



EPA New England Water Infrastructure Outreach provides tools, examples, and technical assistance for water infrastructure operators and managers, local officials, and other decision-makers for more effective and sustainable water infrastructure management. For more information see <http://www.epa.gov/region1/sso/toolbox.html>

Guide for Estimating Infiltration and Inflow

June 2014

Purpose

This Guide is intended to provide background and information for managers of wastewater collection systems on estimating the amount of infiltration and inflow (I&I) entering their collection system and for responding to National Pollutant Discharge Elimination System (NPDES) I&I permit reporting requirements.

This Guide provides methods for analyzing wastewater treatment plant influent flow data to estimate the I&I impact from the collection system as a whole. It will assist municipalities in ascertaining whether they have a significant I&I problem and, if so, what kind of problem they have. Areas (sewersheds) served by pump stations that are capable of recording flow can also be evaluated using these methods.

Background

There are three major components of wastewater flow in a sanitary sewer system, base sanitary (or wastewater) flow, groundwater infiltration and rainfall derived inflow and infiltration, more commonly referred to as inflow. Virtually every sewer system has some infiltration and/or inflow. Historically, small amounts of I&I are expected and tolerated. However, infiltration and inflow may be considered excessive when it is the cause of overflows or bypasses, or the cost to transport and treat exceeds the cost to eliminate it. In cases where the I&I may not be considered “excessive” from a cost-to-eliminate perspective but causes health or environmental risks, corrective actions are required.

Even where a system is not suffering from sanitary sewer overflows (SSOs), systems experiencing surcharging may be good candidates for further I&I investigation, as are systems where significant new growth is expected and existing collection system capacity may be inadequate or marginal for handling new customers.

State Revolving Loan Fund (SRF) applicants are generally required to evaluate the impacts of I&I on their overall system. This evaluation usually begins with an initial screening to determine whether a more complete I&I analysis will be required. The screening compares the sewered population to the treatment plant flow to determine gallons per day per person (gpdpp). The gpdpp is compared to a standard to determine if there is excessive infiltration. The states’ standards vary between 100 and 150 gpdpp. The existing EPA guidance, which uses 120 gpdpp, was published in 1985 when 3.5 gallon-per-flush toilets were standard (the Energy Policy Act of 1992 required that toilets installed in new construction use a maximum of 1.6 gallon per flush (low-flow toilets)).

Some guidance documents use the term excessive infiltration/inflow. This can mean quantities of I&I which can be economically eliminated from a sewer system as determined in a cost-effectiveness analysis that compares the costs for correcting the I&I conditions to the total costs for transportation and treatment of the infiltration/inflow. I&I which causes SSOs is considered excessive.

Municipalities will be well served to understand the dimensions and nature of any I&I problems. A clear set of goals is important for keeping an I&I program focused.

The following is a sample of possible goals:

- To reduce ratepayer costs for transporting and treating wastewater by implementing all cost-effective I&I reduction projects within 10 years.
- To minimize liability from water pollution and public health risks by eliminating sanitary sewer overflows in storm events.
- To eliminate sufficient I&I to avoid the capital costs of wastewater treatment plant capacity expansion in anticipation of 10% population growth over the next 20 years.
- To eliminate sufficient I&I to avoid the capital costs of interceptor expansion which will be needed to support the build-out of certain neighborhoods.
- To eliminate enough I&I to offset the environmental and regulatory impact of sewer system expansion and increased water demand over the next 15 years.

In some cases, high levels of infiltration can lower groundwater levels and can cause significant hydrologic impacts to nearby streams. The health of tributary streams is critical to the health of main stem rivers, and reduced flows can impair the fish community by decreasing dissolved oxygen and available habitat, increasing water temperatures, and concentrating pollutant levels.

Finally, just as collection system capacity problems may indicate excessive inflow, the same can be said for treatment plant capacity problems. Your state agency can provide you with treatment plant design standards which can then be compared with your influent flow data. The [Ten States Standards for Wastewater Facilities](#) is also a good reference source.

Data Collection

To assess extraneous water entering your system at least a year of influent flow data to the treatment facility should be examined.

For infiltration analysis, flow data collected during the high groundwater periods is used. The Average Dry Weather (ADW) flow can be determined from analyzing a one to two week period during seasonal high water that is not influenced by rainfall. For the northeast, this is usually in the spring when the frost line is receding and the snow is melting. The ADW flow includes the sanitary flow plus infiltration, which can be separated into its individual components.

For inflow analysis, the Average Wet Weather (AWW) flow can be estimated from flow data for a one week period when there has been significant rain. If a single storm event is used to analyze wet weather inflow, it should be an event large enough to cause surface ponding and runoff.

Definitions of terms used in Calculating Inflow and Infiltration

Average Annual Flow - The total annual volume divided by 365 days. This value is approximated by the mean of the twelve monthly average flows.

Average Annual Infiltration - The average of the monthly minimum flows.

Average Annual Inflow - From the average annual flow, subtract the base sanitary flow and average annual infiltration.

Average Dry Weather Flow (ADW) - Flow during a period of extended dry weather (7 to 14 days) and seasonally high groundwater. Flow includes sanitary flow and infiltration, and excludes significant industrial and commercial flows (assumes no inflow during dry weather conditions).

Base Sanitary Flow (BSF) - The portion of wastewater which includes domestic, commercial, institutional, and industrial sewage and specifically excludes infiltration and inflow. (See Estimating Base Flow, below).

Delayed Inflow volume - The portion of total inflow which is generated from indirect connections to the collection system or connections which produce inflow after a significant time delay from the beginning of a storm. Delayed inflow sources include: sump pumps, foundation drains, indirect sewer/drain cross-connections, etc. Rainfall-induced infiltration cannot be distinguished from delayed inflow and is therefore included as part of delayed inflow. Delayed inflow sources have a gradual impact on the collection system and flow decreases gradually upon conclusion of the rainfall event, and after peak inflow caused by direct connections.

Direct Inflow Volume- The portion of total inflow volume which is from direct connections to the collection system such as catch basins, roof leaders, manhole covers, etc. These inflow sources allow stormwater runoff to rapidly impact the collection system.

Dry Weather Flow (DWF) - All flow in a sewer (includes sanitary flow and infiltration) except that caused directly by rainfall. Measured during a period of extended dry weather (7 to 14 days) and seasonally high groundwater.

Groundwater Infiltration (GWI) - Measured during average dry weather flow period (see above). The average of the low nighttime flows (midnight to 6 am) per day for the same time period, minus significant industrial or commercial nighttime flows.

Hydrograph - A graph showing stage (the height of a water surface above an established datum plane), flow, velocity, or other property of water with respect to time.

Infiltration - Water other than sanitary wastewater that enters a sewer system from the ground through defective pipes, pipe joints, connections, or manholes. Infiltration does not include inflow.

Inflow - Water other than sanitary wastewater that enters a sewer system from sources such as roof leaders, cellar/foundation drains, yard drains, area drains, drains

from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, and catch basins. Inflow does not include infiltration.

Inflow volume - The total volume of inflow from a single storm event including both direct and delayed inflow. Total inflow is the area between the storm event hydrograph and the dry weather hydrograph.

Maximum Daily Flow - The highest flow during a 24 hour period.

Maximum Daily Infiltration - The highest daily flow at seasonal high groundwater after a dry period of three days or more minus the base sanitary flow.

Maximum Weekly Infiltration - The highest 7 day average flow at high groundwater after a dry period of three or more days minus the base sanitary flow.

Maximum Monthly Infiltration - The highest monthly average flow during dry or minimal rain period minus the base sanitary flow.

Maximum Daily Inflow - The highest daily wet weather flow minus the base sanitary flow and the infiltration prior to the rain event.

Maximum Weekly Inflow (includes delayed infiltration) - The highest 7 day average wet weather flow minus the base sanitary flow and the infiltration prior to the rain event.

Maximum Monthly Inflow - The highest monthly flow after subtracting the base sanitary flow and infiltration.

Peak Hourly Dry Weather Flow - The highest one hour flow after a dry period of three or more days.

Peak Hourly Inflow - The highest one hour flow rate during wet weather minus the base sanitary flow and the infiltration prior to the rain event.

Peak Hourly Wet Weather Flow – The highest one hour flow during a significant rain event.

Peak Infiltration- The highest nighttime (midnight to 6 am) flow during high groundwater (usually in early spring).

Peak Instantaneous Wet Weather Flow - The peak flow during a significant rain event day when the ground water is seasonally high.

Peaking Factor - The ratio of peak hourly flow to average daily flow.

Rainfall-Induced Infiltration - The short-term increase in infiltration which is the result of a rain event. Rainfall-induced infiltration is a portion of delayed inflow.

Wet Weather Flow- The highest daily flow during and immediately after a significant storm event. Includes sanitary flow, infiltration and inflow.

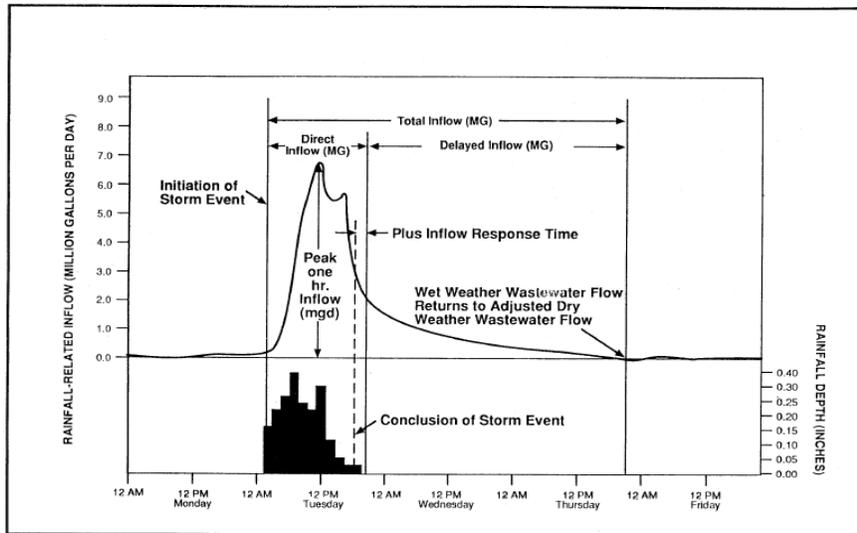


Figure 1: Hydrograph helps visualize inflow as the response to wet weather flow (from MassDEP 1993)

Estimating Base Sanitary Flow

The sanitary portion of the wastewater flow can be estimated through two methods, which can be used to 'check' each other - flow meter data and water consumption (if all sewer customers are on metered water).

The first method is to analyze the wastewater flow data at the treatment facility during a dry weather period of 7 to 14 days. It is useful to choose the dry weather period during seasonal high water as you will be able to determine the peak infiltration rate at the same time. From the flow data, calculate the average daily flow for the dry weather period (Average Dry Weather – ADW – flow). The base sanitary flow (BSF) can be estimated by subtracting the groundwater infiltration (GWI) flow from the average daily dry weather wastewater (ADW) flow. (See Estimating Infiltration below).

In the second method, water usage records can be used to estimate the base sanitary flow for the sewered population. The best time to estimate flow using this method would be when outdoor water uses are low and wastewater from a residential area can be assumed to be the same as the billed water use. In the northeast, this would typically be in the winter months prior to landscaping and swimming pool use. Groundwater infiltration can be estimated as the difference between the monitored wastewater flow and the billed water use.

Estimating Infiltration

Groundwater infiltration (GWI) can be estimated from influent flow data collected during a dry weather period at high groundwater. The dry weather period selected should be the same period as for estimating the BSF, however, it is more important to estimate GWI during high seasonal ground water. Dry weather is defined as when it has been at least three days without a rain event. During dry weather, inflow is expected to be zero.

During seasonal high groundwater, which usually occurs after snow melt and soil thaw, infiltration will be at its highest. During this period, the infiltration rate can be quantified by averaging the

nighttime flows (midnight to 6 am) over several days, during dry weather conditions. The nighttime flows can be assumed to be mostly groundwater (after subtracting significant industrial or commercial nighttime flows).

In most cases, the GWI rate will approximate the maximum weekly infiltration. The maximum daily infiltration will be higher and maximum monthly infiltration will be lower.

Estimating Inflow

Inflow represents the influence of wet weather on the sewer system and is calculated by subtracting out the sanitary wastewater and infiltration flow during a time that the system has been influence by rain. Flow data during a significant storm event should be compared to the dry weather data immediately preceding the storm when groundwater conditions are similar. The rate and volume of inflow can be estimated by subtracting the base sanitary flow and infiltration flow data from the wet weather flow data.

The peak inflow rate and the total inflow volume can be calculated from the flow records. The peak inflow rate is the largest rate difference, over a one hour period, between the storm event flow data and the dry weather flow prior to the event. The total inflow volume from a storm event can be apportioned into two components: direct inflow and delayed inflow.

Direct inflow is the portion of the inflow which rapidly increases soon after the start of the storm and decreases swiftly upon conclusion of the event. The time it takes for inflow from the nearest sub-basin to reach the treatment facility can be estimated as the time difference between initiation of the storm event and the increase in observed flow. The direct inflow ends at a time after the conclusion of the storm approximately equal to the inflow response time from the furthest sub-basin.

Delayed inflow is the portion of the inflow which decreases gradually upon conclusion of the storm and after the peak inflow caused by direct connections. Delayed inflow is the inflow beginning at the conclusion of direct inflow and ending at a time when dry weather flow resumes. It is expected that a portion of the delayed inflow includes rainfall-induced infiltration.

In some cases, a second storm will impact the flow data before dry weather flow resumes. When this occurs, the expected delayed inflow can be extrapolated from the flow data collected prior to the second storm.

Estimating Infiltration and Inflow (I&I)

Maximum monthly I&I rate can be estimated by subtracting the BSF from the maximum monthly average flow.

Average annual I&I rate can be estimated by subtracting the BSF rate from average annual flow rate.

Annual I&I volume can be estimated by multiplying the average annual I&I rate by 365 days.

Summary

Sewers and treatment facilities are designed around expected average and maximum flows. Excess storm and groundwater entering the sewer system through I&I robs the system of its valuable capacity, puts a burden on operation and maintenance, and reduces the life expectancy of the treatment facility. Sewer surcharging, back-ups and overflows all require emergency response and contribute to disruption of operations.

Integrating I&I investigation and corrective action into a municipality's normal public works budget can allow an incremental approach to continuous improvement and help defer capacity expansion projects.

References

[Computer Tools for Sanitary Sewer System Capacity Analysis and Planning](#)

EPA/600/R-07/111, October 2007

[Design Flow and Loading Determination Guidelines for Wastewater Treatment Plants](#)

Minnesota Pollution Control Agency (MNPCA) February, 2002

[Guidance for evaluating Infiltration and Inflow for State Revolving Fund Projects](#)

Louisiana DEQ (LA DEQ) October, 2001

[Guidelines for Performing Infiltration/Inflow Analyses and Sewer System Evaluation Survey](#)

MassDEP January, 1993

[Infiltration/Inflow - I/I Analysis and Project Certification](#)

EPA May, 1985

Minimizing Municipal Costs for Infiltration & Inflow Remediation

Massachusetts EOE June, 2007

[Recommended Standards for Wastewater Facilities, 2004 Edition](#)

(Ten States Standards)

Aqua Indiana's Responses to
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Q 4.26. Using the format shown below, please identify how many customers by user class are connected to each Aboite Division WWTP as of December 31st for the years 2012 through 2015.

