

# Annual Environmental Report 2014

<b>Agglomeration Name:</b>	<b>Swords</b>
<b>Licence Register No.</b>	<b>D0024-01</b>



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## **Section 1. Executive Summary and Introduction to the 2014 AER**

### ***1.1 Summary report on 2014***

This Annual Environmental Report has been prepared for D0024-01, Swords, in County Dublin in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified assessments are included as an appendix to the AER as follows:

- Priority substances assessment

The agglomeration is served by a wastewater treatment plant with a Design PE of 60,000. The treatment process includes the following:-

- preliminary treatment (including screening / grit removal)
- primary treatment
- secondary treatment - conventional activated sludge / SBR / RBC etc.
- chemical dosing for phosphorus removal

The parameters that exceeded the licensed emission limit values in 2014 were Total nitrogen and Total phosphorus. Swords WWTP final effluent was in compliance however with the annual mean value for Total Phosphorous and Total Nitrogen. The WWTP is compliant with the UWWTD.

1,020,000kg sludge as kg dry solids, were removed from the wastewater treatment plant in 2014 as dewatered sludge cake. Sludge was transferred by Ormond Organics to their facility at Portlaw, Co. Waterford.

The following improvement works were undertaken during 2014:-

- Upgrade of WWTP to cater for 90,000 p.e. (still under construction)
- Installation of enhanced nutrient reduction measure(s)

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

	BOD (mg/l)	COD (mg/l)	SS (mg/l)	TP (mg/l)	TN (mg/l)	Hydraulic Loading (m <sup>3</sup> /d)	Organic Loading (PE/day)
<b>Number of Samples</b>	44	45	45	45	45		
<b>Annual Max.</b>	443	1490	609	20.4	90.1	32,767	128,394
<b>Annual Mean</b>	279	676	342	10.59	47.39	13,781	64,178

#### Significance of results

The annual mean hydraulic 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-Swords WWTP, Primary Discharge

Table 2.2 - Effluent Monitoring Summary

	BOD (mg/l)	COD (mg/l)	TSS (mg/l)	Total P (mg/l)	Total N (mg/l)	pH	Comment
WWDL ELV (Schedule A)	25	125	35	2	15	6-9	
ELV with Condition 2 Interpretation included	50	250	87.5	2.4	18	6-9	
Number of sample results	46	46	46	46	46	46	24 hour composite samples.
Number of sample results above WWDL ELV	0	0	0	6	3	0	
Number of sample results above ELV with Condition 2 Interpretation included	0	0	0	4	2	0	Please see comment in Significance of Results below.
Annual Mean (for parameters where a mean ELV applies)	n/a	n/a	n/a	1.09	8.82	n/a	Swords WWTP final effluent was in compliance with the annual mean value for Total Phosphorous and Total Nitrogen.
Overall Compliance (Pass/Fail)	Pass	Pass	Pass	Fail	Fail	Pass	

### Significance of results

The WWTP was compliant with the ELV's set in the wastewater discharge licence for BOD, COD and Suspended Solids. The WWTP was compliant for the yearly mean ELV for Total Phosphorous and Total Nitrogen, but was non-compliant for Condition 2 interpretation that no sample must exceed the ELV by more than 20%, in the case of 4 samples for Total Phosphorous and 2 for Total Nitrogen. The non-compliance is due to biological overloading at the Plant. The impact on receiving waters is assessed further in Section 2.3.

## 2.2a Discharges from the agglomeration-Toberburr WWTP, Secondary Discharge

Table 2.2a - Effluent Monitoring Summary

	BOD (mg/l)	COD (mg/l)	TSS (mg/l)	Total P (mg/l)	Total N (mg/l)	pH	Comment
WWDL ELV (Schedule A)	25	125	35	n/a	n/a	6-9	
ELV with Condition 2 Interpretation included	50	250	87.5	n/a	n/a	6-9	
Number of sample results	6	6	6	6	6	6	
Number of sample results above WWDL ELV	1	0	0	n/a	n/a	0	Grab samples
Number of sample results above ELV with Condition 2 Interpretation included	0	0	0	n/a	n/a	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	n/a	n/a	Pass	

### Significance of results

The WWTP was compliant with the ELV's set in the wastewater discharge licence.

## 2.3 Ambient monitoring summary

Table 2.3 - Ambient Monitoring Report Summary

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	EPA Feature Coding Tool code	Current EQS Status	Does assessment of the ambient monitoring results indicate that the discharge is impacting on water quality?
BM020-Balheary Bridge	318906E, 248021N	N/A	Poor (WFD Status 2010-2012)	No
BM130-Seatown East	320527E, 247216N	TW09001008BM1002	Poor (WFD Status 2010-2012)	Possibly for BOD
BM140 Barrack Bridge	321268E, 246845N	TW09001008BM1003	Poor (WFD Status 2010-2012)	No
Balcarrick Beach, Donabate	325151E, 249004N	N/A	All samples taken during 2014 Bathing season achieved "Excellent" Status.	No
Malahide Beach	324034E, 246133N	N/A	This beach has been de-listed and will not receive a Bathing Water Status	No

The results for the ambient monitoring and bathing water sampling points are included in Appendix 7.2.

### Significance of results

The WWTP was non-compliant with the ELV's for TN and TP set in the wastewater discharge licence as detailed in Section 2.2.

The discharge from the wastewater treatment plant does not have an observable negative impact on the water quality status for nutrients. However, there may have been a minor impact to the BOD at point BM130.

### 2.4 Data collection and reporting requirements under the Urban Waste Water Treatment Directive

The electronic submission of data was completed on the 27<sup>th</sup> January 2015.

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

A PRTR is included in Appendix 7.3.

## Section 3 Operational Reports Summary

### 3.1 Treatment Efficiency Report

A summary presentation of the efficiency of the treatment process including information for all the parameters specified in the licence is included below:-

**Table 3.1 - Treatment Efficiency Report Summary**

	<b>cBOD (kg/yr)</b>	<b>COD (kg/yr)</b>	<b>SS (kg/yr)</b>	<b>Total P (kg/yr)</b>	<b>Total N (kg/yr)</b>	<b>Comment</b>
<b>Influent mass loading (kg/year)</b>	1,405,506	3,400,630	1,720,330	53,257	238,385	
<b>Effluent mass emission (kg/year)</b>	22,645	157,167	64,150	5,742	42,480	
<b>% Efficiency (% reduction of influent load)</b>	98%	95%	96%	89%	82%	All percentage reductions comply with the Second Schedule of the UWWT Regulations.

### 3.2 Treatment Capacity Report

**Table 3.2 - Treatment Capacity Report Summary**

<b>Hydraulic Capacity – Design / As Constructed (dry weather flow) (m<sup>3</sup>/year)</b>	5,549,000
<b>Hydraulic Capacity – Design / As Constructed (peak flow) (m<sup>3</sup>/year)</b>	16,630,000
<b>Hydraulic Capacity – Current loading (m<sup>3</sup>/year)</b>	5,029,904
<b>Hydraulic Capacity – Remaining (m<sup>3</sup>/year)</b>	11,600,096
<b>Organic Capacity - Design / As Constructed (PE)</b>	60,000
<b>Organic Capacity - Current loading (PE)</b>	64,178
<b>Organic Capacity – Remaining (PE)</b>	0
<b>Will the capacity be exceeded in the next three years?</b>	Yes*

\*The plant has already exceeded its organic capacity, however, an expansion is currently underway to increase the organic capacity from 60,000 to 90,000 P.E.



### 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 treated 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**

	<b>% of p.e. load generated in the agglomeration</b>
<b>Load generated in the agglomeration that is collected in the sewer network</b>	100%
<b>Load collected in the agglomeration that enters treatment plant</b>	100%
<b>Load collected in the sewer network but discharged without treatment</b>	0

**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.

The data in Table 3.3 above is based on influent monitoring as detailed in Section 2.1 above.

### 3.4 Complaints Summary

A summary of complaints of an environmental nature is included below.

**Table 3.4 - Complaints Summary Table:**

Number	Date and time	Nature	Cause	Actions taken to Resolve	Closed
1	16/01/2014 11:00	odour	Cleaning out of Primary tanks to facilitate mechanical repairs	Works to be finished ASAP	Yes
2	29/01/14 at 14:10	odour	Blockage being cleared from Primary line	Blockage Cleared	Yes
3	25/02/14 at 14:00	odour	Spill in GBT room	Spill cleared	Yes
4	28/02/2014 at 17:00	odour	Water supply to Odour control units not working properly	Water supply to Odour control units reinstated	Yes
5	01/03/2014	odour	Water supply to Odour control units not working properly	Water supply to Odour control units reinstated	Yes
6	02/03/2014	odour	Water supply to Odour control units not working properly	Water supply to Odour control units reinstated	Yes
7	09/03/14 at 19:00	odour	No unusual operating conditions in progress	Site monitored	Yes
8	11/03/14 at 19:00	odour	No unusual operating conditions in progress	Site monitored	Yes
9	25/03/14 at 10:30	odour	Cause not identified, but there was a noticeable odour during a plant walk around	Carbon unit at Inlet works opened to alleviate odour	Yes
10	27/03/14 at 20:15	odour	No unusual operating conditions in progress	As a precaution, carbon in odour control unit at the sludge building to be changed (changed on 04/04/14)	Yes
11	27/03/2014 at 20:30	odour	No unusual operating conditions in progress	As a precaution, carbon in odour control unit at the sludge building to be changed (changed on 04/04/14)	Yes
12	10/07/14 at 12:30	odour	FST being drained down to facilitate repair to Launder Trough	Draining down of tank and repairs to the Launder Trough carried out in the shortest timeframe possible. Works complete	Yes
13	14/07/14 at 12:30	odour	FST being drained down to facilitate repair to Launder Trough	Draining down of tank and repairs to the Launder Trough carried out in the shortest timeframe possible. Works complete	Yes
14	12/08/14 at 16:00	odour	Centrate line diversion underway as part of expansion works	Odour dissipated when works were complete	Yes

Number	Date and time	Nature	Cause	Actions taken to Resolve	Closed
15	19/08/14 at 15:30	odour	Macerator tripped a number of times, causing a slowdown in primary sludge processing	Odour dissipated when works were complete	Yes
16	20/08/14 at 14:40	odour	Digested sludge holding tank being emptied. Odour possible from tankers venting system.	System set up to vent fumes from tanker through existing plant odour extraction system	Yes
17	20/08/14 at 14:40	odour	Digested sludge holding tank being emptied. Odour possible from tankers venting system.	System set up to vent fumes from tanker through existing plant odour extraction system	Yes
18	02/12/2014	odour	Poly make-up unit failed resulting in centrate sludge flowing above ground.	Clean up commenced on 02/12/14 and was completed on 03/12/14	Yes
19	21/07/2014	odour	complaint received via EPA	System on site check and plant operation as usual	<b>No</b>
20	30-Apr-14	INV Sewage Flooding	(CLOB) Customer called to say there is a mains drain running through their back garden to a nearby treatment plant. This drain is badly blocked causing flooding.	Mains Blockage - Cleared by FCC Jetter	RCLOSE
21	26-May-14	INV Sewage Flooding	(CLOB) Manhole flooding on the junction between Forrest Way and Forrest Avenue.	Mains Blockage - Cleared by FCC Jetter	RCLOSE
22	11-Aug-14	INV Sewage Flooding	(CLOB) Customer emailed and said the sewer drain outside his house is blocked, he said its overflowing with water and faeces and the smell is horrible.	Mains Blockage - Cleared by FCC Jetter	RCLOSE
23	13-Aug-14	INV Above Ground Waste Malodours		Mains Blockage - Cleared by FCC Jetter	RCLOSE

Number	Date and time	Nature	Cause	Actions taken to Resolve	Closed
24	19-Sep-14	INV Above Ground Waste Malodours	(CLOB) smell coming from the main shore its like raw sewage, 3 years ago they came out to suck up all sewage and since then it hasn't cleared problem	Surface Water Issue - SW main Jetted	RCLOSE
25	11-Nov-14	INV Sewage Flooding	(CLOB) Sewerage blockage/flooding the sewerage drain is blocked and is flooding on to the road and this has been there since Saturday the sewerage problem is by the traffic lights between River Valley and horthorn Park,	Mains Blockage - Cleared by FCC Jetter	RCLOSE
26	17-Nov-14	INV Sewage Flooding	(CLOB) Ray said the local authorities were out in his area today working on the main sewer and also working in the resident's back gardens as their shores were flooding. He said that they completed their works however the issue has not been resolved as the shores have started flooding again. He said this is a recurring issue, it happened 2 months ago and a few times before that also. There are many young and vulnerable people living in the area so this needs urgent investigation.	Sewer Surcharge due to heavy rain event - Clean up by FCC crews	RCLOSE

### 3.5 Reported Incidents Summary

A summary of reported incidents is included below.

