This Report has been cleared for submission to the Board by Programme Manager, Frank Clinton *Signed:* Joe Clinton *Date: 24/11/2016*

OFFICE OF ENVIRONMENTAL SUSTAINABILITY

INSPECTOR'S REPORT ON THE REVIEW OF A LICENCE

To:	Directors
From:	Brian Meaney - Licensing Unit
Date:	24 November 2016
RE:	Review of an Industrial Emissions licence **Enva Ireland Ltd**, Portlaoise, County Laois Register No. W0184-02

Licence review initiated:	26/1/2016
Classes of activity currently licensed under the First Schedule of EPA Act 1992 as amended:	11.1 The recovery or disposal of waste in a facility, within the meaning of the Act of 1996, which facility is connected or associated with another activity specified in this Schedule in respect of which a licence or revised licence under Part IV is in force or in respect of which a licence under the said Part is or will be required. 11.2 Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving one or more of the following activities: (a) biological treatment; (b) physico-chemical treatment; (c) blending or mixing prior to submission to any of the other activities listed in paragraph 11.2 or 11.3; (d) repackaging prior to submission to any of the other activities listed in paragraph 11.2 or 11.3; (g) regeneration of acids or bases; (j) oil re-defining[1] or other reuses of oil.

[1] The word "re-defining" as written in the First Schedule of the EPA Act 1992 as amended contains a typographical error. Annex I of the Industrial Emissions Directive and Annex II of the Waste Framework Directive both describe this activity as "oil re-refining or other reuses of oil".

	11.4 (a) Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving one or more of the following activities (other than activities to which the Urban Waste Water Treatment Regulations 2001 (S.I. 254 of 2001) apply): (ii) physico-chemical treatment; 11.6 Temporary storage of hazardous waste, (other than waste referred to in paragraph 11.5) pending any of the activities referred to in paragraph 11.2, 11.3, 11.5 or 11.7 with a total capacity exceeding 50 tonnes, other than temporary storage, pending collection, on the site where the waste is generated.
Additional classes of activity sought by the licensee for inclusion in a revised licence:	11.2 Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving one or more of the following activities: (f) recycling or reclamation of inorganic materials other than metals or metal compounds. 11.4 (a) Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving one or more of the following activities (other than activities to which the Urban Waste Water Treatment Regulations 2001 (S.I. 254 of 2001) apply): (i) biological treatment. 11.4 (b) Recovery, or a mix of recovery and disposal, of non-hazardous waste with a capacity exceeding 75 tonnes per day involving one or more of the following activities, (other than activities to which the Urban Waste Water Treatment Regulations 2001 (S.I. No. 254 of 2001) apply): (i) biological treatment; (ii) pre-treatment of waste for incineration or co-incineration.
Categories of activity Annex I, IE Directive (2010/75/EU):	5.1, 5.3, 5.5
Title of BREF document (main):	Waste Treatments (2006)
CRO number:	317186
Notices under section 90 issued:	26/1/2016, 12/7/2016, 11/10/2016
Section 90 information received:	17/5/2016, 6/9/2016, 11/11/2016
Submissions received:	Six
Site visits:	2/2/2016, 28/10/2016
Meetings with licensee:	2/2/2016 at the licensed installation 16/2/2016 at EPA HQ

1. Installation and licence

Waste activities at the licensee's installation at Portlaoise were first licensed by the Agency in January 2000 by way of an IPC licence (register number 472). That licence was replaced by a waste licence (register number W0184-01) in January 2004. The waste licence was amended 4 times as follows:

- October 2005, to bring the licence into conformity with Directive 96/61/EC;
- February 2011, to update the reprocessed oil quality standard expressed in the licence;
- January 2013, to bring the licence into conformity with the European Communities Environmental Objectives (Groundwater) Regulations 2010;
- December 2013, under section 76A of the Waste Management Act 1996 as amended, to make the licence an Industrial Emissions licence.

This review of a licence is a review of Industrial Emissions licence register number W0184-01 and the review is being conducted under the EPA Act 1992 as amended. The review process and any revised licence as may be granted have been allocated the register number W0184-02.

The licensed installation is located in the Clonminam Industrial Estate, as illustrated in Figure 1. There are several neighbours in close proximity to the installation. Irish Rail operates a depot immediately adjacent and close to waste treatment areas. A number of industrial units are located across the road and in the vicinity. One ceased IPPC installation and one applied IE installation are located within 250m of the installation boundary (Glanbia Foods Ireland Ltd, P1028-01). There are residential properties 30m from the installation boundary, across a rail track, towards the north and northwest.

Figure 1 Map showing installation and locale. Installation boundary is shown in red. Note the road network in the immediate vicinity of the installation has been developed since this image was taken. Also, the housing estate to the north contains a large number of

finished houses where the image shows partially completed units. Note the rail depot to the east and the railway line along the northern boundary.

2. Reason for licence review

At a meeting held on 12 January 2016, the Board of the Agency decided to review licence register number W0184-01.

A notice was issued to the licence on 26 January 2016 under sections 87(1)(b) and 90(7) of the Environmental Protection Agency Act 1992 as amended. That notice informed the licensee that the Agency intended to review the licence in accordance with the provisions of sections 90(4) and 98A of the EPA Act 1992 as amended and stated the reasons why. The licensee was informed that the entire licence and all licensed activities would be subject to the licence review.

3. Recommended Determination

Accompanying this inspector's report is a Recommended Determination which will be referred to in this report as the "RD".

4. Waste treatment activities, existing and proposed, and waste acceptance

As described on page 1 of this report, the licensee is authorised to carry out the following classes of activity at the installation:

- 11.1
- 11.2 (a), (b), (c), (d), (g) and (j)
- 11.4 (a)(ii)
- 11.6

See the table on pages 1 and 2 of this report for the full text of these classes.

The licensee was invited in the Agency's notice dated 26/1/2016 to provide information on new activities, not currently authorised, that the licensee wants to be authorised for and to commence. The following additional classes of activity were sought by the licensee for inclusion and authorisation in a revised licence and, for clarity, I also have listed the wastes proposed for treatment under these classes of activity:

11.2 (f)	11 01 11* aqueous rinsing liquids containing hazardous substances from chemical surface treatment and coating of metals and other materials
11.4 (a)(i) 11.4 (b)(i) and (ii)	01 05 04 freshwater drilling muds and wastes 01 05 99 drilling muds and other drilling wastes not otherwise specified 17 05 04 soil and stone 17 05 06 dredging spoil 17 05 08 track ballast 19 09 01 solid waste from primary filtration and screenings (from water treatment) 19 09 02 sludges from water clarification (from water treatment) 19 09 04 spent activated carbon (from water treatment) 19 12 09 minerals (e.g. sand, stones) from mechanical treatment of waste 19 12 12 other wastes including mixtures from mechanical

	treatment of waste 19 13 02 solid waste from soil remediation 19 13 04 sludges from soil remediation 19 13 06 sludges from groundwater remediation 20 03 03 street cleaning residues

These new treatment processes are not dissimilar in nature to the activities already authorised or carried out at the installation. Only one new hazardous waste is proposed for acceptance – 11 01 11*. Six new non-hazardous wastes are proposed for acceptance, as follows:

- 01 05 04 and 01 05 99 – and it is noted that the licensee is already authorised to accept drilling muds that are classified as hazardous waste (01 05 05* and 01 05 06*);
- 19 09 01 and 19 09 02;
- 19 12 09
- 20 03 03.

Part I Schedule of Activities Licensed of the RD proposes to authorise the new classes of activity sought, in addition to the existing authorised classes. Schedule A of the RD lists the treatment techniques that can be employed at the installation and, in so doing, clarifies the scope of the classes of activity listed in Part I for this installation. Schedule A of the RD also clarifies the types of waste to be authorised for acceptance at the installation.

The licensee has an extensive list of List of Waste codes authorised for acceptance and condition 8.9.2 of the RD will require the licensee to maintain a list of all approved LoW codes. The condition will allow the addition of new codes with the Agency's agreement. The licensee may also invest in new or amended treatment techniques (for new or existing waste streams) as opportunities arise, subject to the techniques moving waste up the waste hierarchy and the Agency's agreement (see Schedule A.1).

5. Process Description

Enva Ireland Limited carries out a wide range of waste treatment and storage activities, the principal elements of which are described in this section of the report.

5.1 Waste acceptance and limitations

As discussed in section 4 above, a wide range of waste types are authorised for acceptance at the installation and the infrastructure is in place to handle these wastes. The RD proposes to allow continued acceptance of a wide range of wastes of certain categories, as listed in Schedule A of the RD, including industrial, commercial, household, agricultural and construction and demolition waste. Schedule A.2 (table A.2.2) of the RD proposes that certain listed waste source categories are prohibited. There is no significant practical change in these proposals to current practices.

Regarding waste oil treatment, the licensee produces two materials that are sold as fuels and are not classified as waste. The licensee labels these products as 11LS and 19LS, the latter being a fuel of higher quality and suitable for a wider range of uses. Condition 6.23 of the RD restricts the use of reprocessed fuel oil to certain uses. To ensure the quality of the 19LS product, Schedule E of the RD replicates the existing licence and lists the feedstock wastes than can be used to manufacture it.

