



DMcD/14/7983/L26
24 February 2016

Grainne Oglesby,
Office of Climate, Licensing and Resource Use,
Environmental Protection Agency Headquarters,
PO Box 3000,
Johnstown Castle Estate,
Co Wexford

The Tecpro Building,
Clonsilla Business & Technology Park,
Dublin 17, Ireland.

T: + 353 1 847 4220
F: + 353 1 847 4257
E: info@awnconsulting.com
W: www.awnconsulting.com

Dear Grainne,

Re: Application for an Industrial Emissions Licence – P1007-01 O'Hanlon & Sons Contractors Ltd

In July 2015, O'Hanlon & Sons Contractors Ltd (OHSC) applied to the Environmental Protection Agency (EPA) for the Industrial Emissions licensing of a portion of quay at Browns Quay & Connick Quay, Dundalk, Co Louth for the purposes of operating a set down facility for baled RDF and SRF for export.

On 14th October 2015, AWN Consulting Ltd (AWN) on behalf of Drogheda Port Company (DPC) made a submission in relation to OHSC's application for an Industrial Emissions Licence. (AWN are the environmental consultants retained by DPC to prepare the IED licence application (P1011-01) for a set down facility for baled RDF and SRF at Tom Roes Point, Baltray Road, Drogheda, Co Louth).

Though we note that the application remains under consideration by the Agency, DPC has serious concerns about the content of the application made by OHSC and the processing of the licence application by the Agency to date.

The following sections set out DPC's specific concerns. They fall under 3 broad categories. A number of sub-headings are presented under each category.

1. Impact on Receiving Waters (EIS)
2. Industrial Emissions Licensing Process and Planning Deficiencies
3. Validity of the EIS submitted

1. IMPACT ON RECEIVING WATERS

1A. Project Description (EIS) (Water, Leachate and Run-off Issues)

Chapter 4 of the EIS provides a description of the installation and the processes completed on site. Throughout Chapter 4 the applicant fails to acknowledge the potential for contaminated run off and leachate seepages arising from baled RDF and SRF during storage (though the potential for liquid seeps from bales and other minor leaks are acknowledged in Chapter 7 Soils and Geology and Chapter 8 Water).

Cork Office
Unit 5, ATS Building,
Carrigaline Industrial Estate,
Carrigaline, Co. Cork.
T: + 353 21 438 7400
F: + 353 21 483 4606

AWN Consulting Limited
Registered in Ireland No. 319812
Directors: F Callaghan, C Dilworth,
T Donnelly, T Hayes, D Kelly, E Porter

The applicant states that the only emission to surface water is rain water runoff from the paved open storage area, which is discharged to the Castletown River. This is not correct.

In Chapter 4 the applicant refers to interceptor systems in place for control of potential hydrocarbon and suspended solids present in run off. An interceptor cannot and does not provide any meaningful treatment/mitigation for leachate.

DPC suggests that in Chapter 4 the applicant has failed to recognise and provide solutions to manage the organic content of the emissions from the facility (leachate derived) and as such the basis of design of the facility and more specifically the drainage system proposed is flawed (as detailed further below).

1B. Lack of a suitably comprehensive assessment of Impact (Water, Leachate and Runoff Issues)

One of DPC's primary concerns is that the applicant has failed to provide sufficient detail in its application documents (most notably in the EIS) to allow the Agency determine the impact of potential run off emissions from facility operations. From the information provided by the applicant, OHSC has not completed any quantitative studies/assessments to demonstrate the actual impact of water emissions on the receiving water.

OHSC has provided limited water quality results for just one sampling round conducted in June 2015 for the Castletown River and a sample of site runoff. AWN notes that the majority of the water quality data presented in the EIS is based on unaccredited laboratory analyses. (Only the ammonia, BOD, COD and pH results are suitably UKAS or equivalent accredited analyses. In addition AWN note that the typical British Standard recommended holding time for BOD analyses is 24 hours while the laboratory analyses certificate indicates the samples were not delivered to the laboratory until c.2 days after sampling occurred).

DPC would query whether the Agency considers the level of detail provided in Chapter 8 Water a sufficient basis for determining the environmental impact of the emissions from the facility or indeed any facility. (DPC considers the Agency could set a precedent whereby applicants proposing discharges to waters only need one grab sample in order to sufficiently determine impacts).

For the one sampling event that has been provided, the results for site runoff are presented without any details as to the quantity of waste stored on site at the time of sampling, duration of storage and the time of taking the sample i.e. before a rainfall event, during or after. These factors are crucial in determining whether the data is suitably representative. It is AWN's opinion that a number of sampling rounds should be presented to the Agency for consideration, across a range of conditions allowing determination of the worst case emission concentrations. DPC concludes the approach taken by OHSC lacks sufficient scientific information to make any kind of credible judgement.