**Table 3.5.1 - Summary of Incidents**

Incident Type	Incident Description	Cause	No. of incidents	Corrective Action	Authorities Contacted <sup>Note 1</sup>	Reported to EPA (Yes/No)	Closed (Y/N)
Breach of ELV	Breach of ELV for Total Phosphorous	Centrate returned to inlet for treatment caused an increase in Total Phosphorous load	1	Increased chemical dosage	Fingal Co. Co. Inland Fisheries Dept of Agriculture, Irish Water	Yes	Yes
Breach of ELV	Breach of ELV TN and TP	FST 4 drained down to facilitate repair work to launder trough	1	Launder trough repaired in shortest possible time frame and tank put back into service.	Fingal Co. Co. Inland Fisheries Dept of Agriculture, Irish Water	Yes	Yes
Storm Water overflow	Storm Water overflow from Swords WWTP during prolonged, heavy rain	Adverse weather	1	None Possible	Fingal Co. Co. Inland Fisheries Dept of Agriculture, Irish Water	Yes	Yes
Breach of ELV	Discharge of small quantity of secondary sludge with final effluent	Expansion contractors ruptured secondary sludge pipe	1	Pipe repaired by 12:00	I.W, BIM, MI, FSAI	Yes	Yes
Storm Water overflow	Storm Water overflow from Swords WWTP during prolonged, heavy rain	Adverse weather	1	None Possible	Fingal Co. Co. Inland Fisheries Dept of Agriculture, Irish Water	Yes	Yes
Storm Water overflow	Storm Water overflow from Swords WWTP during prolonged, heavy rain	Adverse weather	1	None Possible	Fingal Co. Co. Inland Fisheries Dept of Agriculture, Irish Water	Yes	Yes
Storm Water overflow	Storm Water overflow from Rathbeale PS during prolonged, heavy rain	Adverse weather	1	None Possible	Fingal Co. Co. Inland Fisheries Dept of Agriculture, Irish Water	Yes	Yes

Incident Type	Incident Description	Cause	No. of incidents	Corrective Action	Authorities Contacted <sup>Note 1</sup>	Reported to EPA (Yes/No)	Closed (Y/N)
Storm Water overflow	Storm Water overflow from Forest Road PS during prolonged, heavy rain	Adverse weather	1	None Possible	Fingal Co. Co. Inland Fisheries Dept of Agriculture, Irish Water	Yes	Yes
Storm Water overflow	Storm Water overflow from Swords WWTP during prolonged, heavy rain	Adverse weather	1	None Possible	Fingal Co. Co. Inland Fisheries Dept of Agriculture, Irish Water	Yes	Yes
Storm Water overflow	Storm Water overflow from Swords WWTP during prolonged, heavy rain	Adverse weather	1	None Possible	Fingal Co. Co. Inland Fisheries Dept of Agriculture, Irish Water	Yes	Yes
Storm Water overflow	Storm Water overflow from Rathbeale Pumping Station during prolonged, heavy rain	Adverse weather	1	None Possible	Fingal Co. Co. Inland Fisheries Dept of Agriculture, Irish Water	Yes	Yes
Storm Water overflow	Storm Water overflow from Drynam Pumping Station during prolonged, heavy rain	Adverse weather	1	None Possible	Fingal Co. Co. Inland Fisheries Dept of Agriculture, Irish Water	Yes	Yes
Breach of ELV	Breach of ELV for Total Phosphorous	Centrate entered surface water system and got into final effluent chamber	1	None Possible. By the following day TP levels were back in compliance.	Fingal Co. Co. Inland Fisheries Dept of Agriculture, Irish Water	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**

<b>Number of Incidents in 2014</b>	13
<b>Number of Incidents reported to the EPA via EDEN in 2014</b>	13
<b>Explanation of any discrepancies between the two numbers above</b>	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**

<b>Input type</b>	<b>m<sup>3</sup>/year</b>	<b>PE/year</b>	<b>% of load to WWTP</b>	<b>Is there a leachate/sludge acceptance procedure for the WWTP? (Y/N)</b>	<b>Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)</b>
Domestic /Septic Tank Sludge	0	0	0	N	N
Industrial / Commercial Sludge	0	0	0	N	N
Landfill Leachate (delivered by tanker)	0	0	0	N	N
Landfill Leachate (delivered by sewer network)	0	0	0	N	N
Other (specify)	0	0	0	N	N

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 included 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. Infrastructural Assessments and Programme of Improvements

### 4.1 Storm water overflow identification and inspection report

The Storm Water Overflow Identification & Inspection report is not required for Swords agglomeration.

**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 / Medium / Low)	Compliance with DoEHLG Criteria	No. of times activated in 2014 (No. of events)	Total volume discharged in 2014 (m <sup>3</sup> )	Total volume discharged in 2014 (P.E.)	Estimated /Measured data
SWO 17	318046E, 246421N	Yes	Not yet assessed	Not yet assessed	unknown	unknown	unknown	N/A
SWO 19	318332E, 247431N	Yes	Not yet assessed	Not yet assessed	unknown	unknown	unknown	N/A
SWO 20	318181E, 246937N	Yes	Not yet assessed	Not yet assessed	unknown	unknown	unknown	N/A
SWO 25	319294E, 247778N	Yes	Not yet assessed	Not yet assessed	5	15,000	15,000	Estimated

**Table 4.1.2 - SWO Identification and Inspection Summary Report**

How much sewage was discharged via SWOs in the agglomeration in the year (m <sup>3</sup> /yr)?	unknown
How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?	unknown
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2014?	unknown
Is each SWO identified as non-compliant with <a href="#">DoEHLG Guidance</a> included in the Programme of Improvements?	No
The SWO assessment includes the requirements of Schedule A3 & C3	N/A
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	N/A



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

The Improvement Programme is included in Appendix 7.4.

The Improvement Programme report included in Appendix 7.4 addresses the **Specified Improvement Programmes** as detailed in Schedules A3 and C of the WWDL. It should detail other improvements identified through assessments required under the licence

**Table 4.2.1 - Specified Improvement Programme Summary**

Specified Improvement Programmes (under Schedule A and C of WWDL)	Licence Schedule (A or C)	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works ((i) Not Started; (ii) At planning stage; (iii) Work ongoing on-site; (iv) Commissioning Phase; (v) Completed; (vi) Delayed;)	% Construction Work Completed	Timeframe for Completing the Work	Comments
Upgrade of WWTP to cater for 90,000 p.e.,	C	31/12/2015	N	(iii) Work ongoing on-site	60%	End 11/2015	CIP
Installation of enhanced nutrient reduction measure(s)	C	31/12/2021	N	(iii) Work ongoing on-site	60%	End 11/2015	CIP
Replacement of Toberburr WWTP with a pumping station to Swords WWTP	C	31/12/2015	N	(i) Not started	0%	None available	CIP
Upgrading of Storm Water Overflows	C	31/12/2015	N	(i) Not Started	0%	None available	
Toberburr Activated Sludge Treatment Plant to be discontinued	C	31/12/2015	N	(i) Not Started	0%	None available	

There are no improvements identified under Condition 5.2.

**Table 4.2.3 - Sewer Integrity Risk Assessment Tool Summary**

<b>The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:</b>	<b>Risk Assessment Rating (High, Medium, Low)</b>	<b>Risk Assessment Score</b>	<b>Comment</b>
Hydraulic Risk Assessment Score	Medium	82	
Environmental Risk Assessment Score	Low	125	
Structural Risk Assessment Score	High	150	
Operation & Maintenance Risk Assessment Score	Medium	80	
<b>Overall Risk Score for the agglomeration</b>	<b>Low</b>	<b>437</b>	

See Appendix 7.5 for Sewer Integrity Tool Output.

## Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Required in 2014 AER or outstanding from previous AER	Included in 2014 AER	Reference to relevant section of AER
Priority Substances Assessment	Yes	Yes	Summary of findings on this page. Full report in Appendix 7.6.
Drinking Water Abstraction Point Risk Assessment	No	No	N/A
Habitats Impact Assessment	No	No	N/A
Shellfish Impact Assessment	No	No	N/A
Pearl Mussel Report	No	No	N/A
Toxicity/Leachate Management	No	No	N/A
Toxicity of Final Effluent Report	No	No	N/A

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report
Priority Substances Assessment	No	No substance was considered to have been identified at a sufficiently high concentration to negatively impact the receiving environment. No measures required to reduce screened substances. (See Appendix 7.6).
Drinking Water Abstraction Point Risk Assessment	N/A	N/A
Habitats Impact Assessment	N/A	N/A
Shellfish Impact Assessment	N/A	N/A
Pearl Mussel Report	N/A	N/A
Toxicity/Leachate Management	N/A	N/A
Toxicity of Final Effluent Report	N/A	N/A

## 5.1 Priority Substances Assessment

The Priority Substances Assessment report is included in Appendix 7.6. A summary of the findings of this report is included below.