5.2 Waste oil treatment process

The waste oil treatment process comprises a number of steps as illustrated in Figure 2 below. Note that Figure 2 illustrates the *proposed* process flow. There is one key difference between the *proposed* process flow, the *historic* process flow and the *existing* process flow schema as follows and as highlighted in red in the figure:

- For *historic* operations up to 2016, the 'Chemical Dewatering or Thermal Dewatering' step shown in the figure was 'Thermal Dewatering' involving heating waste oil to 102°C and air sparging.
- For *existing* or current operations (i.e. 2016), the 'Chemical Dewatering or Thermal Dewatering' step shown in the figure is 'Chemical Dewatering' only. This involves heating waste oil to 80°C and using chemical de-emulsifying additives.
- The *proposed* operations include a regenerative thermal oxidiser for the treatment of off-gases from various parts of the process including a proposed flash distillation process.

Other than variations in the (chemical and/or thermal) dewatering processes and the proposed regenerative thermal oxidiser, all other steps in the process are the same at all points in time (historic, existing, proposed) and are as illustrated in Figure 2.

The proposed process flow will keep open the option for the licensee to use chemical dewatering *or* thermal dewatering (e.g. using flash distillation, see next section).

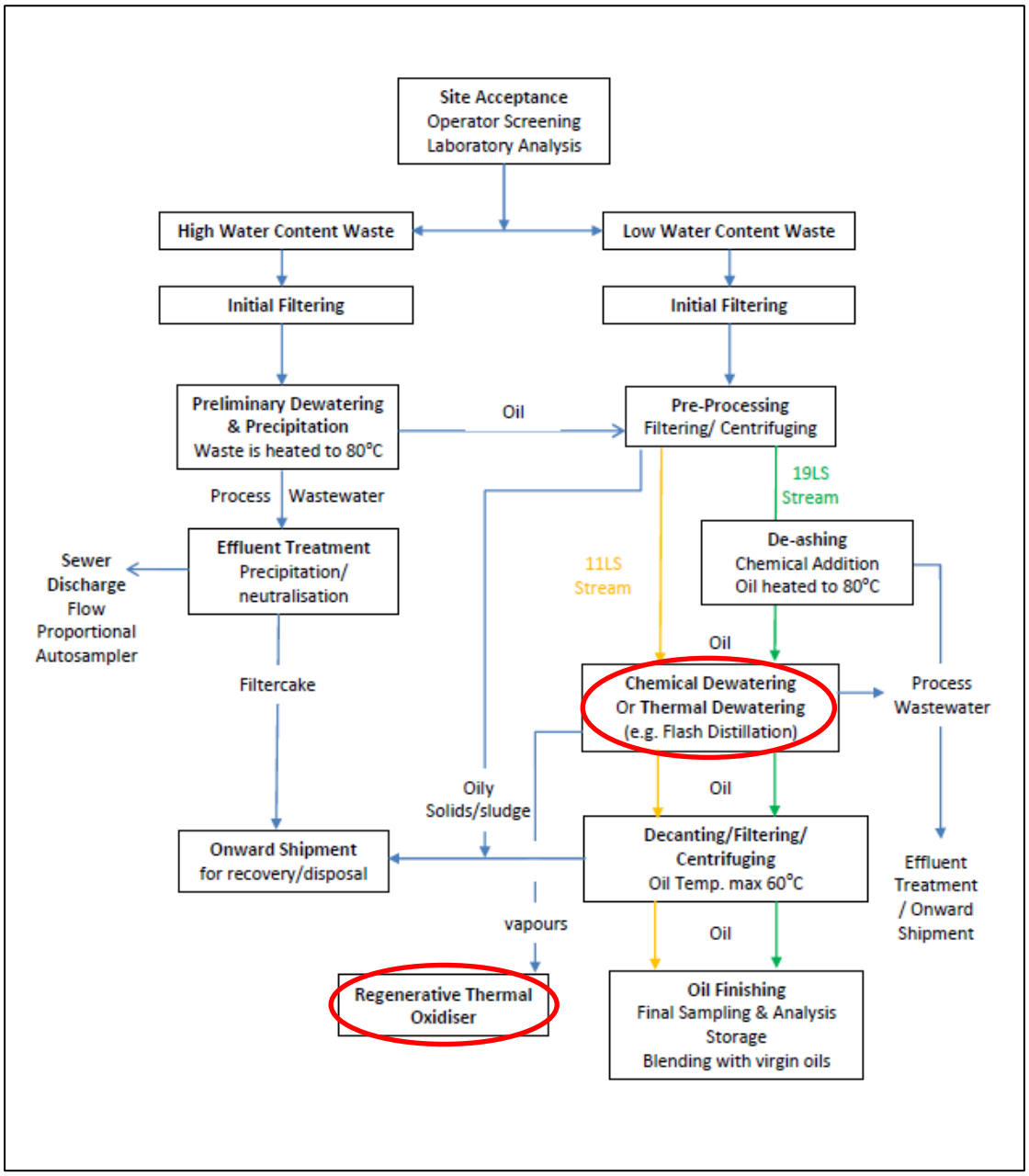

Figure 2 Proposed fuel oil recovery process flow (source: licensee, red highlights added by EPA)

5.3 Air sparging (waste oil treatment by thermal dewatering)

The thermal dewatering technique that was used by the licensee up until early 2016 included air sparging of (i.e. pumping air via diffusers into) waste oil that has been heated to approximately 100°C. The purpose of air sparging was to improve oil-water separation. A by-product of air sparging was the stripping of volatile organic compounds (VOCs) from the liquid into the gas phase. Up until 2016, the air and entrained VOCs was passively vented through vents in the top of the oil tanks.

In a section 90 notice to the licensee in January 2016, the Agency sought the implementation of a detailed monitoring programme whose purpose was to characterise the nature and extent of the emission from the air sparging process. The licensee chose not to implement the monitoring programme for the following reasons, stated in information provided in May 2016:

- The licensee will not recommence the technique of air sparging waste oil that has been heated to approximately 100°C.
- An alternative thermal drying technique was proposed to be introduced that, according to the licensee, is more thermally efficient and provides greater operational efficiencies. This flash distillation process is described further in section 5.5 below.

The licensee, in information provided in September 2016[2], proposed the possibility of future use of the high temperature air sparging process, subject to a series of batch trials to be agreed in advance with the Agency and to be carried out before recommencement of air sparging. This would mean that the monitoring programme sought by the Agency as part of the licence review would be put off to a point in time after a revised licence is issued.

The difference between high temperature air sparging in the future compared to air sparging in the past is that the air sparging tanks will in the future be connected to a ring main that collects all off-gases for treatment before discharge. However, despite the future containment of emissions, the alternative procedure proposed by the licensee (i.e. characterisation of the tank emissions post-licensing) is not compatible with the Agency's intention of characterising the tank emissions from air sparging as part of the licence review. The data that the Agency sought would have allowed the Agency to consider whether it would authorise the continued use of the high temperature air sparging process. The absence of the data limits the Agency's ability to transparently consider whether to authorise the use of the air sparging process in the future. The alternative procedure (i.e. characterisation of the tank emissions post-licensing) is consequently not proposed for authorisation in the RD.

5.4 Low temperature air sparging

The licensee has stated that air sparging at high temperature (approximately 100°C) has ceased. Air sparging will continue to take place at lower temperatures (less than 30°C) for the purpose of mixing waste oil in tanks. Condition 6.18.6 of the RD proposes to limit the use of air sparging according to the following:

- tank contents at a temperature of 30°C or less; and
- tank vents are connected to the ring main ensuring the collection and treatment of tank off-gases.

The licensee estimates that the concentration of volatile organic compounds in the off-gas from air sparging will be approximately 1,000mg/m^3.

Currently off-gases are treated using a carbon filter. In due course, the off-gases will be treated using a regenerative thermal oxidiser.

5.5 Flash distillation (waste oil treatment by thermal dewatering)

Flash distillation is proposed as a thermal dewatering process to replace (or be used in parallel with) the chemical de-emulsifying process introduced during 2016 which replaced the air sparging technique that was used until 2016. There is no firm commitment in the licensee's documents to installing the flash distillation process. Rather, it is at times presented as an *example* of a process for the thermal treatment of waste oil that might or might not be implemented. The RD in Schedule A provides

[2] Section 4 of licensee's information dated September 2016.

for the installation of a flash distillation technique to be used. Thus, in effect, the two dewatering techniques that are proposed to be authorised in the revised licence are:

- chemical dewatering using de-emulsifying chemicals, as has been done since early 2016; and
- thermal dewatering using a flash distillation technique.

A schematic diagram of a flash distillation process is shown in Figure 3 below.