Though the limited results provided by OHSC appear to be generally compliant with the relevant water quality standards, it is apparent from the sampling data made available as part of applications for other similar facilities (including the IED Licence Application by Greenore Port Company ref: P01010-01) that significant contaminant concentrations can and do arise in run off from similar activities.

Without an appropriate system of managing this run/off and leachate i.e. covering the waste storage area or installing a closed containment system, the likelihood is that the proposed facility will not be able to meet the emission limit values typically set by the Agency in line with its guidance including "Licensee guidance on the setting of Trigger Values for storm water discharges to offsite surface waters at IPPC and Waste licensed facilities, 2012. See Table 1 below. AWN recommends the Agency consider this prior to granting a licence for the facility.

Table 1: Examples of Action and Warning Limits in use at Agency sites.

Parameter*	Action (Upper) Limit (mg/l)	Warning (Lower) Limit (mg/l)
COD	80	50
TOC	40	30
SS**	50	25
pH	6 to 9	6 to 8

*The most appropriate parameter(s) to reveal onsite sources of contamination for the site/sector shall be used.

**If the storm water discharges to a very small receiving stream, which is also a salmonid spawning river an action level of 50 mg/l for SS, may be too high to ensure maintenance of the status of the stream bearing in mind the WFD.

1C. Soils and Geology (EIS) (Water, Leachate and Run-off Issues)

In section 7.7 of the EIS, OHSC provides an explanation of the process involved in the production of baled RDF and SRF. OHSC acknowledges that *"not all of the putrescibles are extracted and the percentage remaining depends on the extent of the processing"*. It should be noted and appreciated that bale quality varies dramatically both seasonally and between producers and is very dependent on dwell time. Any assessment of its potential impact must include dwell time pre and post processing at the producing/manufacturing facility not just dwell time at the port location prior to shipment.

On this basis, it is considered that the statement made by OHSC that *"the provision of impermeable paving minimises the risk of short term direct or indirect discharges to ground"* is too simplistic. In Sections 7.5 and Section 8.6 OHSC acknowledges the potential pathway to groundwater through damaged paving and leaks from the surface water drainage system. Photographs provided with Chapter 12 of the EIS show some jointing and cracking of the open storage yard surface. With large volumes of HGV traffic, paving inevitably becomes damaged over time and some loss of contaminants to soil and groundwater is inevitable.

It is considered that a Baseline Report in accordance with Article 22(2) of the Industrial Emissions Directive Assessment should have been completed as part of the proposed development and site specific data included in the EIS to confirm the contamination status of the existing soil and groundwater environment.

It will be difficult for the Agency or OHSC to assess the impact of operations on soil and groundwater upon final closure of the facility. This could be addressed relatively easily by way of request for further information during the application process.

1D. Assessment of Effects on Water – Firewater (Inspectors Report)(Water, Leachate and Run-off Issues)

It is noted that the applicant has not provided a Firewater Risk Assessment (or any other quantification of firewater retention requirement) with the application. As per the above discussion relating to surface water run-off there appears to be no clear mechanism for dealing with firewater in the event of a major fire event. To date the Agency has not requested the applicant to provide additional detail in relation to firewater management. (The applicant has submitted an Emergency Response Procedure which sets out the procedures to be followed in the event of a fire but this does not address firewater management). In light of the major fires at waste facilities recently, it is considered that the Agency should be requesting this information during consideration of the application rather than conditioning an assessment post granting a licence.

By doing so this would allow the applicant to amend their facility design upfront rather than granting a licence and determining, after the fact that there is/is not a problem with firewater retention. In general AWN suggest the need for additional infrastructure (such as firewater retention, covering of the storage yards, additional drainage systems and/or connection to sewer networks etc.), should be identified by the Agency prior to PD or licensing stage.

1E. Mitigation Measures Proposed (Water, Leachate and Run-off Issues)

The proposed facility is located next to the Castletown River. The Castletown River is part of the Castletown Estuary Transitional Water Body (TWC) IE_NB_040_0200 Water Management Unit designated in the NBIRBD Management Plan. The status of the River is "Moderate" and "At Risk" of not achieving its restoration objectives (to "Good" status) by 2015.

Despite this, OHSC proposes limited mitigation measures to manage run off arising from storage of bales in the open yard prior to discharge to the local surface waters. The measure proposed comprise primarily of interceptors and an emergency shut off valve. Interceptors cannot distinguish/segregate water from leachate, only oil from water.

Leachate generation is unavoidable at such facilities and interceptors will provide no treatment of the typical contaminants present in leachate generated from baled RDF and SRF. Once leachate is generated DPC note that it can generally be cleaned up effectively using cleaning equipment, road sweepers etc. if the weather conditions on that day are suitably dry however on wet days, or especially during peak rainfall events, there is no way of preventing leachate being washed down and entering neighbouring watercourses without a suitable all-encompassing drainage network which diverts run off to a suitable wastewater treatment plant.

