Annual Environmental Report 2015

Agglomeration Name:	**Smithborough**
Licence Register No.	**D0464-01**

Contents

Section 1. Executive Summary and Introduction to the 2015 AER

1.1 Summary Report on 2015

This Annual Environmental Report has been prepared for **D0464-01, Smithborough,** in County **Monaghan**, in accordance with the requirements of the wastewater discharge licence for the agglomeration. No specified report is included as an appendix to the AER.

The agglomeration is served by a wastewater treatment plant with a Design PE of 750. The treatment process includes the following:-

- Preliminary Treatment
- Secondary Treatment (Aeration)

The final effluent from the Primary Discharge Point was non-compliant with the Emission Limit Values in 2015.

The following parameters exceeded the emission limit values in 2015:-

- Ortho P (mg/l)

834,000kgs (total weight) sludge was removed from the wastewater treatment plant in 2015 as liquid sludge. Sludge was transferred to Monaghan WWTP.

The following improvement works were undertaken during 2015:

- Chemical dosing for phosphorus was installed at the WWTP in 2015.

An Annual Statement of Measures is included in Appendix 7.1.

Section 2. Monitoring Reports Summary

2.1 Summary report on monthly influent monitoring

Table 2.1 Influent Monitoring Summary

2.1.1 Monthly Influent Monitoring	BOD (mg / l)	COD (mg / l)	SS (mg / l)	Ammonia (mg / l)	Orthophosphate (mg / l)	Hydraulic Loading (m3/d)	Organic Loading (PE/Day)
Number of Samples	6	6	6	6	6		
Annual Max.	653	1437	655	140	9.25	780	764
Annual Mean	127.01	317.24	102.52	34.2	3.10	200	517

Significance of results

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2

The annual maximum hydraulic loading is greater than the peak Treatment Plant Capacity as detailed further in Section 3.2.

The annual mean organic loading is less than the Treatment Plant Capacity as detailed further in Section 3.2.

The annual maximum organic loading is greater than the Treatment Plant Capacity as detailed further in Section 3.2.

2.2 Discharges from the agglomeration

Table 2.2 - Effluent Monitoring

2.2.1 Effluent Monitoring Summary	BOD (mg/l)	COD (mg/l)	TSS (mg/l)	Ortho P (mg/l)	Ammonia NH3 (mg/l)	pH	Comments
WWDL ELV (Schedule A) where applicable	10	50	10	3	1	6 to 9	ELV 0.8mg/l Ortho P will apply from the 31/12/19
ELV with Condition 2 Interpretation included	20	100	25	3.6	2	No allowable exceedances	
Number of sample results	7	7	7	6	7	7	
Number of sample results above WWDL ELV	0	2	3	2	0	0	
Number of sample results above ELV with Condition 2 Interpretation	0	0	0	2	0	0	
Annual Mean (for parameters where a mean ELV applies)	N/A	N/A	N/A	N/A	N/A	N/A	
Overall Compliance (Pass/Fail)	Pass	Pass	Pass	Fail	Pass	Pass	

A primary wastewater discharge and a secondary wastewater discharge are identified in the WWDL for the Smithborough agglomeration. Treated effluent from the plant is discharge via the primary or secondary discharge points depending on the receiving river levels. There is less than 10m between the primary and secondary discharge locations. The final effluent is sampled on the outfall pipe prior to discharge to the river and so there is a single effluent sampling location for the agglomeration regardless of which discharge point is in operation.

Significance of results

The WWTP was non-compliant with the ELV for orthophosphate as set in the wastewater discharge licence. There were 2 samples non-compliant with the ELV in relation to orthophosphate. The non-compliance is due to the absence of chemical dosing for phosphorus removal at the time. The impact on receiving waters is assessed further in Section 2.3.