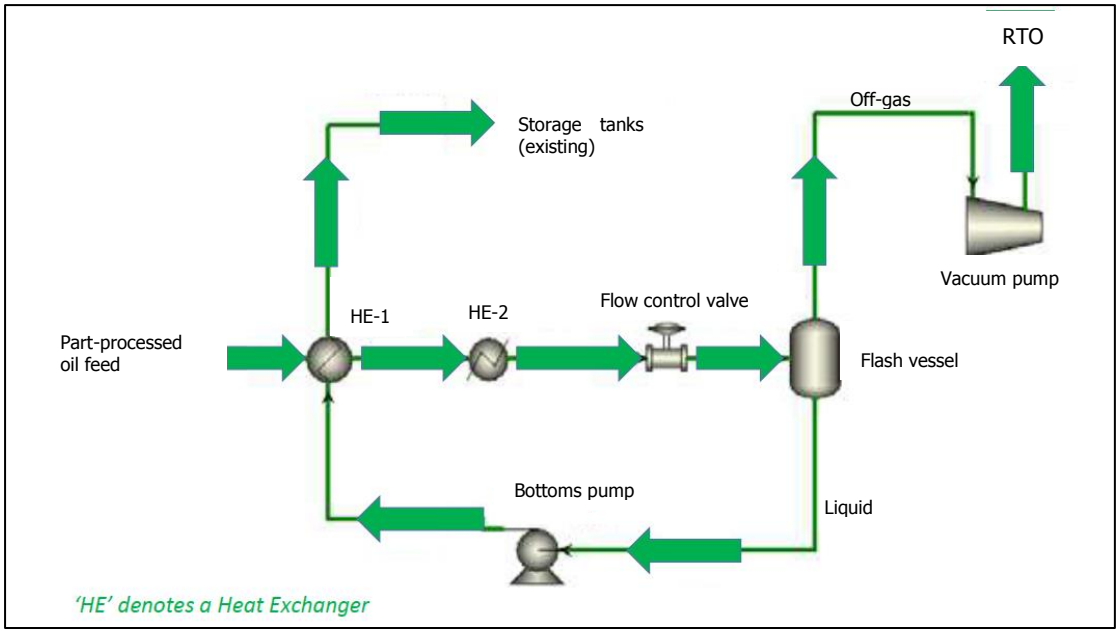

Figure 3 Diagram of proposed flash distillation step (source: licensee, modified by EPA)

Flash distillation is a process that requires control over such parameters as pressure, flowrate, liquid levels and temperature. As shown in the diagram in Figure 3, off-gases from the process will be directed to the proposed regenerative thermal oxidiser. It is a sealed process with no potential for fugitive emissions except those that might arise through over-pressure in the system. Conditions 6.18.5 and 6.19.3 of the RD will prohibit operation of the flash distillation process except when the regenerative thermal oxidiser is operating according to the conditions of the licence. Dewatered waste oil from the process will be stored in tanks that are connected to the ring-main system.

5.6 Waste soil processing

The licensee typically accepts waste soil that is too contaminated for disposal direct to non-hazardous landfill. Treatment options are varied and depend on the nature of the contamination in the soil and its proposed end-use or disposal outlet. Typically the options include:

- mechanical screening to remove stone and mineral fractions;
- washing of stone and mineral fractions (new proposed process);
- bioremediation of soil fines involving the addition of micro-organisms, nutrients and conditioning agents and periodic mechanical aeration of stockpiles for periods up to 2 months, all with the purpose of treating organic contaminants in the waste;
- physico-chemical stabilisation using oxidising agents such as peroxide to break down hydrocarbon compounds;

- clay or chemical stabilisation additives to react with or bind inorganic contaminants;
- simple storage pending export.

Until 2016, the soil treatment building was covered but open on all sides – see Figure 4. According to written information provided by the licensee for this licence review, in 2015 and 2016 the waste soil building was fully enclosed. It remained only to install three doors for which planning permission has been granted. The licensee proposed in their written submission not installing these doors until and unless nuisance or dust emissions arise from the now-almost-fully-enclosed process.

However, during my site visit on 28 October 2016, I noted that in fact the building has been enclosed only on two sides (north and east facades). I also noted that the segregation of waste soil from other waste, including other packaged waste, at the southern end of the building is poor and soil stockpiles in fact overspill a short distance beyond the building boundary. See Figure 5, right photo.

Figure 4 The interior of the waste soil treatment building, not fully enclosed at time of photo (February 2016)

Figure 5 The interior of the soil treatment building (October 2016). The left photo shows the inside of the enclosure of the north and east facades. The right photo shows the south facade unenclosed and also shows some overspill of waste soil and the storage of waste containers out of doors. The west facade, not shown, is not enclosed.

In relation to the soil recovery building, the following conditions are proposed in the RD:

- The building (and in particular the northern face of the building) is located no more than 50m from the nearest residence. Condition 3.22 of the RD proposes the complete enclosure of the building including installation of doors.
- The waste soil should be kept separate from other wastes and overspill should be prevented. The implementation of condition 3.22 will, through enclosure of the building, address this.
- It may be that the full enclosure of the soil treatment building will eliminate any significant risk of dust or odour emissions from the waste. However, the atmosphere within the building could itself become a source of fugitive dust and odour emissions. To ensure that the enclosed activity does not become a source of dust and odour emissions, condition 3.22 states that, unless otherwise agreed by the Agency, the building is to be maintained under negative pressure with extracted air to be subject to treatment.

5.7 Other waste treatment processes

The licensee carries out a wide range of other waste and hazardous waste treatment activities at the installation including such activities as:

- sorting of waste,
- shredding, crushing and compacting,
- mixing and repackaging,
- bulking of liquid wastes,
- storage of waste for transfer.

These activities are principally for the purpose of preparing waste for onward transport and/or treatment, in Ireland or abroad. There are two main buildings where such activities take place and there are other outdoor and roofed waste storage areas also in use.

5.8 Treatment of residues (wastewater) from waste treatment

Waste water from a number of processes at the installation is treated at the installation prior to discharge to sewer. Irish Water consented to the discharge of effluent to sewer – see section 9 of this report for details. The waste water treatment process and waste water storage tanks have been identified as potential sources of odorous emissions and this matter is dealt with in section 8 below.

6. Submissions

Six submissions were received by the Agency in relation to the licence review. The submissions are summarised below followed by my response. The original submissions should be read for full details.

The submissions are presented in chronological order of receipt.

Any text in square brackets is my clarification of points of information provided in the submissions.

6.1 Marie Conway

Ms Conway's submission made a number of observations on the review of the licence, as follows:

- The odour emissions from the installation are a persistent and alarming threat to the quality of Ms Conway's lifestyle inside and outside of her home.
- The smell is of an overbearing, sickly sweet and oily nature and upon inhalation induces a feeling of nausea and being unwell.
- Ms Conway has at times left her home, particularly during summer months, as the smell can be unbearable.

6.2 Iarnród Éireann - Tom Ruane, Infrastructure Production Manager

On behalf of Iarnród Éireann, Mr Ruane describes how, since 2007, Iarnród Éireann has engaged with the licensee on several occasions in relation to the migration of odours and dust onto the adjacent rail and sleeper depot. Iarnród Éireann staff have experienced a reduced quality of workplace well-being and general annoyance as a result of nuisance odours from the licensed installation.

Mr Ruane states that dust has been generated from within the licensee's soil remediation process and settled on specialised plant and machinery, resulting in increased maintenance and potentially shortened equipment lifespan. Mr Ruane notes the licensee's proposal to enclose the soil area and the grant of planning permission for this work and also notes that, as of the date of his submission, the work has not taken place. [This matter is discussed in section 5.6 above].

Mr Ruane notes the licensee's stated intention to trial an odour abatement system in an effort to reduce odour nuisance. Mr Ruane notes, at the time of his submission, the ongoing reporting of odour nuisance by Iarnród Éireann staff at the Portlaoise depot.

Mr Ruane outlines Iarnród Éireann's expectations regarding any revised licence as may be granted, as follows:

- The soil remediation building should be completely enclosed within 3-6 months.
- An effective odour abatement system is implemented within 3-6 months.
- Emissions from the installation should not exceed statutory limits regarding ambient air quality at any time.
- No harmful emissions are discharged from the installation into surrounding areas.
- The continuance of any licence is dependent on the success of these control measures.
- The licence should provide for accountability by the licensee in relation to dealing with environmental complaints in a timely and efficient manner.

Mr Ruane also iterates Iarnród Éireann's expectations regarding the manner by which the implementation of the above, and other, control measures will be monitored to ensure compliance.

Mr Ruane states that staff at the Iarnród Éireann depot will continue to record occurrences of dust and odour nuisance and will make the logs available to the EPA as and when required.

Finally, Mr Ruane enclosed the following documents:

- Letter sent by Iarnród Éireann to a director of Enva Ireland Ltd in October 2014
- A copy of the licensee's response also dated in October 2014.

- A copy of a letter from the licensee to Iarnród Éireann dated February 2016 stating the licensee's commitment to purchase a mobile dust suppression unit, enclose the soil remediation area and install odour abatement equipment. The letter states that the licensee is engaged with the EPA so as to obtain approval to install a thermal oxidiser.

6.3 Kevin Keyes

Mr Keyes' submission states that the licensee has consistently made his family's life a misery since they became residents at Rockview Drive [which is the estate located across the railway line, no more than 30 metres from the installation boundary at its closest point]. Mr Keyes states that windows cannot be opened on a nice day due to petrol station forecourt smells. Children cannot play on the green as the odour is an unbearable attack on the senses and Mr Keyes dreads to think what are the health implications of being out in this. Mr Keyes outlines sore throats, leaking eyes, sinus trouble and headaches as common experiences whilst the licensee was in full processing mode. Since the period of fervent complaints and the prosecution of the licensee, Mr Keyes' experience has been very different with no odours and a new ability to live a normal family life. Mr Keyes notes that this cannot be a coincidence.

Mr Keyes seeks a rejection of the licence and shutting down the facility but acknowledges that the licensee provides employment, services government contracts and generates revenue.

Mr Keyes states that the people of Portlaoise deserve better from the EPA regarding regulation of the licensee and expects stricter monitoring procedures to be implemented and greater sanctions to be imposed in the event of licence breaches.

6.4 Anonymous

An anonymous submission was made by "Rockview Resident" who lives in the estate very near the installation. The submission describes a regular, since 2009, smell that is a gassy/oil odour, similar to the odour of diesel or kerosene. It can be very strong and sickening and does not come from the Gain feed plant which generates a sweet smell (from distillers' grains). The submission mentions a particular instance on 8th April 2016 at 1.00pm of a distinct gassy/oil odour. [According to the EPA's database, there were two odour complaints logged on that date, at 1pm and 1.15pm, from two residents of the Rockview area].