DPC also note that leachate is generated by infiltration of run off into the bale on wet days as well as leakage from the bale so any assumptions regarding the quantity of leachate likely to be generated by the applicant based purely on run off are too simplistic. The reality is, based on DPC experience of operating its facility over the last 3 years, that the bales produced by waste management facilities in Ireland are not water tight and runoff will enter bales and generate significant leachate run off.

DPC notes that OHSC will install a shut off valve on the interceptor outflow from the storage yard for periods when bales are stored in the open storage area (it is unclear from the documents but this would seem to be intended during normal operations?). No data is provided as to the capacity of this drainage system during a shut off and as such this solution is not considered practical unless some additional engineering measures (a tank with additional run off storage) are proposed. DPC would like to query:

- How will this be manned/operated?
- What is proposed for day/night or other periods when the facility is unmanned?
- When the pipe system fills up what happens?
- Will the rainwater mixed with leachate now spill uncontrolled over the quay side wall with other quay and ship generated containments?

It is unclear from the submission for how long a period OHSC might need to shut off the outflow interceptor. DPC query what would happen in the event of an oil spill during a shut off event? It is considered that in the long run, a period of extended wet weather, would make this solution, alone, unworkable for a site on a 24/7/365 basis. The credibility of the applicant in putting forward such a mitigation proposal is questionable.

In October 2015, AWN were requested by DPC to complete an assimilative capacity assessment for the proposed discharges at Dundalk Port. A copy of this report "Review of Assimilative Capacity Assessment for Licence Application – Dundalk Port" is enclosed in Appendix 1.

As stated in the report, based on the data provided by Dundalk Port in their EIS there appears to be sufficient assimilative capacity for all parameters tested. However results for Total Ammonia obtained from published EPA River monitoring data sets gathered by AWN indicate significant variation in concentrations over time with a maximum total ammonia concentration of 0.8 mg/l recorded during July and August 2013 at monitoring stations at Georges Quay and CN030 Towers.

At these concentrations, the Surface Water (2009) Regulation threshold values, for "Good" water quality at 95 percentile flow, are exceeded and there is insufficient assimilative capacity for ammonia. As such run-off from the operation of the site in its current form could have a detrimental impact on the receiving water which is "at risk of not achieving its restoration objective of restore status by 2015".

AWN's primary concern raised in the report is the lack of any such assessment by the applicant. As there is a direct pollutant linkage between source pathway-receptor i.e. run-off from baled waste yards discharges directly to the Castletown River, AWN consider that this is a significant gap in data assessment. In the absence of such an assessment we consider that it is not feasible for the competent authority to complete an adequate EIA or Appropriate Assessment.

2. INDUSTRIAL EMISSIONS LICENSING PROCESS AND PLANNING DEFICIENCIES

SI 546 of 2014 Waste Management (Facility Permit and Registration) Amendment Regulations stated;

"3. (7) A waste facility permit granted under these Regulations in respect of an activity which falls within Part I of the Third Schedule of these Regulations that is valid on 25 November, 2014 and which requires a licence by 7 July, 2015 in accordance with Part IV of the Environmental Protection Agency Act 1992 (Number 7 of 1992), shall lapse on 7 July, 2015 unless an application for a licence is made to the Agency prior to 27 February, 2015 and where such an application is made prior to 27 February, 2015, shall lapse once a decision is taken to grant or to refuse a licence under Part IV of the Environmental Protection Agency Act 1992."

It is AWNs understanding that the applicant has recently sought a Section 5 Declaration of Exempted Development for the Warehouse at Lockingtons Yard despite the development having recently been subjected to EIA by the EPA – AWN consider that this process is wholly inappropriate in terms of the Planning and Development Regulations as amended, EIA directive and the intention of SI 282 of 2012. Development subject to EIA (due to likely significant environmental effects) cannot and should not be considered Exempted Development.

In addition DPC note that OHSC have requested and been granted a number of time extensions in the application process to date. A summary of the main milestones to date and the various extensions sought is presented on Table 1 below.

It would appear that the Agency has not distinguished between complete and incomplete applications for the purposes of satisfying the requirements of SI 546 of 2014 above. DPC are not convinced OHSC are entitled to the relief set out in S.I. 546 of 2014.

Details/Particulars	Date of Submission
1. Initial Application by OHSC	15 th January 2015
2. EPA request further information under Regulation 10 and notify applicant of determination of EIA and AA requirement	22 nd April 2015
3. OHSC request Extension to complete EIA until 20 th July 2015	26 th May 2015
4. OHSC request further Extension until 25 th July 2015	20 th July 2015
5. OHSC submit EIA and AA	31 st July 2015
6. EPA request further information under Regulation 10 and query planning status of Lockingtons Yard with both the applicant and Louth County Council.	17 th September 2015
7. OHSC submit copies of site, newspaper and local authority notification (c.6 weeks after submission of EIS).	13 th October 2015
8. OHSC advise the EPA of intention to seek Section 5 Exempted Development declaration for Lockingtons Yard – OHSC requests an extension of determination period until February 2016 pending LCC decision on Section 5 application	22 nd December 2015
9. OHSC advise EPA that Louth County Council have approved Application for Section 5 Declaration	10 th February 2016
10. Current Status of Application - unclear	No EPA response on public file since 7 th December 2015.