**Table 5.1 - Priority Substance Assessment Summary**

	<i>Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.</i>
<b>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</b>	Screening Analysis for Primary and Secondary discharge points. (See Appendix 7.6)
<b>Does the assessment include a review of Trade inputs to the works?</b>	No
<b>Does the assessment include a review of other inputs to the works?</b>	No
<b>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)</b>	Yes
<b>Does the assessment identify that priority substances may be impacting the receiving water?</b>	No
<b>Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?</b>	No

## 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 ( <i>insert lines as required</i> )	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 ( <i>insert lines as required</i> )	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?	Yes
List outstanding reports ( <i>insert lines as required</i> )	
Sewer Integrity Tool	Appendix 7.5 of 2014 AER

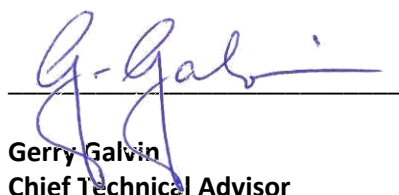
### Declaration by Irish Water

The AER contains the following;

- Introduction and background to 2014 AER
- Monitoring reports summary.
- Operational reports summary.
- Infrastructural Assessment and Programme of Improvements.
- Licence specific reports.
- Certification and Sign Off
- Appendices

I certify that to the best of my knowledge the information given in this Annual Environmental Report is truthful, accurate and complete:

Signed:



Gerry Galvin  
Chief Technical Advisor

Date: 03/03/2015



## **Section 7. Appendix**

Appendix 7.1 – Annual Statement of Measures

Appendix 7.2 - Ambient Monitoring

Appendix 7.3 – Pollutant Release and Transfer Register (PRTR) Summary Sheets

Appendix 7.4 – Specified Improvement Programme

Appendix 7.5 – Sewer Integrity Tool Output

Appendix 7.6 – Priority Substances Assessment

## Appendix 7.1

### Annual Statement of Measures

- On the 26<sup>th</sup> March the Plant had its first EPA audit, since the issuing of its Discharge License in January 2014. The following was recommended: A formalised record of calibration of flow meters & composite samplers. Upgrade of the Storm Overflow (SW25) required by Dec 2014. Documented Environmental Emergency Procedure required & Communication of Environmental incidents.
- The Plant changed its Polyelectrolyte supplier in April, this has resulted in a significant cost saving. Results have been monitored and are found to have improved.
- There were a number of centrifuge issues on site throughout the year. This was dealt with through on-site maintenance, and is likely to continue until the equipment is upgraded as part of the expansion project.
- A section of the launder trough on FST #4 collapsed at the beginning of July. A temporary repair has been complete, but a permanent replacement of the section is urgently required, as operation of the launder trough prevents high suspended solids in the final effluent and the subsequent pollution of the Broadmeadow Estuary. Quotations were submitted to Irish Water and Irish Water have raised a Purchase Order for GPE industries to manufacture & replace the launder trough. This is currently at design stage and is proposed to be carried out during drier weather period or if the existing trough fails.
- Irish Water carried out a HQSE inspection on the 15<sup>th</sup> August 2014, a report regarding the findings was issued on the 27<sup>th</sup> August. Recommendations from this report are currently being addressed on site.



## Appendix 7.2

### Ambient Monitoring Summary

#### Ambient Monitoring Results -Inner Broadmeadow Estuary

Sampling points as specified by Licence No D0024-01

Samples tested at Dublin City Council Central Lab

Sampling Point	Sampled Date	Ammonia µg/l as N	B.O.D. Saline mg/l	Chlorophyll a mg/m <sup>3</sup>	DIN µg/l	Dissolved Oxygen % Sat.	pH	Pheophytin a mg/m <sup>3</sup>	Phosphorus (React) µg/l SRP as P	Salinity PSU	Temp °C	TON µg/l as N	Total Nitrogen Saline µg/l as N	Total Phosphorus µg/l as P
BM020	01/05/2014	<5	<2	3.2	934	99	8.1	4.2	<5	0.0	12.2	934	1077	42
BM020	11/07/2014	29	<2	7.6	634	106	8.2	6.2	31	0.1	17.2	605	1060	156
BM130	01/05/2014	13	<2	0.7	974	91	8.2	0.8	5	29.0	14.2	961	1012	30
BM130	11/07/2014	5	5	28.7	5	117	8.3	4.6	21	30.2	20.0	<10	549	141
BM140	01/05/2014	53	<2	0.9	485	96	8.2	0.3	24	30.3	14.3	432	522	27
BM140	11/07/2014	<5	4	18.2	<15	126	8.4	9.3	10	29.9	19.1	<10	432	124

#### Assessment of results.

In order to assess the ambient monitoring results, S.I No 272 of 2009, European Communities Environmental Objectives (Surface Waters) Regulations 2009, was consulted. It was found that the majority of samples complied with the prescribed limit for BOD for transitional water which is 4mg/l. One sample from sampling point BM130 exceeded this limit on 11/07/14, when the result obtained was 5mg/l, the dissolved oxygen saturation was, however within the prescribed range on this date. On the previous day, the Swords WWTP final effluent BOD was unusually high at 22mg/l, so this may have had a minor effect on the ambient water BOD.

The reactive phosphorous results were compliant in all cases with the Surface Water Regulations criteria for transitional water. There are no prescribed limits for transitional waters for ammonia, but it is notable that the ammonia levels in the ambient waters are in the order of microgrammes per litre, this would strongly suggest that the Swords WWTP final effluent is not having a negative impact on the nutrient conditions of the receiving waters.

**Bathing Water Results 2014,**  
Samples tested at Dublin City Council Central Lab

**Balcarrick-Donabate Beach**

<b>Date</b>	<b>E. coli MPN/100ml</b>	<b>Enterococci CFU/100ml</b>	<b>Bathing Water Classification Standard</b>
26/05/2014 11:05	10	2	Excellent
10/06/2014 10:55	10	4	Excellent
24/06/2014 10:55	<10	<1	Excellent
08/07/2014 09:30	74	5	Excellent
22/07/2014 09:30	<10	2	Excellent
28/07/2014 15:00	<10	8	Excellent
05/08/2014 08:10	31	46	Excellent
19/08/2014 07:40	<10	3	Excellent
25/08/2014 12:25	<10	4	Excellent
08/09/2014 12:25	20	13	Excellent

**Malahide Beach**

<b>Date</b>	<b>E. coli MPN/100ml</b>	<b>Enterococci CFU/100ml</b>	<b>Bathing Water Classification Standard</b>
26/05/2014 10:40	52	13	Excellent
10/06/2014 10:15	20	15	Excellent
24/06/2014 10:25	10	4	Excellent
08/07/2014 09:10	31	13	Excellent
10/07/2014 12:15	<10	1	Excellent
22/07/2014 09:05	10	2	Excellent
28/07/2014 16:28	156	63	Excellent
05/08/2014 07:20	52	13	Excellent
19/08/2014 07:20	2481	290	Poor
25/08/2014 12:00	20	16	Excellent
08/09/2014 12:00	<10	2	Excellent

**Assessment of Results.**

In order to assess these results, The Bathing Water Quality Regulations, 2008 (S.I No 79 of 2008), was consulted. It was found that in all cases, Balcarrick-Donabate Beach, achieved “Excellent” results for the Bathing Water season 2014, and it is anticipated that it will retain its Blue Flag status. It is therefore reasonable to assume that the Swords WWTP final effluent is not having a negative impact on this designated bathing water area.

Malahide Beach achieved “Excellent” results for 10 of the 11 samples tested during the 2014 Bathing Water season, so it can also be assumed that Swords WWTP final effluent is not having a negative impact on it. Malahide Beach will not receive a bathing water status as it has now been de-listed.

## Appendix 7.3

### Pollutant Release and Transfer Register (PRTR) Summary Sheets



Environmental Protection Agency

| PRTR# : D0024 | Facility Name : Swords Wastewater Treatment Plant | Filename : D0024\_2014.xls | Return Year : 2014 |

[Guidance to completing the PRTR workbook](#)

# AER Returns Workbook

Version 1.1.18

<b>REFERENCE YEAR</b>	2014
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## 1. FACILITY IDENTIFICATION

Parent Company Name	Irish Water
Facility Name	Swords Wastewater Treatment Plant
PRTR Identification Number	D0024
Licence Number	D0024-01

Classes of Activity

No.	class_name
-	Refer to PRTR class activities below

Address 1	
Address 2	
Address 3	
Address 4	
	Dublin
Country	Ireland
Coordinates of Location	-6.2103629 53.46617383
River Basin District	Eastern
NACE Code	3700
Main Economic Activity	Sewerage
<b>AER Returns Contact Name</b>	Niall Horgan
<b>AER Returns Contact Email Address</b>	nhorgan@water.ie
<b>AER Returns Contact Position</b>	Environmental Compliance Specialist
<b>AER Returns Contact Telephone Number</b>	018925396
<b>AER Returns Contact Mobile Phone Number</b>	
<b>AER Returns Contact Fax Number</b>	
<b>Production Volume</b>	0.0
<b>Production Volume Units</b>	
<b>Number of Installations</b>	0
<b>Number of Operating Hours in Year</b>	0
<b>Number of Employees</b>	0
<b>User Feedback/Comments</b>	Treated emissions reported are for the primary and secondary discharge combined.
<b>Web Address</b>	

## 2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
5(f)	Urban waste-water treatment plants

## 3. SOLVENTS REGULATIONS (S.I. No. 543 of 2002)

Is it applicable?	
Have you been granted an exemption ?	
If applicable which activity class applies (as per Schedule 2 of the regulations) ?	
Is the reduction scheme compliance route being used ?	

## 4. WASTE IMPORTED/ACCEPTED ONTO SITE

[Guidance on waste imported/accepted onto site](#)

Do you import/accept waste onto your site for on-site treatment (either recovery or disposal activities) ?	
--	--

This question is only applicable if you are an IPPC or Quarry site

4.1 RELEASES TO AIR

[Link to previous years emissions data](#)

[PRTR#: 00024 | Facility Name : Swords Wastewater Treatment Plant | Filename : 00024\_2014.xls | Return Year : 2014 ]

20/02/2015 12:55

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

POLLUTANT		METHOD			Please enter all quantities in this section in KGs				
No. Annex II	Name	M/C/E	Method Used		Emission Point 1	QUANTITY			
			Method Code	Designation or Description		T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
01	Methane (CH4)	E	ESTIMATE	5.0	EPA UWWTP Tool Version	0.0	0.0	0.0	0.0
02	Carbon monoxide (CO)	E	ESTIMATE	5.0	EPA UWWTP Tool Version	0.0	21.0	0.0	21.0
03	Carbon dioxide (CO2)	E	ESTIMATE	5.0	EPA UWWTP Tool Version	0.0	1253487.0	0.0	1253487.0
05	Nitrous oxide (N2O)	E	ESTIMATE	5.0	EPA UWWTP Tool Version	0.0	7.0	0.0	7.0
07	Non-methane volatile organic compounds (NMVOC)	E	ESTIMATE	5.0	EPA UWWTP Tool Version	0.0	7.0	0.0	7.0
08	Nitrogen oxides (NOx/NO2)	E	ESTIMATE	5.0	EPA UWWTP Tool Version	0.0	66.0	0.0	66.0
11	Sulphur oxides (SOx/SO2)	E	ESTIMATE	5.0	EPA UWWTP Tool Version	0.0	6.0	0.0	6.0
						0.0	0.0	0.0	0.0
						0.0	0.0	0.0	0.0
						0.0	0.0	0.0	0.0
						0.0	0.0	0.0	0.0
						0.0	0.0	0.0	0.0
						0.0	0.0	0.0	0.0
						0.0	0.0	0.0	0.0
						0.0	0.0	0.0	0.0
						0.0	0.0	0.0	0.0
						0.0	0.0	0.0	0.0
						0.0	0.0	0.0	0.0
						0.0	0.0	0.0	0.0
						0.0	0.0	0.0	0.0
						0.0	0.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

POLLUTANT		METHOD			Please enter all quantities in this section in KGs				
No. Annex II	Name	M/C/E	Method Used		Emission Point 1	QUANTITY			
			Method Code	Designation or Description		T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
						0.0	0.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (As required in your Licence)