6.5 Laura Murphy

Ms Murphy's submission describes how her family have been residents on the Abbeyleix Road for 28 years. Strong nauseating odours have been experienced for about 15 years. The odours appeared for a couple of hours at a time and were gassy/oily in nature. Sometimes the windows of the house had to be closed.

Between 2001 and 2006, Ms Murphy worked only metres from the plant and experienced the smell while going to, coming from and at work and describes it as an impenetrable wall keeping out the fresh oxygen. Sometimes 'sandstorms' caused a thick deposit of dust on cars parked outside. Ms Murphy experienced headaches and nausea but did not at the time attribute the symptoms to the odours nor make any complaints.

Since the Prime Time Investigates programme Ms Murphy states that she has become more aware of the possible link between industrial emissions and health effects and goes on to describe a number of symptoms experienced by herself and her mother since 2010 for which no cause has been identifiable but have been linked to over-exposure to VOCs, hydrocarbons, PAHs and other waste oil products. Ms Murphy refers to anecdotal evidence of neighbours and friends in nearby areas with

elevated instances of health issues. Ms Murphy recognises that this may be all coincidence but sees good reason for a health investigation to be carried out in affected areas and in this regard cites Professor John Crown's statement in the Senate in support of such an investigation. Ms Murphy also cites Councillor Noel Tuohy's motion to Laois County Council, adopted unopposed, that the health of the licensee's employees, people in the industrial estate and residents of Portlaoise has to be safeguarded and that everything at the installation is not as it should be. Ms Murphy expresses a hope that any proposed determination of the Agency will include a recommendation to the HSE for a health only focussed study in the area.

Ms Murphy sees a need to ensure that emissions are significantly reduced or eliminated to make a safer environment for local residents and workers in the industrial estate. Emissions must be quantified and kept within legal limits. There should be no new harmful emissions arising from the use of a regenerative thermal oxidiser.

6.6 PJ Phelan

Mr Phelan describes in terms that I won't attempt to summarise his evidence of the Agency's incompetence and inactivity and his lack of confidence in the EPA. He attributes these factors as relevant to the ongoing and long-term, since 1977, impact of poor regulation of the installation on residents.

Mr Phelan is hopeful that on this occasion the matter will be taken seriously and requests the following [and I quote directly from the submission]:

- The monitoring of airborne waste at the point of emission
- A study of the health impacts on residents most exposed to such waste
- Enforcement of the conditions attaching to any such licence if granted.
- If it should happen that the EPA experiences a staff/competency deficiency this will be made public by the Board of EPA.

6.7 Discussion and commentary on submissions

It is clear from the personal submissions above and the experiences of employees at Iarnród Éireann and other neighbouring workplaces that there have been unacceptable odour and dust nuisances arising in the vicinity of the licensed installation. All testimonies point unambiguously to the licensed installation as the source. Other named sources of odour are dismissed as sources of the bad smell that has pervaded the area.

The sources of odour and potential odour at the licensed installation have been identified and are set out in detail in the licensee's submissions to the licence review. These sources are discussed in this report and addressed in the licence that I recommend issuing to the licensee.

It is a fact that the licensee has taken steps in 2016 to eliminate and minimise potentially odorous emissions. For example, the air sparging of heated oil and direct venting to atmosphere has ceased. Even though the air flow rates were reportedly so small as to be hardly measureable, the risk of VOCs being stripped out of heated oil and dispersed into the local environment is high. Waste oil storage and treatment tanks have been sealed and off-gases are passed through localised carbon filters. This temporary equipment will be replaced by a regenerative thermal oxidiser or permanent carbon filter installations. The tanks in the tank farm (except the Emo oil tanks) will be connected to a so-called ring main. There will no direct venting of off-gases from these tanks to atmosphere. Rather, off-gases (arising for example during filling, when headgases will be displaced, or low temperature air sparging – see

section 5.4 above) will be captured and directed by mechanical ventilation to a regenerative thermal oxidiser. The regenerative thermal oxidiser will use natural gas as a fuel to burn off the combustible and odorous compounds in the off-gases. The conditions of the RD require that the regenerative thermal oxidiser is operated at a temperature and residence time that will ensure there are no emissions of potentially odorous gases from the regenerative thermal oxidiser or from the tanks and processes that it services. Schedule B.1 of the RD proposes emission limit values for the regenerative thermal oxidiser that will ensure that air quality standards in the vicinity of the installation will not be breached.

The RD will provide for the operation of a regenerative thermal oxidiser. In addition, condition 6.19.9 of the RD will make it a requirement that the preferred technique for the treatment of tank and building off-gases at the installation is the regenerative thermal oxidiser. The licensee has proposed that certain processes (e.g. Hodgefield separator, tanker dig-out building, tanks 18 and 19 cleaning) that are in the vicinity of the tank farm will be served by separate carbon filters. And there will possibly be instances in future where the licensee will propose separate carbon filters or other techniques for individual waste treatment operations. Whilst alternative treatment processes may well be the correct approach in certain cases, condition 6.19.9 will ensure that the licensee documents a technical justification, before installing any such new equipment, why the alternative treatment process is superior to the regenerative thermal oxidiser and why the proposed emission cannot and should not be connected into the regenerative thermal oxidiser supply network.

I am satisfied that all potentially odorous point-source emissions have been identified and appropriate collection and treatment proposed. The emission points themselves are discussed in greater detail elsewhere in this report, principally in section 8.

I am also satisfied that all potential sources of fugitive emissions (of odour and dust) have been identified and these are also discussed in detail in section 8 of this report.

The overarching principle in the RD is that there are to be no uncontrolled emissions at the installation, whether fugitive or point source. Condition 5.1 makes reference to those emission points that are to be controlled and states there shall be no other emissions of environmental significance. Any building used for any waste storage or treatment operation where there is a risk of an odorous gas emission is to be maintained under negative pressure and ventilated gases treated (condition 3.22). Overall, the conditions of the RD will improve operations at the installation vis-à-vis emissions to air and the risk of fugitive emissions and some of these improvements have already been made by the licensee.

The matter of studying the health of local employees and residents is beyond the scope of what the RD can propose to regulate or direct. Any licence granted by the Agency is specific to and directed at the licensee and cannot make recommendations for studies to be conducted by other State bodies. Looking to the Agency's competence in the protection of human health:

- the conditions and schedules of the RD will ensure that air and water quality standards are not exceeded due to emissions from the installation, and
- the control measures proposed in the RD will ensure that potentially odorous emissions will be eliminated or minimised to an extent that any odour arising from the installation will not create a nuisance odour or one that will adversely affect the health and well-being of people who live and work nearby.

7. Consideration of Best Available Techniques (BAT) and BAT conclusions

BAT for the installation was assessed against the BAT conclusions in the following documents:

- BREF document on Best Available Techniques for Waste Treatments, 2006
- BREF document on Best Available Techniques for Energy Efficiency, 2009
- BREF document on Best Available Techniques on Emissions from Storage, 2006

The licensee submitted an assessment of the installation's activity against the relevant BAT conclusion requirements. The licensee demonstrated that the installation will generally comply with the BAT conclusion requirements specified in the Waste Treatments BREF and will comply with all of the applicable BAT conclusion requirements contained in the additional BREF documents.

I consider that the applicable BAT Conclusion requirements are addressed through: (i) the technologies and techniques as described in the application; (ii) the standard conditions specified in the RD; and (iii) where applicable, the inclusion of additional specific conditions (see Table 1 below).

Table 1 Additional conditions in RD to address BAT conclusions

BREF Document for Waste Treatments	**Condition/Schedule**
Procedures for mixing of waste (hazardous waste as well as non-hazardous waste)	8.13
Implementation of a waste tracking system unique identifier for each container of waste accepted, to include at least the date of arrival and the list of waste code.	8.9.8
Demonstrating conformance with waste acceptance criteria for non-hazardous and inert landfill	Schedule C.4
Appropriate segregated storage of incompatible wastes	8.11
Labelling of vessels (identifier, contents, capacity) and pipework	3.7.5
Maintenance of relevant buildings and enclosed areas under negative pressure with treatment of extracted air	3.22
All waste storage areas indoors or under cover	8.10
Continuous monitoring of stormwater discharges	Schedule C.2.3
Waste acceptance procedures to check for chlorinated solvents and PCBs	Schedule C.4
Establishment of relationship with user of waste-as-fuel	8.14
BREF Document for Emissions from Storage	
Vapour balancing system and emissions abatement	Condition 3.22 Condition 6.18

BAT-associated emission levels are not required to be specified until a new BREF and BAT conclusion has been published.

I have examined and assessed the application documentation and I am satisfied that the site, technologies and techniques specified in the application and as confirmed, modified or specified in the Recommended Determination comply with the requirements and principles of BAT.

8. Emissions to Air

8.1 Description of point source emissions to air

There are several point source emissions to air at the installation. Prior to 2016, there were many more individual sources because tanks vented directly to atmosphere. During 2016, a programme of capturing emissions commenced and emissions from different sources (tanks) were grouped together for treatment. Table 2 lists the eight emission points for which abatement now exists or is proposed. The table represents how emissions will be organised after and if a revised licence is issued. Figure 6 provides a schematic overview of these abated point sources, including additional point sources for which no abatement is proposed.