3. VALIDITY OF THE EIS SUBMITTED

DPC is concerned that the Agency, under the terms of its specific remit to deal with “licensing” matters, is not assessing a number of equally important EIA requirements. These requirements are typically dealt with by the planning authority. Without fully assessing these aspects, DPC questions whether the EIA, carried out in this instance solely by the Agency for the development i.e. with no planning authority input to the EIA, meets all statutory requirements.

It is noted that the Agency’s initial Request for Information required under Regulation 10 listed 16 points (including but not limited to information on the location/function of the warehouse at Lockingtons Yard, a number of inconsistencies relating to surface water management, Section K not completed in the application form and Appropriate Assessment). It is considered that the 16 items listed by the Agency were not minor/insignificant items. These were items that should have been addressed in the initial application for the purposes of making a comprehensive valid application. A number of these queries were only addressed as part of the EIS more than six months after the initial application.

The comments below are made with respect to the requirements of Article 94 of the Planning and Development Regulations and EPA “Guidelines on the Information to be contained in an EIS”, 2003. It is AWN’s opinion that aspects of the EIS do not meet a number of requirements of Article 94 and/or the EIS guidance. (It is noted that “Revised Guidelines on the Information to be Contained in Environmental Impact Statement” has been published in draft recently and would call for even greater emphasis on the points raised below when finalised).

3A. Consideration of Alternatives

Article 94 of the Planning Regulations requires applicants to provide “An outline of the main alternatives studied by the developer and an indication of the main reasons for his or her choice, taking into account the effects on the environment”.

In Chapter 3 of the EIS, OHSC have provided a very limited assessment of alternatives considered in the development of the application. (It is required under EIA guidelines to assess alternative locations, processes and layouts).

Alternative locations; OHSC state that the primary basis for selecting the site was that the site is an *"ideal strategic alternative to other ports in the EMR from which waste is exported"*.

Site Selection - Strategic Site Location

AWN do not consider the location of the proposed facility to be significantly strategically advantageous to the EMR (Eastern Midlands Waste Region). It is suggested that other than meeting the commercial mandate of the port and its shareholders, there is no strategic logic for seeking an IED licence for the site.

Site Selection - Environmental Sensitivity (Human Beings)

Section 13.4 of the EIS describes the location of the site in terms of neighbouring landuses etc. OHSC state that the site is located to the east of the town centre with landuse to the east, south and west comprising a mix of commercial and residential. It is noted that the nearest private residences are 73m from the south eastern boundary at Quay Street. See Figure 1 attached.

On the basis of an approximate count completed by AWN, there are approximately 30 domestic residences located less than 100m from the facility boundary and c.100 within 200m of the facility boundary. As such, AWN consider that the proposed location, given the chequered history of nuisances (dust, vermin, odour) experienced by residents living in the environs of Irelands waste recovery and transfer facilities, is not an ideal site and an alternative site located in a less densely populated area would have been considerably more advantageous.

Alternative Layouts; OHSC states that the current layout as proposed in the licence application complies with the current waste permit and is the most efficient in terms of loading ships.

It is apparent to DPC that OHSC has not provided clarity to the Agency in relation to the use of the warehouse at Lockingtons Yard (for which an apparent planning deficiency has been identified). Without this clarity it is unclear whether the proposed layout is in fact the "most efficient in terms of loading ships" for OHSC and further consideration of alternative layouts should have been completed. Given that OHSC appears to be proposing moving baled wastes in and out of the warehouse at Lockingtons Yard depending on weather conditions, AWN would question the level of efficiency. RDF and SRF bales are not suitable for multiple movements resulting in shrink wrap breakdown, forced leachate discharge and vermin attraction by exposure on the content. (In addition AWN would question the suitability of the site boundary applied for, given this proposal to move bales in and out of the various storage areas subject to weather).

The initial application made by OHSC in January 2015, made limited references to the warehouse at Lockingtons Yard and stated that the warehouse at Lockingtons Yard was to be used for re-wrapping of damaged bales. We note the Agency queried the status of the Lockingtons Yard warehouse in its initial Regulation 10 request of April 2015 as it was unclear in the drawings provided with the application.

In July 2015 OHSC stated that during "very wet periods" it will store bales within the Lockingtons Yard warehouse without defining how this would be implemented i.e. how will very wet periods be determined. What defines a very wet period? In a short space of time how can machinery be mobilised to facilitate a large movement of stock.