Response:

Population as of 12/31/12	Main Aboite WWTP	Midwest WWTP	Total Connections
Metered Residential	8,983	2,277	11,260
Metered Commercial	103	253	357
Metered Industrial	0	0	0
Metered Public	44	16	60
Metered Multi-Family (Units)	0	0	0
Unmetered Residential	745	149	893
Unmetered Commercial	15	15	30
Unmetered Industrial	0	0	0
Unmetered Public	1	0	1
Unmetered Multi-Family (Units)	0	0	0
Total Connections	9,891	2,711	12,602
*3 (for number of persons served)	29,674	8,132	37,806

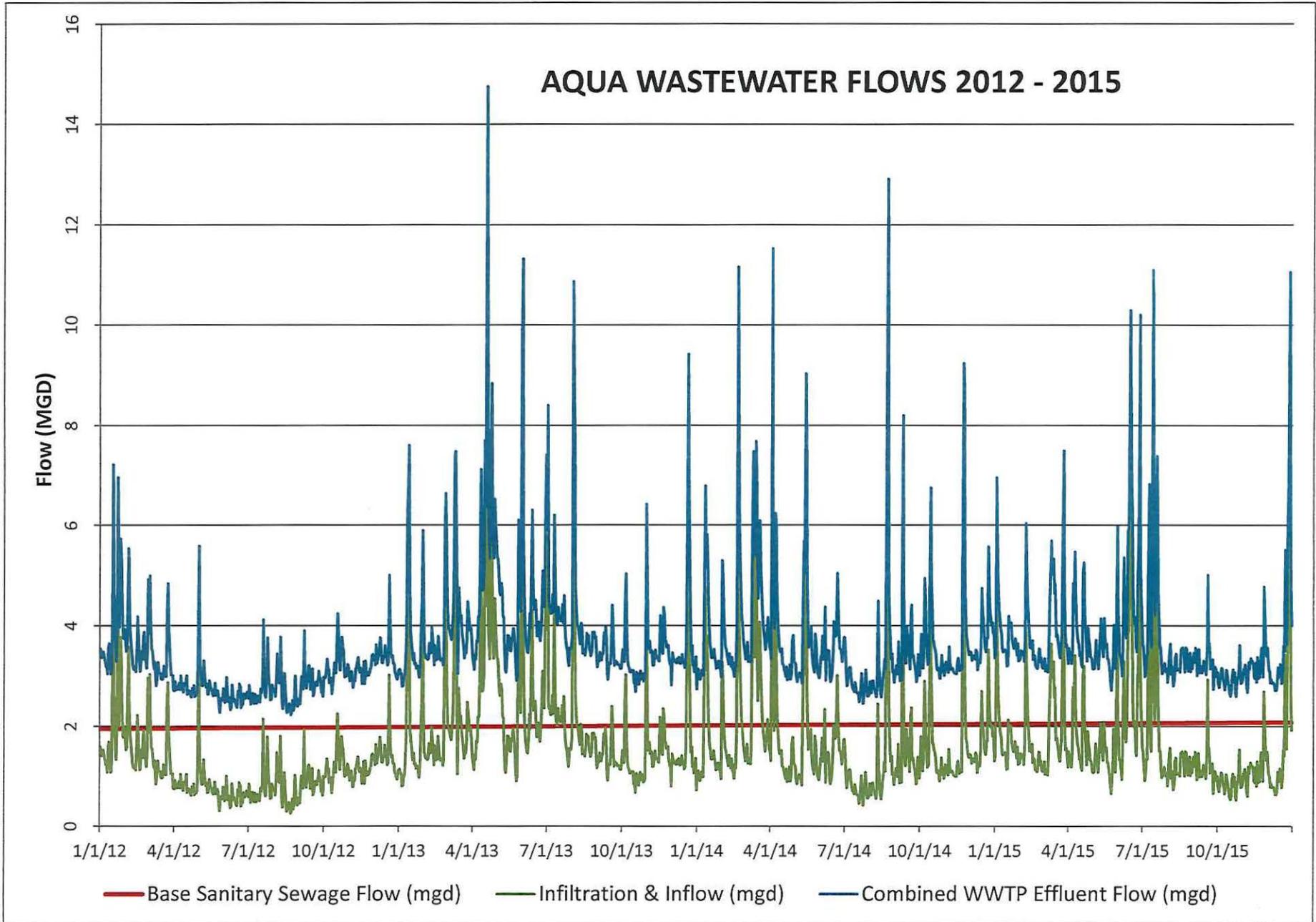
Population as of 12/31/13	Main Aboite WWTP	Midwest WWTP	Total Connections
Metered Residential	9,159	2,322	11,481
Metered Commercial	105	258	364
Metered Industrial	0	0	0
Metered Public	45	17	62
Metered Multi-Family (Units)	0	0	0
Unmetered Residential	759	152	911
Unmetered Commercial	15	15	31
Unmetered Industrial	0	0	0
Unmetered Public	1	0	1
Unmetered Multi-Family (Units)	0	0	0
Total Connections	10,085	2,764	12,849
*3 (for number of persons served)	30,256	8,291	38,547

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Population as of 12/31/14	Main Aboite WWTP	Midwest WWTP	Total Connections
Metered Residential	9,291	2,355	11,647
Metered Commercial	107	262	369
Metered Industrial	0	0	0
Metered Public	46	17	63
Metered Multi-Family (Units)	0	0	0
Unmetered Residential	770	154	924
Unmetered Commercial	16	16	31
Unmetered Industrial	0	0	0
Unmetered Public	1	0	1
Unmetered Multi-Family (Units)	0	0	0
Total Connections	10,231	2,804	13,035
*3 (for number of persons served)	30,694	8,411	39,105

Population as of 12/31/15	Main Aboite WWTP	Midwest WWTP	Total Connections
Metered Residential	9,480	2,403	11,883
Metered Commercial	109	267	376
Metered Industrial	0	0	0
Metered Public	47	17	64
Metered Multi-Family (Units)	0	0	0
Unmetered Residential	786	157	943
Unmetered Commercial	16	16	32
Unmetered Industrial	0	0	0
Unmetered Public	1	0	1
Unmetered Multi-Family (Units)	0	0	0
Total Connections	10,438	2,861	13,299
*3 (for number of persons served)	31,315	8,582	39,897

Person providing Response: Jeffery W. Gard



Aqua Indiana, Inc.

Cause No. 44752

Combined Wastewater Treatment Plant Flows and Loads and Infiltration & Inflow

Date	Precipitation (inches)	Combined Effluent Flow (mgd)	Combined Influent cBOD5 (mg/l)	Combined Influent cBOD5 (lbs./d)	Combined Influent TSS (mg/l)	Combined Influent TSS (lbs./d)	OUCC Estimated Population	Calc. Flow per person	7-14 day Avg. Flow per person
1/1/2014	0.13	2.742	160	3,656	134	3,073	31,001	88	
1/2/2014	0.31	3.117	212	5,502	208	5,399	31,003	101	
1/3/2014	0	3.129	162	4,218	116	3,035	31,004	101	
1/4/2014	0	2.961					31,005	95	
1/5/2014	0.84	2.933					31,007	95	
1/6/2014	0	2.961	128	3,158	31	753	31,008	95	
1/7/2014	0	3.109	173	4,490	189	4,909	31,010	100	
1/8/2014	0	3.023	205	5,163	198	4,982	31,011	97	
1/9/2014	0.05	3.008	166	4,159	162	4,070	31,012	97	
1/10/2014	0.43	4.334	232	8,369	334	12,065	31,014	140	
1/11/2014	0.1	6.789					31,015	219	
1/12/2014	0	5.144					31,016	166	
1/13/2014	0	5.818	130	6,304	159	7,727	31,018	188	
1/14/2014	0	5.262	103	4,524	112	4,934	31,019	170	
1/15/2014	0	4.452	116	4,305	112	4,151	31,021	144	
1/16/2014	0.14	3.947	135	4,452	137	4,510	31,022	127	
1/17/2014	0	3.634	149	4,507	171	5,173	31,023	117	
1/18/2014	0.13	3.528					31,025	114	
1/19/2014	0	3.366					31,026	108	
1/20/2014	0.01	3.359	174	4,879	244	6,845	31,027	108	
1/21/2014	0.02	3.421	147	4,193	156	4,439	31,029	110	
1/22/2014	0.05	3.528	182	5,351	225	6,621	31,030	114	
1/23/2014	0	3.39	166	4,695	173	4,891	31,032	109	
1/24/2014	0.03	3.27	175	4,774	204	5,561	31,033	105	
1/25/2014	0.11	3.148					31,034	101	
1/26/2014	0.16	3.17					31,036	102	
1/27/2014	0.03	3.275	166	4,533	203	5,546	31,037	106	
1/28/2014	0	3.286	204	5,600	223	6,099	31,038	106	
1/29/2014	0	3.163	168	4,419	183	4,827	31,040	102	
1/30/2014	0.01	3.122	166	4,332	213	5,552	31,041	101	
1/31/2014	0.04	2.973	199	4,943	188	4,672	31,042	96	
2/1/2014	1.14	5.296					31,044	171	
2/2/2014	0.07	4.885					31,045	157	
2/3/2014	0	4.21	112	3,932	137	4,810	31,047	136	
2/4/2014	0.21	3.789	162	5,133	184	5,825	31,048	122	
2/5/2014	0.38	3.576	143	4,278	158	4,710	31,049	115	
2/6/2014	0	3.526	162	4,769	190	5,596	31,051	114	
2/7/2014	0	3.404	179	5,078	179	5,081	31,052	110	
2/8/2014	0.1	3.313					31,053	107	
2/9/2014	0.18	3.236					31,055	104	

Aqua Indiana, Inc.
Cause No. 44752

Combined Wastewater Treatment Plant Flows and Loads and Infiltration & Inflow

Date	Precip-itation (inches)	Combined Effluent Flow (mgd)	Combined	Combined	Combined	Combined	OUCC	Calc.	7-14 day
			Influent cBOD5 (mg/l)	Influent cBOD5 (lbs./d)	Influent TSS (mg/l)	Influent TSS (lbs./d)	Estimated Population	Flow per person	Avg. Flow per person
2/10/2014	0	3.443	157	4,506	180	5,179	31,056	111	
2/11/2014	0	3.297	167	4,580	185	5,074	31,058	106	
2/12/2014	0	3.189	180	4,788	180	4,778	31,059	103	
2/13/2014	0	3.37	182	5,118	187	5,247	31,060	108	
2/14/2014	0	3.136	153	4,011	391	10,224	31,062	101	
2/15/2014	0	3.111					31,063	100	
2/16/2014	0	2.986					31,064	96	
2/17/2014	0.32	3.266	176	4,797	237	6,464	31,066	105	
2/18/2014	0.02	3.184	160	4,256	264	7,006	31,067	102	
2/19/2014	0	3.97	241	7,980	378	12,529	31,068	128	
2/20/2014	1	11.154	145	13,465	296	27,510	31,070	359	
2/21/2014	0	7.78	53	3,416	59	3,835	31,071	250	
2/22/2014	0.07	5.939					31,073	191	
2/23/2014	0	5.159					31,074	166	
2/24/2014	0	4.626	91	3,507	107	4,114	31,075	149	
2/25/2014	0	4.149	113	3,912	137	4,729	31,077	134	
2/26/2014	0	4.01	123	4,112	145	4,842	31,078	129	
2/27/2014	0	3.698	150	4,632	184	5,682	31,079	119	
2/28/2014	0	3.59	146	4,378	165	4,948	31,081	116	
3/1/2014	0.03	3.443					31,082	111	
3/2/2014	0.3	3.331					31,084	107	
3/3/2014	0	3.548	172	5,075	215	6,362	31,085	114	
3/4/2014	0	3.661	137	4,197	180	5,504	31,086	118	
3/5/2014	0.04	3.284	182	4,984	202	5,543	31,088	106	
3/6/2014	0	3.323	180	4,987	222	6,162	31,089	107	
3/7/2014	0	3.376	180	5,078	186	5,246	31,090	109	
3/8/2014	0.09	3.271					31,092	105	
3/9/2014	0	3.546					31,093	114	
3/10/2014	0	6.295	154	8,095	213	11,178	31,095	202	
3/11/2014	0	7.478	64	3,975	87	5,438	31,096	240	
3/12/2014	0.91	7.365	56	3,452	78	4,777	31,097	237	
3/13/2014	0	5.395	101	4,552	93	4,201	31,099	173	
3/14/2014	0	7.688	116	7,437	132	8,438	31,100	247	
3/15/2014	0	7.112					31,101	229	
3/16/2014	0	5.244					31,103	169	
3/17/2014	0	4.533	105	3,986	145	5,476	31,104	146	
3/18/2014	0	5.04	114	4,795	144	6,033	31,105	162	
3/19/2014	0.05	6.091	109	5,562	155	7,885	31,107	196	
3/20/2014	0	5.12	102	4,359	116	4,964	31,108	165	
3/21/2014	0.01	4.829	75	3,036	135	5,449	31,110	155	

Aqua Indiana, Inc.
Cause No. 44752

Combined Wastewater Treatment Plant Flows and Loads and Infiltration & Inflow

Date	Precipitation (inches)	Combined Effluent Flow (mgd)	Combined Influent cBOD5 (mg/l)	Combined Influent cBOD5 (lbs./d)	Combined Influent TSS (mg/l)	Combined Influent TSS (lbs./d)	OUCC Estimated Population	Calc. Flow per person	7-14 day Avg. Flow per person
3/22/2014	0	4.341					31,111	140	
3/23/2014	0	4.042					31,112	130	
3/24/2014	0	3.874	144	4,651	191	6,165	31,114	125	
3/25/2014	0.03	3.731	176	5,481	179	5,572	31,115	120	
3/26/2014	0	3.526	281	8,275	533	15,660	31,116	113	
3/27/2014	0.13	3.717	151	4,689	211	6,526	31,118	119	
3/28/2014	0.05	3.813	134	4,262	166	5,268	31,119	123	
3/29/2014	0.26	4.16					31,121	134	
3/30/2014	0	3.798					31,122	122	
3/31/2014	0	3.581	120	3,587	155	4,626	31,123	115	
4/1/2014	0.06	3.531	129	3,802	223	6,569	31,125	113	
4/2/2014	0	3.339	149	4,141	198	5,517	31,126	107	
4/3/2014	1.81	11.52	150	14,366	249	23,936	31,127	370	
4/4/2014	0.02	5.992	71	3,524	70	3,491	31,129	192	
4/5/2014	0	4.466					31,130	143	
4/6/2014	0	3.938					31,132	126	
4/7/2014	0.92	6.236	155	8,082	213	11,078	31,133	200	
4/8/2014	0.02	5.981	64	3,188	69	3,418	31,134	192	
4/9/2014	0	4.639	112	4,341	147	5,674	31,136	149	
4/10/2014	0.01	4.078	124	4,230	154	5,226	31,137	131	
4/11/2014	0	3.816	140	4,445	153	4,861	31,138	123	
4/12/2014	0	3.569					31,140	115	
4/13/2014	0	3.482					31,141	112	
4/14/2014	0.21	3.512	149	4,369	180	5,265	31,142	113	
4/15/2014	0	3.538	151	4,443	186	5,475	31,144	114	
4/16/2014	0	3.239	183	4,938	194	5,245	31,145	104	
4/17/2014	0	3.221	196	5,264	215	5,777	31,147	103	
4/18/2014	0	3.135	168	4,382	194	5,072	31,148	101	
4/19/2014	0	3.076					31,149	99	
4/20/2014	0	2.991					31,151	96	
4/21/2014	0.02	3.175	229	6,065	309	8,182	31,152	102	
4/22/2014	0	2.922	212	5,156	252	6,141	31,153	94	
4/23/2014	0	3.021	184	4,647	229	5,778	31,155	97	
4/24/2014	0	2.942	164	4,036	195	4,783	31,156	94	100
4/25/2014	0.36	3.217	170	4,558	219	5,876	31,158	103	
4/26/2014	0.01	2.936					31,159	94	
4/27/2014	0	3.055					31,160	98	
4/28/2014	0.47	3.675	154	4,725	194	5,935	31,162	118	
4/29/2014	0.08	3.804	135	4,269	175	5,539	31,163	122	
4/30/2014	0	3.286	158	4,325	176	4,823	31,164	105	

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Date	Precipitation (inches)	Combined Effluent Flow (mgd)	Combined Influent cBOD5 (mg/l)	Combined Influent cBOD5 (lbs./d)	Combined Influent TSS (mg/l)	Combined Influent TSS (lbs./d)	OUCC Estimated Population	Calc. Flow per person	7-14 day Avg. Flow per person
5/1/2014	0	3.27	162	4,420	167	4,554	31,166	105	
5/2/2014	0	3.236	177	4,785	186	5,009	31,167	104	
5/3/2014	0.01	2.974					31,168	95	
5/4/2014	0	2.883					31,170	92	
5/5/2014	0	3.006	306	7,678	525	13,163	31,171	96	
5/6/2014	0	3.021	203	5,114	243	6,127	31,173	97	
5/7/2014	0	3.063	221	5,648	252	6,441	31,174	98	
5/8/2014	0	2.984	210	5,236	207	5,152	31,175	96	
5/9/2014	0.32	2.981	257	6,385	243	6,041	31,177	96	
5/10/2014	0	2.854					31,178	92	
5/11/2014	1.11	4.408					31,179	141	
5/12/2014	0.43	5.679	121	5,755	153	7,223	31,181	182	
5/13/2014	0.47	5.048	159	6,692	188	7,911	31,182	162	
5/14/2014	1.41	9.026	121	9,088	134	10,056	31,184	289	
5/15/2014	0.27	7.882	57	3,761	66	4,355	31,185	253	
5/16/2014	0	4.826	93	3,737	91	3,663	31,186	155	
5/17/2014	0.03	3.978					31,188	128	
5/18/2014	0	3.565					31,189	114	
5/19/2014	0	3.74	178	5,566	207	6,469	31,190	120	
5/20/2014	0.22	3.839	209	6,696	275	8,815	31,192	123	
5/21/2014	0.01	3.971	171	5,672	176	5,821	31,193	127	
5/22/2014	0	3.458	160	4,603	166	4,786	31,195	111	
5/23/2014	0	3.237	194	5,236	205	5,546	31,196	104	
5/24/2014	0	3.153					31,197	101	
5/25/2014	0	3.076					31,199	99	
5/26/2014	0	3.833	145	4,635	137	4,393	31,200	123	
5/27/2014	0.29	3.649	224	6,831	259	7,875	31,201	117	
5/28/2014	0	3.278	236	6,446	188	5,133	31,203	105	
5/29/2014	0	3.066	197	5,031	207	5,290	31,204	98	
5/30/2014	0	3.016	212	5,326	223	5,613	31,205	97	
5/31/2014	0	2.961					31,207	95	
6/1/2014	0	3.137					31,208	101	
6/2/2014	0.11	3.386	226	6,391	235	6,623	31,210	108	
6/3/2014	0	3.322	213	5,897	215	5,956	31,211	106	
6/4/2014	0.76	3.793	221	6,976	196	6,206	31,212	122	
6/5/2014	0	3.328	193	5,360	165	4,578	31,214	107	
6/6/2014	0	3.338	210	5,841	218	6,061	31,215	107	
6/7/2014	0	4.368					31,216	140	
6/8/2014	0.78	2.913					31,218	93	
6/9/2014	0	3.514	193	5,665	183	5,361	31,219	113	