Table 2 Abated emissions points to air (existing arrangements and proposed)

Emission point ref. no.	Existing or proposed	Source of emission	Abatement	Parameters proposed for regulation in RD
A1-1	Existing	Steam-raising boiler 5MW (natural gas and diesel)	None	NO_x
A2-1	Proposed	Flash distillation process, tank ring main and oil filtration plant	Regenerative thermal oxidiser	VOC
A3-52	Existing (2016)	Oil filtration plant	Carbon filter, to use when RTO unavailable	VOC
A3-56	Proposed	Tank ring main	Carbon filter, to use when RTO unavailable	VOC
A3-53	Existing (2016)	Hodgefield separator	Acid scrubber and carbon filter	VOC, H_2S
A3-54	Proposed	Tanker dig-out building, tanks 18-19 cleaning	Carbon filter	VOC, H_2S
A3-55	Existing (2016)	Paint tin de-packer process	Carbon filter	VOC
A3-57	Existing (2016)	Waste water treatment plant tanks	Carbon filter	VOC, H_2S

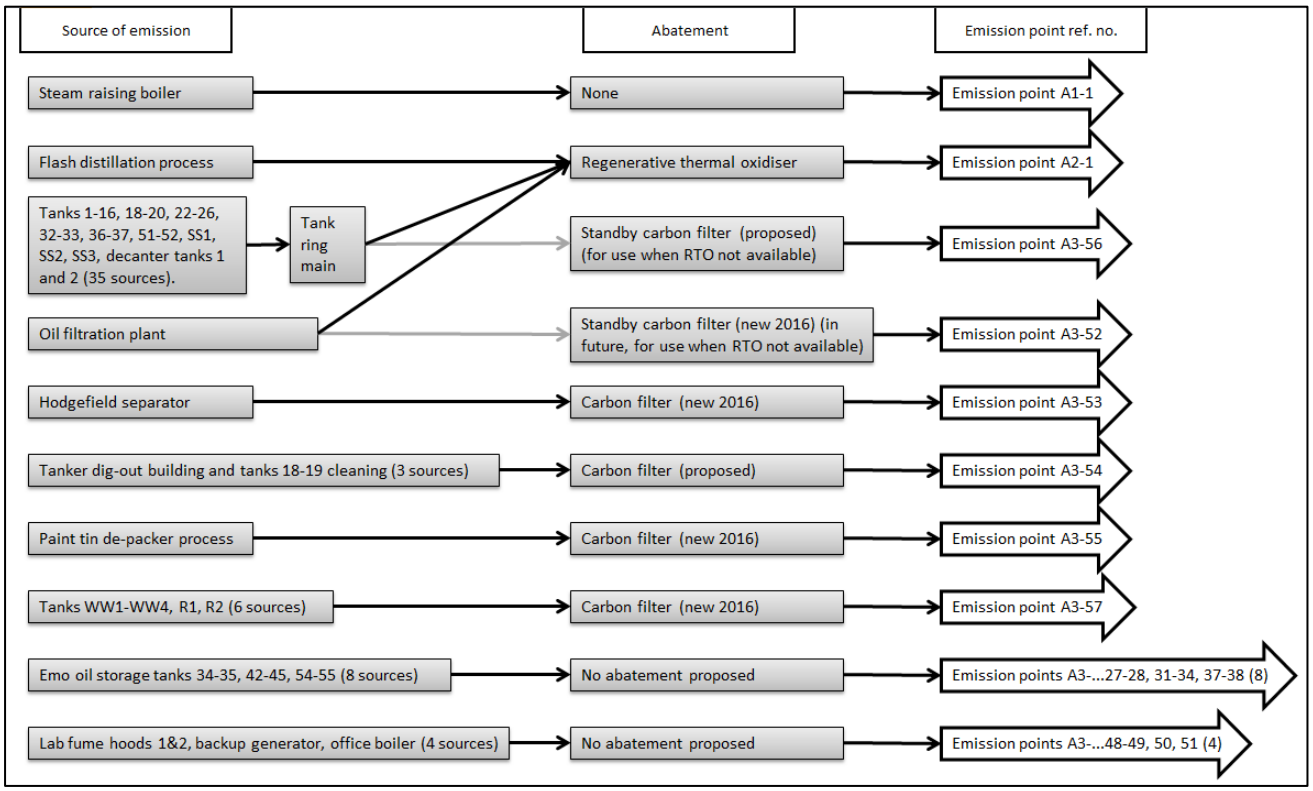

Figure 6 Schematic summary of emissions points to air including unabated points (existing and proposed)

As shown in Figure 6, there are two sets of emissions points for which no abatement is proposed. In particular fugitive emissions from eight Emo oil storage tanks (50m^3 each, containing kerosene or gas oil) located in the tank farm will not be abated and the following reasons were provided by the applicant to justify this decision:

- these tanks contain virgin oil and the licensee wishes to keep the contents separate from waste and recovered waste oils. Connection to the ring main creates a technical link to the waste tanks;
- BAT 49 in the 2014 BAT conclusions for the refining of mineral oil and gas does not require vapour recovery systems for kerosene and gas oil due to their low vapour pressure and the fact that these fuels are not classified as volatile; and
- it is not the industry norm to employ vapour recovery systems at kerosene and gas oil storage installations.

I have no reason to recommend an alternative approach.

8.2 Regenerative thermal oxidiser

A regenerative thermal oxidiser is proposed to be installed and to discharge via emission point A2-1. The regenerative thermal oxidiser will take over the duty of the existing carbon filters serving the tank farm and oil filtration plant. Off-gases from:

- all tanks in the tank farm which will be connected by a vapour-balancing ring main (except the Emo oil storage tanks),
- the oil filtration plant enclosure (which is located within a larger building), and

- the flash distillation unit, if installed,

will be treated in the regenerative thermal oxidiser prior to discharge.

Firstly, off-gases are drawn from the source and heated to over 110°C in a heat exchanger heated by steam from the existing steam-raising boiler. The heated gas is drawn into two of three zones of hot ceramic heat exchanger (flow is controlled by dampers depending on the temperature in the zones). Moving through the media, the gas temperature is raised to approximately 780°C and the odorous and VOC compounds begin to oxidise. The hot gas is then drawn into the combustion chamber where the natural gas-fired burner increases the gas temperature to 850°C, completing the oxidation process during a residence time of one second. The gas feed is varied in order to maintain this operating temperature. If the temperature goes too low, off-gas feed is stopped. Heat is recovered from the combustion gases in the hot ceramic heat exchanger and the gases are then discharged to atmosphere. During start-up (90 minutes) and shut-down, the regenerative thermal oxidiser is operated only on fresh air.

The licensee's supplier of a regenerative thermal oxidiser provides a performance warranty of at least 95% abatement in relation to organic odours. At least 95% destruction of compounds such as hydrogen sulphide, ammonia, mercaptans and volatile organic compounds is expected. The BREF for common waste water and waste gas treatment/management systems in the chemical sector cites abatement efficiency for VOC removal in the range 95-99% and an emission level in the range <1-20mg/Nm^3 of VOCs as TOC.

Schedule B.1 of the RD proposes an emission limit value for TOC on this emission point (A2-1) of 20mg/Nm^3 and this is the value proposed by the licensee. Emission limit values are also proposed for other parameters. Schedules C.1.1 and C.1.2 of the RD propose monitoring of the emission for operational and emissions parameters respectively.

8.3 Carbon filters

There are three sizes of carbon filter in use or proposed for use at the installation. A number of small, drum-sized carbon filters are currently in use and serve the tank farm, including waste oil processing tanks. All but one of these temporary installations will be decommissioned once the more permanent solutions (namely regenerative thermal oxidiser and a smaller number of larger standby filters) are installed. None of these filters use fans and rely instead on passive air flow brought on by filling tanks or heating tank contents. The one carbon filter installation of this type that will remain in service after permanent solutions are installed is for the waste water treatment tanks (emission point A3-57).

Three medium-sized carbon filters were installed in 2016, as follows:

- A3-52, oil filtration plant, an ambient space that is partitioned off within a larger building and contains three open filters used for fine filtration of waste oil;
- A3-53, hodgefield separator, a tank headspace; and
- A3-55, paint depacker plant, an ambient space within a larger building.

In the absence of passive airflow from these three spaces and given the risk of fugitive emissions, these filters all have a fan to extract air from the treatment areas and ensure its treatment before discharge.

Two further carbon filters are proposed, as follows:

- A3-54, tanker dig-out and tanks 18 and 19, large air flowrate;
- A3-56, tank farm ring main, medium flowrate.

The licensee intends constructing a building over the tanker dig-out area. A custom-designed carbon filter and fan will be installed to keep the building under negative pressure and treat ambient building air before discharge, ensuring up to 10 air changes per hour. This carbon filter and fan will also service tanks 18 and 19 when they are being cleaned – an annual event. Drawing air from any two of the three sources connected to this carbon filter will ensure 5 air changes per hour at each source. Condition 6.18.7 of the RD limits operations at these three sources to ensure 5 air changes per hour.

Carbon filter downtime will be a function of load and the need for carbon medium change will be indicated by monthly quantification of:

- volumetric flow;
- VOC emission; and
- odour emission measured by olfactometric assessment.

Periodic replacement of carbon media is anticipated at a frequency that is unlikely to exceed annually for any one filter.

The replacement of carbon media, when needed, will take a matter of hours to complete. During downtime, odour-generating activities at the relevant source or sources can be limited and fugitive emissions prevented.

Condition 6.18.8 and Schedules C.1.1 and C.1.2 of the RD propose to regulate the operation of carbon filters to ensure monitoring of performance and timely replacement of media.