POLLUTANT		METHOD			Please enter all quantities in this section in KGs				
Pollutant No.	Name	M/C/E	Method Used		Emission Point 1	QUANTITY			
			Method Code	Designation or Description		T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
						0.0	0.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

**Additional Data Requested from Landfill operators**

For the purposes of the National Inventory on Greenhouse Gases, landfill operators are requested to provide summary data on landfill gas (Methane) flared or utilised on their facilities to accompany the figures for total methane generated. Operators should only report their Net methane (CH4) emission to the environment under T(total) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:

Landfill: Swords Wastewater Treatment Plant

Please enter summary data on the quantities of methane flared and / or utilised

T (Total) kg/Year	M/C/E	Method Used		Facility Total Capacity m3 per hour
		Method Code	Designation or Description	
Total estimated methane generation (as per site model)	0.0			N/A
Methane flared	0.0			0.0 (Total Flaring Capacity)
Methane utilised in engine	0.0			0.0 (Total Utilising Capacity)
Net methane emission (as reported in Section A above)	0.0			N/A

4.2 RELEASES TO WATERS [Link to previous years emissions data.](#)

PRTR : 0024 | Facility Name : Swords Wastewater Treatment Plant | Filename : 0024\_2014.xls | Return Year : 2014 |

20/02/2015 12:35

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

Data on ambient monitoring of storm/surface water or groundwater, conducted as part of your licence requirements, should NOT be submitted under AER / PRTR Reporting as this only concerns Releases from your facility

POLLUTANT		RELEASURES TO WATERS				Please enter all quantities in this section in KGs			
No. Annex II	Name	M/C/E	Method Used		QUANTITY				
			Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
24	1,2-dichloroethane (EDC)	M				6.231	6.231	0.0	0.0
25	Alachlor	M				1.246	1.246	0.0	0.0
26	Aldrin	M				0.025	0.025	0.0	0.0
61	Anthracene	M				0.062	0.062	0.0	0.0
17	Arsenic and compounds (as As)	M				8.723	8.741	0.0	0.018
27	Atrazine	M				0.125	0.125	0.0	0.0
82	Benzene	E	ESTIMATE	EPA UWWTP Tool Version		0.105	0.107	0.0	0.002
91	Benzo(g,h,i)perylene	M				0.062	0.062	0.0	0.0
63	Brominated diphenylethers (PBDE)	E	ESTIMATE	5.0		0.0	0.0	0.0	0.0
18	Cadmium and compounds (as Cd)	M				3.738	3.742	0.0	0.004
28	Chlordane	E	ESTIMATE	5.0		0.0	0.0	0.0	0.0
29	Chlordecone	E	ESTIMATE	5.0		0.0	0.0	0.0	0.0
30	Chlorfenvinphos	E	ESTIMATE	5.0		0.0	0.0	0.0	0.0
79	Chlorides (as Cl)	M				741446.16	742418.16	0.0	972.0
31	Chloro-alkanes, C10-C13	E	ESTIMATE	5.0		1.309	1.312	0.0	0.003
32	Chlorpyrifos	M				0.012	0.012	0.0	0.0
19	Chromium and compounds (as Cr)	M				12.461	12.463	0.0	0.002
20	Copper and compounds (as Cu)	M				56.076	56.161	0.0	0.085
82	Cyanides (as total CN)	E	ESTIMATE	EPA UWWTP Tool Version		18.267	18.309	0.0	0.042
33	DDT	M				0.025	0.025	0.0	0.0
70	Di-(2-ethyl hexyl) phthalate (DEHP)	E	ESTIMATE	EPA UWWTP Tool Version		5.715	5.759	0.0	0.044
35	Dichloromethane (DCM)	E	ESTIMATE	5.0		0.283	0.285	0.0	0.002
36	Dieldrin	M				0.025	0.025	0.0	0.0
37	Diuron	M				0.498	0.498	0.0	0.0
38	Endosulphan	E	ESTIMATE	5.0		0.0	0.0	0.0	0.0
39	Endrin	M				0.025	0.025	0.0	0.0
85	Ethyl benzene	E	ESTIMATE	EPA UWWTP Tool Version		0.103	0.105	0.0	0.002
88	Fluoranthene	M				0.062	0.062	0.0	0.0
83	Fluorides (as total F)	M				1869.192	1872.513	0.0	3.321
40	Halogenated organic compounds (as AOX)	E	ESTIMATE	5.0		14.872	14.908	0.0	0.036
41	Heptachlor	M				0.025	0.025	0.0	0.0
90	Hexabromobiphenyl	E	ESTIMATE	5.0		0.0	0.0	0.0	0.0
42	Hexachlorobenzene (HCB)	M				0.012	0.012	0.0	0.0
43	Hexachlorobutadiene (HCBD)	M				0.044	0.044	0.0	0.0
89	Isodrin	M				0.025	0.025	0.0	0.0
67	Isoproturon	M				0.312	0.312	0.0	0.0
23	Lead and compounds (as Pb)	M				37.384	37.546	0.0	0.162
45	Lindane	E	ESTIMATE	EPA UWWTP Tool Version		0.003	0.003	0.0	0.0
21	Mercury and compounds (as Hg)	M				0.623	0.625	0.0	0.002
46	Mirex	E	ESTIMATE	5.0		0.0	0.0	0.0	0.0
68	Naphthalene	M				0.062	0.064	0.0	0.002
22	Nickel and compounds (as Ni)	M				18.692	18.746	0.0	0.054
64	Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	E	ESTIMATE	EPA UWWTP Tool Version		0.517	0.533	0.0	0.016
87	Octylphenols and Octylphenol ethoxylates	E	ESTIMATE	5.0		0.0	0.0	0.0	0.0
69	Organotin compounds (as total Sn)	M				0.125	0.125	0.0	0.0
48	Pentachlorobenzene	E	ESTIMATE	5.0		0.0	0.0	0.0	0.0
49	Pentachlorophenol (PCP)	M				6.231	6.231	0.0	0.0
71	Phenols (as total C)	M				3.115	4.328	0.0	1.213
50	Polychlorinated biphenyls (PCBs)	M				0.1	0.1	0.0	0.0
72	Polycyclic aromatic hydrocarbons (PAHs)	M				0.062	0.065	0.0	0.003
51	Simazine	M				0.125	0.125	0.0	0.0
52	Tetrachloroethylene (PER)	E	ESTIMATE	EPA UWWTP Tool Version		0.368	0.368	0.0	0.0
53	Tetrachloromethane (TCM)	E	ESTIMATE	5.0		0.0	0.0	0.0	0.0
73	Toluene	E	ESTIMATE	5.0		3.073	3.282	0.0	0.209
12	Total nitrogen	M				54954.245	55306.445	0.0	352.2
76	Total organic carbon (TOC) (as total C or COD/3)	E	ESTIMATE	EPA UWWTP Tool Version		57445.085	57641.615	0.0	196.53
13	Total phosphorus	M				6791.398	6855.823	0.0	64.425
59	Toxaphene	E	ESTIMATE	5.0		0.0	0.0	0.0	0.0
74	Tributyltin and compounds	M				0.125	0.125	0.0	0.0
54	Trichlorobenzenes (TCBs)(all isomers)	M				6.231	6.231	0.0	0.0
57	Trichloroethylene	E	ESTIMATE	5.0		0.0	0.0	0.0	0.0
77	Trifuralin	M				0.187	0.187	0.0	0.0
75	Triphenyltin and compounds	M				0.125	0.125	0.0	0.0
60	Vinyl chloride	M				3.115	3.115	0.0	0.0
78	Xylenes	E	ESTIMATE	EPA UWWTP Tool Version		0.722	0.746	0.0	0.024
24	Zinc and compounds (as Zn)	M				1744.579	1746.408	0.0	1.829

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

**SECTION B : REMAINING PRTR POLLUTANTS**

POLLUTANT		RELEASURES TO WATERS			Please enter all quantities in this section in KGs				
No. Annex II	Name	M/C/E	Method Used		Emission Point 1	QUANTITY			
			Method Code	Designation or Description		T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
						0.0	0.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

**SECTION C : REMAINING POLLUTANT EMISSIONS (as required in your Licence)**

POLLUTANT		RELEASURES TO WATERS			Please enter all quantities in this section in KGs				
Pollutant No.	Name	M/C/E	Method Used		Emission Point 1	QUANTITY			
			Method Code	Designation or Description		T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year	
370	Selenium	M				8.723	8.723	0.0	0.0
205	Antimony (as Sb)	M				10.654	10.661	0.0	0.007
368	Molybdenum	M				18.692	18.713	0.0	0.021
358	Tin	M				43.614	43.614	0.0	0.0
373	Barium	M				54.83	55.371	0.0	0.541
374	Boron	M				1246.128	1247.463	0.0	1.335
356	Cobalt	M				12.461	12.466	0.0	0.005
386	Vanadium	M				24.923	25.001	0.0	0.078
388	Dichlobenil	M				0.012	0.012	0.0	0.0
383	Linuron	M				0.312	0.312	0.0	0.0
385	Mecoprop Total	M				0.436	0.438	0.0	0.002
380	2,4 Dichlorophenol (2,4 D)	M				0.312	0.313	0.0	0.001
384	MCPA	M				0.312	0.312	0.0	0.0
382	Glyphosate	M				12.461	12.467	0.0	0.006
389	Benzo[a]pyrene	M				0.062	0.062	0.0	0.0
390	Benzo[b]fluoranthene	M				0.062	0.062	0.0	0.0
391	Benzo[k]fluoranthene	M				0.062	0.062	0.0	0.0
392	Indeno[1,2,3-c,d]pyrene	M				0.062	0.062	0.0	0.0
393	Carbon tetrachloride	M				6.231	6.231	0.0	0.0
394	2,6-Dichlorobenzamide	E	ESTIMATE	EPA UWWTP Tool Version 5.0		0.501	0.502	0.0	0.001
395	Dicofol	E	ESTIMATE	EPA UWWTP Tool Version 5.0		0.0	0.0	0.0	0.0
396	Hexabromocyclodecane (HBCD)	E	ESTIMATE	EPA UWWTP Tool Version 5.0		0.0	0.0	0.0	0.0
397	PFOS	E	ESTIMATE	EPA UWWTP Tool Version 5.0		0.003	0.003	0.0	0.0
238	Ammonia (as N)	M				7414.462	7414.462	0.0	0.0
303	BOD	M				28660.944	28660.944	0.0	0.0
306	COD	M				198445.884	198445.884	0.0	0.0
362	Kjeldahl Nitrogen	M				12772.812	12772.812	0.0	0.0
327	Nitrate (as N)	M				41639.367	41639.367	0.0	0.0
372	Nitrite (as N)	M				592.534	592.534	0.0	0.0
332	Ortho-phosphate (as PO4)	M				9283.654	9283.654	0.0	0.0
240	Suspended Solids	M				80375.256	80375.256	0.0	0.0
						0.0	0.0	0.0	0.0

#### 4.3 RELEASES TO WASTEWATER OR SEWER

[Link to previous years emissions data](#)

| PRTR# : D0024 | Facility Name : Swords Wastewater Treatment Plant | Filename : D0024\_2014.xls

20/02/2015 12:55

##### SECTION A : PRTR POLLUTANTS

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

##### SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

#### 4.4 RELEASES TO LAND

[Link to previous years emissions data](#)

| PRTR# : D0024 | Facility Name : Swords Wastewater Treatment Plant | Filename : D0024\_2014.xls | Return Year : 2014 |