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Date	Precipitation (inches)	Combined Effluent Flow (mgd)	Combined Influent cBOD5 (mg/l)	Combined Influent cBOD5 (lbs./d)	Combined Influent TSS (mg/l)	Combined Influent TSS (lbs./d)	OUCC Estimated Population	Calc. Flow per person	7-14 day Avg. Flow per person
6/10/2014	0.13	3.49	172	5,016	184	5,365	31,221	112	
6/11/2014	0.02	3.508	195	5,704	185	5,414	31,222	112	
6/12/2014	0	3.48	166	4,824	171	4,964	31,223	111	
6/13/2014	0	2.984	179	4,458	166	4,132	31,225	96	
6/14/2014	0	2.886					31,226	92	
6/15/2014	0	2.976					31,227	95	
6/16/2014	0	3.118	244	6,338	252	6,564	31,229	100	
6/17/2014	0	3.506	202	5,913	212	6,200	31,230	112	
6/18/2014	1.73	4.078	249	8,465	207	7,057	31,232	131	
6/19/2014	0.49	3.926	180	5,898	209	6,831	31,233	126	
6/20/2014	0.16	3.784	185	5,842	171	5,388	31,234	121	
6/21/2014	0	3.814					31,236	122	
6/22/2014	1.1	5.04					31,237	161	
6/23/2014	0.36	4.383	213	7,803	259	9,484	31,238	140	
6/24/2014	0.1	3.866	151	4,870	160	5,152	31,240	124	
6/25/2014	0	3.549	180	5,317	156	4,605	31,241	114	
6/26/2014	0	3.537	204	6,031	214	6,313	31,242	113	
6/27/2014	0	3.473	183	5,295	193	5,593	31,244	111	
6/28/2014	0.07	3.281					31,245	105	
6/29/2014	0	3.402					31,247	109	
6/30/2014	0	3.748	211	6,586	215	6,729	31,248	120	
7/1/2014	0.55	3.766	182	5,709	191	6,010	31,249	121	
7/2/2014	0	3.452	219	6,299	203	5,842	31,251	110	
7/3/2014	0.01	3.083	208	5,349	210	5,389	31,252	99	
7/4/2014	0	2.804	163	3,819	172	4,013	31,253	90	
7/5/2014	0	2.909					31,255	93	
7/6/2014	0.01	3.129					31,256	100	
7/7/2014	0.06	3.162	215	5,659	212	5,596	31,258	101	
7/8/2014	0.13	3.166	201	5,315	216	5,695	31,259	101	
7/9/2014	0	2.986	203	5,052	184	4,576	31,260	96	
7/10/2014	0	2.852	238	5,662	227	5,407	31,262	91	
7/11/2014	0	2.739	181	4,138	249	5,681	31,263	88	
7/12/2014	0	2.735					31,264	87	
7/13/2014	0.02	2.687					31,266	86	
7/14/2014	0.12	2.868	213	5,100	285	6,821	31,267	92	
7/15/2014	0	2.749	198	4,535	214	4,909	31,268	88	
7/16/2014	0	2.681	227	5,087	243	5,443	31,270	86	
7/17/2014	0	2.652	208	4,594	276	6,114	31,271	85	
7/18/2014	0	2.662	226	5,015	226	5,017	31,273	85	
7/19/2014	0	2.489					31,274	80	

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7/20/2014	0	2.587					31,275	83	
7/21/2014	0	2.79	250	5,820	244	5,682	31,277	89	
7/22/2014	0	3.047	283	7,197	328	8,337	31,278	97	
7/23/2014	0.18	2.686	244	5,476	285	6,377	31,279	86	
7/24/2014	0	2.455	224	4,596	211	4,329	31,281	78	
7/25/2014	0	2.722	249	5,652	226	5,132	31,282	87	86
7/26/2014	0.37	2.695					31,284	86	
7/27/2014	0.55	3.118					31,285	100	
7/28/2014	0	2.784	213	4,950	199	4,612	31,286	89	
7/29/2014	0	2.605	246	5,354	257	5,590	31,288	83	
7/30/2014	0	2.601	193	4,191	222	4,820	31,289	83	
7/31/2014	0	2.625	188	4,108	254	5,555	31,290	84	
8/1/2014	0	2.883	243	5,831	248	5,967	31,292	92	
8/2/2014	0.13	2.797					31,293	89	
8/3/2014	0	2.665					31,295	85	
8/4/2014	0	2.895	257	6,197	403	9,727	31,296	93	
8/5/2014	0.06	2.902	211	5,096	279	6,745	31,297	93	
8/6/2014	0	2.762	207	4,769	237	5,461	31,299	88	
8/7/2014	0	2.731	218	4,960	214	4,885	31,300	87	
8/8/2014	0	2.67	209	4,643	239	5,318	31,301	85	
8/9/2014	0	2.59					31,303	83	
8/10/2014	0	2.794					31,304	89	
8/11/2014	1.85	4.482	226	8,457	305	11,388	31,305	143	
8/12/2014	0.01	3.191	156	4,158	195	5,180	31,307	102	
8/13/2014	0	3.041	207	5,246	225	5,703	31,308	97	
8/14/2014	0	2.718	166	3,772	181	4,093	31,310	87	
8/15/2014	0	2.584	195	4,205	193	4,151	31,311	83	
8/16/2014	0	2.74					31,312	88	
8/17/2014	0	2.945					31,314	94	
8/18/2014	0	3.119	253	6,586	345	8,962	31,315	100	
8/19/2014	0.15	3.321	244	6,764	269	7,447	31,316	106	
8/20/2014	0	3.142	229	5,993	281	7,373	31,318	100	
8/21/2014	1.26	6.673	270	15,028	322	17,944	31,319	213	
8/22/2014	2.33	12.913	64	6,881	160	17,266	31,321	412	
8/23/2014	0.12	8.485					31,322	271	
8/24/2014	0	4.638					31,323	148	
8/25/2014	0	4.133	144	4,949	170	5,848	31,325	132	
8/26/2014	0	3.597	184	5,527	188	5,647	31,326	115	
8/27/2014	0.09	3.335	200	5,555	237	6,601	31,327	106	
8/28/2014	0	3.443	254	7,307	328	9,419	31,329	110	

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8/29/2014	0	3.078	222	5,693	214	5,489	31,330	98	
8/30/2014	0	3.083					31,332	98	
8/31/2014	0.04	2.875					31,333	92	
9/1/2014	0.02	3.053	125	3,180	114	2,914	31,334	97	
9/2/2014	0.17	3.197	257	6,843	333	8,890	31,336	102	
9/3/2014	0	3.047	240	6,097	272	6,906	31,337	97	
9/4/2014	0.01	3.037	196	4,963	206	5,209	31,338	97	
9/5/2014	0.45	3.676	206	6,304	187	5,724	31,340	117	
9/6/2014	0.01	3.095					31,341	99	
9/7/2014	0	2.904					31,342	93	
9/8/2014	0	3.098	187	4,838	213	5,491	31,344	99	
9/9/2014	0	2.921	173	4,203	168	4,098	31,345	93	
9/10/2014	3.24	8.197	181	12,394	182	12,467	31,347	261	
9/11/2014	0	4.939	75	3,102	79	3,273	31,348	158	
9/12/2014	0	3.807	110	3,482	130	4,135	31,349	121	
9/13/2014	0.07	3.318					31,351	106	
9/14/2014	0	3.25					31,352	104	
9/15/2014	0.33	3.985	177	5,883	200	6,650	31,353	127	
9/16/2014	0	3.802	180	5,712	211	6,692	31,355	121	
9/17/2014	0	3.51	176	5,144	168	4,930	31,356	112	
9/18/2014	0	3.395	200	5,651	200	5,665	31,358	108	
9/19/2014	0	3.137	173	4,525	163	4,257	31,359	100	
9/20/2014	0.56	4.248					31,360	135	
9/21/2014	0.04	4.407					31,362	141	
9/22/2014	0	3.367	141	3,965	162	4,538	31,363	107	
9/23/2014	0	3.412	199	5,656	200	5,704	31,364	109	
9/24/2014	0	3.292	180	4,941	172	4,712	31,366	105	
9/25/2014	0	3.195	173	4,604	156	4,147	31,367	102	
9/26/2014	0	3.107	215	5,572	204	5,297	31,368	99	
9/27/2014	0	2.888					31,370	92	
9/28/2014	0	3.012					31,371	96	
9/29/2014	0	3.424	228	6,512	214	6,112	31,373	109	
9/30/2014	0	3.096	171	4,403	176	4,539	31,374	99	
10/1/2014	0	3.009	158	3,977	173	4,338	31,375	96	101
10/2/2014	0.08	3.26	194	5,276	170	4,612	31,377	104	
10/3/2014	0.65	3.829	244	7,802	314	10,029	31,378	122	
10/4/2014	0.01	3.328					31,379	106	
10/5/2014	0.02	3.153					31,381	100	
10/6/2014	0.38	3.381	183	5,166	187	5,265	31,382	108	
10/7/2014	0.41	4.936	155	6,393	176	7,228	31,384	157	

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10/8/2014	0	4.43	136	5,038	128	4,734	31,385	141	
10/9/2014	0	3.705	180	5,565	159	4,906	31,386	118	
10/10/2014	0	3.405	203	5,757	181	5,153	31,388	108	
10/11/2014	0	3.225					31,389	103	
10/12/2014	0	3.267					31,390	104	
10/13/2014	0.2	4.492	393	14,716	493	18,466	31,392	143	
10/14/2014	0.51	6.752	147	8,269	155	8,740	31,393	215	
10/15/2014	0.03	4.948	106	4,371	119	4,913	31,395	158	
10/16/2014	0	4.464	139	5,180	135	5,029	31,396	142	
10/17/2014	0	3.73	153	4,768	138	4,292	31,397	119	
10/18/2014	0.16	3.673					31,399	117	
10/19/2014	0	3.578					31,400	114	
10/20/2014	0.03	3.513	228	6,680	229	6,704	31,401	112	
10/21/2014	0	3.423	193	5,500	190	5,424	31,403	109	
10/22/2014	0	3.144	202	5,309	183	4,799	31,404	100	
10/23/2014	0	3.118	216	5,619	181	4,715	31,405	99	
10/24/2014	0	3.16	250	6,598	357	9,414	31,407	101	
10/25/2014	0	2.984					31,408	95	
10/26/2014	0	2.95					31,410	94	
10/27/2014	0.01	3.176	277	7,327	297	7,862	31,411	101	
10/28/2014	0.16	3.41	203	5,780	185	5,250	31,412	109	
10/29/2014	0	3.082	250	6,434	290	7,442	31,414	98	
10/30/2014	0	3.229	236	6,344	267	7,181	31,415	103	
10/31/2014	0.13	3.009	248	6,215	203	5,091	31,416	96	
11/1/2014	0	3.11					31,418	99	
11/2/2014	0	3.274					31,419	104	
11/3/2014	0	3.115	226	5,864	215	5,595	31,421	99	
11/4/2014	0.26	3.213	199	5,322	186	4,985	31,422	102	
11/5/2014	0	3.072	235	6,027	172	4,413	31,423	98	
11/6/2014	0.31	3.579	247	7,361	223	6,656	31,425	114	
11/7/2014	0	3.286	200	5,469	181	4,961	31,426	105	
11/8/2014	0	3.129					31,427	100	
11/9/2014	0	3.149					31,429	100	
11/10/2014	0	3.154	236	6,219	215	5,659	31,430	100	
11/11/2014	0.06	3.113	249	6,460	251	6,527	31,432	99	
11/12/2014	0	3.068	240	6,136	220	5,629	31,433	98	
11/13/2014	0	3.066	214	5,469	220	5,616	31,434	98	
11/14/2014	0	3.044	225	5,707	213	5,408	31,436	97	
11/15/2014	0	3.044					31,437	97	
11/16/2014	0.22	3.245					31,438	103	

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11/17/2014	0	3.349	256	7,141	299	8,359	31,440	107	
11/18/2014	0	3.235	210	5,666	184	4,963	31,441	103	
11/19/2014	0	3.107	213	5,511	191	4,951	31,442	99	
11/20/2014	0	3.138	240	6,273	229	6,003	31,444	100	
11/21/2014	0	3.199	229	6,102	224	5,983	31,445	102	
11/22/2014	0.22	3.137					31,447	100	
11/23/2014	1.56	9.23					31,448	294	
11/24/2014	0.42	8.789	103	7,572	102	7,505	31,449	279	
11/25/2014	0	5.272	106	4,670	134	5,902	31,451	168	
11/26/2014	0	4.397	95	3,486	150	5,500	31,452	140	
11/27/2014	0	3.795	124	3,917	137	4,329	31,453	121	
11/28/2014	0	3.728	147	4,581	138	4,285	31,455	119	
11/29/2014	0	3.546					31,456	113	
11/30/2014	0	3.432					31,458	109	
12/1/2014	0	3.423	187	5,342	202	5,765	31,459	109	
12/2/2014	0.01	3.479	199	5,785	192	5,579	31,460	111	
12/3/2014	0	3.456	185	5,319	209	6,017	31,462	110	
12/4/2014	0	3.308	212	5,854	240	6,625	31,463	105	
12/5/2014	0.32	3.373	172	4,851	188	5,301	31,464	107	
12/6/2014	0.05	3.4					31,466	108	
12/7/2014	0	3.394					31,467	108	
12/8/2014	0.05	3.334	205	5,704	241	6,713	31,468	106	
12/9/2014	0.03	3.516	167	4,882	221	6,479	31,470	112	
12/10/2014	0	3.474	199	5,765	238	6,897	31,471	110	
12/11/2014	0	3.126	169	4,406	197	5,129	31,473	99	
12/12/2014	0	3.271	169	4,622	214	5,851	31,474	104	
12/13/2014	0	3.312					31,475	105	
12/14/2014	0	3.258					31,477	104	
12/15/2014	0.3	3.584	183	5,474	175	5,225	31,478	114	
12/16/2014	0.13	4.737	128	5,066	136	5,360	31,479	150	
12/17/2014	0.01	4.319	136	4,884	181	6,505	31,481	137	
12/18/2014	0	4.036	117	3,948	109	3,684	31,482	128	
12/19/2014	0	3.754	170	5,333	166	5,195	31,484	119	
12/20/2014	0	3.558					31,485	113	
12/21/2014	0	3.485					31,486	111	
12/22/2014	0.05	3.747	202	6,313	182	5,680	31,488	119	
12/23/2014	0.03	3.752	163	5,110	131	4,095	31,489	119	
12/24/2014	0.55	5.566	177	8,221	143	6,642	31,490	177	
12/25/2014	0	4.641	93	3,587	79	3,044	31,492	147	
12/26/2014	0	4.262	146	5,181	135	4,799	31,493	135	

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12/27/2014	0.19	4.114					31,495	131	
12/28/2014	0	4.026					31,496	128	
12/29/2014	0	4.057	145	4,909	138	4,662	31,497	129	
12/30/2014	0	3.851	117	3,767	119	3,814	31,499	122	
12/31/2014	0	3.823	131	4,189	125	3,981	31,500	121	
1/1/2015	0	3.356	129	3,607	90	2,528	31,501	107	
1/2/2015	0	3.465	172	4,967	133	3,829	31,503	110	
1/3/2015	1.07	6.95					31,504	221	
1/4/2015	0.04	5.658					31,505	180	
1/5/2015	0.07	4.732	82	3,227	84	3,312	31,507	150	
1/6/2015	0.14	4.323	95	3,429	96	3,449	31,508	137	
1/7/2015	0.06	4.116	99	3,415	95	3,276	31,510	131	
1/8/2015	0.04	3.935	126	4,140	117	3,847	31,511	125	
1/9/2015	0	3.826	131	4,189	112	3,569	31,512	121	
1/10/2015	0	3.565					31,514	113	
1/11/2015	0.25	3.479					31,515	110	
1/12/2015	0.17	3.497	158	4,611	143	4,174	31,516	111	
1/13/2015	0	3.491	145	4,218	174	5,076	31,518	111	
1/14/2015	0	3.521	197	5,789	222	6,519	31,519	112	
1/15/2015	0	3.477	178	5,163	206	5,978	31,521	110	
1/16/2015	0	3.195	184	4,898	169	4,507	31,522	101	
1/17/2015	0	3.218					31,523	102	
1/18/2015	0.01	4.179					31,525	133	
1/19/2015	0	3.976	202	6,697	245	8,133	31,526	126	
1/20/2015	0.04	4.05	173	5,852	229	7,746	31,527	128	
1/21/2015	0.09	4.057	151	5,118	166	5,610	31,529	129	
1/22/2015	0	3.734	160	4,995	144	4,479	31,530	118	
1/23/2015	0	3.647	178	5,427	169	5,126	31,532	116	
1/24/2015	0	3.546					31,533	112	
1/25/2015	0.17	3.609					31,534	114	
1/26/2015	0	3.739	218	6,803	234	7,282	31,536	119	
1/27/2015	0	3.57	155	4,601	140	4,154	31,537	113	
1/28/2015	0	3.421	235	6,694	190	5,431	31,538	108	
1/29/2015	0.04	3.639	183	5,569	188	5,721	31,540	115	
1/30/2015	0	3.294	176	4,824	125	3,424	31,541	104	
1/31/2015	0.04	3.305					31,542	105	
2/1/2015	0.82	3.333					31,544	106	
2/2/2015	0.03	3.506	183	5,346	156	4,569	31,545	111	
2/3/2015	0.01	3.42	210	5,976	148	4,235	31,547	108	
2/4/2015	0.24	3.432	226	6,469	241	6,895	31,548	109	