It is considered that in conjunction with the lack of clarity in terms of how surface water run off will be managed in the open yard (proposal to close interceptor outflows during storage periods) that the site layout design is ill thought out and a more efficient site layout design should have been developed by OHSC prior to the application being made. It appears to DPC that the use of Lockingtons Yard for storage was almost certainly an after-thought.

3B. Human Beings and Air Quality (Odour)

As mentioned above AWN have identified there are approximately 30 domestic residences within just 100m of the facility and c.100 residences within 200m of the facility. In Section 13.5 OHSC acknowledges the potential for odour nuisance at off-site receptors stating that odour complaints from such facilities are not uncommon. OHSC notes that in July 2014, Louth County Council having identified nuisance odours at the permitted facility requested OHSC to implement corrective odour control measures. It is noted that since the facility has not received other odour complaints to date.

It is noted that Chapter 10 of the EIS presents a discussion of the Air Quality impacts including a short paragraph (10.8.1) on odour impact assessment. As discussed above for potential impacts relating to run off, no quantitative assessment of odour impact has been provided in the OHSC licence application/EIS despite the potential risk of nuisance above. It is considered that this is a significant deficiency in the EIS and an Odour Dispersion Model/Impact Assessment completed in line with the requirements of the EPA AG4 guidance "Air Dispersion Modelling from Industrial Installations Guidance Note (AG4)" should be completed by the applicant and provided to the Agency prior to licensing to comprehensively demonstrate that odour nuisance will not occur at the facility when operated.

Finally, in the absence of a dispersion modelling assessment, DPC would query whether the Agency should consider the potential scenarios if and when an odour nuisance does unavoidably arise. It is well known that the ideal (maximum) 2-3 week waste storage times at sites storing bales of RDF and SRF have previously unavoidably been lengthened due to ship breakdowns, bad weather at sea (and a variety of other problems all beyond the facility operators control). Any delay even over a few days can result in odour nuisance, most notably during the summer months.

It is considered that the site location chosen by OHSC places a significant number of private residences at risk of odour nuisance in such a scenario. (It is accepted that the operator would do everything within their power to avoid/control the odour issue however that may not be sufficient). On that basis DPC queries whether the EPA, should consider requiring the entire storage facility to be enclosed within a building with suitable odour abatement. This is the only certain way of ensuring the relatively large number of residential receptors in the immediate environs of the facility are not negatively affected.

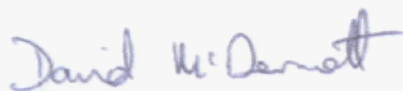
CONCLUSIONS AND RECOMMENDATIONS

On the basis of AWN's review of the documentation and correspondence to date, it is DPC's continuing opinion that there are significant deficiencies in the application made by OHSC. DPC has significant concerns regarding the EIA process carried out solely by the Agency without Planning Authority input.

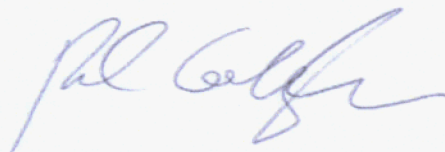
We respectfully request that these matters be fully addressed by the Agency in consideration of this application before any proposed determination of licence be issued.

Please feel free to contact the undersigned should you wish to discuss.

Yours sincerely,



DAVID MCDERMOTT
Principal Consultant

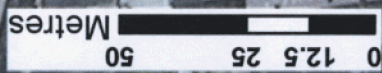


FERGAL CALLAGHAN
Director

cc. Captain Martin Donnelly, Drogheda Port Company

For inspection purposes only.
Consent of copyright owner required for any other use.

For inspection purposes only.
Consent of copyright owner required for any other use.



Copyright AWN CONSULTING LIMITED
All rights reserved. No part of this work may be modified or reproduced or copied in any form or by means - graphic, electronic or mechanical, including photocopying, recording, taping or information retrieval system, or used for any purpose other than its designated purpose, without the written permission of AWN Consulting Limited



AWN Consulting Ltd
The Tecpro Building,
Clonsilla Business & Technology Park
Dublin 17,
Tel: + 353 1 847 4220
Fax: + 353 1 847 4257

CLIENT:
Drogheda Port
Company

DRAWING TITLE:
Environmental
Sensitivity

PROJECT:
Dundalk Port
LED Application

DRAWN		CHECKED	APPROVED		APPD DATE		
G.W		D.McD	D.McD		23/02/2016		
No. of Sh/s		1	SIZE		SCALE		
Figure 1			A4		1:3000		
DRAWING NUMBER		SHEET					
REV		REV					

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, IGP, Swisstopo, and the GIS User Community



For inspection purposes only.
Consent of copyright owner required for any other use.

APPENDIX 1


For inspection purposes only.
Consent of copyright owner required for any other use.