2.3. Ambient Monitoring Summary

Table 2.3. Ambient Monitoring Report Summary Table

Ambient Monitoring Point from WWDL (or as agreed with EPA)	*Irish Grid Reference*	EPA Feature Coding Tool code	Receiving Waters Designation (Y/N				WFD Status	Does assessment of the ambient monitoring results indicate that the discharge is impacting on water quality?
			Bathing Water	Drinking Water	FWPM	Shellfish		
Upstream monitoring point	E257862 N329854	RS36M010200	N	N	N	N	Moderate	
Downstream monitoring point	E257552 N329614	RS36M010310	N	N	N	N	Moderate	No

The results for the upstream and downstream monitoring are included in Appendix 7. 2 Ambient Monitoring Results.

Significance of results

The WWTP was non- compliant with the ELVs for orthophosphate set in the wastewater discharge licence as detailed in Section 2.2

The discharge from the wastewater plant doesn't have an observable negative impact on the water quality status.

The discharge from the wastewater treatment plant doesn't have an observable negative impact on the Water Framework Directive status.

2.4 Data collection and reporting requirements under the UWWTD

The electronic submission of data was completed on 15/01/2016

2.5 Pollutant Release and Transfer Register (PRTR) - report for previous year

A PRTR is not required as the agglomeration is less than 2000pe.

Section 3. Operational Reports Summary

3.1 Treatment Efficiency Report

	cBOD (kg/yr)	COD (kg/yr)	SS (kg/yr)	Ammonia (kg/yr)	Ortho Phosphate (kg/yr)
Influent mass loading (kg/year)	11,327	28,292	9,143	3051.4	1131.5
Effluent mass emission (kg/year)	426	2,320	603	18.25	186.15
% Efficiency (% reduction of influent load)	96%	92%	93%	99%	83%

3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (dry weather flow) (m3/year)	62,050
Hydraulic Capacity – Design / As Constructed (peak flow) (m3/year)	186,150
Hydraulic Capacity – Current loading (m3/year)	73,130
Hydraulic Capacity – Remaining (m3/year)	113,020
Organic Capacity - Design / As Constructed (PE)	750
Organic Capacity - Current loading (PE)	517
Organic Capacity – Remaining (PE)	233
Will the capacity be exceeded in the next three years? (Yes / No)	No

3.3 Extent of Agglomeration Summary Report

In this section Irish Water is required to report on the amount of urban waste water generated within the agglomeration. It does not include any waste water collected and created in a private system and discharged to water under a Section 4 Licence issued under the Water Pollution Acts 1977 (as amended).

Table 3.3 - Extent of Agglomeration Summary Report

	% of total load generated in the agglomeration
Load generated in the agglomeration that is collected in the sewer network	100%
Load collected in the agglomerations that enters treatment plant	Unknown
Load collected in the sewer network but discharges without treatment	Unknown

Load generated in the agglomeration that is collected in the sewer network is the total load generated and collected in the municipal network within the boundary of the agglomeration.

Load collected in the agglomerations that enters treatment plant is that portion of the previous figure which enters the waste water treatment plant.

Load collected but discharged without treatment is that portion of the first figure which is discharged without treatment.

3.4 Complaints Summary

There were no complaints of an environmental nature in relation to Smithborough WWTP in 2015.

Table 3.4 - Complaints Summary Table

Number	Date & Time	Nature of Complaint	Cause of Complaint	Actions taken to resolve issue	Closed (Y/N)
None					

3.5 Reported Incidents Summary

A summary of reported incidents is included below.

Table 3.5.1 - Summary of Incidents

3.5.1 Incident Type (e.g. Non-compliance, Emission, spillage, pollution incident)	Incident Description	Cause	No. of Incidents	Corrective Action	Authorities Contacted. Note 1	Reported to EPA (Yes/No)	Closed (Yes/No)
ELV exceedence	Breach of ELV - ortho phosphate 5.9mg/lP	Requires P removal	1	P removal system being installed	Yes - IFI	Yes	Yes
ELV exceedence	Breach of ELV - ortho phosphate 6.9mg/lP, COD-Cr 64mg/l, Suspended Solids 18mg/l	Requires P removal	1	progressing P removal system	Yes - IFI	Yes	Yes

Note 1: For shellfish waters notify the Marine Institute (MI) Sea Fisheries Protection Authority (SFPA) Food Safety Authority (FSAI) and An Bord Iascaigh Mhara (BIM). This should also include any other authorities that should be contacted arising from the findings of any Licence Specific Reports also e.g. Drinking Water Abstraction Impact Risk Assessment, Fresh Water Pearl Mussel Impact Assessments etc.