20/02/2015 12:55

##### SECTION A : PRTR POLLUTANTS

RELEASES TO LAND					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

##### SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO LAND					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button



**5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE**

19/11/19 09:24 | Facility Name: Secora Wastewater Treatment Plant | Process: D024\_2014.09 | Return Year: 2019

20/02/2019 12:55

Please enter all quantities on this sheet in Tonnes

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Has Waste	Has Waste	Name and License / Permit No. and Address of Final Recycler / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination (i.e. Final Recovery / Disposal Site) (HAZARDOUS WASTE ONLY)
						Destination Facility Name and License/Permit No. of Recycle/Disposer	Non		Destination Facility Name and License/Permit No. of Recycle/Disposer			
						M/C/E	Method Used					
Within the Country	19 05 05	No	4165.0	sludges from treatment of urban waste water		M	Weighed	Offsite in Ireland	Ormond Organics, W0237-01		Kilowen, Portlaw, Waterford, Ireland	
Within the Country	19 05 01	No	167.0	screenings		M	Weighed	Offsite in Ireland	Padraic Thomson Waste Disposal, WFP-DC-11-023-01		Thomlons Recycling Unit S3B, Parkwest Business Park, Dublin 12, Ireland	
Within the Country	20 03 01	No	17.0	mixed municipal waste		M	Weighed	Offsite in Ireland	Panda Waste Services, W0140-03		Beauparc Business Park, Rathdrishagh, Navan, Co Meath, Ireland	

\* Select a row by double-clicking the Description of Waste then click the delete button

## Appendix 7.4

### Specified Improvement Programme

#### 7.5.1 Specified Improvement Programme

Specified Improvement Measure	Licence Completion Date	Progress	Comments	Estimated Completion Date
Upgrade of WWTP to cater for 90,000 p.e., with enhanced nutrient reduction, UV disinfection system, new storm water holding tank and ancillary works	31/12/2015	Work ongoing on site	The expansion of the Swords wastewater treatment plant commenced in April 2013 and is currently programmed to be complete in late 2015. This expansion will increase the capacity of the plant from 60,000 to 90,000 population equivalent and will cater for the growing population and future development of Swords.	
Installation of enhanced nutrient reduction measure(s) at WWTP, as required, to meet the emission limit values	31/12/2021	Work ongoing on site		
Any works notified in writing by the Agency	As agreed		There have been no notifications from the Agency.	
Replacement of Toberburr WWTP with a pumping station and construction of rising mains and gravity sewers to divert all effluent to Swords WWTP for treatment	31/12/2015			None available

Specified Improvement Measure	Work Area	Licence Completion Date	Progress	Comments	Estimated Completion Date	On PIP
Upgrading of Storm Water Overflows to comply with the criteria outlined in the DoECLG "Procedures and Criteria in relation to Storm Water Overflows" (1995)		31/12/2015			None available	Yes
SW002 (1) Toberburr Activated Sludge Treatment Plant to be discontinued		31/12/2015			None available	Yes

### 7.5.2 Programme of Improvements

There are no identified improvements.

## Appendix 7.5

### Sewer Integrity Tool Output

Section 2.1 Hydraulic Risk Assessment					
Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
2.1	<u>Has a Hydraulic Performance Assessment been undertaken for the Sewer Network (e.g., Computer Model or other Engineering Design or Design Review)?</u>	Yes	0		If the answer is <b>No</b> assess the need and cost benefit of developing a computer model or engineering design assessment of the Sewer Network and complete Query 2.12. If the answer is <b>Yes</b> proceed to Queries 2.1.1 to 2.1.4 inclusive
2.1.1	If Answer to Query 2.1 is Yes, what % of the Network is covered by the hydraulic assessment?	N/A	0		The % coverage of the Network by the Hydraulic Assessment can be estimated by the area assessed against the area served by the Network. ENTER "N/A" IF COMPUTER MODEL or DESIGN DOES NOT EXIST. DO NOT LEAVE BLANK OR ENTER "0".
2.1.2	How many years has it been since the completion of the hydraulic assessment?	more than 10	5		Select N/A response if no design assessment or design exists.
2.1.3	Are the outcomes of the Hydraulic Assessment being implemented?	Yes	0		Select N/A response if no design assessment or design exists.
2.1.4	How many years has it been since the outcomes of the hydraulic assessment have been implemented?	5 to 10	3		Select N/A response if no hydraulic performance assessment or design exists. For ongoing works select "less than 5".
2.2	<u>Has a Dynamic Computer Model been used to Assess the Hydraulic Performance of the Sewer Network?</u>	Yes	0		Computer Model means a Hydroworks/Infoworks Model, Micro-Drainage Model or equivalent.
2.3	<u>Has a Manhole Survey been undertaken in accordance with WRc Documentation "Model Contract Document for Manhole Location Surveys and the Production of Record Maps"?</u>	Yes	0		If the answer is <b>No</b> assess the need and cost benefit of undertaking a Manhole Survey and complete Query 2.12. If the answer is <b>Yes</b> proceed to Query 2.2.1
2.3.1	If yes, how many years has it been since the survey was undertaken or updated?	5 to 10	7		Select N/A if no Manhole Survey has been undertaken. Enter N/A value for Confidence Grade if Prompt Box is "N/A"
2.4	<u>Has a Flow Survey been undertaken in accordance with WRc Documentation "A Guide to Short Term Flow Surveys of Sewer Systems" and "Contract Documents for Short Term Sewer Flows"?</u>	Yes	0		If the answer is <b>No</b> assess the need and cost benefit of undertaking a Flow Monitoring Survey and complete Query 2.12. If answer is <b>Yes</b> Proceed to Query 2.5
2.5	<u>What was this Flow Survey Information Used for?</u>				
2.5.1	To Determine the extent of Problematic Sewer Catchments	Yes	0		Select N/A if no Flow Survey has been undertaken.
2.5.2	To Verify a Computer or Mathematical Model of the Network	Yes	0		Select N/A if no Flow Survey has been undertaken.
2.6	<u>Have Performance Criteria been developed to determine the short, medium or long term capacity of the sewer network?</u>	No	10		If the answer is <b>No</b> assess the Future Needs of the Sewer Network and complete Query 2.12. If the answer is <b>Yes</b> proceed to Query 2.5
2.7	<u>How many flood events resulting from surcharge in the network have occurred in the past 3 years?</u>	3 to 6	7		Flood events in this context means water/sewage backing up from the Network causing flooding of properties or causing disruption of traffic
2.8	<u>Are there deficiencies in performance criteria within the sewer network?</u>	Yes	20		If the answer is <b>No</b> , Proceed to Query 2.10 and complete Query 2.12. If the answer is <b>Yes</b> proceed to Query 2.9
2.9	<u>Have the causes of these deficiencies in the Performance Criteria been identified and rectified?</u>	No	10		If the answer is <b>No</b> , consider further examination of the hydraulic model (if available) and complete Query 2.12. If the answer is <b>Yes</b> proceed to Query 2.10
2.10	<u>Can the Hydraulic Assessment (defined in Query 2.1 above) be used to determine the benefit of reducing the contributory impermeable Areas or extent of surface water contributions?</u>	No	10		If the answer is <b>No</b> , consider further development of the Hydraulic Assessment (or model if available) and complete Query 2.12. If the answer is <b>Yes</b> proceed to Query 2.11
2.11	<u>Has an Impermeable Area Survey been carried out for the agglomeration or parts of the agglomeration?</u>	No	10		If the answer is <b>No</b> , consider the need and cost benefit of undertaking an Impermeable Survey for parts of the agglomeration which are under hydraulic pressure and complete Query 2.12.
<b>Total Risk Assessment Score (RAS)</b>			<b>82</b>		
2.12	<u>Prepare Assessment of Needs &amp; Sewer Upgrade Implementation Plan</u>	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			
2.13	In the AER provide Summary of Proposed Works or Direction to be taken to improve hydraulic efficiency				

Section 3.1 Environmental Risk Assessment					
Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
3.1	<u>What Environmental or Discharge Quality Data is available with regard to the sewer network?</u>	largely anecdotal	20		Select N/A if no discharges, secondary discharges or overflows from network; if discharges do exist complete Query 3.12
3.1.1	<u>Do trade effluents discharge to the sewer network?</u>	Yes	20		If the answer is <b>No</b> , proceed to Query 3.1.2. If the answer is <b>Yes</b> , Proceed to Query 3.2
3.1.2	<u>Are there Storm Water Overflows within the network?</u>	Yes	20		If the answer is <b>No</b> , proceed to Query 3.1.3. If the answer is <b>Yes</b> , Proceed to Query 3.3
3.1.3	<u>Are there Secondary Discharges within the network (excluding Emergency Overflows at Pump Stations)?</u>	Yes	20		If the answer is <b>No</b> , proceed to Query 3.1.4.
3.1.4	<u>Is there any evidence that exfiltration is occurring from the network?</u>	No	0		If the answer is <b>No</b> , does all wastewater enter a wastewater treatment plant (Insert summary details in the AER)? If <b>Yes</b> , Proceed to Query 3.6
3.2	<u>If Answer to Query 3.1.1 is "Yes", what % of trade effluents have a licence to Discharge to the Public Sewer?</u>	>90%	0		Select N/A if answer to Query 3.1.1 is <b>No</b> . If not all trade effluents are licenced, Local Authority should consider issuing and controlling such discharges under the appropriate Legislation.
3.2.1	<u>Are all licenced trade Discharges compliant with their relevant licence and associated conditions.</u>	No	10		Answer N/A if none of the trade effluents are licenced. Answer No if this information is unknown. If the answer is <b>Unknown</b> or <b>No</b> , consider issuing a direction to the relevant Licencee. If the answer is <b>Yes</b> , no further action is needed.
3.2.2	<u>If Answer to Query 3.2.1 is "No", state what % of Trade Discharges are NOT compliant with their relevant licence and associated conditions (where that non-compliance led to enforcement action)</u>	0 - 10%	5		Select N/A if answer to Query 3.2.1 is <b>Yes</b> . If N/A is selected as answer to Query 3.2.2
3.3	<u>In accordance with the DoEHLG paper "Procedures &amp; Criteria in relation to Storm Water Overflows", what % of storm water overflows in the system have been classified for their significance?</u>	100%	0		If the answer is <b>No</b> , consider a review of each discharge within the sewer network complete and Query 3.11. If the answer is <b>Yes</b> , proceed to Query 3.6
3.4	<u>Have samples from any Secondary Discharges within the system been analysed?</u>	Yes	0		Select N/A if no secondary discharges in system. If the answer to Query 3.4 is <b>No</b> , consider examining the quality of each secondary discharge within the sewer network complete Query 3.11. If the answer is <b>Yes</b> , proceed to Query
3.5	<u>What percentage of discharges from the system are known to cause environmental pollution of the receiving waters?</u>	None	0		If the answer is greater than 50% then detail, in the AER, the Improvement Programme necessary to reduce this percentage.
3.6	<u>In relation to possible exfiltration has a risk analysis of ground water contamination or pollution been undertaken?</u>	No	20		Select Risk if answer to Query 3.6.1 is <b>No</b> . If the answer is <b>No</b> , consider undertaking ground water risk analysis and complete Query 3.12 If the answer is <b>Yes</b> , proceed to Query 3.6
3.6.1	<u>If Answer to Query 3.6 is "Yes", have any groundwater aquifers been identified in the area of the Network and/or Discharge Points?</u>	N/A	0		Select N/A if no risk analysis of groundwater contamination has been undertaken.
3.6.2	<u>If Answer to Query 3.6.1 is "Yes", state the classification of groundwater aquifer identified in the area?</u>	N/A	0		Select N/A if no risk analysis of groundwater contamination has been undertaken.
3.6.3	<u>In relation to Query 3.6.1, is the aquifer used as a source for Public, Private or Ground Water Supply Schemes?</u>	N/A	0		Select N/A if no risk analysis of groundwater contamination has been undertaken.
3.7	<u>Has an Impact Assessment of each Storm Water Overflow been undertaken in accordance with the DoEHLG paper "Procedures &amp; Criteria in relation to Storm Water Overflows" including setting performance criteria?</u>	Yes	0		If the answer is <b>No</b> , consider assessing the risk category of the receiving waters. If the answer is <b>Yes</b> , proceed to Query 3.8 and provide summary details of the assessment in the AER.
3.8	<u>What percentage of storm water overflows comply with the performance criteria referred to in Query 3.7?</u>	> 80%	10		Select N/A if answer to Query 3.7 is <b>No</b> or if there are no SWOs in system. (Risk Score is locked at 0 if no SWOs in system is stated in Agglomeration Details)
3.9	<u>Have the causes of these Capacity Deficiencies (storm water overflows &amp; Secondary Discharges) been identified?</u>	Yes	0		Select <b>Risk</b> if answer to Query 3.7 is <b>No</b> or if there are no SWOs in system. If the answer to Query 3.9 is <b>No</b> , consider further examination of the environmental model
<b>Total Risk Assessment Score (RAS)</b>			<b>125</b>		
3.10	<u>Prepare Assessment of Needs &amp; Sewer Upgrade Implementation Plan</u>	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			
3.11	Provide Summary Details (in the AER) of records upstream and downstream of licenced discharges with regard to Environmental Performance of the network. These details can be included as part of the AER submitted for the agglomeration.				