Document History

Document Reference		Original Issue Date	
JN/15/8310WR01		01/10/2015	
Revision Level	Revision Date	Description	Sections Affected

Record of Approval

Details	Written by	Approved by
Signature		
Name	Janka Nitsche	Teri Hayes
Title	Environmental Consultant	Director
Date	01/10/2015	01/10/2015

For inspection purposes only.
Consent of copyright owner required for any other use.

CONTENTS

Page

1.0	Introduction	4
2.0	Methodology	4
3.0	Review of water quality & flow data	5
4.0	Assimilative capacity assessment	8
5.0	Conclusion	8

For inspection purposes only.
Consent of copyright owner required for any other use.

1.0 INTRODUCTION

AWN Consulting Ltd (AWN) were requested by Drogheda Port Company to review the data provided within an IED licence application submitted to EPA with regard to assessment of impact of run-off on the receiving water quality. Having reviewed the application data, it was noted that an adequate assimilative capacity has not been completed.

In order to assess the likely impact of run-off on the Castletown River and Estuary, AWN has undertaken an assimilative capacity assessment based on the available limited dataset.

Dundalk Port operates a baled waste storage and shipping activity at under a Waste Permit (WFP-LH-12-0002-01) issued by Louth County Council. The Permit allows the storage of up to 50,000 tonnes of baled refuse derived fuel (RDF) and Solid Recovered Fuel (SRF) and baled tyres pending shipment to overseas cement kilns and waste to energy plants.

2.0 METHODOLOGY

Assimilative capacity is the measure of a receiving waters' ability to absorb pollutants while maintaining an acceptable environmental quality standard (EQS). A mass balance calculation determines the anticipated cumulative concentrations of pollutants in the water body due to the discharge. The mass balance calculation will determine whether the discharge will cause an exceedance of a water quality standard. The assimilative capacity and Mass Balances calculations were undertaken using the equations Eq 1 and Eq 2 below.

Assimilative Capacity;

$$A.C = (C_{\max} - C_{\text{back}}) \times F \times 86.4 \text{ kg/day} \quad \text{Eq. 1}$$

Where C_{\max} = maximum permissible concentration (mg/l)
 C_{back} = average background concentration of the pollutant (mg/l)
 F = River flow at 95%ile (m^3/sec)
 86.4 = constant to correct the units to kg/day

Mass Balance

$$T = ((F \times C) + (f \times c)) / F + f \quad \text{mg/l} \quad \text{Eq. 2}$$

Where T = Resulting concentration due to the discharge (mg/l)
 F = flow in receiving waters at 95%ile (m^3/s)
 C = average background concentration in receiving waters (mg/l)
 f = discharge flow (m^3/s)
 c = concentration in the discharge (mg/l)

3.0 REVIEW OF WATER QUALITY & FLOW DATA

Limited water quality data in relation to runoff from the site (1 sample) and receiving water (1 sample) has been provided in the licence application. Single grab samples are not considered to be representative. Additional data on the receiving water quality has been collated by AWN from the Marine Institute and Louth Co Co in order to allow some assessment of the assimilative capacity to be undertaken. This data is presented below.

Dundalk Port Data – Surface Water and Leachate

A limited list of parameters were analysed in the single grab samples from the River Castletown River and surface water runoff from the open storage area in July 2015. These were tested as part of the Environmental Impacts Statement (EIS) for the waste storage installation at Dundalk Port (2015) by OCM. The water quality parameter as summarised in the EIS (2015) are presented below.

Parameter	Units	Results
BOD	mg/l	<2.5
COD	mg/l	20
TSS	mg/l	7
Ammonia (as N)	mg/l	0.072
Cadmium	µg/l	<0.09
Chromium	µg/l	<0.68
Copper	µg/l	3.18
Lead	µg/l	<0.173
Nickel	µg/l	1.79
Zinc	µg/l	16
Mineral Oil	µg/l	<2.5

Table 1 Surface Water Quality from Castletown River (Dundalk Port, 2015)

Parameter	Units	Results
BOD	mg/l	<2.5
COD	mg/l	40
TSS	mg/l	9
Ammonia (as N)	mg/l	0.244
Cadmium	µg/l	<0.09
Chromium	µg/l	<0.68
Copper	µg/l	0.802
Lead	µg/l	<0.173
Nickel	µg/l	0.508
Zinc	µg/l	29.6
Mineral Oil	µg/l	<2.5

Table 2 Surface Water Quality from Open Storage Area Run-off (Dundalk Port, 2015)

EPA Water Quality Data

AWN has reviewed the available baseline data for the receiving waters and this is summarised below. The Castletown Estuary is the only transitional water body with marine impact data for the marine waters within the RoI portion of the Neagh Bann International River Basin District (NBIRBD). The estuary is considered within the NBIRBD report as being "at risk" from urban waste water treatment discharges.