For all carbon filter emission points, Schedule B.1 of the RD proposes an emission limit value for TOC of 20mg/Nm^3. Schedule C.1.2 proposes monthly monitoring of emissions at these points for TOC. The licensee proposed a mass limit value for each of the carbon filter emissions points of 0.5kg/hour. However, having consulted with the OEE's air thematic unit, a concentration limit is preferred and this is supported by the analysis carried out in section 8.7 below.

8.4 Acid scrubber

The hodgefield separator (emission point A3-53) is used as a first stage in the treatment of wastewater, being water that was separated from waste oil in the tank farm. The separator retains any free-phase hydrocarbons from the aqueous effluent. The aqueous effluent carries on to the main wastewater treatment plant and is ultimately discharged to sewer. The oil is returned to the oil treatment stream.

The headspaces in the hodgefield separator have been found to sometimes contain up to 100ppm H_2S, so a caustic scrubber is included in the treatment of these headspace gases to provide initial removal of H_2S to be followed by finer polishing in the carbon filter. See Figure 16 for a photo of this caustic scrubber and carbon filter installation.

The potential release of H_2S to air at the wastewater treatment plant (air emission point A3-57) is minimised by the dosing of wastewater with chemical reagents like hydrogen peroxide and sodium hypochlorite between the hodgefield separator and the wastewater treatment plant. This explains why no acid scrubber is proposed at this point.

8.5 Fugitive Emissions

Fugitive emissions from the installation were a feature of operations until 2016. As described above, many fugitive emissions sources have been closed off and off-gases are now collected from tanks. Certain fugitive emissions sources remain, but the licensee has indicated plans to address these, for example the tanker dig-out area and emissions arising during the annual cleaning of tanks 18 and 19. The conditions and schedules of the RD, when and if implemented and complied with, will ensure that any fugitive emissions as may arise will be identified and controlled. Condition 6.9 of the RD requires an annual identification of sources of fugitive emissions and requires actions to be taken as part of the Environmental Management Plan to address and close off the emissions to the extent possible.

8.6 Boiler Emissions

There is one boiler at the installation with a maximum thermal input value of 5MW. The boiler can be operated on gas or gas oil. The emission limit values set out in the Medium Combustion Plant Directive, although not yet transposed into Irish law, have been included in the RD. For the purposes of the Directive, the boiler is an "existing combustion plant". The Directive provides for emission limit values for existing combustion plant as follows:

Pollutant	Gas oil	Natural gas
NO_x	200 mg/Nm^3	250 mg/Nm^3

The air dispersion model carried out by the licensee included an input value from the boiler of 200 mg/m^3 for NOx and this value is achievable using either fuel. Therefore this limit value has been used in the RD instead of the Directive's permissible value of 250 mg/m^3.

8.7 Impact of Emissions on the Receiving Environment

Emissions from the installation were evaluated using air dispersion models. The ground level concentration for each parameter was calculated at eight sensitive receptors (residential units) in the vicinity of the installation, as shown in Figure 7.

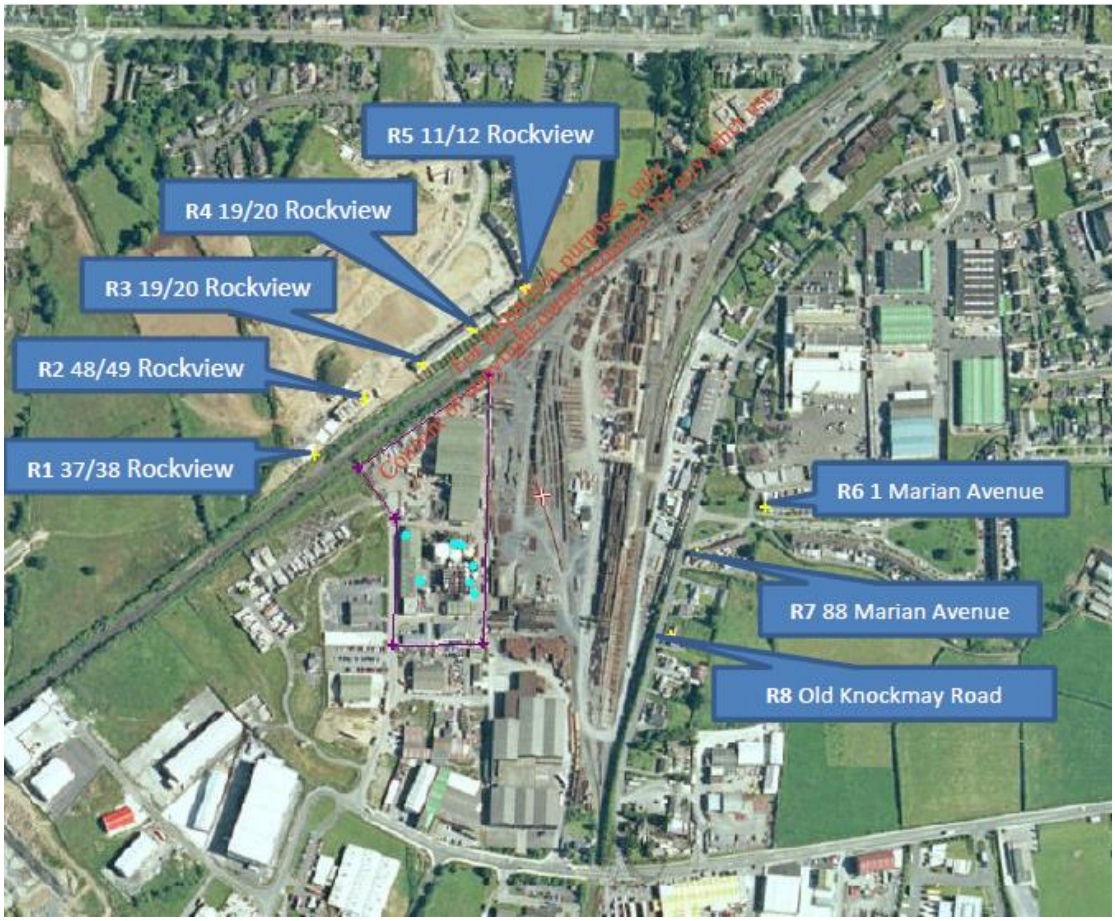

Figure 7 Location of sensitive receptors (residential)

Regenerative thermal oxidiser – air dispersion model

The licensee was asked to model emissions to air from the proposed regenerative thermal oxidiser (emission point reference A2-1). Table 3 shows the output of the model. The table only shows the highest calculated value and identifies the sensitive receptor (e.g. "R4") where it arises. All other values are presented in the licensee's documentation. The input values for the model presented in Table 3 were sourced from the waste treatments BREF (2006) for total VOC and TA Luft for NOx and CO and are the same as the emission limit values set out in Schedule B.1 of the RD.

The results show that emissions from the regenerative thermal oxidiser will not, by themselves, cause an exceedence of air quality standards.

Table 3 Air dispersion modelling - RTO

Parameter	Averaging period	Background concentration ($\mu g/m^3$)	Maximum process contribution ($\mu g/m^3$)	Maximum predicted environ-mental concentration (PEC) [Note 1] ($\mu g/m^3$)	Air Quality Standard or guideline value [Note 2] ($\mu g/m^3$)
Total VOC	Annual	0.34	0.31 (R4)	0.648	5 [Note 3]
NOx	Annual	16.00	7.00 (R6)	23.00	40
	1 hour	16.00	73.78 (R6)	89.78	200
CO	8 hour	0.50	0.053 (R7)	0.55	10

Note 1: Predicted Environmental Concentration (PEC) = process contribution + background concentration.

Note 2: Air Quality Standards Regulations.

Note 3: Total VOC is compared against an air quality standard (AQS) for benzene, there being no AQS for total VOC. It is acknowledged that the emission will in fact contain little to no benzene, meaning that assessment against this parameter is highly conservative in terms of protecting air quality.

Steam-raising boiler and RTO – air dispersion model

Emissions from the steam-raising boiler (emission point A1-1) were also modelled cumulatively and in combination with the proposed regenerative thermal oxidiser. The model provided the data as presented in Table 4 below. The results show that combined emissions from the boiler and regenerative thermal oxidiser will not cause an exceedence of relevant air quality standards.

Table 4 Air dispersion modelling – cumulative boiler + RTO

Parameter	Averaging period	Background concen-tration ($\mu g/m^3$)	Maximum process contribution RTO ($\mu g/m^3$)	Maximum process contribution boiler ($\mu g/m^3$)	Maximum predicted environ-mental concen-tration (PEC) ($\mu g/m^3$)	Air Quality Standard or guideline value ($\mu g/m^3$)
NOx	Annual	16.00	7.00 (R6)	0.35 (R7)	23.32 (R6)	40
	1 hour	16.00	73.78 (R6)	8.42 (R4)	95.98 (R6)	200
CO	8 hour	0.50	0.053 (R7)	0.001 (all)	0.55 (R7)	10

Total VOC emissions from carbon filters and RTO – air dispersion model

For the purposes of demonstrating that emissions from the carbon filters will not have an adverse effect on air quality, the licensee carried out an air dispersion model of VOC emissions from the carbon filters cumulatively and in combination with VOC

emissions from the regenerative thermal oxidiser. The model provided the data as presented in Table 5 below.