Table 3.5.2 - Summary of Overall Incidents

Number of Incidents in 2015	2
Number of Incidents reported to the EPA via EDEN in 2015	2
Explanation of any discrepancies between the two numbers above	N/A

3.6 Sludge / Other inputs to the WWTP

Other inputs to the waste water treatment plant are summarised in Table 3.6 below.

Table 3.6 - Other Inputs

Input Type	m3/year	PE/year	% of load to WWTP	Included in Influent Monitoring (Y/N)?[3]	Is there a leachate/sludge acceptance procedure for the WWTP? (Y/N)	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
Domestic /Septic Tank Sludge	0	0		N/A		
Industrial / Commercial Sludge	0	0		N/A		
Landfill Leachate (delivered by tanker)	0	0		N/A		
Landfill Leachate (delivered by sewer network)	0	0		N/A		
Other (specify)	0	0		N/A		

Notes:

1. Other Inputs include; septic tank sludge, industrial /commercial sludge, landfill leachate and any other sludge that is collected and added to the treatment plant.
2. Sludge that is added to a dedicated sludge reception facility at a waste water treatment plant not include d in Table 3.6. Only include sludge which is added to the waste water treatment process stream. Enter zero where there are no inputs.

Section 4. Infrastructure Assessments and Programme of Improvements

4.1 Storm water overflow identification and inspection report

There is no Storm water overflow in Smithborough. The Inspector's report indicated that there was a storm water overflow at the waste water treatment plant, but this was a mistake due to the Application Form where the secondary discharge point had been listed as an overflow as well.

Table 4.1.1 - SWO Identification and Inspection Summary Report

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High/Med/ Low)	Compliance with DoEHLG criteria	No. of times activated in 2015 (No. of events)	Total volume discharged in 2015 (m3)	Total volume discharged in 2015 (P.E.)	Estimated / Measured data
None								

Table 4.1.2 - SWO Identification and Inspection Summary Report

How much sewage was discharged via SWOs in the agglomeration in the year (m3/yr)?	N/A
How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?	N/A
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2013?	N/A
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO assessment includes the requirements of relevant WWDL Schedules (Yes/No)	N/A
Have the EPA been advised of any additional SWOs / changes to Schedules A/C under Condition 1?	No

4.2 Report on progress made and proposals being developed to meet the improvement programme requirements.

The Improvement Programme report included in Appendix 7.3 addresses the **Specified Improvement Programmes** as detailed in Schedules A3 and C of the WWDL. It also details other improvements identified through assessments required under the licence

Table 4.2.1 - Specified Improvement Programme Summary

Specified Improvement Programmes	Licence Schedule	Licence Completion Date	Date Expired	Status of Works	% Construction Work Completed	Licensee Timeframe for Completing the Work	Comments
Chemical dosing for P	C	31/12/2019	No	Completed	100%	29/05/15	Upgrade of the WWTP to provide chemical dosing for phosphorus removal to comply with ELVs specified in Schedule A

A summary of the status of any improvements identified by under Condition 5.2 is included below.

Table 4.2.2 - Improvement Programme Summary

Improvement Identifier / Name	Improvement Description	Improvement Source	Progress (% complete)	Expected Completion Date	Comments
Schedule C	Implement a phosphorus removal system	WWTP assessment (Condition 5.2).	100%	N/A	Complete
		Sewer Integrity Tool (Condition 5.2).	0%	Unknown	The SNIT has not been completed but will be submitted following the submission of the 2015 AER.
		Secondary discharges assessment (Condition 5.2).			
N/A	N/A	SWO assessment (Condition 4 & 5.2).			
		Pearl Mussel			

		Impact Assessment (Condition 4)			
10007268	Flow Monitoring and Sampling MN	Improved Operational Control		01/06/2016	Critical asset Programme