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2/5/2015	0	3.488	194	5,646	173	5,043	31,549	111	
2/6/2015	0	3.293	167	4,598	153	4,203	31,551	104	
2/7/2015	0	3.714					31,552	118	
2/8/2015	0.01	6.033					31,553	191	
2/9/2015	0	5.137	107	4,604	104	4,447	31,555	163	
2/10/2015	0	4.444	152	5,631	179	6,649	31,556	141	
2/11/2015	0	4.078	163	5,556	149	5,072	31,558	129	
2/12/2015	0.02	3.821	167	5,317	156	4,964	31,559	121	
2/13/2015	0.03	3.564	147	4,377	96	2,861	31,560	113	
2/14/2015	0.04	3.628					31,562	115	
2/15/2015	0	3.546					31,563	112	
2/16/2015	0	3.697	175	5,401	125	3,860	31,564	117	
2/17/2015	0	3.327	183	5,084	142	3,926	31,566	105	
2/18/2015	0	3.417	185	5,273	120	3,410	31,567	108	
2/19/2015	0	3.39	260	7,365	281	7,941	31,568	107	
2/20/2015	0	3.189	198	5,266	143	3,812	31,570	101	
2/21/2015	0.21	3.171					31,571	100	
2/22/2015	0	3.15					31,573	100	
2/23/2015	0	3.211	206	5,521	155	4,152	31,574	102	
2/24/2015	0	3.538	211	6,224	179	5,280	31,575	112	
2/25/2015	0	3.532	194	5,722	180	5,306	31,577	112	
2/26/2015	0.04	3.278	222	6,058	206	5,642	31,578	104	
2/27/2015	0	3.358	203	5,685	149	4,164	31,579	106	
2/28/2015	0.09	3.178					31,581	101	
3/1/2015	0.33	3.154					31,582	100	
3/2/2015	0	3.176	295	7,805	228	6,052	31,584	101	
3/3/2015	0.11	3.342	221	6,149	199	5,538	31,585	106	
3/4/2015	0	3.101	245	6,332	237	6,123	31,586	98	
3/5/2015	0	3.158	224	5,896	180	4,754	31,588	100	
3/6/2015	0	3.106	222	5,760	170	4,400	31,589	98	
3/7/2015	0	3.082					31,590	98	
3/8/2015	0	3.421					31,592	108	
3/9/2015	0	4.414	186	6,844	135	4,965	31,593	140	
3/10/2015	0	4.808	123	4,946	113	4,536	31,595	152	
3/11/2015	0	5.687	183	8,676	145	6,860	31,596	180	
3/12/2015	0	5.016	125	5,226	96	4,029	31,597	159	
3/13/2015	0.19	5.139	118	5,047	86	3,686	31,599	163	
3/14/2015	0	5.334					31,600	169	
3/15/2015	0	4.636					31,601	147	
3/16/2015	0	4.827	123	4,947	101	4,081	31,603	153	

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3/17/2015	0	3.784	134	4,222	191	6,034	31,604	120	
3/18/2015	0	3.828	179	5,705	159	5,066	31,605	121	
3/19/2015	0	3.718	155	4,795	246	7,622	31,607	118	
3/20/2015	0.09	3.6	155	4,652	138	4,133	31,608	114	
3/21/2015	0	3.431					31,610	109	
3/22/2015	0	3.359					31,611	106	
3/23/2015	0.34	3.583	175	5,217	175	5,231	31,612	113	
3/24/2015	0	3.817	168	5,336	160	5,089	31,614	121	
3/25/2015	0.29	5.448	159	7,214	235	10,695	31,615	172	
3/26/2015	0.72	7.495	96	6,030	169	10,592	31,616	237	
3/27/2015	0	4.953	117	4,841	108	4,466	31,618	157	
3/28/2015	0	3.932					31,619	124	
3/29/2015	0	3.584					31,621	113	
3/30/2015	0	3.621	155	4,693	168	5,082	31,622	115	
3/31/2015	0	3.441	151	4,332	167	4,801	31,623	109	
4/1/2015	0	3.247	184	4,972	155	4,198	31,625	103	
4/2/2015	0.24	3.549	147	4,343	160	4,728	31,626	112	
4/3/2015	0.02	3.452	161	4,633	153	4,393	31,627	109	
4/4/2015	0	3.356					31,629	106	
4/5/2015	0	3.245					31,630	103	
4/6/2015	0.02	3.54	200	5,890	169	4,995	31,632	112	
4/7/2015	0.38	4.834	145	5,850	207	8,326	31,633	153	
4/8/2015	0.17	4.42	106	3,914	161	5,931	31,634	140	
4/9/2015	0.48	5.468	121	5,518	140	6,398	31,636	173	
4/10/2015	0	4.512	114	4,307	136	5,114	31,637	143	
4/11/2015	0	4.01					31,638	127	
4/12/2015	0	3.81					31,640	120	
4/13/2015	0.11	3.692	157	4,831	171	5,261	31,641	117	
4/14/2015	0	3.614	188	5,665	217	6,537	31,642	114	
4/15/2015	0.06	3.407	150	4,275	165	4,675	31,644	108	
4/16/2015	0.03	3.425	131	3,753	159	4,539	31,645	108	
4/17/2015	0	3.251	154	4,181	196	5,310	31,647	103	
4/18/2015	0	3.178					31,648	100	
4/19/2015	1.06	5.047					31,649	159	
4/20/2015	0.16	5.255	135	5,895	122	5,364	31,651	166	
4/21/2015	0.01	4.242	103	3,628	111	3,928	31,652	134	
4/22/2015	0	3.883	127	4,117	135	4,385	31,653	123	
4/23/2015	0	3.606	118	3,542	160	4,824	31,655	114	
4/24/2015	0	3.295	168	4,613	229	6,281	31,656	104	
4/25/2015	0.54	3.955					31,658	125	

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4/26/2015	0	3.712					31,659	117	
4/27/2015	0	3.611	155	4,678	229	6,882	31,660	114	
4/28/2015	0	3.392	126	3,573	185	5,246	31,662	107	
4/29/2015	0	3.37	113	3,182	150	4,213	31,663	106	
4/30/2015	0	3.326	107	2,974	189	5,230	31,664	105	
5/1/2015	0	3.15	146	3,848	185	4,870	31,666	99	
5/2/2015	0	3.135					31,667	99	
5/3/2015	0	3.155					31,668	100	106.00
5/4/2015	0.08	3.392	126	3,555	169	4,777	31,670	107	
5/5/2015	0.27	3.708	151	4,669	260	8,047	31,671	117	
5/6/2015	0	3.319	146	4,034	143	3,953	31,673	105	
5/7/2015	0	3.254	352	9,555	305	8,281	31,674	103	
5/8/2015	0	3.145	186	4,883	183	4,812	31,675	99	
5/9/2015	0.95	3.57					31,677	113	
5/10/2015	0.34	3.819					31,678	121	
5/11/2015	0.08	4.136	166	5,724	235	8,099	31,679	131	
5/12/2015	0	3.555	161	4,760	201	5,949	31,681	112	
5/13/2015	0	3.534	153	4,520	208	6,134	31,682	112	
5/14/2015	0	3.382	169	4,759	220	6,198	31,684	107	
5/15/2015	0.69	4.142	188	6,503	186	6,437	31,685	131	
5/16/2015	0.03	3.711					31,686	117	
5/17/2015	0	3.589					31,688	113	
5/18/2015	0.15	3.636	138	4,192	151	4,584	31,689	115	
5/19/2015	0	3.346	176	4,917	201	5,609	31,690	106	
5/20/2015	0.03	3.339	167	4,662	231	6,432	31,692	105	
5/21/2015	0	3.231	205	5,536	182	4,917	31,693	102	
5/22/2015	0	3.063	242	6,172	197	5,042	31,695	97	
5/23/2015	0	2.872					31,696	91	
5/24/2015	0	2.716					31,697	86	
5/25/2015	0.01	3.08	161	4,148	222	5,708	31,699	97	
5/26/2015	0.22	3.233	158	4,263	193	5,199	31,700	102	
5/27/2015	0.31	4.013	145	4,862	175	5,846	31,701	127	
5/28/2015	0	3.511	106	3,095	152	4,447	31,703	111	
5/29/2015	0	3.148	128	3,350	179	4,691	31,704	99	
5/30/2015	1.1	3.801					31,705	120	
5/31/2015	0.75	5.989					31,707	189	
6/1/2015	0	4.252	200	7,104	278	9,842	31,708	134	
6/2/2015	0	3.805	114	3,602	130	4,116	31,710	120	
6/3/2015	0	3.4	158	4,470	188	5,324	31,711	107	
6/4/2015	0	3.392	135	3,815	150	4,243	31,712	107	

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6/5/2015	0	3.225	163	4,374	201	5,412	31,714	102	
6/6/2015	0	3.003					31,715	95	
6/7/2015	0.57	3.568					31,716	112	
6/8/2015	0.68	5.354	143	6,395	199	8,877	31,718	169	
6/9/2015	0	4.689	58	2,273	123	4,820	31,719	148	
6/10/2015	0.03	4.019	101	3,386	137	4,606	31,721	127	
6/11/2015	0	3.753	110	3,456	149	4,651	31,722	118	
6/12/2015	0.35	4.185	128	4,459	140	4,869	31,723	132	
6/13/2015	2.08	5.875					31,725	185	
6/14/2015	0.21	5.942					31,726	187	
6/15/2015	2.73	10.289	77	6,579	124	10,608	31,727	324	
6/16/2015	0.16	8.461	41	2,913	119	8,388	31,729	267	
6/17/2015	1.43	6.842	69	3,913	99	5,632	31,730	216	
6/18/2015	0.17	6.299	72	3,758	87	4,585	31,732	199	
6/19/2015	0.04	4.845	78	3,152	95	3,830	31,733	153	
6/20/2015	0	4.227					31,734	133	
6/21/2015	0.09	4.047					31,736	128	
6/22/2015	0	4.169	128	4,463	147	5,112	31,737	131	
6/23/2015	0.01	3.562	130	3,864	156	4,629	31,738	112	
6/24/2015	0	3.483	129	3,748	234	6,801	31,740	110	
6/25/2015	0.44	5.005	140	5,840	197	8,219	31,741	158	
6/26/2015	0.68	5.569	111	5,170	118	5,465	31,742	175	
6/27/2015	2.05	10.195					31,744	321	
6/28/2015	0	5.416					31,745	171	
6/29/2015	0.19	4.637	88	3,391	127	4,904	31,747	146	
6/30/2015	0.07	4.149	94	3,263	128	4,444	31,748	131	
7/1/2015	0	3.64	38	1,160	154	4,682	31,749	115	
7/2/2015	0	3.592	56	1,667	181	5,433	31,751	113	
7/3/2015	0	3.303	46	1,271	119	3,285	31,752	104	
7/4/2015	0	2.99					31,753	94	
7/5/2015	0	3.112					31,755	98	
7/6/2015	0	3.419	74	2,118	185	5,271	31,756	108	
7/7/2015	0.27	3.405	68	1,934	262	7,428	31,758	107	
7/8/2015	0.34	5.249	63	2,777	186	8,128	31,759	165	
7/9/2015	1.39	6.824	15	876	137	7,818	31,760	215	
7/10/2015	0	4.721	28	1,108	105	4,127	31,762	149	
7/11/2015	0	3.712					31,763	117	
7/12/2015	0.17	3.565					31,764	112	
7/13/2015	2.37	11.091	60	5,535	198	18,322	31,766	349	
7/14/2015	0.06	7.685	16	1,022	75	4,806	31,767	242	

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7/15/2015	0	5.092	30	1,259	125	5,295	31,768	160	
7/16/2015	0	4.202	26	923	119	4,182	31,770	132	
7/17/2015	0.56	4.558	46	1,730	150	5,704	31,771	143	
7/18/2015	0.74	7.384					31,773	232	
7/19/2015	0	6.442					31,774	203	
7/20/2015	0	4.699	41	1,599	102	4,004	31,775	148	
7/21/2015	0	4.032	33	1,115	136	4,576	31,777	127	
7/22/2015	0	3.57	49	1,445	154	4,575	31,778	112	
7/23/2015	0	3.574	44	1,303	174	5,179	31,779	112	
7/24/2015	0	3.259	39	1,067	144	3,908	31,781	103	
7/25/2015	0	3.05					31,782	96	
7/26/2015	0.07	3.1					31,784	98	
7/27/2015	0	3.187	96	2,551	245	6,521	31,785	100	
7/28/2015	0	3.251	57	1,532	148	4,013	31,786	102	
7/29/2015	0	3.123	49	1,271	174	4,526	31,788	98	
7/30/2015	0	3.078	56	1,450	143	3,670	31,789	97	
7/31/2015	0	3.145	87	2,270	185	4,842	31,790	99	
8/1/2015	0	2.88					31,792	91	
8/2/2015	0	3.176					31,793	100	103
8/3/2015	0.63	3.462	169	4,881	202	5,836	31,795	109	
8/4/2015	0	3.63	109	3,307	177	5,345	31,796	114	
8/5/2015	0	3.038	178	4,519	184	4,674	31,797	96	
8/6/2015	0	3.189	119	3,172	164	4,374	31,799	100	
8/7/2015	0	3.069	147	3,774	189	4,838	31,800	97	
8/8/2015	0	2.803					31,801	88	
8/9/2015	0.01	2.933					31,803	92	
8/10/2015	0.27	3.372	184	5,186	351	9,871	31,804	106	
8/11/2015	0	3.436	162	4,633	268	7,684	31,805	108	
8/12/2015	0	3.112	113	2,928	167	4,337	31,807	98	
8/13/2015	0	3.133	116	3,032	193	5,054	31,808	98	
8/14/2015	0	3.137	148	3,881	165	4,316	31,810	99	
8/15/2015	0.47	3.139					31,811	99	
8/16/2015	0	3.079					31,812	97	
8/17/2015	1.25	3.509	152	4,450	191	5,604	31,814	110	
8/18/2015	0	3.542	120	3,535	162	4,780	31,815	111	
8/19/2015	0.32	3.563	153	4,535	173	5,147	31,816	112	
8/20/2015	0.17	3.509	132	3,853	152	4,441	31,818	110	
8/21/2015	0	3.299	178	4,906	195	5,372	31,819	104	
8/22/2015	0	3.081					31,821	97	
8/23/2015	0.43	3.561					31,822	112	

Aqua Indiana, Inc.
Cause No. 44752

Combined Wastewater Treatment Plant Flows and Loads and Infiltration & Inflow

Date	Precipitation (inches)	Combined Effluent Flow (mgd)	Combined Influent cBOD5 (mg/l)	Combined Influent cBOD5 (lbs./d)	Combined Influent TSS (mg/l)	Combined Influent TSS (lbs./d)	OUCC Estimated Population	Calc. Flow per person	7-14 day Avg. Flow per person
8/24/2015	0	3.548	177	5,224	174	5,157	31,823	111	
8/25/2015	0	3.288	109	2,980	149	4,086	31,825	103	
8/26/2015	0	3.097	147	3,807	169	4,367	31,826	97	
8/27/2015	0	3.29	143	3,917	152	4,184	31,827	103	
8/28/2015	0	3.459	148	4,270	208	6,014	31,829	109	
8/29/2015	0.02	3.088					31,830	97	
8/30/2015	0	3.32					31,832	104	
8/31/2015	0	3.15	225	5,914	256	6,714	31,833	99	
9/1/2015	0	3.403	172	4,876	210	5,959	31,834	107	
9/2/2015	0	3.456	190	5,484	194	5,598	31,836	109	
9/3/2015	0	3.269	155	4,237	128	3,487	31,837	103	
9/4/2015	0.93	3.555	181	5,354	181	5,358	31,838	112	
9/5/2015	0.17	3.498					31,840	110	
9/6/2015	0	3.012					31,841	95	
9/7/2015	0	3.368	144	4,040	132	3,721	31,842	106	
9/8/2015	0	3.531	173	5,087	241	7,095	31,844	111	
9/9/2015	0	3.064	128	3,263	161	4,110	31,845	96	
9/10/2015	0	3.119	131	3,412	166	4,316	31,847	98	
9/11/2015	0.26	3.184	141	3,756	143	3,800	31,848	100	
9/12/2015	0	3.066					31,849	96	
9/13/2015	0	3.123					31,851	98	
9/14/2015	0	3.296	162	4,457	207	5,696	31,852	103	
9/15/2015	0	3.151	133	3,508	138	3,637	31,853	99	
9/16/2015	0	3.118	146	3,785	156	4,054	31,855	98	
9/17/2015	0	3.031	136	3,432	208	5,253	31,856	95	
9/18/2015	0.47	3.555	180	5,338	203	6,011	31,858	112	
9/19/2015	1.18	5.001					31,859	157	
9/20/2015	0	3.563					31,860	112	
9/21/2015	0	3.642	154	4,671	155	4,714	31,862	114	
9/22/2015	0	3.143	160	4,184	165	4,336	31,863	99	
9/23/2015	0	3.314	141	3,884	189	5,218	31,864	104	
9/24/2015	0	3.308	167	4,614	162	4,483	31,866	104	
9/25/2015	0	3.328	197	5,455	244	6,764	31,867	104	
9/26/2015	0	2.735					31,868	86	
9/27/2015	0	3.099					31,870	97	
9/28/2015	0	3.176	238	6,310	247	6,541	31,871	100	
9/29/2015	0.02	3.125	184	4,789	171	4,459	31,873	98	
9/30/2015	0	2.989	176	4,397	197	4,902	31,874	94	
10/1/2015	0	3.076	143	3,674	166	4,255	31,875	97	
10/2/2015	0.06	2.836	177	4,189	196	4,630	31,877	89	

