oct 27th, 2010	31	1,961	60,800	\$8,876.80
Oct 27th - Nov 29th, 2010	52	3,230	96,900	\$14,147.40
Nov 29th - Dec 29th, 2010	36	2,506	77,700	\$11,344.20
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Total - 2010	743	54,480	1,655,590	\$241,716.14
Monthly Average - 2010	62	4,540	137,966	\$20,143.01
Dec 29th - Jan 29th, 2011	87	6,594	204,400	\$29,842.40
Jan 29th - Feb 28th, 2011				
Feb 28th - Mar 29th, 2011				
Mar 29th - Apr 29th, 2011				
Apr 29th - May 30th, 2011				
May 30th - Jun 27th, 2011				
Jun 27th - Jul 27th, 2011				
Jul 27th - Aug 27th, 2011				
Aug 27th - Sep 27th, 2011				
Sep 27th - Oct 27th, 2011				
Oct 27th - Nov 29th, 2011				
Nov 29th - Dec 29th, 2011				
<hr/>				
Total - 2011	87	6,594	204,400	\$29,842.40
Monthly Average - 2011	87	6,594	204,400	\$29,842.40

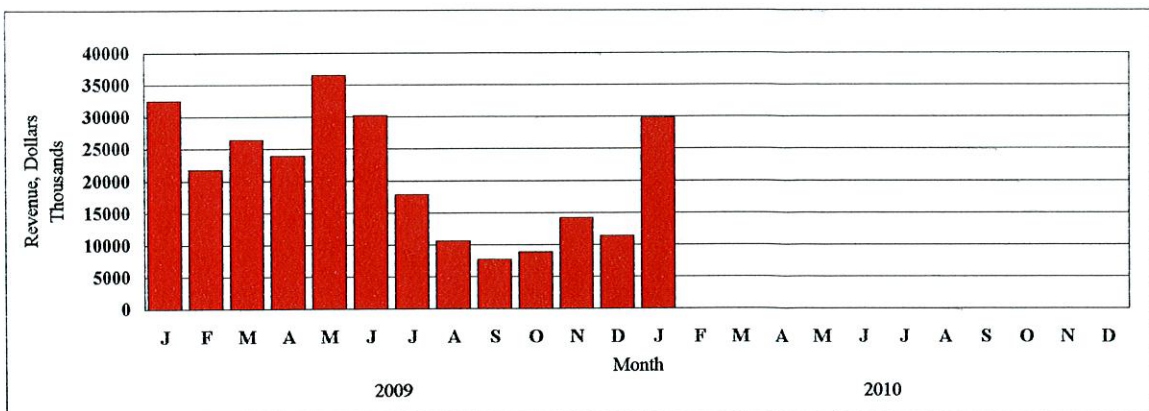


EXHIBIT E

CITY OF HARRISBURG  
ADVANCED WASTEWATER TREATMENT FACILITY

Sludge Handling Information - 2011

Process	January	February	March	April	May	June	July	August	September	October	November	December	Average	Total
<b>Solids Removal</b>														
Process, Lbs.	927,425												927,425	927,425
CWH Program, Lbs.	241,180												241,180	241,180
Total Solids, Lbs.	1,168,605												1,168,605	1,168,605
<b>Sludge Dewatering</b>														
Feed Volume, Gals.	2,744,000												2,744,000	2,744,000
Feed Solids, %	1.9												1.9	-
Labor, Hours	371												371	371
Operations, Hours	543												543	543
Total Cake, Dry Tons	137												137	137
Total Cake, Wet Tons	821												821	821
Cake TS, %	17												17.0	-
Press Rate, Lbs./Hour	3,024												3,024	3,024
Polymer Dosage, Lbs	3,511												3,511	3,511
Polymer Dosage, Lbs/Dry Ton	25.6												25.6	-
<b>Disposal Cost</b>														
Labor, Dollars	\$7,121.01												\$7,121.01	\$7,121.01
Electrical, Dollars	\$238.92												\$238.92	\$238.92
Polymer, Dollars	\$6,144.25												\$6,144.25	\$6,144.25
Disposal, Dollars	\$33,289.72												\$33,289.72	\$33,289.72
Total Cost, Dollars	\$46,793.90												\$46,793.90	\$46,793.90
Cost Per Dry Ton, Dollars	\$341.56												\$341.56	\$341.56