Section 4.1 Structural Risk Assessment					
Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
4.1	<a href="#">Has a CCTV Survey been undertaken in accordance with WRc Documentation "Model Contract Document for Sewer Condition Inspections" and "Manual of Sewer Condition Classification" ?</a>	No	10		If the answer is <b>No</b> assess the need and benefit of undertaking CCTV Survey. If <b>Yes</b> Proceed to Query 4.2
4.1.1	How many years has it been since the completion of the CCTV Survey?	more than 10	0		If no CCTV has been undertaken, select "N/A" response
4.2	<a href="#">What was this CCTV Survey Information Used for?</a>	N/A	10		Select N/A if answer to Query 4.1 is NO.
4.3	<a href="#">Has the CCTV Survey been used to Assess the Structural Condition of the Sewer Network or Targeted sections of the Sewer Network?</a>	No	5		If no CCTV has been undertaken, select "No" response. If the answer is <b>No</b> assess the need and benefit of undertaking an assessment of the Structural Condition of the Sewer Network. If the answer is <b>Yes</b> proceed to Q
4.4	<a href="#">Have Performance Criteria been developed to determine the short, medium or long term structural condition of the sewer network ?</a>	No	5		If the answer is <b>No</b> , enter "unknown" in response to Queries 4.4.1 to 4.4.5; consider assessing the Future Needs of the Sewer Network. If the answer is <b>Yes</b> proceed to Queries 4
4.4.1	What % of the Total Sewer Length contains Collapsed or Imminent Collapse of Sewers (Grade 5)	unknown	30		Insert Percentage of Overall Network Length; if a sewer length contains a Grade 5 collapse, include the total length of that sewer in calculating the %. If information is not available type "Unknown" into Prompt Box
4.4.2	What % of Total Sewer Length contains Sewers Likely to Collapse (Grade 4)	unknown	25		Insert Percentage of Overall Network Length; if a sewer length contains a Grade 4 condition, include the total length of that sewer in calculating the %. If information is not available type "Unknown" into Prompt Box
4.4.3	What % of Total Sewer Length contains sewers with Further Possible Deterioration (Grade 3)	unknown	10		Insert Percentage of Overall Network Length; if a sewer length contains a Grade 3 deterioration, include the total length of that sewer in calculating the %. If information is not available type "Unknown" into Prompt Box
4.4.4	What % of Total Sewer Length contains sewers with Minimal Collapse (Grade 2)	unknown	5		Insert Percentage of Overall Network Length; if a sewer length contains a Grade 2 feature, include the total length of that sewer in calculating the %. If information is not available type "Unknown" into Prompt Box
4.4.5	What % of Total Sewer Length contains sewers of Acceptable Structural Condition (Grade 1)	unknown	5		Insert Percentage of Overall Network Length. If information is not available type "Unknown" into Prompt Box
If all % lengths are known, Check Total Length = 100%			75		If answers to Queries 4.4.1, 4.4.2 or 4.4.3 are above a set level, the RAS for Query 4 is automatically set at the maximum of 140.
4.5	<a href="#">What % of the deficiencies, as detailed in Items 4.4.1, 4.4.2 and 4.4.3, have been rectified ?</a>	N/A	35		Select N/A if answer to Query 4.4 is <b>No</b> . If the answer is <b>No</b> , Proceed to Query 4.6 If the answer is <b>Yes</b> , what monitoring is in place to ensure continued acceptance of structural condition? Proceed to Query 4.7
4.6	<a href="#">Have the causes of the Structural Deficiencies (Grades 3, 4 and 5) been identified or is there a Preventative Maintenance Programme in place?</a>	No	10		If the answer is <b>No</b> , consider further examination of the sewer network, the structural loading conditions, gradients and possible H <sub>2</sub> S Formation. If Yes completed Query 4.7
<b>Total Risk Assessment Score (RAS)</b>			<b>150</b>		
4.7	<a href="#">Prepare Assessment of Needs &amp; Sewer Rehabilitation Implementation Plan</a>	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			

Section 5.1 O&M Risk Assessment					
Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
5.1	<a href="#">Are complaints of an environmental nature recorded and held in a central database?</a>	Yes	0		Consider setting up Central Database for Complaints
5.2	<a href="#">Is there an emergency response procedure in place?</a>	Yes	0		Consider setting up target response times for dealing with Complaints
5.3	<a href="#">What has been the highest frequency of flooding in the network due to hydraulic inadequacy over the past 5 years?</a>	More than 5 times/yr	20		Refers to flooding from the Network only, not natural flooding from rivers/streams/high tides. Select the highest number of events in any 12 month period.
5.4	<a href="#">What has been the highest frequency of flooding in the network due to operational causes over the past 5 years?</a>	Twice/yr	5		Refers to flooding from the Network only, not natural flooding from rivers/streams/high tides. Select the highest number of events in any 12 month period.
5.5	<a href="#">What has been the highest frequency of surcharging of critical sewers in the network over the past 5 years?</a>	3 times/yr	5		Select the highest number of events in any 12 month period.
5.6	<a href="#">What has been the highest frequency of reportable incidents in the network over the past 5 years?</a>	None	0		Select the highest number of events in any 12 month period.
5.7	<a href="#">What has been the highest frequency of reportable incidents due to discharges for whatever reason from Pumping Station Emergency Overflows in the network over the past 5 years?</a>	More than 5 times/yr	20		Select the highest number of events at any given Pumping Station in any 12 month period.
5.8	<a href="#">What has been the highest frequency of blockages in sewers in the network over the past 5 years?</a>	0.1 - 0.25/km/yr	16		Select the highest number of events per km of sewer network in any 12 month period.
5.9	<a href="#">What has been the highest frequency of collapses in sewers in the network over the past 5 years?</a>	Once/yr	4		Select the highest number of events in any 12 month period.
5.10	<a href="#">What has been the highest frequency of bursts in rising mains in the network over the past 5 years?</a>	Once/yr	4		Select the highest number of events in any 12 month period.
<b>Total Risk Assessment Score (RAS)</b>			<b>80</b>		
5.11	<a href="#">Prepare Up Dated Operational and Maintenance Plan</a>				

Section 6.1 Summary of Risk Assessment Scores				
Element	Risk Assessment Score	Risk Category	% Risk Score	Maximum Risk Score
Section 2.1 Hydraulic Risk Assessment	52	Medium Risk	55%	150
Section 3.1 Environmental Risk Assessment	125	Low Risk	25%	500
Section 4.1 Structural Risk Assessment	150	High Risk	100%	150
Section 5.1 O&M Risk Assessment	80	Medium Risk	40%	200
<b>Total RAS for Network</b>	<b>437</b>	<b>Low Risk</b>	<b>44%</b>	<b>1000</b>

If the total RAS is greater than 750, or if any of the individual RASs are greater than 75% of the Maximum Available Score, the Risk category for the Network is graded "High Risk"



## Appendix 7.6

### Priority Substances Assessment

#### Introduction

Condition 4.12 of the Swords Agglomeration Waste Water Discharge Licence D0024-01, requires that monitoring of the discharges from the agglomeration must be carried out, in order to determine the levels of priority substances present.

On 04/09/2014, representative samples of final effluent were taken from Swords WWTP, the Primary discharge point of the agglomeration, and Toberburr Treatment Plant, the Secondary discharge point in the agglomeration, by Fingal County Council staff. These samples were sent to Dublin City Council's Central Laboratory, which is INAB accredited to ISO 17025 to undergo screening for priority substances. Results of the Swords WWTP and Toberburr WWTP final effluent screening for priority substances are presented in Table 1.

The following interpretation of the results, was carried out using, S.I No 272 of 2009, European Communities Environmental Objectives (Surface Waters) Regulations 2009 as a guide. The interpretation of the Swords and Toberburr WWTPs final effluent screening results, demonstrates that the levels of these substances present are not sufficiently high as to have a negative effect on the receiving aquatic environment.

#### Results of Screening for Priority Substances Swords WWTP and Toberburr WWTP Final Effluent 2014

Units: Results are mostly expressed as µg/l, however some results are expressed as mg/l or ng/l. In these cases the units are coloured green for mg/l and red for ng/l.