The overall water body status reported on the EPA website for the Castletown Estuary is **“Moderate”** and considered **“at risk of not achieving its restoration objective of restore status by 2015”**. Figure 1 below also highlights that the waterbody is Eutrophic.

Surface water quality for the Castletown River and Castletown estuary was made available from the EPA in conjunction with Louth County Council.



Figure 1 Surface Water Quality (EPA Webviewer)

Dundalk Bay is designated as a Special Area of Conservation (SAC) (000455), Special Protected Areas SPA (004026) and proposed Natural Heritage Areas NHA (000455).

Marine Institute Data

The Marine Institute is responsible for undertaking water quality testing of estuarial waterbodies. Water quality results was obtained by AWN for a number of sampling dates between 2013 and 2014 and these are presented along with the other datasets to assess the receiving water quality.

The background concentrations for the Castletown River and Estuary from all available data sources are summarised in Table 3.

Table 3 highlights that the suite of parameters tested by Dundalk Port, generally fall within the ranges of both EPA and Marine Institutes Datasets. However, a relatively large range in Total Ammonia (as N) concentrations from <0.01- 0.84 mg/l has been observed in the Estuary dataset.

Sampling Location		Castletown River	Castletown River	Castletown Estuary	Dundalk Inner Bay
		Not given	Fords Bridge	Various	54.0089, -6.3414
Data from		Dundalk Port	Louth Co Co	EPA	Marine Institute
Date	Unit	16-Jul-15	2013-2014	Aug-13	2013-2014
BOD	mg/l	<2.5	<1.0-1.6	<1.5-3.2	-
COD	mg/l	-	-	-	-
TSS	mg/l	7	-	-	<5-44
Ammonia	mg/l	0.072	<0.020-0.053	<0.01-0.84	-
Nitrite	mg/l	-	<0.004-0.15	-	-
Ortho-phosphate	mg/l	-	0.039-0.051	<0.01-0.16	-
Chloride	mg/l	-	15-19	-	-
pH	-	7.8	-	7.8-8.1	-
Electric Conductivity	µS/cm	-	249-359	-	-
Diss. Oxygen	mg/l	-	10.2-11.6	-	-
Arsenic	µg/l	-	-	-	0.61-2.47
Cadmium	µg/l	<0.09	-	-	<0.05
Chromium (total)	µg/l	<0.68	-	-	0.11-0.33
Copper	µg/l	3.18	-	-	0.33-2.85
Lead	µg/l	0.173	-	-	<0.01
Mercury	µg/l	-	-	-	0.0005-0.00368
Nickel	µg/l	1.79	-	-	0.25-2.92
Silver	µg/l	-	-	-	<0.002
Zinc	µg/l	16	-	-	<1-2.95
Mineral Oil	µg/l	<2.5	-	-	-

Table 3 Background Quality Comparison.

River Flow and Runoff Data.

The EPA hydrotol website (<http://watermaps.wfdireland.ie/HydroTool/>) was utilised to calculate the low flow rates (95%ile) for the Castletown River at the site location. This low flow scenario reflects low tide conditions at the site. The closest hydrometric gauge is St. John's Bridge (station no. 06032) along the Castletown River, located approximately 3km northwest of the Dundalk Port site and as such this is not entirely representative of the site conditions at the site, along the estuary. The 95%ile for the Castletown River at St. John's Bridge is listed as 0.039 m³/sec.

The runoff volume was calculated from the Modified Rational Method, see Eq 3 below, with rainfall data obtained from met.ie.

$$Q_p = 3.61 C_{vi} A$$

Q = flow l/s
i = intensity mm/hr
A = area in ha

Eq 3

The estimated surface runoff flow for Dundalk Port has been calculated using an estimated open storage area of 1200m². Using the modified rational method the runoff is calculated as 0.0048 m³/sec.

4.0 ASSIMILATIVE CAPACITY ASSESSMENT

A limited assimilative capacity assessment has been undertaken by AWN based on the sparse dataset provided for Dundalk Port, which is summarised in Table 4 below.

Based on the data provided by Dundalk Port, the assessment shows that there is sufficient assimilation capacity for all parameters tested in July 2015. However, Total Ammonia (as N) are seen to vary significantly over time, with maximum concentrations of 0.8 mg/l observed on a number of dates (in July and August 2013) at St. Georges Quay and CN030 Towers. At these concentrations the Surface Water (2009) Regulation threshold values for "Good" River water body at 95 percentile flow are exceeded, resulting in insufficient capacity for Total Ammonia.

It is also important to note that baseline data has not been provided for parameters including mercury, cyanide, phosphate etc. all which are possibly present in the baled waste on the site. As such there may be further exceedances which are currently not quantified.