EXHIBIT F

CITY OF HARRISBURG  
ADVANCED WASTEWATER TREATMENT FACILITY

Conveyance Utility Usage - 2011

Location / Utility	January	February	March	April	May	June	July	August	September	October	November	December	Average	Total
<b>Front Street Pump Station</b>														
Electric														
Total, kWh	76,800												76,800	76,800
Average, kWh/Day	2,477												2,477	-----
Cost, Dollars	\$7,059.87												\$7,059.87	\$7,059.87
Fuel Oil	0												0	0
Total, Gals.	0												0	-----
Average, Gals./Day	0												0	-----
Cost, Dollars	\$0.00												\$0.00	\$0.00
Water														
Total, Gals.	5,000												5,000	5,000
Average, Gal./Day	161												161	-----
Cost, Dollars	\$474.28												\$474.28	\$474.28
<b>Spring Creek Pump Station</b>														
Electric	*													
Total, kWh													#DIV/0!	0
Average, kWh/Day													#DIV/0!	-----
Cost, Dollars													#DIV/0!	\$0.00
Fuel Oil	0												0	0
Total, Gals.	0												0	-----
Average, Gals./Day	0												0	-----
Cost, Dollars	\$0.00												\$0.00	\$0.00
Water														
Total, Gals.	53,000												53,000	53,000
Average, Gal./Day	1,710												1,710	-----
Cost, Dollars	\$353.36												\$353.36	\$353.36
<b>Market Street Pump Station</b>														
Electric	*													
Total, kWh													#DIV/0!	0
Average, kWh/Day													#DIV/0!	-----
Cost, Dollars													#DIV/0!	\$0.00
Fuel Oil	0												0	0
Total, Gals.	0												0	-----
Average, Gals./Day	0												0	-----
Cost, Dollars	\$0.00												\$0.00	\$0.00
<b>City Island Pump Station</b>														
Electric	*													
Total, kWh													#DIV/0!	0
Average, kWh/Day													#DIV/0!	-----
Cost, Dollars													#DIV/0!	\$0.00

\* No Data at time of report

EXHIBIT G

CITY OF HARRISBURG  
ADVANCED WASTEWATER TREATMENT FACILITY

Contract Waste Hauling Program 2010 - 2011

Month	Process		Septic		Total	
	Gallons	Revenue	Gallons	Revenue	Gallons	Revenue
January	1,067,100	\$50,472.30	59,100	\$2,127.60	1,126,200	\$52,599.90
February	1,328,500	\$63,740.10	17,000	\$612.00	1,345,000	\$64,352.10
March	2,160,100	\$78,015.30	71,800	\$2,584.80	2,231,900	\$80,600.10
April	1,567,500	\$46,314.00	144,800	\$5,212.80	1,712,300	\$51,526.80
May	1,020,600	\$48,610.80	100,800	\$3,628.80	1,121,400	\$52,239.60
June	1,401,200	\$72,730.80	155,000	\$5,580.00	1,556,200	\$78,310.80
July	1,264,950	\$66,506.25	117,350	\$4,224.60	1,382,300	\$70,730.85
August	1,675,300	\$75,141.00	117,550	\$4,231.80	1,792,850	\$79,372.80
September	1,252,400	\$59,003.10	129,400	\$4,658.40	1,381,800	\$63,661.50
October	2,387,300	\$89,448.30	129,200	\$4,651.20	2,516,500	\$94,099.50
November	1,883,400	\$68,918.10	54,000	\$1,944.00	1,937,400	\$70,862.10
December	1,427,200	\$69,126.00	13,100	\$471.00	1,440,300	\$69,597.60
<b>Total - 2010</b>	<b>18,435,550</b>	<b>\$788,026.05</b>	<b>1,109,100</b>	<b>\$39,927.00</b>	<b>19,544,150</b>	<b>\$827,953.65</b>
<b>Monthly Average - 2010</b>	<b>1,536,296</b>	<b>\$65,668.84</b>	<b>92,425</b>	<b>\$3,327.25</b>	<b>1,628,679</b>	<b>\$68,996.14</b>
January	1,057,200	\$60,045.60	25,000	\$900.00	1,082,200	\$60,945.60
February						
March						
April						
May						
June						
July						
August						
September						
October						
November						
December						
<b>Total - 2011</b>	<b>1,057,200</b>	<b>\$60,045.60</b>	<b>25,000</b>	<b>\$900.00</b>	<b>1,082,200</b>	<b>\$60,945.60</b>
<b>Monthly Average - 2011</b>	<b>1,057,200</b>	<b>\$60,045.60</b>	<b>25,000</b>	<b>\$900.00</b>	<b>1,082,200</b>	<b>\$60,945.60</b>