**Table 1**

Priority Substance	Unit	Swords WWTP Final Effluent 04/09/14- Primary Discharge Point	Toberburr WWTP Final Effluent 04/09/14- Secondary Discharge Point
1,1,1,2-Tetrachloroethane	µg/l	<1.0	<1.0
1,1,1-Trichloroethane	µg/l	<1.0	<1.0
1,1,2,2-Tetrachloroethane	µg/l	<1.0	<1.0
1,1,2-Trichloroethane	µg/l	<1.0	<1.0
1,1-Dichloroethane	µg/l	<1.0	<1.0
1,1-Dichloroethene	µg/l	<1.0	<1.0
1,1-Dichloropropene	µg/l	<1.0	<1.0
1,2,3-Trichloropropane	µg/l	<1.0	<1.0
1,2,4-Trichlorobenzene	µg/l	<1.0	<1.0
1,2,4-Trimethylbenzene	µg/l	<1.0	<1.0
1,2-Dibromo-3-chloropropane	µg/l	<2.0	<2.0

Priority Substance	Unit	Swords WWTP Final Effluent 04/09/14- Primary Discharge Point	Toberburr WWTP Final Effluent 04/09/14- Secondary Discharge Point
1,2-Dibromoethane	µg/l	<1.0	<1.0
1,2-Dichlorobenzene	µg/l	<1.0	<1.0
1,2-Dichloroethane	µg/l	<1.0	<1.0
1,2-Dichloropropane	µg/l	<1.0	<1.0
1,3,5-Trimethylbenzene	µg/l	<1.0	<1.0
1,3-Dichlorobenzene	µg/l	<1.0	<1.0
1,3-Dichloropropane	µg/l	<1.0	<1.0
1,4-Dichlorobenzene	µg/l	<1.0	<1.0
2,2-Dichloropropane	µg/l	<1.0	<1.0
2,3,6 - TBA	µg/l	<0.05	<0.05
2,4,5-T	µg/l	<0.05	<0.05
2,4,5-Trichlorophenol	µg/l	<1.0	<1.0
2,4,6-Trichlorophenol	µg/l	<1.00	<1.00
2,4-D	µg/l	<0.05	0.09
2,4-DB	µg/l	<0.05	<0.05
2,4-Dichlorophenol	µg/l	<1.0	<0.10
2,4-Dimethylphenol	µg/l	<1.0	<0.10
2,4-Dinitrotoluene	µg/l	<1.0	<1.0
2,6-Dinitrotoluene	µg/l	<1.0	<1.0
2-Chloronaphthalene	µg/l	<1.0	<1.0
2-Chlorophenol	µg/l	<1.0	<0.10
2-Chlorotoluene	µg/l	<1.0	<1.0
2-Methylnaphthalene	µg/l	<1.0	<1.0
2-Methylphenol	µg/l	<1.00	<1.00
2-Nitrophenol	µg/l	<1.0	<1.0
3, 5-Dimethylphenol	µg/l	<0.10	<0.10
3,4-Methylphenol	µg/l	<1.0	<1.0
4-Bromophenyl Phenyl Ether	µg/l	<1.0	<1.0
4-Chloro-3-methylphenol	µg/l	<1.0	<1.0
4-Chlorophenol	µg/l	<0.10	<0.10
4-Chlorophenyl phenyl ether	µg/l	<1.0	<1.0
4-Chlorotoluene	µg/l	<1.0	<1.0
4-Nitrophenol	µg/l	<5.0	<5.0
Acenaphthene	µg/l	<0.01	<0.06
Acenaphthylene	µg/l	<0.01	<0.01
Alachlor	µg/l	<0.020	<0.020
Aldrin	ng/l	<4	<4
alpha-Chlordane	ng/l	<3	<3
alpha-Endosulphan	ng/l	<4	<4
alpha-HCH	ng/l	<3	<3
Anthracene	µg/l	<0.01	<0.01
Antimony	µg/l	1.71	2.68
Arsenic	µg/l	<1.4	<1.4
Atrazine	µg/l	<0.02	<0.02
Azinphos-ethyl	µg/l	<0.004	<0.004

Priority Substance	Unit	Swords WWTP Final Effluent 04/09/14- Primary Discharge Point	Toberburr WWTP Final Effluent 04/09/14- Secondary Discharge Point
Azinphos-methyl	µg/l	<0.002	<0.002
Barium	µg/l	8.80	14.40
Benazolin	µg/l	<0.05	<0.05
Bentazone	µg/l	<0.05	<0.05
Benz[a]anthracene	µg/l	<0.01	<0.01
Benzene	µg/l	<0.10	<0.10
Benzo(alpha)pyrene	µg/l	<0.01	<0.01
Benzo(beta)fluoranthene	µg/l	<0.01	<0.01
Benzo(ghi)perylene	µg/l	<0.01	<0.01
Benzo(k)fluoranthene	µg/l	<0.01	<0.01
Benzyl Butyl Phthalate	µg/l	<1.0	<1.0
Bis (2-chlorethyl) ether	µg/l	<1.0	<1.0
Bis (2-chloroethoxy)methane	µg/l	<1.0	<1.0
Bis (2-chloroisopropyl)ether	µg/l	<1.0	<1.0
Bis (2-ethylhexyl) phthalate	µg/l	<5.0	<5.0
Boron	mg/l	<0.2	<0.2
Bromobenzene	µg/l	<1.0	<1.0
Bromochloromethane	µg/l	<1.0	<1.0
Bromodichloromethane	µg/l	<1.0	<1.0
Bromoform	µg/l	<1.0	<1.0
Bromomethane	µg/l	<1.0	<1.0
Bromoxynil	µg/l	<0.05	<0.05
Cadmium	µg/l	<0.6	<0.6
Carbon Tetrachloride	µg/l	<1.0	<1.0
Carbophenothion	µg/l	<0.003	<0.003
Chlopyralid	µg/l	<0.05	<0.05
Chloride	mg/l	119	78
Chlorobenzene	µg/l	<1.0	<1.0
Chloroethane	µg/l	<1.0	<1.0
Chloroform	µg/l	<1.0	<1.0
Chloromethane	µg/l	<1.0	<1.0
Chlorpyriphos	µg/l	<0.002	<0.002
Chlortoluron	µg/l	<0.05	<0.20
Chromium	µg/l	<2	<2
Chrysene	µg/l	<0.01	<0.01
cis 1,3-Dichloropropene	µg/l	<1.0	<1.0
cis-1,2-Dichloroethene	µg/l	<1.0	<1.0
Cobalt	µg/l	<2.00	<2.00
Copper	µg/l	<9	<9
Diazinon	µg/l	<0.003	<0.003
Dibenz[ah]anthracene	µg/l	<0.01	<0.01
Dibenzfuran	µg/l	<1.0	<1.0
Dibromochloromethane	µg/l	<1.0	<1.0
Dibromomethane	µg/l	<1.0	<1.0
Dicamba	µg/l	<0.05	<0.05

Priority Substance	Unit	Swords WWTP Final Effluent 04/09/14- Primary Discharge Point	Toberburr WWTP Final Effluent 04/09/14- Secondary Discharge Point
Dichlobenil	ng/l	<2	<2
Dichlorodifluoromethane	µg/l	<1.0	<1.0
Dichloromethane	µg/l	1.2	<1.0
Dichlorprop	µg/l	<0.05	<0.05
Dichlorvos	µg/l	<0.002	<0.002
Dieldrin	ng/l	<4	<4
Diethylphthalate	µg/l	<1.0	<1.0
Dimethoate	µg/l	<0.020	<0.020
Dimethylphthalate	µg/l	<1.0	<1.0
di-n-Butylphthalate	µg/l	<1.0	<1.0
Di-n-octylphthalate	µg/l	<1.0	<1.0
Diuron	µg/l	<0.08	<0.20
Endrin	ng/l	<4	<4
Ethyl Benzene	µg/l	<0.10	<0.10
Fenitrothion	µg/l	<0.002	<0.002
Fenoprop	µg/l	<0.05	<0.05
Fenthion	µg/l	<0.002	<0.002
Fluoranthene	µg/l	<0.01	<0.01
Fluorene	µg/l	<0.01	<0.01
Fluoride	mg/l	0.3	0.5
Fluoroxypyr	µg/l	<0.05	<0.05
gamma-Chlordane	ng/l	<4	<4
gamma-HCH	ng/l	<3	<3
Glyphosate	µg/l	<2.00	<2.00
Heptachlor Epoxide	ng/l	<4	<4
Hexachlorobenzene	ng/l	<2	<2
Hexachlorobutadiene	ng/l	<7	<7
Hexachloroethane	µg/l	<1.0	<1.0
Indeno(1,2,3 - cd)pyrene	µg/l	<0.01	<0.01
Ioxynil	µg/l	<0.05	<0.05
Isodrin	ng/l	<4	<4
Isophorone	µg/l	<1.0	<1.0
Isopropylbenzene	µg/l	<1.0	<1.0
Isoproturon	µg/l	<0.05	<0.20
Lead	µg/l	<6	<6
Linuron	µg/l	<0.05	<0.20
m&p Xylene	µg/l	<0.20	<0.20
m,p-Methylphenol	µg/l	<0.1	<0.1
Malathion	µg/l	<0.004	<0.004
MCPA	µg/l	<0.05	0.09
MCPB	µg/l	<0.05	<0.05
Mecoprop	µg/l	0.07	0.08
Mercury	µg/l	<0.1	<0.1
Methabenzthiazuron	µg/l	<0.05	<0.20
Mevinphos	µg/l	<0.020	<0.020

Priority Substance	Unit	Swords WWTP Final Effluent 04/09/14- Primary Discharge Point	Toberburr WWTP Final Effluent 04/09/14- Secondary Discharge Point
Molybdenum	µg/l	<3.00	<3.00
Monlinuron	µg/l	<0.05	<0.20
Monuron	µg/l	<0.05	<0.20
MTBE	µg/l	<1.0	<1.0
Naphthalene	µg/l	<0.01	<0.01
n-Butylbenzene	µg/l	<1.0	<1.0
Nickel	µg/l	<3.00	3.40
Nitrobenzene	µg/l	<1.0	<1.0
n-Nitrosodi-n-propylamine	µg/l	<1.0	<1.0
n-Propylbenzene	µg/l	<1.0	<1.0
o,p - DDE	ng/l	<2	<2
o,p - DDT	ng/l	<2	<2
o,p - TDE	ng/l	<2	<2
Organo-tin	µg/l	<0.02	<0.02
o-Xylene	µg/l	<0.10	<0.10
p,p - DDE	ng/l	<2	<2
p,p - DDT	ng/l	<4	<4
p,p - TDE	ng/l	<2	<2
PAH, Total	µg/l	<0.01	<0.06
Parathion-ethyl	µg/l	<0.003	<0.003
Parathion-methyl	µg/l	<0.003	<0.003
PCB 101	ng/l	<2	<2
PCB 118	ng/l	<3	<3
PCB 138	ng/l	<2	<2
PCB 153	ng/l	<2	<2
PCB 180	ng/l	<3	<3
PCB 28	ng/l	<2	<2
PCB 52	ng/l	<2	<2
Pentachlorophenol	µg/l	<1.0	<1.0
Phenanthrene	µg/l	<0.01	<0.01
Phenol	µg/l	0.5	<0.5
Phorate	µg/l	<0.004	<0.004
Phosalone	µg/l	<0.004	<0.004
Pirimiphos-methyl	µg/l	<0.005	<0.005
p-Isopropyltoluene	µg/l	<1.0	<1.0
Prometryne	µg/l	<0.02	<0.02
Propazine	µg/l	<0.02	<0.02
Propetamphos	µg/l	<0.003	<0.003
Pyrene	µg/l	<0.01	<0.01
sec-Butylbenzene	µg/l	<1.0	<1.0
Selenium	µg/l	<1.400	<1.600
Simazine	µg/l	<0.02	<0.02
Styrene	µg/l	<1.0	<1.0
Sulphate	mg/l	105	100
Tecnazene	ng/l	<10	<10

Priority Substance	Unit	Swords WWTP Final Effluent 04/09/14- Primary Discharge Point	Toberburr WWTP Final Effluent 04/09/14- Secondary Discharge Point
Terbutryn	µg/l	<0.02	<0.02
tert-Butylbenzene	µg/l	<1.0	<1.0
Tetrachloroethene	µg/l	<1.0	<1.0
Tin	µg/l	<7.00	<7.00
Toluene	µg/l	<0.10	0.11
Total Cyanide	µg/l	<9.0	<9.0
trans-1,2-Dichloroethene	µg/l	<1.0	<1.0
trans-1,3-Dichloropropene	µg/l	<1.0	<1.0
Triallate	ng/l	<10	<10
Triazophos	µg/l	<0.002	<0.002
Tributyl Tin	µg/l	<0.02	<0.02
Trichloroethene	µg/l	<1.0	<1.0
Trichlorofluoromethane	µg/l	<1.0	<1.0
Triclopyr	µg/l	<0.05	<0.05
Trietazine	µg/l	<0.01	<0.01
Trifluralin	ng/l	<30	<30
Triphenyl Tin	µg/l	<0.02	<0.02
Vanadium	µg/l	<4.00	<4.00
Vinyl Chloride	µg/l	<0.5	<0.5
Zinc	µg/l	28	22

## Interpretation of Results

### **S.I No. 272 of 2009, European Communities Environmental Objectives (Surface Waters) Regulations 2009**

Limits or Environmental Quality Standards directly applicable to final effluent from Waste Water Treatment Plants, for the screened parameters, are not available. In the absence of such limits, the Surface Water Regulations 2009 were consulted in order to provide a guide as to levels of organic compounds and metals which may be considered safe for the receiving aquatic environment. These Regulations are limited in their relevance to Waste Water Treatment Plant Final Effluent. This is primarily because WWTP final effluent is not surface water in the strictest sense; rather it is discharged to surface water, whereupon it is diluted. However, they are the nearest available with which to assess the parameters tested.