Table 4.2.3 - Sewer Integrity Risk Assessment Tool Summary

The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:	**Risk Assessment Rating (High, Medium, Low)**	**Risk Assessment Score**	**Comment**
Hydraulic Risk Assessment Score	Unknown	Unknown	The SNIT has not been completed but will be submitted following the submission of the 2015 AER.
Environmental Risk Assessment Score	Unknown	Unknown	The SNIT has not been completed but will be submitted following the submission of the 2015 AER.
Structural Risk Assessment Score	Unknown	Unknown	The SNIT has not been completed but will be submitted following the submission of the 2015 AER.
Operation & Maintenance Risk Assessment Score	Unknown	Unknown	The SNIT has not been completed but will be submitted following the submission of the 2015 AER.
Overall Risk Score for the agglomeration	Unknown	Unknown	The SNIT has not been completed but will be submitted following the submission of the 2015 AER.

Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Required in this AER or outstanding from previous AER	Included in this AER	Reference to previous AER containing report or relevant section of this AER
Priority Substances Assessment	No	No	Included in 2014 AER
Drinking Water Abstraction Point Risk Assessment	Yes	No	Preliminary Assessment Included in 2014 AER. ZOC report for the smithborough wells to be in included in the 2016 AER.
Habitats Impact Assessment	No	N/A	N/A
Shellfish Impact Assessment	No	N/A	N/A
Pearl Mussel Report	No	N/A	N/A
Toxicity/Leachate Management	No	N/A	N/A
Toxicity of Final Effluent Report	No	N/A	N/A

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report	Status of Recommendations
Priority Substances Assessment	Yes	No further screening for priority substances required	N/A
Drinking Water Abstraction Point Risk Assessment	Yes	From the risk ranking applied to the impact of the WWTP discharge on the adjacent drinking water borehole abstraction point, it is concluded that the overall risk is low.	ZOC delineation for the Smithborough Water Abstraction Boreholes to be completed 2016

5.1 Priority Substances Assessment

The Priority Substances Assessment report is included in the 2014 AER. A summary of the findings of this report is included below.

Table 5.1 - Priority Substance Assessment Summary

	Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.
Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of the EPA guidance	Desk Top Study *and* Screening Analysis
Does the assessment include a review of Trade inputs to the works?	Yes
Does the assessment include a review of other inputs to the works?	No
Does the report include an assessment of the significance of the results where a listed material is present in the discharge? (e.g. impact on the relevant EQS standard for the receiving water)	Yes
Does the assessment identify that priority substances may be impacting the receiving water?	No
Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?	No

5.2 Drinking Water Abstraction Point Risk Assessment.

The Drinking Water Abstraction Point Risk Assessment report is included in the 2014 AER. A summary of the findings of this report is included below.

Table 5.2 - Drinking Water Abstraction Point Risk Assessment Summary

	Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.
Is a Drinking Water Abstraction Risk Assessment required in the AER (or outstanding from a previous AER)	No
Does the Drinking Water Abstraction Risk Assessment identify whether any of the discharges in Schedule A of the licence pose a risk to a drinking water abstraction	No
Does the assessment identify if any other discharge(s) from the works pose a risk to a drinking water abstraction (includes emergency overflows)	No
What is the overall risk ranking applied by the licensee	L
Does the risk assessment consider the impacts of normal operation	Yes
Does the risk assessment consider the impacts of abnormal operation (e.g. incidents /overflows)	Yes
Does the risk assessment include control measures for each risk identified	Yes
Does the risk assessment consider operational control measures e.g? waste water incident notification to drinking water abstraction operator	Yes
Does the risk assessment include infrastructural control measures	No
Does the Improvement Programme for the agglomeration include control measures / corrective actions to eliminate / reduce priority substances identified as having an impact on receiving water quality?	No

A preliminary Drinking Water Abstraction Point Risk Assessment report was included in 2014 AER. The ZOC delineation for the Smithborough wells will be completed in 2016.