Table 5 Air dispersion modelling – cumulative carbon filters + RTO

Parameter	Averaging period	Background concen-tration ($\mu g/m^3$)	Maximum process contribution RTO ($\mu g/m^3$)	Maximum process contribution carbon filters ($\mu g/m^3$)	Maximum predicted environ-mental concen-tration (PEC) ($\mu g/m^3$)	Air Quality Standard or guideline value ($\mu g/m^3$)
Total VOC	Annual	0.34 Note 1	0.31 (R4)	7.89 (R8)	8.49 (R8)	5 Note 2

Note 1: In the licensee's submission received November 2016, a background concentration of 8µg/m^3 is presented and not the 0.34µg/m^3 value presented here which is the background value used by the licensee when modelling VOC emissions from the RTO (see Table 3 above). The licensee's value of 8µg/m^3 is meant to be representative of all BTEX[3] in ambient air and this new comparator was used by the licensee when modelling VOC emissions in this scenario (carbon filters + RTO). As an alternative approach and for the purposes of analysing the impact of emissions on the modelled sensitive receptors and to ensure consistency and comparability with Table 3 above, in this table (Table 5) I have used an air quality standard comparator (annual average) for benzene only. The licensee also presented ground level concentrations as a 1-hour average for this scenario and using a background for BTEX as a whole and not just benzene. There is no 1-hour air quality standard for benzene so I have not presented the licensee's 1-hour average calculations.

Note 2: Total VOC is compared against an air quality standard (AQS) for benzene, there being no AQS for total VOC. It is acknowledged that the emission will in fact contain little to no benzene, meaning that assessment against this parameter is highly conservative in terms of protection air quality.

The data in Table 5 shows that the cumulative potential emissions of VOC as a worst case scenario from the carbon filters and regenerative thermal oxidiser will result in ground level concentrations that exceed the air quality standard for benzene. There are a number of reasons not to be alarmed by this calculated outcome, as follows:

- the emissions will in fact contain little to no benzene, meaning that assessment against this parameter is highly conservative in terms of protecting air quality;
- the values for the volume of emissions assumes that all carbon filters have fans. In fact the emissions at A3-56 (standby ring main emission) and A3-57 (waste water treatment plant) will be passive emissions, with relatively low and likely intermittent flows;
- the model assumes that all carbon filters and the regenerative thermal oxidiser will operate simultaneously and this will not in fact be the case. For example, the carbon filters at A3-52 and A3-56 will operate only when the regenerative thermal oxidiser is unavailable.

[3] BTEX = benzene, toluene, ethylbenzene and xylene.

Notwithstanding these facts, it is appropriate to seek to limit the VOC emissions to an extent that the maximum calculated predicted environmental concentration can never (theoretically or actually) be achieved at the sensitive receptors.

Table 6 below shows the potential concentration of VOC in emissions from carbon filters if the licensee's proposed (and modelled) mass limit of 0.5kg/hr is applied to each one at the proposed maximum air flow rates. The values in column D are calculated from the licensee's proposals and show an emission concentration of up to 225mg/m^3. This is unnecessarily high as a concentration limit value and greatly exceeds the generic limit value set out in BAT conclusion 41 in the Waste Treatments BREF (2006). A more appropriate emission concentration is the 20mg/m^3 quoted in the BREF and, as a concentration limit, is the preferred approach. This value is proposed in Schedule B.1 of the RD as the emission limit value for all the VOC emission points listed in Table 6. The parameter is expressed as TOC (total organic carbon) in the RD.

Table 6 Calculation of VOC mass and concentration limit values

A	B	C	D	E	F
Emission point reference number	**Licensee's proposed mass flow limit kg/hr**	**Licensee's proposed maximum volume of discharge m^3/hr**	**Conc^n of VOC (calculated from licensee's data in columns B and C) mg/m^3**	**Conc^n limit for VOC proposed in RD mg/m^3**	**Resultant maximum mass flow (C x E) kg/hr**
A2-1 Note 1	0.6	30,000	-	20	0.600
A3-56	0.5	2,220	225	20	0.044
A3-52	0.5	2,220	225	20	0.044
A3-53	0.5	2,220	225	20	0.044
A3-54	0.5	10,000	50	20	0.200
A3-55	0.5	2,220	225	20	0.044
A3-57	0.5	2,220	225	20	0.044
TOTAL	**3.6**	**-**	**-**	**-**	**1.020**

Note 1: This concentration limit value in column E is proposed by the licensee. The mass flow value in columns B and F is calculated from the values in columns E and C.

The maximum mass flow for each emission point that corresponds to the proposed emission limit value of 20mg/m^3 is calculated in column F and shows a mass flow of 0.044kg/hr for all emission points except A3-54 which is the tanker dig-out building and A2-1 which is the regenerative thermal oxidiser. Even at A3-54 with its high flowrate, the calculated mass flow is less than half of the licensee's proposed mass flow limit value.

Overall the calculated total mass flow (Column F, 1.02kg/hr) is some 28%[4] of the licensee's total proposed mass flow. Applying this to the maximum predicted environmental concentration in Table 5, it is possible to state that the new value for a maximum predicted environmental concentration[5] is 2.4µg/m^3. This value is within the air quality standard for benzene of 5µg/m^3.

Taking the air dispersion model results as a whole into account, and applying the new calculations set out in the paragraphs above, it is possible to state that the emission values proposed in Schedule B.1 of the RD will not lead to emissions that will cause exceedence of relevant air quality standards at the modelled sensitive receptors.

A note on the licensee's modelled receptors and consequent considerations

The licensee's air dispersion model identifies 8 residential units in housing areas around the installation and these are adopted as sensitive receptors. The analysis above of the licensee's air dispersion modelling is protective of these sensitive receptors. There are offices and other places of work that are closer to the installation boundary than these residences. The contour plot of calculated predicted environmental concentration for VOC shows outdoor areas in the rail depot next door with a total VOC ground level concentration of 78µg/m^3. This concentration compares unfavourably to the air quality standard for benzene used in my analysis above, recognising of course the limitations of such a comparison, as described above.

To address this, it is necessary to refer to the EPA's *Second Interim Report: Monitoring of Ambient Air Quality Adjacent to Enva Ireland Limited* (EPA, 2016). This report presents air monitoring data for BTEX recorded in the same outdoor areas in the rail depot in the period March 2015 to December 2015. The EPA's air monitoring found that in fact the licensed installation is not a significant source of benzene emissions. Rather, any elevated readings for benzene were taken when the wind was blowing from the opposite direction and benzene emissions were attributed to sources other than the licensed installation. Readings for toluene, ethylbenzene and xylene were attributed to the installation but were well within relevant air quality standards.

This means that the contour plot's illustration of a high VOC reading in the rail depot becomes less of a concern when compared to air quality standards for volatile organic compounds other than benzene. Actual measurements show that the licensed installation is not a significant source of benzene in ambient air, and this will provide assurance that the emissions of VOC in the immediate vicinity of the installation will not cause exceedence of relevant air quality standards.

Other considerations - flexibility

The licensee requested that any revised licence provide for the addition of new carbon filters in the event that new emission points are added (associated with new waste treatment processes). If the addition of new emission points does not lead to the total emission of VOC from the installation being exceeded, it may be possible to authorise the installation of new emission points without having to carry out a full

[4] 1.02/3.6 x 100 = 28.3%

[5] 8.49 x 28.3% = 2.4

review of a licence. To this end, condition 5.2 of the RD proposes that the maximum authorised scale of total VOC emissions from the installation is 1.02kg/hour (as calculated in Table 6 above) to include all point sources of VOC emissions as listed in the schedule and as may be agreed in future by the Agency. This calculated value is protective of sensitive receptors and neighbouring workplaces and will provide the licensee with an envelope within which operational decisions can be made regarding existing, proposed and new emission points.

9. Emissions to Sewer

Irish Water's consent for the ongoing sewer discharge was sought under section 99E of the EPA Act 1992 as amended. Consent was granted on 22/11/2016 subject to conditions, limit values and effluent monitoring obligations and these are reflected in the RD.

The effluent discharged to sewer from the installation travels to the Portlaoise waste water treatment plant, discharge licence D0001-01. Irish Water's annual environmental report for 2015 states that the final effluent at the primary discharge point was compliant with the emission limit values on the discharge. The annual mean hydraulic loading and organic loading were within the treatment plant capacity, but the peak loadings were higher. Irish Water states that the plant was designed to cater for peak values and the high values experienced did not impact on compliance with emission limit values. The quality of the receiving water (Triogue River) is poor status but the licensed discharge does not, according to Irish Water, have a negative impact on the Water Framework Directive status. Irish Water states that other causes of deterioration in water quality are unknown.

Overall, with regard to Article 15(1) of the IED it is concluded that an equivalent level of protection of the environment will be guaranteed and that the discharge to sewer will not lead to higher levels of pollution of the River Triogue.

10. Emissions to Water

There are no process effluent emissions to water. Process effluent emissions are made to sewer and are discussed in section 9 above.

11. Storm Water Discharges

There are two stormwater discharges (SW1 and SW2) from the installation. According to the licensee's drawings, both discharge into the same Council storm drain that runs beneath the installation and then under the rail depot next door. According to the Agency's GIS system, the area in the vicinity of the installation is drained by the Clonminam and Golf Club streams although it is not possible to determine from available Council drawings whether the stormwater network utilises these streams. In any event, the stormwater network ultimately drains into the River Triogue which flows north through Portlaoise and converges approximately 13km downstream with the River Barrow and the River Barrow and River Nore SAC.

Figure 8 shows the average and maximum COD concentration measured in stormwater between January 2014 and July 2016. Figure 9 shows the same time series for suspended solids concentration in discharges. The data show a variable discharge that follows no apparent pattern.