Aqua Indiana, Inc.
Cause No. 44752

Combined Wastewater Treatment Plant Flows and Loads and Infiltration & Inflow

Date	Precipitation (inches)	Combined Effluent Flow (mgd)	Combined Influent cBOD5 (mg/l)	Combined Influent cBOD5 (lbs./d)	Combined Influent TSS (mg/l)	Combined Influent TSS (lbs./d)	OUCC Estimated Population	Calc. Flow per person	7-14 day Avg. Flow per person
10/3/2015	0.05	2.771					31,878	87	
10/4/2015	0.01	2.896					31,879	91	
10/5/2015	0	3.088	206	5,298	209	5,388	31,881	97	
10/6/2015	0	3.153	139	3,657	181	4,751	31,882	99	
10/7/2015	0	3.11	190	4,936	276	7,171	31,884	98	
10/8/2015	0	2.912	128	3,098	128	3,097	31,885	91	
10/9/2015	0.13	2.877	148	3,552	144	3,460	31,886	90	
10/10/2015	0	2.726					31,888	85	
10/11/2015	0	2.883					31,889	90	
10/12/2015	0	3.115	190	4,937	209	5,440	31,890	98	
10/13/2015	0	2.991	178	4,432	237	5,903	31,892	94	
10/14/2015	0	2.901	175	4,244	213	5,147	31,893	91	
10/15/2015	0	2.806	184	4,318	213	4,978	31,895	88	
10/16/2015	0	2.656	213	4,718	172	3,799	31,896	83	
10/17/2015	0	2.605					31,897	82	
10/18/2015	0	2.698					31,899	85	
10/19/2015	0	2.993	162	4,034	214	5,354	31,900	94	
10/20/2015	0	3.128	187	4,886	234	6,101	31,901	98	
10/21/2015	0	2.876	196	4,696	224	5,367	31,903	90	
10/22/2015	0	3.069	180	4,613	176	4,495	31,904	96	
10/23/2015	0	2.671	221	4,921	224	4,983	31,905	84	
10/24/2015	0.11	2.599					31,907	81	
10/25/2015	0	2.88					31,908	90	
10/26/2015	0	2.987	169	4,220	245	6,103	31,910	94	
10/27/2015	0.36	3.043	186	4,728	169	4,298	31,911	95	
10/28/2015	0.64	3.606	172	5,160	245	7,375	31,912	113	
10/29/2015	0	2.996	168	4,203	222	5,559	31,914	94	
10/30/2015	0	2.855	173	4,107	171	4,068	31,915	89	
10/31/2015	0.07	2.874					31,916	90	
11/1/2015	0.01	2.959					31,918	93	
11/2/2015	0	3.131	328	8,562	714	18,653	31,919	98	
11/3/2015	0	3.147	154	4,036	243	6,370	31,921	99	
11/4/2015	0	3.221	191	5,127	284	7,625	31,922	101	
11/5/2015	0.05	3.07	205	5,256	226	5,797	31,923	96	
11/6/2015	0.06	2.766	240	5,537	200	4,608	31,925	87	
11/7/2015	0	2.676					31,926	84	
11/8/2015	0	3.266					31,927	102	
11/9/2015	0.15	3.136	149	3,897	185	4,841	31,929	98	
11/10/2015	0.32	3.283	158	4,328	213	5,824	31,930	103	
11/11/2015	0.02	3.349	174	4,860	210	5,865	31,932	105	

Aqua Indiana, Inc.
Cause No. 44752

Combined Wastewater Treatment Plant Flows and Loads and Infiltration & Inflow

Date	Precipitation (inches)	Combined Effluent Flow (mgd)	Combined Influent cBOD5 (mg/l)	Combined Influent cBOD5 (lbs./d)	Combined Influent TSS (mg/l)	Combined Influent TSS (lbs./d)	OUCC Estimated Population	Calc. Flow per person	7-14 day Avg. Flow per person
11/12/2015	0.02	3.288	193	5,297	199	5,463	31,933	103	
11/13/2015	0	3.289	157	4,310	156	4,270	31,934	103	
11/14/2015	0	3.209					31,936	100	
11/15/2015	0	2.994					31,937	94	
11/16/2015	0	2.953	178	4,391	200	4,918	31,938	92	
11/17/2015	0.01	3.259	169	4,588	260	7,059	31,940	102	
11/18/2015	0.14	2.881	183	4,400	230	5,529	31,941	90	
11/19/2015	0	3.372	235	6,601	357	10,036	31,942	106	
11/20/2015	0	2.953	175	4,306	176	4,341	31,944	92	
11/21/2015	0.45	2.999					31,945	94	
11/22/2015	0	2.979					31,947	93	
11/23/2015	0	3.383	155	4,384	177	4,999	31,948	106	
11/24/2015	0	3.557	182	5,413	205	6,071	31,949	111	
11/25/2015	0	3.464	175	5,065	203	5,863	31,951	108	
11/26/2015	0	2.985	206	5,124	153	3,817	31,952	93	
11/27/2015	0.84	4.766	299	11,890	180	7,174	31,953	149	
11/28/2015	0.06	4.239					31,955	133	
11/29/2015	0	3.625					31,956	113	
11/30/2015	0	3.403	183	5,200	236	6,710	31,958	106	
12/1/2015	0.05	3.568	163	4,844	177	5,261	31,959	112	
12/2/2015	0.01	3.32	170	4,702	162	4,493	31,960	104	
12/3/2015	0.01	3.112	171	4,438	171	4,450	31,962	97	
12/4/2015	0	3.1	162	4,200	336	8,696	31,963	97	
12/5/2015	0	2.864					31,964	90	
12/6/2015	0	2.938					31,966	92	
12/7/2015	0	2.854	175	4,177	193	4,606	31,967	89	
12/8/2015	0	2.875	186	4,453	187	4,484	31,968	90	
12/9/2015	0	2.859	223	5,320	256	6,093	31,970	89	
12/10/2015	0	2.846	160	3,801	207	4,921	31,971	89	
12/11/2015	0	2.712	184	4,172	235	5,325	31,973	85	
12/12/2015	0	2.711					31,974	85	
12/13/2015	0.01	2.768					31,975	87	
12/14/2015	0.26	3.168	164	4,326	210	5,541	31,977	99	
12/15/2015	0.02	2.971	131	3,238	178	4,406	31,978	93	
12/16/2015	0	3.04	161	4,073	129	3,264	31,979	95	
12/17/2015	0	3.232	212	5,722	188	5,063	31,981	101	
12/18/2015	0	3.17	155	4,093	154	4,081	31,982	99	
12/19/2015	0	2.857					31,984	89	
12/20/2015	0	3.111					31,985	97	
12/21/2015	0.48	3.6	178	5,355	203	6,108	31,986	113	

Aqua Indiana, Inc.
Cause No. 44752

Combined Wastewater Treatment Plant Flows and Loads and Infiltration & Inflow

Date	Precipitation (inches)	Combined Effluent Flow (mgd)	Combined Influent cBOD5 (mg/l)	Combined Influent cBOD5 (lbs./d)	Combined Influent TSS (mg/l)	Combined Influent TSS (lbs./d)	OUCC Estimated Population	Calc. Flow per person	7-14 day Avg. Flow per person
12/22/2015	0.07	3.49	178	5,179	187	5,430	31,988	109	
12/23/2015	0.66	5.505	152	6,974	167	7,662	31,989	172	
12/24/2015	0	4.673	133	5,173	212	8,270	31,990	146	
12/25/2015	0	3.627	80	2,418	83	2,508	31,992	113	
12/26/2015	0.92	6.063					31,993	190	
12/27/2015	0.53	6.875					31,995	215	
12/28/2015	1.12	11.052	75	6,874	92	8,487	31,996	345	
12/29/2015	0.01	6.746	66	3,710	73	4,091	31,997	211	
12/30/2015	0	4.789	92	3,662	98	3,913	31,999	150	
12/31/2015	0	4.004	111	3,691	116	3,881	32,000	125	
Average 2014		3.75	174	5,432	196	6,130		120	
Average 2015		3.75	159	4,970	185	5,779		119	

Notes:

1. Days with rainfall totals above 0.5 inches are shaded blue
2. Average flows per person above EPA's 275 gpdpp screening criteria are shown shown in cells shaded yellow.
3. 7-14 day average dry weather flows per person are shown in cells shaded green. No values exceeded EPA's screening criteria of 120 gpdpp.



IN0035378
allen Co

IDEM
OFFICE OF
WATER QUALITY

2013 DEC 27 A 10: 35

Jeffery W. Gard
Area Manager- Fort Wayne
Aqua Indiana
1111 W. Hamilton Road South
Fort Wayne, Indiana 46814

Indiana Department of Environmental Management
Office of Water Quality
100 North Senate Avenue
Indianapolis, IN 46204-2251

Attention: Rex Counterman

December 26, 2013

Dear Mr. Counterman:

We are in receipt of your Inspection Summary and Violation Letter for NPDES Permit Number IN0035378 dated December 3, 2013 and received by us on December 6, 2013. Please consider this formal response as required for the violation noted below:

On numerous occasions during the period of September 2012 to September 2013, sanitary sewers (SSO) have overflowed which is unsatisfactory. The majority of the SSOs which have been reported are due to capacity related issues in the collection system. This violates NPDES Permit Part II B. 2. g.

First, the time period specified, September 2012 to September 2013, was particularly challenging to our operations in terms of the multiple episodes of rainfall totals and hourly rates exceeding 4.75 and 5 inches at rates of more than 2 inches in 12 hour periods that impacted our system. Secondly, there are two corrective actions specifically indentified in our Compliance Plan for Case Number 2010-18952-W that should eliminate the majority of the SSO's referenced in the 12/03/2013 Inspection Summary and Violation Letter. The first action, Braemar Force Main and Pump Station Project, is currently in the final design phase with construction set to start in early spring. The second action, Aboite Diversion Project, is progressing rapidly with 7,243 feet of 18" pipe and appurtenances installed. Both projects will be complete by the approved extension date of December 31, 2014.

Additionally, our field crews have cleaned and inspected 9.8 miles of sewer main in 2013, added additional metering capabilities to continually monitor lift station pumps in the trouble areas to ensure proper running conditions and have increased our manual surveillance of manholes to monitor for early warning signs.

As diligent stewards of the environment, Aqua is continuously striving to improve our system operations through capital improvements and ongoing maintenance efforts. If you have any questions, please contact me via phone at 260-625-4700, Ext 55241 or via email at jwgard@aquaamerica.com. Thank you.

Sincerely,

Jeffery W. Gard
Area Manager
Aqua Indiana - Fort Wayne



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

February 10, 2015

Via Email to: jwgard@aquaamerica.com

Mr. Jeffery Gard, Area Manager
Aqua Indiana, Inc. Ft. Wayne
1111 W. Hamilton Road
Ft. Wayne, Indiana 46814

Dear Mr. Gard:

Re: Inspection Summary Letter
Main Aboite Wastewater Treatment Plant
NPDES Permit No. IN0035378
Fort Wayne, Allen County

An inspection of the above-referenced facility or location was conducted by a representative of the Indiana Department of Environmental Management, Office of Water Quality, pursuant to IC 13-18-3-9. A summary of the inspection is provided below:

Date(s) of Inspection: January 29, 2015
Type of Inspection: Compliance Evaluation Inspection
Inspection Results: Potential problems were discovered or observed.

IDEM recommends the permittee begin the process of registering for NetDMR. Information on NetDMR can be obtained at <http://www.in.gov/idem/6765.htm>.

A copy of the NPDES Wastewater Facility Inspection Report is enclosed for your records. Please direct any response to this letter and any questions to Rex Counterman at 317-691-1914 or by email to rcounter@idem.IN.gov.

Sincerely,

A handwritten signature in black ink that reads 'Bridget S. Murphy'. The signature is written in a cursive style with a long horizontal flourish extending to the right.

Bridget S. Murphy, Inspections Section Chief
Compliance Branch
Office of Water Quality

Enclosure



NPDES Wastewater Facility Inspection Report

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

NPDES Permit Number: IN0035378	Facility Type: Mixed Ownership	Major	Facility Classification: III	TEMPO AI ID 15295			
Date(s) of Inspection: January 29, 2015							
Type of Inspection: Compliance Evaluation Inspection							
Name and Location of Facility Inspected: Main Aboite Wastewater Treatment Plant 9741 Woodland Rdg E Fort Wayne IN 46804			County: Allen				
Receiving Waters: Graham McCulloch Ditch			Permit Expiration Date: 10/31/2016				
Design Flow: 3.25MGD							
On Site Representative(s): First Name: Mark, Last Name: Aurich, Title: Certified Operator, Email: [blank], Phone: [blank]							
Was a verbal summary of findings presented to the on-site representative? Yes							
Certified Operator: Mark Aurich	Number: 014021	Class: IV	Effective Date: 7-1-14	Expiration Date: 6-30-16	Email: mwurich@aquaaamerica.com		
Responsible Official: Mr. Jeffery Gard, Area Manager Aqua Indiana, Inc. Ft. Wayne 1111 W. Hamilton Road Ft. Wayne, Indiana 46814			Permittee: Email: jwgard@aquaaamerica.com				
			Phone:	Contacted?			
			Fax:	No			
INSPECTION FINDINGS							
<input type="radio"/> Conditions evaluated were found to be satisfactory at the time of the inspection. (5) <input type="radio"/> Violations were discovered but corrected during the inspection. (4) <input checked="" type="radio"/> Potential problems were discovered or observed. (3) <input type="radio"/> Violations were discovered and require a submittal from you and/or a follow-up inspection by IDEM. (2) <input type="radio"/> Violations were discovered and may subject you to an appropriate enforcement response. (1)							
AREAS EVALUATED DURING INSPECTION							
<i>(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)</i>							
S	Receiving Waters	S	Facility/Site	S	Self-Monitoring	S	Compliance Schedules
S	Effluent Appearance	S	Operation	S	Flow Measurement	N	Pretreatment
S	Permit	S	Maintenance	S	Laboratory	S	Effluent Limits Compliance
M	CSO/SSO (Sewer Overflow)	S	Sludge	S	Records/Reports	N	Other:
DETAILED AREA EVALUATIONS							
IDEM recommends the permittee begin the process of registering for NetDMR. Information on NetDMR can be obtained at http://www.in.gov/idem/6765.htm .							
Receiving Waters:							
S 1. The receiving stream is visibly free of excessive deposits of settled solids, floating debris, oil, scum, or billowy foam.							
Comments: The receiving stream was free of notable foam, algae or solids.							
Effluent Appearance:							
S 1. Treated effluent is free of excessive solids, floating debris, oil, scum, or billowy foam.							
Comments: The effluent was clear and free of color at the time of the inspection.							

Permit:

- S 1. Does the facility have a current copy of the permit available for reference?
- N 2. If the permit expires within 180 days, has a renewal application been submitted?
- S 3. Receiving waters are accurately described in permit.
- N 4. The permit has been properly transferred if there is a new owner.

Comments:

The facility has a valid permit and the facility description, including units of treatment and receiving stream, is accurate.

CSO/SSO:

- N 1. CSO's are adequately monitored and maintained.
- M 2. No unauthorized overflow events in last 12 months.
- S 3. Facility has met SSO and dry weather CSO reporting requirements
- S 4. Any adverse impacts from SSO and CSO events have been properly mitigated.

Comments:

The facility has had several SSOs in 2014, but in December 2014 the Braemar Lift Station project was connected and electricity supplied. This lift station was part of the compliance plan in the enforcement action AO 2010-18952-W. This lift station allows flow to go to the Midwest WWTP instead of hydraulically overloading Main Aboite WWTP. The early indication from the operator is this project should decrease/eliminate the SSOs in the Main Aboite system.

Facility/Site:

- S 1. The facility has standby power or equivalent provision.
- S 2. An adequate alarm or notification system for power or equipment failure is available for the treatment facility and lift stations.
- S 3. Safe and adequate access is provided for inspection of all units and outfalls.
- S 4. Facilities and equipment do not appear beyond their useful life.
- 5. List any safety concerns:

Comments:

The facility has two standby generators that are tested and maintained on a regular basis. The facility has telemetry on all necessary equipment.

Operation:

- S 1. All facilities and systems necessary for achieving compliance with the terms and conditions of the permit are operated efficiently, including an anticipated bypass report for steps of treatment taken out of service.
- S 2. An adequate, qualified operating staff is provided to carry out the operation of the facility, including:
 - a. Certified Operator's on-site attendance and/or qualified operations personnel attendance is adequate.
 - b. Adequate documentation of operational activities, including system monitoring and cleaning.
 - c. Adequate funding to ensure proper operation.
- S 3. Solids handling procedures include:
 - a. Sufficient solids are wasted from the treatment system, in a timely manner, to maintain process efficiency.
 - b. Wasting of solids is based on appropriate operational targets and valid process control testing.
 - c. Adequate documentation of solids removal, handling, or control is available for review.
- S 4. The facility is operated efficiently during wet weather events.

Comments:

All units of treatment appear to be operating efficiently. Operator wastes sludge on a weekly routine basis from Monday to Wednesday and presses Wednesday to Friday.

Maintenance:

- S 1. A maintenance record system has been established and includes maintenance/repair history and preventative maintenance plan.
- S 2. Facility maintenance activities appear adequate.
- S 3. Lift stations are adequately inspected, cleaned, and maintained, with adequate documentation of activities.
- S 4. Collection system maintenance activities appear adequate.