Section 6. Certification and Sign Off

Table 6.1 - Summary of AER Contents

Does the AER include an executive summary?	Yes
Does the AER include an assessment of the performance of the Waste Water Works (i.e. have the results of assessments been interpreted against WWDL requirements and or Environmental Quality Standards)?	Yes
Is there a need to advise the EPA for consideration of a technical amendment / review of the licence?	No
List reason e.g. additional SWO identified	N/A
Is there a need to request/advise the EPA of any modifications to the existing WWDL? Refer to Condition 1.7 (changes to works/discharges) & Condition 4 (changes to monitoring location, frequency etc.)	No
List reason e.g. failure to complete specified works within dates specified in the licence, changes to monitoring requirements	N/A
Have these processes commenced? (i.e. Request for Technical Amendment / Licence Review / Change Request)	N/A
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	N/A
List outstanding reports	Sewer integrity risk tool Revised drinking water abstraction report

Declaration by Irish Water

The AER contains the following:

- Introduction and background to 2015 AER.
- Monitoring Reports Summary.
- Operational Reports Summary.
- Infrastructural Assessment and Programme of Improvements.
- Licence specific reports
- Certification and Sign Off
- Appendices

I certify that the information given in this Annual Environmental Report is truthful, accurate and complete:

Signed: ..... Date: 11/03/2016

Gerry Galvin
Chief Technical Advisor

Section 7. Appendix

In the appendix include all the detailed or site specific reports that are relevant to the AER. Reports omitted from previous AERs should also be appended here.

Appendix 7.1 - Annual Statement of Measures
Appendix 7.2 - Ambient monitoring summary
Appendix 7.3 – Specified Improvement Programme

a) Specified Improvement Programme
b) Programme of Improvements

Appendix 7.1 Annual Statement of Measures

Description of issue	Risk	Mitigation Measure to be taken	Date for Completion/Comment
Ortho-P ELV exceedances.	Medium	Install a phosphorus removal system to lower ortho-P levels discharging form the WWTP	Completed December 2015
Improved Operational Control	Medium	Flow monitoring at WWTP	Contractor Appointed, Site Survey and Design Underway
Failed asset. DO meter in aeration basin is faulty & requires replacement	Medium	Replacement Do meter in aeration basin	Procurement Complete/Waiting to commence

Appendix 7.2 Ambient Monitoring Results

Upstream Monitoring Results								
Sampling Location	Sample Date	Sample Type	Dissolved Oxygen mg/l	Temp	Ammonia N mg/l	BOD, 5 days with Inhibition (Carbonaceous) mg/l	Ortho Phosphate mg/l	pH units
Smithboro WWTP Upstream	03/02/2015	Grab	11.38	9.5	0.036	< 1	0.032	7.9
Smithboro WWTP Upstream	15/04/2015	Grab	10.39	16	0.094	<1	0.029	8.1
Smithboro WWTP Upstream	12/05/2015	Grab	9.07	12.7	0.062	2.3	<0.009	7.9
Smithboro WWTP Upstream	12/08/2015	Grab	9.10	13.7	0.052	1	0.058	8.1
Smithboro WWTP Upstream	07/10/2015	Grab	9.55	11.9	0.024	3	0.035	8
Smithboro WWTP Upstream	01/12/2015	Grab	10.26	8.6	0.061	2.2	0.092	7.7
Average			**9.96**	**12.07**	**0.055**	**1.75**	**0.043**	**7.95**

Downstream Monitoring Results								
Sample Location	Sample Date	Sample Method	Dissolved Oxygen mg/l	Temp oC	Ammonia N mg/l	BOD, 5 days with Inhibition (Carbonaceous) mg/l	Ortho-Phosphate P mg/l	pH units
Smithboro WWTP Downstream	03/02/2015	Grab	11.53	9.1	0.04	<1	0.035	7.9
Smithboro WWTP Downstream	15/04/2015	Grab	10.24	15.3	0.063	<1	0.028	7.9
Smithboro WWTP Downstream	12/05/2015	Grab	9.26	13.2	0.034	6.3	<0.009	7.9
Smithboro WWTP Downstream	12/08/2015	Grab	9.18	14.4	0.058	1	0.079	8.1
Smithboro WWTP Downstream	07/10/2015	Grab	9.64	11.6	0.069	1	0.04	8
Smithboro WWTP Downstream	01/12/2015	Grab	10.02	8.0	0.056	2.4	0.097	7.7
Average			**9.98**	**11.93**	**0.053**	**2.12**	**0.048**	**7.92**