Water Quality Standards	Parameter	Water Quality Limit C _{max}	Background Water Quality C _{back}	River Flow (95%ile)	Assimilative Capacity	Effluent Flow	Water Quality of Runoff/effluent	Resulting concentration in River due to discharge	Exceedance of Water Quality Standards
		mg/l	mg/l	m ³ /sec	Kg/day	m ³ /sec	mg/l	mg/l	mg/l
Salmonid Waters	BOD	4	<u>2.5</u>	0.039	5.0544	0.0048	<u>2.5</u>	2.5000	No
Salmonid Waters	TSS	25	7	0.039	60.6528	0.0048	9	7.2192	No
S.I. No. 272 of 2009	Total Ammonia as N	0.14*	<u>0.84</u> <u>0.072</u>	0.036 1.036	<u>-2.1773</u> <u>0.0867</u>	0.0048	0.244	0.7699	Yes
Salmonid Waters	Unionised Ammonia NH3	0.02**	<u>0.001</u>	0.039	0.0640	0.0048	0.004	0.0013	No
S.I. No. 272 of 2009	MRP (µg/l)	0.06	-	0.039	nm	0.0048	nm	-	-
S.I. No. 272 of 2009	Copper	0.005	<u>0.00318</u>	0.039	0.0061	0.0048	<u>0.000802</u>	0.0029	No
S.I. No. 272 of 2009	Lead	0.0072	<u>0.000173</u>	0.039	0.0237	0.0048	<u>0.000173</u>	0.0002	No
S.I. No. 272 of 2009	Fluoride	1.5	-	0.039	nm	0.0048	nm	-	-
S.I. No. 272 of 2009	Arsenic	0.02	<u>0.00247</u>	0.039	0.0591	0.0048	nm	-	-
S.I. No. 272 of 2009	Cyanide	0.01	-	0.039	nm	0.0048	nm	-	-
S.I. No. 272 of 2009	Chromium	0.032	<u>0.00068</u>	0.039	0.1055	0.0048	<u>0.00068</u>	0.0007	No
S.I. No. 272 of 2009	Zinc	0.04	<u>0.016</u>	0.039	0.0809	0.0048	<u>0.0296</u>	0.0175	No
S.I. No. 272 of 2009	Cadmium	0.00025	<u>0.00009</u>	0.039	0.0005	0.0048	<u>0.00009</u>	0.0001	No
S.I. No. 272 of 2009	Mercury	0.00007	<u>0.0000037</u>	0.039	0.0002	0.0048	nm	-	-
S.I. No. 272 of 2009	Nickel	0.02	<u>0.00179</u>	0.039	0.0614	0.0048	<u>0.000508</u>	0.0016	No
Salmonid Waters	Mineral Oil	0	<u>0.0025</u>	0.039	-0.0084	0.0048	<u>0.0025</u>	0.0025	No ¹

underlined: concentration below this laboratory detection limit Exceedances of water quality standards are marked **Bold**

* Good status (95%ile) for River

** calculated from Total Ammonia as N (product of 14/17 and % of un-ionised ammonia from pH & Temp conversion tables)

Dundalk Port nmt: not measured

EPA Data

Marine Institute ¹ assumed that none is present

No Capacity

Table 4 Assimilative Capacity Results and estimated resulting water quality concentrations in River.

6.0 CONCLUSIONS

An assimilative capacity assessment has not been undertaken as part of the IED application. As such the EPA cannot adequately quantify the impact on the receiving water body.

The limited assimilative capacity assessment undertaken by AWN indicates that although there is sufficient capacity for parameters tested by Dundalk Port, one grab sample is not considered representative. Analysis of water quality data of the Castletown Estuary provided by EPA has highlighted significant concentration ranges in certain parameters, namely Total Ammonia. At the higher concentration ranges, Surface Water Threshold values for Total Ammonia are exceeded, resulting in no assimilative capacity within the Castletown Estuary. Furthermore, not all potential waste generated leachate parameters (e.g. mercury, cyanide, phosphate) have been measured. As such run-off from the operation of the site in its current form could have an impact on the receiving water quality (an SAC) which is already reported by the EPA as *"at risk of not achieving its restoration objective of restore status by 2015"*.

In conclusion, collection of adequate baseline water quality data and an assessment of the assimilation capacity has not been undertaken to date for the Dundalk Port Site. As there is a direct pollutant linkage between source pathway-receptor i.e. run-off from baled waste yards discharges directly to an SAC, we consider that this is a significant gap in data assessment. In the absence of such an assessment we consider that it is not feasible to complete an adequate EIA or Appropriate Assessment. As the receiving water body is an SAC, its conservation objectives are protected by the Habitats Directive and as such the precautionary principle should be applied. In addition, under the Water Framework Directive there is an obligation to protect and restore water quality to good status. In particular where water bodies are shown to be "at risk", there is a requirement to manage direct and indirect discharges.

For inspection purposes only
Consent of copyright owner required for any other use

For inspection purposes only.
Consent of copyright owner required for any other use.