Comments:

The Certified Operator keeps excellent maintenance and repair records.

Sludge:

- S 1. Sludges, screenings, and slurries are handled and disposed of properly.

Comments:

A records review during the inspection showed adequate wasting, handling, and disposal of sludge. Dried sludge is hauled to the Waste Management Landfill on a regular basis.

Self-Monitoring:

- S 1. Samples are taken at pre-designated locations and are representative.
- S 2. Flow-proportioned samples are obtained where needed.
- S 3. The facility conducts sampling of all waste streams, including type and frequency, as required in the permit.
- S 4. Sample collection procedures, including automatic sampling, include:
- a. Samples are refrigerated during compositing.
 - b. Proper preservation techniques are used.
 - c. Containers and holding times conform to 40 CFR 136.3.
- S 5. Sample documentation is adequate and includes:
- a. Dates, times, and locations of sampling.
 - b. Name of individual performing sampling.
 - c. Instantaneous flow for flow-weighted aliquots.
 - d. Chain of Custody records.
- N 6. NPDES Permit Whole Effluent Toxicity (WET) testing requirements are being met.

Comments:

The Self Monitoring Program was rated as satisfactory. All sampling practices, including raw and intermediate unit process testing, are conducted accurately and at the frequency required by the permit.

Flow Measurement:

- S 1. Flow is properly monitored as required by the permit.
- S 2. Flow data and calibration records are available for review.

Comments:

The effluent flow meter was last calibrated June 2014.

Laboratory:

The following laboratory records were reviewed:

- N 1. The laboratory practices and protocol reviewed were adequate, including:
- a. Written laboratory QA/QC manual.
 - b. Samples are properly stored.
 - c. Approved analytical methods are used.
 - d. Calibration and maintenance of instruments is adequate.
 - e. QA/QC procedures are adequate.
 - f. Dates of analyses. (and times where required)
 - g. Name of person performing analyses.

Comments:

All laboratory testing is completed at the Aqua Midwest Facility.

Records/Reports:

The following records/reports were reviewed:

DMRs for the period of January 2014 to December 2014 were reviewed as part of the inspection.

- S 1. All facility records for the period including the previous three years were available for review.
- S 2. DMRs and MROs are completed properly and accurately including:
- a. "No Ex" column is accurate.
 - b. Signatory requirements are met.
 - c. Reports are prepared by or under the direction of a certified operator.
- S 3. Bypass and Noncompliance reporting are adequate.

Comments:

The requested records were available and appear complete and accurate.

Compliance Schedules:

N 1. The NPDES Permit Schedule of Compliance monitoring and reporting milestones have been met.

S 2. Agreed Order compliance milestones have been met.

Comments:

The facility is on schedule with all requirements of the Schedule of Compliance in the permit.

Pretreatment:

S 1. No evidence of interference from industrial or other sources of toxic substances was noted.

N 2. For both Delegated and Non-Delegated pretreatment programs:

- a. Industrial or commercial dischargers are regulated as required.
- b. The permittee enforces the Sewer Use Ordinance (SOU) and the Enforcement Response Plan (ERP).
- c. The permittee submitted its annual pretreatment report to IDEM by April 1.

N 3. Non-Delegated pretreatment programs have:

- a. Developed the Sewer Use Ordinance and submitted it to IDEM.
- b. Developed the Enforcement Response Plan and submitted it to IDEM.
- c. The permittee submitted sludge monitoring data (Cd, Cu, Pb, Hg, Mo, Ni, Zn) twice per year to IDEM's Pretreatment Group.

N 4. Pretreatment records and procedures were adequate and include:

- a. Inventory of Industrial Waste Contributors/Industrial Survey.
- b. Keeping records of all Industrial User (IU) self-monitoring data.
- c. Conducting compliance monitoring at all Significant Industrial Users (SIUs) for all parameters in the industry's permit.
- d. Conducting annual inspections at all SIUs and documenting them with inspection reports.
- e. For any IU in noncompliance in the past year, the permittee has taken enforcement actions.

N 5. If the non-delegated permittee accepts hauled waste:

- a. Does the POTW provide written permission to haulers?
- b. Does the POTW obtain samples from each hauled waste load and retain them for at least 48 hours?
- c. Does the POTW retain records of each load?

Comments:

Effluent Limits Compliance:

Yes 1. Were DMRs reviewed as part of the inspection?

DMRs for the period of January 2014 to December 2014 were reviewed as part of the inspection.

No 2. Were violations noted during the review of DMRs?

Comments:

IDEM REPRESENTATIVE

Inspector Name:	Email:	Phone Number:
Rex Counterman	rcounter@idem.IN.gov	317-691-1914

IDEM MANAGER REVIEW

IDEM Manager:	Date:
Bridget S. Murphy	2/7/2015



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Governor

Carol S. Comer
Commissioner

9/27/2015

Via Email to: jwgard@aquaamerica.com

Mr. Jeffery Gard, Area Manager
Aqua Indiana, Inc.
1111 W. Hamilton Rd So.
Fort Wayne, Indiana 46814

Dear Mr. Gard:

Re: Inspection Summary/ Violation Letter
Aboite Wastewater Treatment Plant
NPDES Permit No. IN0035378
Fort Wayne, Allen County

An inspection of the above-referenced facility or location was conducted by a representative of the Indiana Department of Environmental Management, Office of Water Quality, pursuant to IC 13-18-3-9. A summary of the inspection is provided below:

Date(s) of Inspection: September 14, 2015
Type of Inspection: Reconnaissance Inspection
Inspection Results: Violations were observed.

IDEM recommends the permittee begin the process of registering for NetDMR. Enrollment in and use of NetDMR will be required in 2016. Information on NetDMR can be obtained at <http://www.in.gov/idem/cleanwater/2422.htm>.

The CSO/SSO evaluation generated an unsatisfactory rating. Part II. B. 2 of the permit states, in part, that pursuant to 327 IAC 5-2-8(11) overflows are prohibited. A records review indicates that sixteen sanitary overflows have occurred during 2015.

Part II. A. 1. of your permit requires you to comply with its terms and conditions. Any noncompliance with the terms of your permit may subject you to an enforcement action which can include the imposition of penalties. You are required to immediately take all necessary measures to comply with the terms and conditions of your NPDES Permit, specifically those violations identified above.

This information is being forwarded to the OWQ Enforcement Section for consideration in conjunction with your Agreed Order, Case No. 2010-18952-W. Please direct any response to this letter and any questions to Rex Counterman at 317-691-1914 or by email to rcounter@idem.IN.gov. A copy of the NPDES Wastewater Facility Inspection Report is enclosed for your records.

Sincerely,

A handwritten signature in black ink that reads "Bridget S. Murphy". The signature is written in a cursive style with a long, sweeping horizontal line extending to the right.

Bridget S. Murphy, Inspections Section Chief
Compliance Branch
Office of Water Quality

Enclosure

Cc: Mary Hoover, Water Enforcement Section Chief



NPDES Wastewater Facility Inspection Report
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

NPDES Permit Number: IN0035378	Facility Type: Mixed Ownership	Facility Classification: Major	TEMPO AI ID 15295
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Date(s) of Inspection: September 14, 2015

Type of Inspection: Reconnaissance Inspection

Name and Location of Facility Inspected: Aboite Wastewater Treatment Plant 9741 Woodland Rdq E Fort Wayne IN 46804	County: Allen	Receiving Waters: Graham McCulloch D.	Permit Expiration Date: 10/31/2016
			Design Flow: 2.25MGD

On Site Representative(s):			
First Name	Last Name	Title	Email
Mark	Aurich	Superintendent	
Jeffery	Gard	Area Manager	jwgard@aquaaamerica.com
Robert	Krueger	Field Supervisor	
			Phone 260/625-

Was a verbal summary of findings presented to the on-site representative?

Certified Operator: Mark Aurich	Number: 14021	Class: IV	Effective Date: 7-1-14	Expiration Date: 6-30-16	Email:
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Responsible Official: Mr. Jeffery Gard, Area Manager Aqua Indiana, Inc. 1111 W. Hamilton Rd So. Fort Wayne, Indiana 46814	Permittee: Email: jwgard@aquaaamerica.com Phone: 260/740-2117 Fax:	Contacted? Yes
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INSPECTION FINDINGS

- Conditions evaluated were found to be satisfactory at the time of the inspection. (5)
- Violations were discovered but corrected during the inspection. (4)
- Potential problems were discovered or observed. (3)
- Violations were discovered and require a submittal from you and/or a follow-up inspection by IDEM. (2)
- Violations were discovered and may subject you to an appropriate enforcement response. (1)

AREAS EVALUATED DURING INSPECTION

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

N	Receiving Waters	N	Facility/Site	N	Self-Monitoring	S	Compliance Schedules
N	Effluent Appearance	N	Operation	N	Flow Measurement	N	Pretreatment
N	Permit	S	Maintenance	N	Laboratory	N	Effluent Limits Compliance
U	CSO/SSO (Sewer Overflow)	N	Sludge	N	Records/Reports	N	Other:

DETAILED AREA EVALUATIONS

IDEM recommends the permittee begin the process of registering for NetDMR. Enrollment in and use of NetDMR will be required in 2016. Information on NetDMR can be obtained at <http://www.in.gov/idem/cleanwater/2422.htm>.

CSO/SSO:

Comments:
The CSO/SSO evaluation generated an **unsatisfactory** rating. Part II. B. 2 of the permit states, in part, that pursuant to 327 IAC 5-2-8(11) overflows are prohibited. A records review indicates that **16** have occurred during 2015.

Maintenance:

Comments:
Facility has cleaned eight miles of sanitary sewers in 2015. Extensive camera videoing of the condition of the collection lines have taken place by the facility. The entire length of the two interceptors coming into the facility

have been televised. This information along with daily logging of lift stations will be given to Greeley and Hansen Eng. to develop a Master Plan for the collection system and as a part two development of the existing AO 2010-18952-W. This Master Plan will be completed by March of 2016.

Compliance Schedules:

Comments:

Phase I of the facilities' Compliance Plan has failed to eliminate the sanitary sewer overflows (SSO) which is required to meet AO 2010-18952-W. According to the accepted Compliance Plan, a new plan is required to be developed (Phase II) to address the SSOs. Phase I plan upgraded and developed a plan to off load flow from Main Aboite WWTP and send to the Midwest WWTP. This construction has provided relief for the Main Aboite WWTP as evidenced by the elimination of SSOs at the Sycamore Hills lift station and Breamer Lift station. Phase I project was called the Breamer Water Project. Although this project eliminated recorded overflows, new overflows have since developed. As the AO in effect left room for these occurrences, Aqua Indiana is now developing a new additional action plan. This plan will consist of several projects but the main projects to eliminate SSOs will be the Liberty Hills and Covington Lakes Projects. These two projects in addition to several others will be grouped under the Main Aboite Basin Flow Project. March 2016 is the scheduled date to submit the additional action plan to IDEM.

Effluent Limits Compliance:

No 1. Were DMRs reviewed as part of the inspection?

Comments:

IDEM REPRESENTATIVE

Inspector Name:	Email:	Phone Number:
Rex Counterman	rcounter@idem.IN.gov	317-691-1914

IDEM MANAGER REVIEW

IDEM Manager:	Date:
Bridget S. Murphy <input style="width: 150px; height: 15px;" type="text"/>	9/24/2015



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Michael R. Pence
Governor

Carol S. Comer
Commissioner

4/19/2016

Via Email to: jwgard@aquaamerica.com

Mr. Jeffery Gard, Regional Mgr.
Aqua Indiana, Ft. Wayne
1111W. Hamilton Rd.
Fort Wayne, Indiana 46804

Dear Mr. Gard:

Re: Inspection Summary Letter
Aboite Wastewater Treatment Plant
NPDES Permit No. IN0035378
Fort Wayne, Allen County

An inspection of the above-referenced facility or location was conducted by a representative of the Indiana Department of Environmental Management, Office of Water Quality, pursuant to IC 13-18-3-9. A summary of the inspection is provided below:

Date(s) of Inspection: April 05, 2016
Type of Inspection: Compliance Evaluation Inspection
Inspection Results: Potential problems were discovered or observed.

A copy of the NPDES Wastewater Facility Inspection Report is enclosed for your records. Please direct any response to this letter and any questions to Rex Counterman at 317-691-1914 or by email to rcounter@idem.IN.gov.

Sincerely,

A handwritten signature in black ink that reads "Bridget S. Murphy". The signature is fluid and cursive, with a long horizontal flourish extending to the right.

Bridget S. Murphy, Inspections Section Chief
Compliance Branch
Office of Water Quality

Enclosure



NPDES Wastewater Facility Inspection Report
INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

NPDES Permit Number: IN0035378	Facility Type: Mixed Ownership	Facility Classification: Major	TEMPO AI ID 15295
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Date(s) of Inspection: April 05, 2016

Type of Inspection: Compliance Evaluation Inspection

Name and Location of Facility Inspected: Aboite Wastewater Treatment Plant 9741 Woodland Rd E Fort Wayne IN 46804	County: Allen	Receiving Waters: Graham McCulloch D.	Permit Expiration Date: 10/31/2016
			Design Flow: 2.25MGD

On Site Representative(s): First Name: Jeffery Last Name: Gard Title: Joe	Title: Joe	Email: Joe	Phone: Joe
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Was a verbal summary of findings presented to the on-site representative? **Yes**

Certified Operator: Mark Aurich	Number: 014021	Class: IV	Effective Date: 7-1-14	Expiration Date: 6-30-16	Email: mwaurich@aquaaamerica.com
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Responsible Official: Mr. Jeffery Gard, Regional Mgr. 1111W. Hamilton Rd. Fort Wayne, Indiana 46804	Permittee: Aqua Indiana, Ft. Wayne
	Email: jwgard@aquaaamerica.com
	Phone: _____
	Fax: _____
	Contacted? Yes

INSPECTION FINDINGS

- Conditions evaluated were found to be satisfactory at the time of the inspection. (5)
- Violations were discovered but corrected during the inspection. (4)
- Potential problems were discovered or observed. (3)
- Violations were discovered and require a submittal from you and/or a follow-up inspection by IDEM. (2)
- Violations were discovered and may subject you to an appropriate enforcement response. (1)

AREAS EVALUATED DURING INSPECTION

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

S	Receiving Waters	S	Facility/Site	S	Self-Monitoring	S	Compliance Schedules
S	Effluent Appearance	S	Operation	S	Flow Measurement	N	Pretreatment
S	Permit	S	Maintenance	S	Laboratory	M	Effluent Limits Compliance
M	CSO/SSO (Sewer Overflow)	S	Sludge	S	Records/Reports	N	Other:

DETAILED AREA EVALUATIONS

Receiving Waters:

S 1. The receiving stream is visibly free of excessive deposits of settled solids, floating debris, oil, scum, or billowy foam.

Comments:
The receiving stream was free of notable foam, algae or solids.

Effluent Appearance:

S 1. Treated effluent is free of excessive solids, floating debris, oil, scum, or billowy foam.

Comments:
The effluent was clear and free of color at the time of the inspection.

Permit:

- S 1. Does the facility have a current copy of the permit available for reference?
- N 2. If the permit expires within 180 days, has a renewal application been submitted?
- S 3. Receiving waters are accurately described in permit.
- N 4. The permit has been properly transferred if there is a new owner.

Comments:

The facility has a valid permit and the facility description, including units of treatment and receiving stream, is accurate.

CSO/SSO:

- N 1. CSO's are adequately monitored and maintained.
- S 2. Evaluation of maintenance-related (clogged or blocked lines) overflow events in last 12 months.
- M 2. Evaluation of hydraulic (I&I) overflow events in last 12 months.
- S 3. Facility has met SSO and dry weather CSO reporting requirements
- S 4. Any adverse impacts from SSO and CSO events have been properly mitigated.

Comments:

During the last twelve months the facility has had two rain events which caused SSOs in the collection system. During the month of December 2015, one SSO occurred from hydraulic loadings in the system. During July 2015 SSOs occurred during a prolong period of rain events which produced power outages causing the overflows. All SSOs were reported as required.

Facility/Site:

- S 1. The facility has standby power or equivalent provision.
- S 2. An adequate alarm or notification system for power or equipment failure is available for the treatment facility and lift stations.
- S 3. Safe and adequate access is provided for inspection of all units and outfalls.
- S 4. Facilities and equipment do not appear beyond their useful life.
- 5. List any safety concerns:

Comments:

The facility has two standby generators that are tested on a regular basis. All of the lift stations and wwtp are connected to a telephone alarm dialing system.

Operation:

- S 1. All facilities and systems necessary for achieving compliance with the terms and conditions of the permit are operated efficiently, including an anticipated bypass report for steps of treatment taken out of service.
- S 2. An adequate, qualified operating staff is provided to carry out the operation of the facility, including:
 - a. Certified Operator's on-site attendance and/or qualified operations personnel attendance is adequate.
 - b. Adequate documentation of operational activities, including system monitoring and cleaning.
 - c. Adequate funding to ensure proper operation.
- S 3. Solids handling procedures include:
 - a. Sufficient solids are wasted from the treatment system, in a timely manner, to maintain process efficiency.
 - b. Wasting of solids is based on appropriate operational targets and valid process control testing.
 - c. Adequate documentation of solids removal, handling, or control is available for review.
- S 4. The facility is operated efficiently during wet weather events.

Comments:

All units of treatment appear to be operating efficiently.