Of the list of 210 substances tested in the screening of Swords and Toberburr WWTP's Final Effluent, 41 are listed as Priority Substances/Pollutants in the Surface Water Regulations 2009. These may have either a Maximum Allowable Concentration- Environmental Quality Standard (MAC-EQS) listed or Annual Average - Environmental Quality Standard (AA-EQS) listed, or both. The category of "Other Surface Water" was used in the assessment for Swords as it was considered to be most relevant to the receiving water, which is Inner Broadmeadow Estuary. The category "Inland Surface Water" was used for Toberburr, as it discharges to Ward River.

Of the 41 priority substances with Environmental Quality Standards listed, 30 are in compliance with these for Swords WWTP final effluent, and the remaining 11 are below the limit of detection and are possibly in compliance. These are presented in Table 2 below with the exception of a group of 4 pesticides, and two pairs of Polycyclic Aromatic Hydrocarbons which have combined limits and are presented in Table 3.

Similarly, Toberburr final effluent was in compliance for 30 of the 41 parameters with Environmental quality standards listed. The remaining 11 parameters were below the limit of detection and are possibly in compliance. These are presented in Table 4 below with the exception of a group of 4 pesticides, and two pairs of Polycyclic Aromatic Hydrocarbons which have combined limits and are presented in Table 5.

**Table 2- Swords WWTP Final Effluent  
Priority Substances Listed in Surface Water Regulations**

Parameter	Unit	Result	AA-EQS µg/l	MAC-EQS µg/l	In compliance for EQS
1,2,4-Trichlorobenzene	µg/l	<1.0	0.4		Result below limit of detection, possibly within EQS
1,2-Dichloroethane	µg/l	<1.0	10		Yes
Alachlor	µg/l	<0.020	0.3	0.7	Yes
Anthracene	µg/l	<0.01	0.1	0.4	Yes
Arsenic	µg/l	<1.4	20		Yes
Atrazine	µg/l	<0.02	0.6	2	Yes
Benzene	µg/l	<0.10	8	50	Yes
Benzo(alpha)pyrene	µg/l	<0.01	0.05	0.1	Yes
Carbon Tetrachloride	µg/l	<1.0	12		Yes
Chlorpyrifos	µg/l	<0.002	0.03	0.1	Yes
Chromium	µg/l	<2		32	Yes
Copper	µg/l	<9	5		Result below limit of detection, possibly within EQS
Diazinon	µg/l	<0.003	0.01	0.26	Yes
Dichloromethane	µg/l	1.2	20		Yes
Dimethoate	µg/l	<0.020	0.8	4	Yes
Diuron	µg/l	<0.08	0.2	1.8	Yes
Fluoranthene	µg/l	<0.01	0.1	1	Yes
Fluoride	mg/l	0.3	1500		Yes
Hexachlorobenzene	ng/l	<2	0.01	0.05	Yes
Hexachlorobutadiene	ng/l	<7	0.1	0.6	Yes
Isoproturon	µg/l	<0.05	0.3	1	Yes
Lead	µg/l	<6	7.2		Yes
Linuron	µg/l	<0.05	0.7	0.7	Yes
Mercury	µg/l	<0.1	0.05	0.07	Result below limit of detection, possibly within EQS
Naphthalene	µg/l	<0.01	1.2		Yes
Nickel	µg/l	<3.00	20		Yes
p,p – DDT	ng/l	<4	0.01		Yes
Pentachlorophenol	µg/l	<1.0	0.4	1	Result below limit of detection, possibly within EQS
Phenol	µg/l	0.5	8	46	Yes
Simazine	µg/l	<0.02	1	4	Yes
Toluene	µg/l	<0.10	10		Yes
Tributyl Tin	µg/l	<0.02	0.0002		Result below limit of detection, possibly within EQS
Zinc	µg/l	28	40		Yes



**Table 3- Swords WWTP Final Effluent  
Priority Substances Listed in Surface Water Regulations with combined limits.**

Priority Substance	Unit	Swords WWTP Final Effluent	AA-EQS Surface Water regs	In compliance for EQS
Aldrin	ng/l	<4		
Dieldrin	ng/l	<4		
Endrin	ng/l	<4		
Isodrin	ng/l	<4		
Total	ng/l	<16	<5ng/l Total	Result below limit of detection, possibly within EQS
Benzo(beta)fluorantene	µg/l	<0.01		
Benzo(k)fluorantene	µg/l	<0.01		
Total	µg/l	<0.02	0.03 Total	Yes
Benzo(g,h,i)perylene	µg/l	<0.01		
Ideno(1,2,3-cd)-pyrene	µg/l	<0.01		
Total	µg/l	<0.02	0.002	Result below limit of detection, possibly within EQS

### Discussion of Results in Tables 2 and 3

As can be seen from Tables 2 and 3, 30 of the 41 substances listed, complied with the Environmental Quality Standards as prescribed by the Surface Water Regulation for Other Surface Waters. The remainder possibly did comply with the EQS, they were present in such minute amounts that they were below the limit of detection and could not be accurately measured. It is therefore reasonable to assume that the levels of these substances in Swords WWTP final effluent, are not sufficiently high so as to have a negative impact on the receiving aquatic environment, Inner Broadmeadow Estuary.

**Table 4 Toberburr WWTP Final Effluent -Priority Substances Listed in Surface Water Regulations**

Priority Substance	Unit	Result	AA-EQS µg/l	MAC-EQS µg/l	In compliance with EQS?
1,2,4-Trichlorobenzene	µg/l	<1.0	0.4		Result below limit of detection, possibly within EQS
1,2-Dichloroethane	µg/l	<1.0	10		Yes
Alachlor	µg/l	<0.020	0.3	0.7	Yes
Anthracene	µg/l	<0.01	0.1	0.4	Yes
Arsenic	µg/l	<1.4	25		Yes
Atrazine	µg/l	<0.02	0.6	2	Yes
Benzene	µg/l	<0.10	10	50	Yes
Benzo(alpha)pyrene	µg/l	<0.01	0.05	0.1	Yes
Carbon Tetrachloride	µg/l	<1.0	12		Yes
Chlorpyrifos	µg/l	<0.002	0.1	0.3	Yes
Chromium	µg/l	<2	4.7	32	Yes
Copper	µg/l	<9	5		Result below limit of detection, possibly within EQS
Diazinon	µg/l	<0.003	0.01	0.02	Yes
Dichloromethane	µg/l	<1.0	20		Yes
Dimethoate	µg/l	<0.020	0.8	4	Yes
Diuron	µg/l	<0.20	0.2	1.8	Yes
Fluoranthene	µg/l	<0.01	0.1	1	Yes
Fluoride	mg/l	0.5	500		Yes
Hexachlorobenzene	ng/l	<2	0.01	0.05	Yes
Hexachlorobutadiene	ng/l	<7	0.1	0.6	Yes
Isoproturon	µg/l	<0.20	0.3	1	Yes
Lead	µg/l	<6	7.2		Yes
Linuron	µg/l	<0.20	0.7	0.7	Yes
Mercury	µg/l	<0.1	0.05	0.07	Result below limit of detection, possibly within EQS
Naphthalene	µg/l	<0.01	2.4		Yes
Nickel	µg/l	3.40	20		Yes
p,p - DDT	ng/l	<4	0.01		Yes
Pentachlorophenol	µg/l	<1.0	0.4	1	Result below limit of detection, possibly within EQS
Phenol	µg/l	<0.5	8	46	Yes
Simazine	µg/l	<0.02	1	4	Yes
Toluene	µg/l	0.11	10		Yes
Tributyl Tin	µg/l	<0.02	0.0002	0.0015	Result below limit of detection, possibly within EQS
Zinc	µg/l	22	40		Yes

**Table 5-Toberburr WWTP Final Effluent  
Priority Substances Listed in Surface Water Regulations with combined limits.**

Priority Substance	Unit	Toberburr WWTP Final Effluent	AA-EQS Surface Water regs	In compliance with EQS?
Aldrin	ng/l	<4		
Dieldrin	ng/l	<4		
Endrin	ng/l	<4		
Isodrin	ng/l	<4		
Total	ng/l	<16	<5ng/l Total	Result below limit of detection, possibly within EQS
Benzo(beta)fluorantene	µg/l	<0.01		
Benzo(k)fluorantene	µg/l	<0.01		
Total	µg/l	<0.02	0.03 Total	Yes
Benzo(g,h,i)perylene	µg/l	<0.01		
Ildeno(1,2,3-cd)-pyrene	µg/l	<0.01		
Total	µg/l	<0.02	0.002 Total	Result below limit of detection, possibly within EQS

#### Discussion of Results in Table 4 and 5

As can be seen from Tables 4 and 5, 30 of the 41 substances listed, complied with the Environmental Quality Standards as prescribed by the Surface Water Regulation for Inland Surface Waters. The remainder possibly did comply with the EQS, as they were present in such minute amounts that they were below the limit of detection and could not be accurately measured. It is therefore reasonable to assume that the levels of these substances present in Toberburr WWTP final effluent, are not sufficiently high as to have a negative impact on the receiving aquatic environment, Ward River.

#### Discussion of Remaining Results

The remaining 169 priority substances which were not prescribed limits by the Surface Water Regulations were examined. It was noted that the results were in the order of µg/l and fractions of µg/l for most. In addition, many results were reported as “less than”, which indicates that they were present in such minute concentrations, that they were below their respective limits of detection. Having regard to this and to the dilution factor when Swords WWTP and Toberburr WWTP final effluent is discharged to their respective receiving waters, it is reasonable to assume that these parameters will not have a negative effect on the receiving aquatic environment.

#### Overall Conclusion

Having examined all parameters, and having consulted the Surface Water Regulations, it is considered safe to conclude that the parameters tested for in the screening of Swords and Toberburr WWTPs final effluent, are not present in sufficiently high concentrations as to negatively impact the receiving aquatic environment. As a result, there are no measures to be taken as regards reducing these substances.