Appendix 7.4 Specified Improvement Programme

a) Specified Improvement Programme

As per condition 5.1 of the licence, a programme of infrastructural improvements to maximise the efficiency and effectiveness of the waste water works shall be prepared and submitted:
In the licence, under schedule C, the specified improvement is to upgrade the plant to provide chemical dosing for phosphorus removal to comply with ELV's specified in Schedule A. Ferric dosing was installed at the plant in December 2015.
Other than Orthophosphate removal the WWTP is considered to be operating efficiently as effluent results are compliant with specified ELVs in the discharge licence and the WWTP is achieving adequate removal efficiencies see section 3.2. There was no P removal at the plant on the date of the breaches of ELV for orthophosphate, ferric dosing was installed at the plant in December 2015.

Under condition 5.2 (a) of the licence, the programme of infrastructural improvements shall include an assessment of the waste water treatment plant having regard to the effectiveness of the treatment provided by reference to the following:

(i) The existing level of treatment, capacity of treatment plant and associated equipment:

Ferric dosing system was installed in 2015 for phosphorus removal to ensure wastewater is within ELV for orthophosphate.

(ii) The emission limit values specified in Schedule A: Discharges, of this licence:

The treatment plant is considered to be operating effectively but there were high levels of Orthophosphate in 2015 at the WWTP, these ELV exceedances were prior to the installation of phosphorus removal. It is envisaged that the installation of the ferric dosing system should improve these figures significantly.

(iii) The designations of the receiving water body:

Under the (WMU) action plan, Smithborough is not suggested to be having an impact on the receiving water as there is adequate dilution in the river at that location. The WMU suggests implementing a Performance Management system, which this report and other performance measures taken are deemed to satisfy.
The receiving River is not a designated Salmonid Water (under the European Communities (Quality of Salmonid Waters) Regulations, 1988. The river is not designated as an SPA, SAC or NHA

(iv) Water quality objective for the receiving water body:

Smithborough WWTP discharges to waterbody NW_36_1082, this waterbody has been classified as poor and has a Restore 2021 objective in the North West International River Basin District.
WWTP discharges to the Magherarney River. Results do not indicate significant impact on receiving water.

(v) The standards and volumetric limitations applied to any industrial waste water that is licensed to discharge to the waste water works:

There are no industries licensed to discharge to the waste water works.

Under condition 5.2 (b) of the licence, the programme of infrastructural improvements shall include an assessment of the integrity of the waste water works having regard to:

(i) Capacity of the waste water works:

There is adequate capacity at the WWTP works based on table 3.2.

(ii) Leaks from the waste water works:
There are no known leaks at the WWTP site.

(iii) Misconnections between foul sewers and surface water drainage network:
There are no known misconnections on the Smithborough network.

(iv) Infiltration by surface water/ground water:
During storm conditions/periods of extensive rainfall, inflows into the WWTP increase greatly suggesting surface water/ground water infiltration.

b) Programme of Improvements

Under condition 5.2 (c) of the licence, the programme of infrastructural improvements shall include an assessment of all storm water overflows associated with the waste water works to determine the effectiveness of their operation and in particular identify improvements necessary to comply with the requirements of this licence:
There are no storm water overflows from the Smithborough WWTP. There is a secondary discharge point. Treated effluent is discharges here when river flows are high. It is located close to the primary discharge point and both discharges are to the same waterbody.

Condition 5.3 (a) and (b) of the licence, the programme of infrastructural improvements shall include a plan for implantation for each individual improvement identified:
There is no specified improvement works under schedule C1 or C2 of the discharge licence. One individual improvement identified for the WWTP is the addition of a ferric dosing system to reduce Ortho P.

Improvement Summary Table

Improvement Identifier	Improvement Description	Improvement Source	Progress (% completed)	Expected Completion Date
Implement a phosphorus removal system	Lower ortho-P levels discharging form the WWTP		100%	Completed December 2015