Maintenance:

- S 1. A maintenance record system has been established and includes maintenance/repair history and preventative maintenance plan.
- S 2. Facility maintenance activities appear adequate.
- S 3. Lift stations are adequately inspected, cleaned, and maintained, with adequate documentation of activities.
- S 4. Collection system maintenance activities appear adequate.

Comments:

Facility has implemented an electronic record system on all equipment. A dedicated person separate from the wwtp personnel handles and maintains the collection system.

Sludge:

S 1. Sludges, screenings, and slurries are handled and disposed of properly.

Comments:

A records review during the inspection showed adequate wasting, handling, and disposal of sludge. Sludge is removed by sending pressed sludge to a landfill.

Self-Monitoring:

S 1. Samples are taken at pre-designated locations and are representative.

S 2. Flow-proportioned samples are obtained where needed.

S 3. The facility conducts sampling of all waste streams, including type and frequency, as required in the permit.

S 4. Sample collection procedures, including automatic sampling, include:

- a. Samples are refrigerated during compositing.
- b. Proper preservation techniques are used.
- c. Containers and holding times conform to 40 CFR 136.3.

S 5. Sample documentation is adequate and includes:

- a. Dates, times, and locations of sampling.
- b. Name of individual performing sampling.
- c. Instantaneous flow for flow-weighted aliquots.
- d. Chain of Custody records.

N 6. NPDES Permit Whole Effluent Toxicity (WET) testing requirements are being met.

Comments:

The Self Monitoring Program was rated as satisfactory. All sampling practices, including raw and intermediate unit process testing, are conducted accurately and at the frequency required by the permit.

Flow Measurement:

S 1. Flow is properly monitored as required by the permit.

S 2. Flow data and calibration records are available for review.

Comments:

The facility's flow measurement program, including all documentation, is adequate and representative. The flow meter was last calibrated in September 2015.

Laboratory:

The following laboratory records were reviewed:

Sample Log Chain-of-Custody

S 1. The laboratory practices and protocol reviewed were adequate, including:

- a. Written laboratory QA/QC manual.
- b. Samples are properly stored.
- c. Approved analytical methods are used.
- d. Calibration and maintenance of instruments is adequate.
- e. QA/QC procedures are adequate.
- f. Dates of analyses. (and times where required)
- g. Name of person performing analyses.

S 2. Review of lab records and/or on-site field testing equipment and protocols was found to be adequate.

Comments:

The pH bench sheets reviewed during the inspection appeared to be accurate and complete.

Records/Reports:

The following records/reports were reviewed:

DMRs for the period of May 2015 to February 2016 were reviewed as part of the inspection.

- S 1. All facility records for the period including the previous three years were available for review.
- S 2. DMRs and MROs are completed properly and accurately including:
 - a. "No Ex" column is accurate.
 - b. Signatory requirements are met.
 - c. Reports are prepared by or under the direction of a certified operator.
- S 3. Bypass and Noncompliance reporting are adequate.

Comments:

The requested records were available and appear complete and accurate.

Compliance Schedules:

- N 1. The NPDES Permit Schedule of Compliance monitoring and reporting milestones have been met.
- S 2. Agreed Order compliance milestones have been met.

Comments:

Pretreatment:

- N 1. No evidence of interference from industrial or other sources of toxic substances was noted.
- N 2. For both Delegated and Non-Delegated pretreatment programs:
 - a. Industrial or commercial dischargers are regulated as required.
 - b. The permittee enforces the Sewer Use Ordinance (SOU) and the Enforcement Response Plan (ERP).
 - c. The permittee submitted its annual pretreatment report to IDEM by April 1.
- N 3. Non-Delegated pretreatment programs have:
 - a. Developed the Sewer Use Ordinance and submitted it to IDEM.
 - b. Developed the Enforcement Response Plan and submitted it to IDEM.
 - c. The permittee submitted sludge monitoring data (Cd, Cu, Pb, Hg, Mo, Ni, Zn) twice per year to IDEM's Pretreatment Group.
- N 4. Pretreatment records and procedures were adequate and include:
 - a. Inventory of Industrial Waste Contributors/Industrial Survey.
 - b. Keeping records of all Industrial User (IU) self-monitoring data.
 - c. Conducting compliance monitoring at all Significant Industrial Users (SIUs) for all parameters in the industry's permit.
 - d. Conducting annual inspections at all SIUs and documenting them with inspection reports.
 - e. For any IU in noncompliance in the past year, the permittee has taken enforcement actions.
- N 5. If the non-delegated permittee accepts hauled waste:
 - a. Does the POTW provide written permission to haulers?
 - b. Does the POTW obtain samples from each hauled waste load and retain them for at least 48 hours?
 - c. Does the POTW retain records of each load?

Comments:

The facility has initiated a fats, oils and grease program.

Effluent Limits Compliance:

Yes 1. Were DMRs reviewed as part of the inspection?

DMRs for the period of May 2015 to February 2016 were reviewed as part of the inspection.

Yes 2. Were violations noted during the review of DMRs?

The Effluent Limits Violations area was rated marginal due to the following self-reported violations of the limits detailed in Part I. A. of the NPDES Permit:

Month	Year	Outfall	Parameter	Type	Conc./Loading	Number
Aug	2015	001	Ammonia Nitrogen	Max. Wkly. Avg.	Conc.	one

Comments:

IDEM REPRESENTATIVE

Inspector Name:	Email:	Phone Number:
Rex Counterman	rcounter@idem.IN.gov	317-691-1914

IDEM MANAGER REVIEW

IDEM Manager:	Date:
---------------	-------

Bridget S. Murphy

4/15/2016



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Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

February 13, 2015

Via Email to: jwgard@aquaamerica.com
Mr. Jeffery Gard, Regional Manager
Aqua Indiana
1111W. Hamilton Rd
Ft Wayne, Indiana 46814

Dear Mr. Gard:

Re: Inspection Summary Letter
Aqua Indiana Midwest WWTP
NPDES Permit No. IN0042391
Fort Wayne, Allen County

An inspection of the above-referenced facility or location was conducted by a representative of the Indiana Department of Environmental Management, Office of Water Quality, pursuant to IC 13-18-3-9. A summary of the inspection is provided below:

Date(s) of Inspection: February 10, 2015
Type of Inspection: Compliance Evaluation Inspection
Inspection Results: Conditions evaluated were found to be satisfactory at the time of the inspection.

IDEM recommends the permittee begin the process of registering for NetDMR. Information on NetDMR can be obtained at <http://www.in.gov/idem/6765.htm>.

A copy of the NPDES Wastewater Facility Inspection Report is enclosed for your records. Please direct any response to this letter and any questions to Rex Counterman at 317-691-1914 or by email to rcounter@idem.IN.gov.

Sincerely,

Bridget S. Murphy, Inspections Section Chief
Compliance Branch
Office of Water Quality

Enclosure



NPDES Wastewater Facility Inspection Report

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

NPDES Permit Number: IN0042391	Facility Type: Mixed Ownership	Major	Facility Classification: IV	TEMPO AI ID 1568			
Date(s) of Inspection: February 10, 2015							
Type of Inspection: Compliance Evaluation Inspection							
Name and Location of Facility Inspected: Aqua Indiana Midwest WWTP 6811 Engle Rd. Fort Wayne IN 46804			Receiving Waters: Graham McCulloch D.	Permit Expiration Date: 5/31/2019 Design Flow: 1.7 mgdMGD			
County: Allen							
On Site Representative(s): First Name: Mark Last Name: Aurich Title: Supervisor Email: Phone: 260/740-6543							
Was a verbal summary of findings presented to the on-site representative? Yes							
Certified Operator: Mark Aurich	Number: 014021	Class: IV	Effective Date: 7-1-14	Expiration Date: 6-30-16	Email: MWAurich@aquaAmerica.com		
Responsible Official: Mr. Jeffery Gard, Regional Manager Aqua Indiana 1111W. Hamilton Rd Ft Wayne, Indiana 46814			Permittee: Email: jwgard@aquaamerica.com Phone: Contacted?				
INSPECTION FINDINGS							
<input checked="" type="radio"/> Conditions evaluated were found to be satisfactory at the time of the inspection. (5) <input type="radio"/> Violations were discovered but corrected during the inspection. (4) <input type="radio"/> Potential problems were discovered or observed. (3) <input type="radio"/> Violations were discovered and require a submittal from you and/or a follow-up inspection by IDEM. (2) <input type="radio"/> Violations were discovered and may subject you to an appropriate enforcement response. (1)							
AREAS EVALUATED DURING INSPECTION							
<i>(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)</i>							
S	Receiving Waters	M	Facility/Site	S	Self-Monitoring	N	Compliance Schedules
S	Effluent Appearance	S	Operation	S	Flow Measurement	N	Pretreatment
S	Permit	S	Maintenance	S	Laboratory	S	Effluent Limits Compliance
M	CSO/SSO (Sewer Overflow)	S	Sludge	S	Records/Reports	N	Other:
DETAILED AREA EVALUATIONS							
IDEM recommends the permittee begin the process of registering for NetDMR. Information on NetDMR can be obtained at http://www.in.gov/idem/6765.htm .							
Receiving Waters:							
S 1. The receiving stream is visibly free of excessive deposits of settled solids, floating debris, oil, scum, or billowy foam.							
Comments: The receiving stream was free of notable foam, algae or solids.							
Effluent Appearance:							
S 1. Treated effluent is free of excessive solids, floating debris, oil, scum, or billowy foam.							
Comments: The effluent was clear and free of color at the time of the inspection.							

Permit:

- S 1. Does the facility have a current copy of the permit available for reference?
- N 2. If the permit expires within 180 days, has a renewal application been submitted?
- S 3. Receiving waters are accurately described in permit.
- N 4. The permit has been properly transferred if there is a new owner.

Comments:

The facility has a valid permit and the facility description, including units of treatment and receiving stream, is accurate.

CSO/SSO:

- N 1. CSO's are adequately monitored and maintained.
- M 2. No unauthorized overflow events in last 12 months.
- S 3. Facility has met SSO and dry weather CSO reporting requirements
- N 4. Any adverse impacts from SSO and CSO events have been properly mitigated.

Comments:

The SSO evaluation generated a marginal rating. One SSO occurred at the Briarwood Lift Station in April 2014 due to heavy rains in the area and lift station was under water.

Facility/Site:

- S 1. The facility has standby power or equivalent provision.
- S 2. An adequate alarm or notification system for power or equipment failure is available for the treatment facility and lift stations.
- S 3. Safe and adequate access is provided for inspection of all units and outfalls.
- M 4. Facilities and equipment do not appear beyond their useful life.
- 5. List any safety concerns:

Comments:

The air header in the aeration tank has broken off or loosen to allow air to bubble up which does not allow efficient delivery of aeration in the Mixed Liquor Suspended Solids tank.

Operation:

- S 1. All facilities and systems necessary for achieving compliance with the terms and conditions of the permit are operated efficiently, including an anticipated bypass report for steps of treatment taken out of service.
- S 2. An adequate, qualified operating staff is provided to carry out the operation of the facility, including:
 - a. Certified Operator's on-site attendance and/or qualified operations personnel attendance is adequate.
 - b. Adequate documentation of operational activities, including system monitoring and cleaning.
 - c. Adequate funding to ensure proper operation.
- S 3. Solids handling procedures include:
 - a. Sufficient solids are wasted from the treatment system, in a timely manner, to maintain process efficiency.
 - b. Wasting of solids is based on appropriate operational targets and valid process control testing.
 - c. Adequate documentation of solids removal, handling, or control is available for review.
- S 4. The facility is operated efficiently during wet weather events.

Comments:

All units of treatment appear to be operating efficiently.

Maintenance:

- S 1. A maintenance record system has been established and includes maintenance/repair history and preventative maintenance plan.
- S 2. Facility maintenance activities appear adequate.
- S 3. Lift stations are adequately inspected, cleaned, and maintained, with adequate documentation of activities.
- S 4. Collection system maintenance activities appear adequate.

Comments:

Maintenance is performed by a dedicated staff of technicians who monitor lift stations and maintain the collection system on a daily basis. An electronic program also is used for preventive maintenance schedules.

Sludge:

- S 1. Sludges, screenings, and slurries are handled and disposed of properly.

Comments:

A records review during the inspection showed adequate wasting, handling, and disposal of sludge.

Self-Monitoring:

- S 1. Samples are taken at pre-designated locations and are representative.
- S 2. Flow-proportioned samples are obtained where needed.
- S 3. The facility conducts sampling of all waste streams, including type and frequency, as required in the permit.
- S 4. Sample collection procedures, including automatic sampling, include:
 - a. Samples are refrigerated during compositing.
 - b. Proper preservation techniques are used.
 - c. Containers and holding times conform to 40 CFR 136.3.
- S 5. Sample documentation is adequate and includes:
 - a. Dates, times, and locations of sampling.
 - b. Name of individual performing sampling.
 - c. Instantaneous flow for flow-weighted aliquots.
 - d. Chain of Custody records.
- N 6. NPDES Permit Whole Effluent Toxicity (WET) testing requirements are being met.

Comments:

The Self Monitoring Program was rated as satisfactory. All sampling practices, including raw and intermediate unit process testing, are conducted accurately and at the frequency required by the permit.

Flow Measurement:

- S 1. Flow is properly monitored as required by the permit.
- S 2. Flow data and calibration records are available for review.

Comments:

The facility's flow measurement program, including all documentation, is adequate and representative.

Laboratory:

The following laboratory records were reviewed:

Ammonia Bench Sheets Ammonia Bench Sheets CBOD QA/QC

- S 1. The laboratory practices and protocol reviewed were adequate, including:
 - a. Written laboratory QA/QC manual.
 - b. Samples are properly stored.
 - c. Approved analytical methods are used.
 - d. Calibration and maintenance of instruments is adequate.
 - e. QA/QC procedures are adequate.
 - f. Dates of analyses. (and times where required)
 - g. Name of person performing analyses.

Comments:

The bench sheets reviewed during the inspection appeared to be accurate and complete.

Records/Reports:

The following records/reports were reviewed:

DMRs for the period of January 2014 to December 2014 were reviewed as part of the inspection.

- S 1. All facility records for the period including the previous three years were available for review.
- S 2. DMRs and MROs are completed properly and accurately including:
 - a. "No Ex" column is accurate.
 - b. Signatory requirements are met.
 - c. Reports are prepared by or under the direction of a certified operator.
- S 3. Bypass and Noncompliance reporting are adequate.

Comments:

The requested records were available and appear complete and accurate.

Compliance Schedules:

- N 1. The NPDES Permit Schedule of Compliance monitoring and reporting milestones have been met.
- N 2. Agreed Order compliance milestones have been met.

Comments:

There is no Compliance Schedule in the current permit, and there is no Agreed Order.

Pretreatment:

- N 1. No evidence of interference from industrial or other sources of toxic substances was noted.

- N 2. For both Delegated and Non-Delegated pretreatment programs:
- a. Industrial or commercial dischargers are regulated as required.
 - b. The permittee enforces the Sewer Use Ordinance (SOU) and the Enforcement Response Plan (ERP).
 - c. The permittee submitted its annual pretreatment report to IDEM by April 1.
- N 3. Non-Delegated pretreatment programs have:
- a. Developed the Sewer Use Ordinance and submitted it to IDEM.
 - b. Developed the Enforcement Response Plan and submitted it to IDEM.
 - c. The permittee submitted sludge monitoring data (Cd, Cu, Pb, Hg, Mo, Ni, Zn) twice per year to IDEM's Pretreatment Group.
- N 4. Pretreatment records and procedures were adequate and include:
- a. Inventory of Industrial Waste Contributors/Industrial Survey.
 - b. Keeping records of all Industrial User (IU) self-monitoring data.
 - c. Conducting compliance monitoring at all Significant Industrial Users (SIUs) for all parameters in the industry's permit.
 - d. Conducting annual inspections at all SIUs and documenting them with inspection reports.
 - e. For any IU in noncompliance in the past year, the permittee has taken enforcement actions.
- N 5. If the non-delegated permittee accepts hauled waste:
- a. Does the POTW provide written permission to haulers?
 - b. Does the POTW obtain samples from each hauled waste load and retain them for at least 48 hours?
 - c. Does the POTW retain records of each load?

Comments:

Effluent Limits Compliance:

Yes 1. Were DMRs reviewed as part of the inspection?

DMRs for the period of January 2014 to December 2014 were reviewed as part of the inspection.

No 2. Were violations noted during the review of DMRs?

Comments:

IDEM REPRESENTATIVE

Inspector Name:	Email:	Phone Number:
Rex Counterman	rcounter@idem.IN.gov	317-691-1914

IDEM MANAGER REVIEW

IDEM Manager:	Date:
Andy Schmidt <input style="width: 150px; height: 15px;" type="text"/>	2/13/2015



Indiana Department of Environmental Management

We Protect Hoosiers and Our Environment.

100 N. Senate Avenue • Indianapolis, IN 46204
(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov

Michael R. Pence
Governor

Carol S. Comer
Commissioner

4/26/2016

Via Email to: jwgard@aquaamerica.com

Mr. Jeffery Gard, Town Manager
Aqua Indiana
1111 W. Hamilton Rd.
Fort Wayne, Indiana 46814

Dear Mr. Gard:

Re: Inspection Summary Letter
Aqua Indiana (Midwest WWTP)
NPDES Permit No. IN0042391
Fort Wayne, Allen County

An inspection of the above-referenced facility or location was conducted by a representative of the Indiana Department of Environmental Management, Office of Water Quality, pursuant to IC 13-18-3-9. A summary of the inspection is provided below:

Date(s) of Inspection: April 13, 2016
Type of Inspection: Compliance Evaluation Inspection
Inspection Results: Conditions evaluated were found to be satisfactory at the time of the inspection.

A copy of the NPDES Wastewater Facility Inspection Report is enclosed for your records. Please direct any response to this letter and any questions to Rex Counterman at 317-691-1914 or by email to rcounter@idem.IN.gov.

Sincerely,

A handwritten signature in black ink that reads "Bridget S. Murphy for".

Bridget S. Murphy, Inspections Section Chief
Compliance Branch
Office of Water Quality

Enclosure



NPDES Wastewater Facility Inspection Report

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

NPDES Permit Number: IN0042391	Facility Type: Mixed Ownership	Major	Facility Classification: IV	TEMPO AI ID 1568			
Date(s) of Inspection: April 13, 2016							
Type of Inspection: Compliance Evaluation Inspection							
Name and Location of Facility Inspected: Aqua Indiana (Midwest WWTP) 6811 Enle Rd. Fort Wayne IN 46804			Receiving Waters: Trib. of Graham McCulloch D.	Permit Expiration Date: 5/31/2019 Design Flow: 1.7MGD			
On Site Representative(s): First Name: Mark, Last Name: Aurich, Title: Superintendent			Email: _____ Phone: _____				
Was a verbal summary of findings presented to the on-site representative? Yes							
Certified Operator: Mark Aurich	Number: 14021	Class: IV	Effective Date: 7-1-14	Expiration Date: 6-30-16			
Responsible Official: Mr. Jeffery Gard, Town Manager 1111 W. Hamilton Rd. Fort Wayne, Indiana 46814			Permittee: Aqua Indiana Email: jwgard@aquaaamerica.com Phone: _____ Fax: _____				
			Contacted? No				
INSPECTION FINDINGS							
<input checked="" type="radio"/> Conditions evaluated were found to be satisfactory at the time of the inspection. (5) <input type="radio"/> Violations were discovered but corrected during the inspection. (4) <input type="radio"/> Potential problems were discovered or observed. (3) <input type="radio"/> Violations were discovered and require a submittal from you and/or a follow-up inspection by IDEM. (2) <input type="radio"/> Violations were discovered and may subject you to an appropriate enforcement response. (1)							
AREAS EVALUATED DURING INSPECTION							
<i>(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)</i>							
S	Receiving Waters	S	Facility/Site	S	Self-Monitoring	N	Compliance Schedules
S	Effluent Appearance	S	Operation	S	Flow Measurement	N	Pretreatment
S	Permit	S	Maintenance	S	Laboratory	M	Effluent Limits Compliance
S	CSO/SSO (Sewer Overflow)	S	Sludge	S	Records/Reports	N	Other:
DETAILED AREA EVALUATIONS							
Facility is nearing the expansion to a 3.2 mgd facility.							
Receiving Waters:							
<u>S</u> 1. The receiving stream is visibly free of excessive deposits of settled solids, floating debris, oil, scum, or billowy foam.							
Comments: The receiving stream was free of notable foam, algae or solids.							
Effluent Appearance:							
<u>S</u> 1. Treated effluent is free of excessive solids, floating debris, oil, scum, or billowy foam.							
Comments: The effluent was clear and free of color at the time of the inspection.							

Permit:

- S 1. Does the facility have a current copy of the permit available for reference?
- N 2. If the permit expires within 180 days, has a renewal application been submitted?
- S 3. Receiving waters are accurately described in permit.
- N 4. The permit has been properly transferred if there is a new owner.

Comments:

The facility has a valid permit and the facility description, including units of treatment and receiving stream, is accurate. A new permit with the expansion description will be obtained by the engineer.

CSO/SSO:

- N 1. CSO's are adequately monitored and maintained.
- S 2. Evaluation of maintenance-related (clogged or blocked lines) overflow events in last 12 months.
- S 2. Evaluation of hydraulic (I&I) overflow events in last 12 months.
- N 3. Facility has met SSO and dry weather CSO reporting requirements
- N 4. Any adverse impacts from SSO and CSO events have been properly mitigated.

Comments:

This facility has had no sanitary overflows per the Superintendent., Mr. Aurich.

Facility/Site:

- S 1. The facility has standby power or equivalent provision.
- S 2. An adequate alarm or notification system for power or equipment failure is available for the treatment facility and lift stations.
- S 3. Safe and adequate access is provided for inspection of all units and outfalls.
- S 4. Facilities and equipment do not appear beyond their useful life.
- 5. List any safety concerns:

Comments:

The facility grounds are well maintained.

Operation:

- S 1. All facilities and systems necessary for achieving compliance with the terms and conditions of the permit are operated efficiently, including an anticipated bypass report for steps of treatment taken out of service.
- S 2. An adequate, qualified operating staff is provided to carry out the operation of the facility, including:
 - a. Certified Operator's on-site attendance and/or qualified operations personnel attendance is adequate.
 - b. Adequate documentation of operational activities, including system monitoring and cleaning.
 - c. Adequate funding to ensure proper operation.
- S 3. Solids handling procedures include:
 - a. Sufficient solids are wasted from the treatment system, in a timely manner, to maintain process efficiency.
 - b. Wasting of solids is based on appropriate operational targets and valid process control testing.
 - c. Adequate documentation of solids removal, handling, or control is available for review.
- S 4. The facility is operated efficiently during wet weather events.

Comments:

All units of treatment appear to be operating efficiently.

Maintenance:

- S 1. A maintenance record system has been established and includes maintenance/repair history and preventative maintenance plan.
- S 2. Facility maintenance activities appear adequate.
- S 3. Lift stations are adequately inspected, cleaned, and maintained, with adequate documentation of activities.
- S 4. Collection system maintenance activities appear adequate.

Comments:

Sludge:

- S 1. Sludges, screenings, and slurries are handled and disposed of properly.

Comments:

A records review during the inspection showed adequate wasting, handling, and disposal of sludge.

Self-Monitoring:

- S 1. Samples are taken at pre-designated locations and are representative.
- S 2. Flow-proportioned samples are obtained where needed.
- S 3. The facility conducts sampling of all waste streams, including type and frequency, as required in the permit.
- S 4. Sample collection procedures, including automatic sampling, include:
 - a. Samples are refrigerated during compositing.
 - b. Proper preservation techniques are used.
 - c. Containers and holding times conform to 40 CFR 136.3.
- S 5. Sample documentation is adequate and includes:
 - a. Dates, times, and locations of sampling.
 - b. Name of individual performing sampling.
 - c. Instantaneous flow for flow-weighted aliquots.
 - d. Chain of Custody records.
- N 6. NPDES Permit Whole Effluent Toxicity (WET) testing requirements are being met.

Comments:

The Self Monitoring Program was rated as satisfactory. All sampling practices, including raw and intermediate unit process testing, are conducted accurately and at the frequency required by the permit.

Flow Measurement:

- S 1. Flow is properly monitored as required by the permit.
- S 2. Flow data and calibration records are available for review.

Comments:

The effluent flow meter was last calibrated June 2015.

Laboratory:

The following laboratory records were reviewed:

Sample Log	Chain-of-Custody	Lab QA/QC
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- S 1. The laboratory practices and protocol reviewed were adequate, including:
 - a. Written laboratory QA/QC manual.
 - b. Samples are properly stored.
 - c. Approved analytical methods are used.
 - d. Calibration and maintenance of instruments is adequate.
 - e. QA/QC procedures are adequate.
 - f. Dates of analyses. (and times where required)
 - g. Name of person performing analyses.
- S 2. Review of lab records and/or on-site field testing equipment and protocols was found to be adequate.

Contract Lab Information

C F Lab

Comments:

The bench sheets reviewed during the inspection appeared to be accurate and complete. GC\GA, blanks and duplicates conducted daily.

Records/Reports:

The following records/reports were reviewed:

DMRs for the period of February 2015 to February 2016 were reviewed as part of the inspection.

- S 1. All facility records for the period including the previous three years were available for review.
- S 2. DMRs and MROs are completed properly and accurately including:
 - a. "No Ex" column is accurate.
 - b. Signatory requirements are met.
 - c. Reports are prepared by or under the direction of a certified operator.
- N 3. Bypass and Noncompliance reporting are adequate.

Comments:

The requested records were available and appear complete and accurate.

Compliance Schedules:

- N 1. The NPDES Permit Schedule of Compliance monitoring and reporting milestones have been met.
- N 2. Agreed Order compliance milestones have been met.

Comments:

There is no Compliance Schedule in the current permit, and there is no Agreed Order.

Pretreatment:

- N 1. No evidence of interference from industrial or other sources of toxic substances was noted.
- N 2. For both Delegated and Non-Delegated pretreatment programs:
 - a. Industrial or commercial dischargers are regulated as required.
 - b. The permittee enforces the Sewer Use Ordinance (SOU) and the Enforcement Response Plan (ERP).
 - c. The permittee submitted its annual pretreatment report to IDEM by April 1.
- N 3. Non-Delegated pretreatment programs have:
 - a. Developed the Sewer Use Ordinance and submitted it to IDEM.
 - b. Developed the Enforcement Response Plan and submitted it to IDEM.
 - c. The permittee submitted sludge monitoring data (Cd, Cu, Pb, Hg, Mo, Ni, Zn) twice per year to IDEM's Pretreatment Group.
- N 4. Pretreatment records and procedures were adequate and include:
 - a. Inventory of Industrial Waste Contributors/Industrial Survey.
 - b. Keeping records of all Industrial User (IU) self-monitoring data.
 - c. Conducting compliance monitoring at all Significant Industrial Users (SIUs) for all parameters in the industry's permit.
 - d. Conducting annual inspections at all SIUs and documenting them with inspection reports.
 - e. For any IU in noncompliance in the past year, the permittee has taken enforcement actions.
- N 5. If the non-delegated permittee accepts hauled waste:
 - a. Does the POTW provide written permission to haulers?
 - b. Does the POTW obtain samples from each hauled waste load and retain them for at least 48 hours?
 - c. Does the POTW retain records of each load?

Comments:

Effluent Limits Compliance:

Yes 1. Were DMRs reviewed as part of the inspection?

DMRs for the period of February 2015 to February 2016 were reviewed as part of the inspection.

Yes 2. Were violations noted during the review of DMRs?

The Effluent Limits Violations area was rated marginal due to the following self-reported violations of the limits detailed in Part I. A. of the NPDES Permit:

Month	Year	Outfall	Parameter	Type	Conc./Loading	Number
Aug	2015	001	E. coli	Daily Maximum	Conc.	3
Oct	2015	001	E. coli	Daily Maximum	Conc.	3

Comments:

IDEM REPRESENTATIVE

Inspector Name:	Email:	Phone Number:
Rex Counterman	rcounter@idem.IN.gov	317-691-1914

IDEM MANAGER REVIEW

IDEM Manager:	Date:
Andy Schmidt	4/26/2016

Attachment JTP-15

Aqua Indiana, Inc.
Aboite Wastewater Division
ABOITE DIVERSION PROJECT

In response to IDEM enforcement actions, the Utility has made at least three plans since 1992 to divert flow from the Main Aboite WWTP to the Midwest WWTP. The objectives were to eliminate chronic raw sewage bypassing at the Main Aboite WWTP and sanitary sewer overflows in the collection system. Diversion elements changed over time and all components of the Aboite Diversion Project were finally completed on January 21, 2015. Descriptions of the various Aboite Diversion Projects are discussed in the following sections.

IDEM Agreed Order B-1391 (1992) Under IDEM's first enforcement action, Agreed Order B-1391¹, Utility Center, Inc. proposed diverting raw sewage bypassed at the Main Aboite WWTP to the Graham McCulloch Ditch to the Midwest WWTP instead beginning in 1999 after constructing a storm water pump station and force main. Storm water pumps were added, but the force main was never built in favor of expanding the Main Aboite WWTP instead. Raw sewage bypasses were decreased but SSOs in the collection system continued.

IDEM Agreed Order B-2454 (1999) Under IDEM's second enforcement action, Agreed Order B-2454, the Utility agreed that it would be: "providing the capability of diverting wastewater that would otherwise flow to the Main Aboite WWTP to the Midwest WWTP."² This project, known as the Main Aboite WWTP Diversion Project, was to have been constructed in two phases and include a new Braemer pump station and force main to be completed by March 31, 2008 and a new 16-inch Aboite Diversion Force Main discharging to the 15-inch Graham McCulloch gravity sewer upstream of the Midwest WWTP. This project was delayed and ultimately never built as proposed. Aqua Indiana provided Monthly Investment Updates to the IURC as required under Cause No. 43331 in 2007 and 2008 detailing the diversion project which showed the following project components and estimated costs:

¹ Agreed Order B-1391 between the Indiana Department of Environmental Management and Utility Center, Inc. January 23, 1992.

² Agreed Order B-2454 between the Indiana Department of Environmental Management and Utility Center, Inc. dba AquaSource June 25, 2001

Table 1 - Main Aboite WWTP Diversion Project (2007)

Description	Total Est. Cost
Complete Facilities Plan	\$75,000
Install 3,000 gpm wastewater pump station (1)	\$500,000
Install approximately 3,500 LF of 12" wastewater force main (2)	\$300,000
Install 17,750 LF of 16" wastewater force main (3)	\$2,500,000
Total	\$3,375,000

(1) Braemer Lift Station

(2) Braemer Force Main

(3) Aboite Diversion Force Main

The Main Aboite WWTP Diversion Project described above was not constructed.

IDEM Agreed Order 2010-18952-W (2010) Under IDEM's third enforcement action in 2010, IDEM approved Aqua's proposed Compliance Plan in January 2011. Aqua agreed to construct the following flow diversion project by the end of 2013:

1. Main Aboite Diversion Sewer to provide downstream capacity for the Sycamore Hills Pump Station
2. Braemer Pump Station and Force Main to reduce the flow to the Sycamore Hills Pump Station

In 2010 under Cause No. 43874, Mr. William Etzler described the diversion project on pages 13 and 14 of his Direct Testimony:

In regard to its sewer operations, Utility Center is planning to divert wastewater flows that would be treated at its Aboite WWTP to its Midwest WWTP in order to *balance flow between the two plants and provide capacity at its Main Aboite WWTP for future customer growth*. This diversion will be accomplished by constructing a new pump station and new force main to the Midwest WWTP, with an interconnection to an existing pump station. The existing pump station also will be upgraded and interconnected to the new force main. Construction is scheduled to commence on April 1, 2010 and be complete by December 31, 2012. Final costs are estimated at \$5,380,000. (emphasis added)

In response to OUCC DR 76 under Cause No. 43874, Aqua provided cost estimates for the Diversion Project components as summarized in Table 2:

Table 2 – Proposed Aboite Diversion Project under Cause No. 43874

Project Component	Description	Estimated Cost
Braemer Pump Station	Size not listed on the cost estimate sheet	\$705,523
Braemer Force Main	3,860 LF 12-inch force main	\$405,313
Sycamore Hills Pump Station Modification	New submersible pumps and controls and wet well extension	\$170,000
Diversion Sewer	21,280 LF of 24” DR 25 PVC sewer plus 8 road and I-69 crossings	\$4,097,497
Total		\$5,380,000

Aqua’s response to discovery indicated a diversion gravity sewer would be built instead of a force main described in Mr. Etzler’s testimony. Nevertheless, the Aboite Diversion project as described in 2010 was not constructed.

Construction Completion IDEM issued Construction Permit No 20451 on September 6, 2012 for the Braemer Pump Station and Force Main and the Aboite Diversion Force Main. Aqua completed the Aboite Diversion Force Main in late 2014 and the Braemer Pump Station and Force Main projects on January 21, 2015 at a cost of \$5,924,522 as summarized in Table 3:

Table 3 – Completed Aboite Diversion Project – January 21, 2015

Project Component	Description	Estimated Cost
Braemer Pump Station	1,500 gpm capacity lift station with 2 pumps in service	\$977,728.66
Braemer Force Main	3,966 LF 12-inch PVC force main	\$431,612.78
Sycamore Hills Pump Station Modification	1,150 gpm capacity lift station with 1 pump in service - new submersible pumps and controls and wet well extension	\$154,154.32
Diversion Sewer	24,554 LF of 18” PVC force main	\$4,361,026.13
Total		\$5,924,521.89

Description of the Aboite Diversion Project According to IDEM Construction Permit No. 20451, the Braemer Pump Station and Force Main was designed to initially divert 396,000 gallons per day (gpd) of sewage (from the 21-inch Illinois-Bridgewater Interceptor) around the Sycamore Hills Lift Station directly to the Midwest WWTP via the new 3,966 LF 12-inch force main tied into the new 24,554 LF 18-inch Aboite Diversion Force Main. The new 18-inch Aboite Diversion Force Main was to replace the existing 8-inch Sycamore Hills Lift Station force main that already routed flows to the Midwest WWTP via downstream gravity sewers. The existing 8-inch force main was to have been plugged and abandoned. Another 396,000 gpd from the Sycamore Hills Lift Station would also be pumped to the new 18-inch Aboite Diversion Force Main. The combined pumped flow into the new 18-inch Aboite Diversion Force Main was to be 792,000 gpd with a 3.168 MGD peak flow.

Aqua modified the Construction Permit in May 2014 to retain the existing 8-inch force main from the Sycamore Hills Lift in order to have sufficient flow to keep the 8-inch force main clean. The 8-inch force main had 8 to 10 homes with grinder pumps connected.