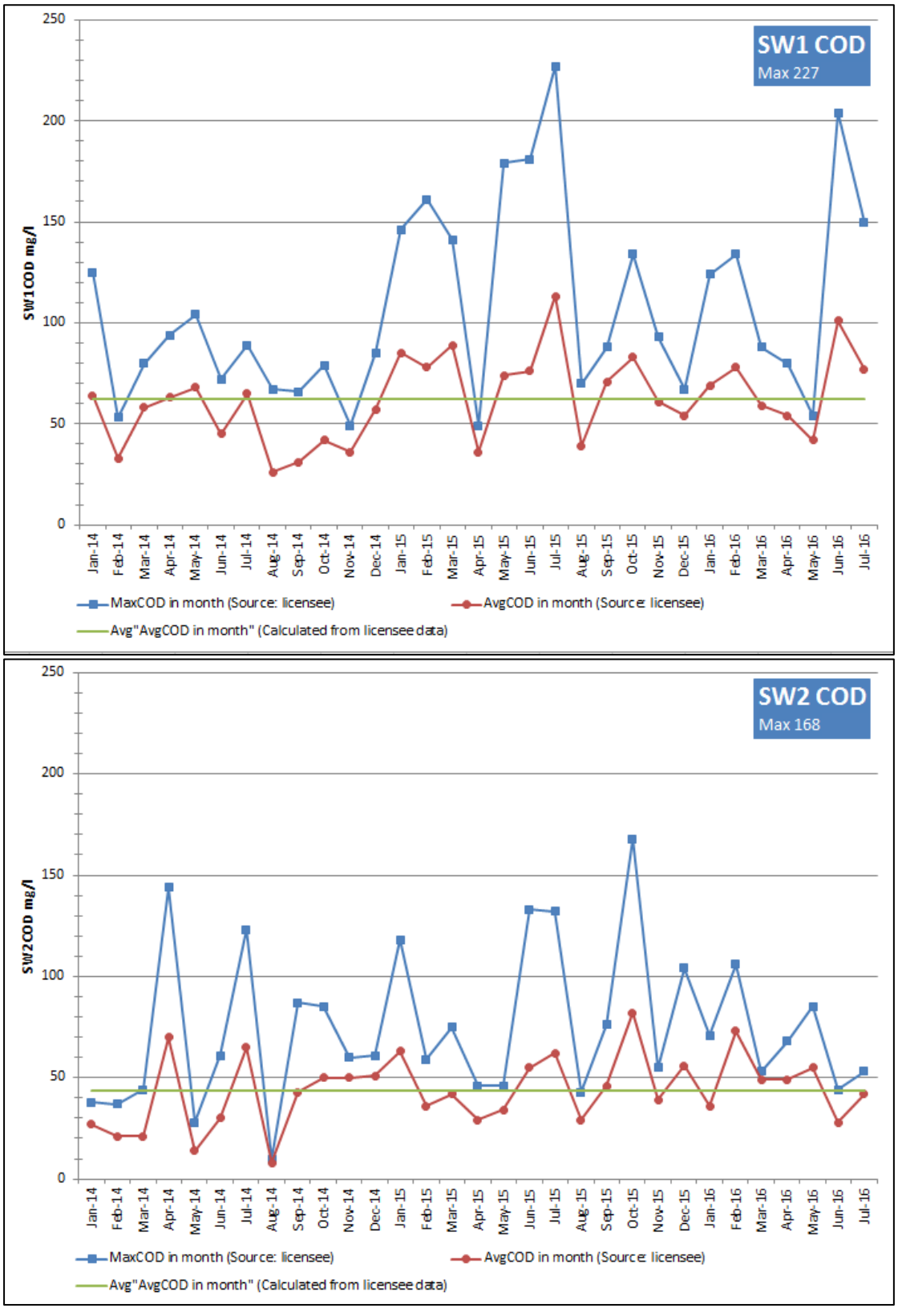

Figure 8 Maximum and average COD concentration in stormwater discharges at SW1 and SW2

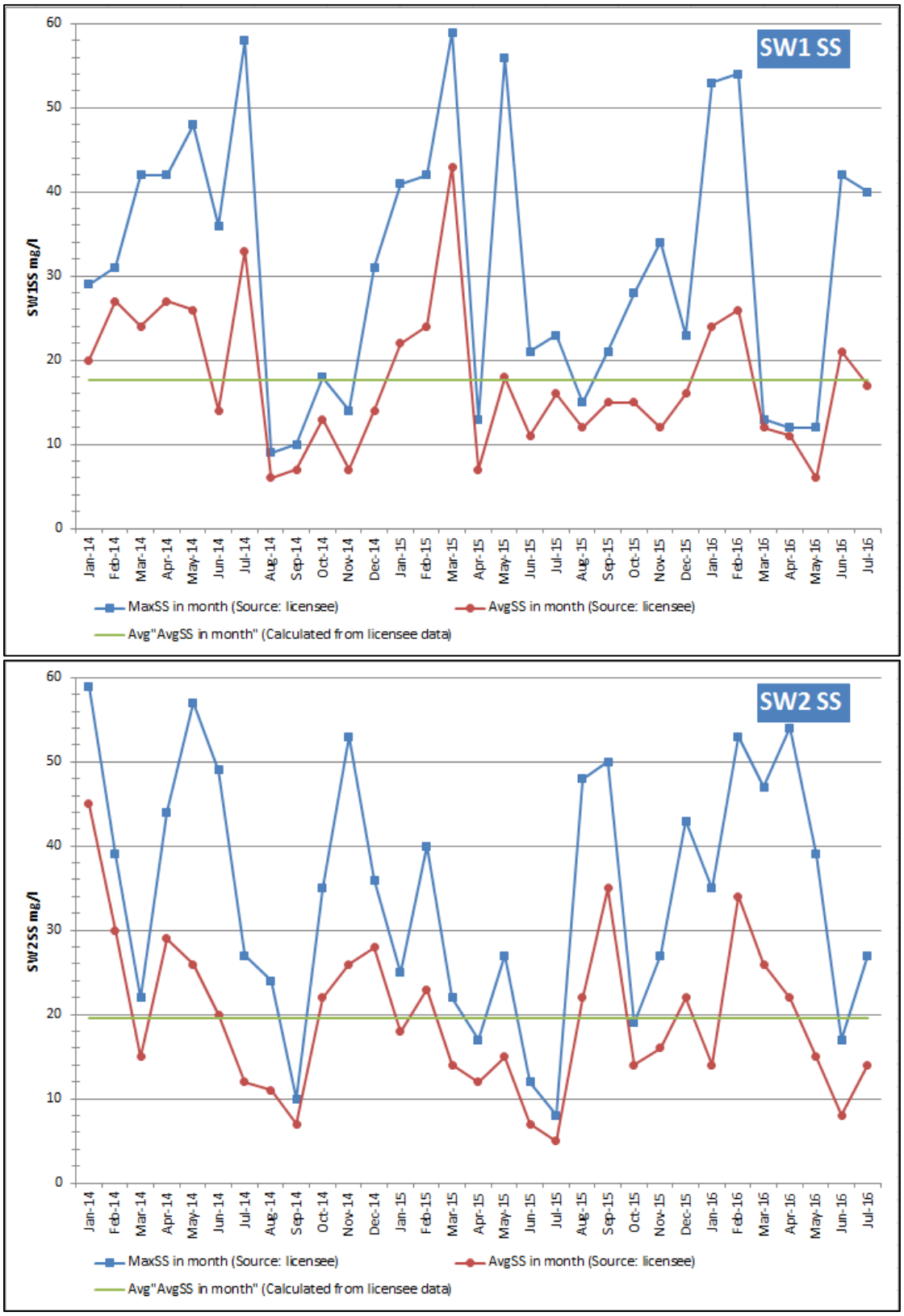

Figure 9 Maximum and average suspended solids concentration in stormwater discharges at SW1 and SW2

It is evident from the monitoring results that rainwater falling on the installation is at times becoming contaminated before it is discharged from the installation to the local drainage network and the River Triogue. The contamination is not being prevented. Neither is it being fully removed by existing treatment infrastructure comprising silt traps and interceptors.

According to EPA data the WFD ecological status (10-12) of the Triogue River and feeder streams in the vicinity of the installation is "poor". The status is "moderate" again in the Triogue River some 7.7km downstream of the approximate location of the installation (this stretch of the river having passed through Portlaoise and received the licensed discharge (register number D0001-01) from the Portlaoise waste water treatment plant) and remains so until its confluence with the River Barrow and the River Barrow and River Nore SAC.

The existing licence specifies trigger levels for stormwater discharges at SW1 as follows:

- BOD, 25mg/l
- COD, 250mg/l
- Oil, fats and grease, 15mg/l
- Suspended solids, 60mg/l

These trigger levels were not exceeded in the period January 2014 to July 2016.

The discharges at SW1 and SW2 are stormwater and are generated by rainfall. The contamination of stormwater should be prevented, or minimised where prevention is not possible. Some potential sources of stormwater contamination are shown in Figure 10. It is evident that recent improvements are taking place in yard cleaning and emptying of bunds (see for example Figure 11).

Figure 10 Photos (February 2016) showing potential sources of stormwater contamination, namely from left, storage of dirty drums outdoors, a pump bund

Figure 11 Evidence of improved yard and bund cleaning (October 2016)

Bundwater from the main tank farm is also discharged to the stormwater system and this bundwater can contain condensate and blowdown from the steam-raising boiler system. The bundwater pumping system monitors for oil in the bundwater and ceases pumping if oil is detected. The licensee has proposed in future to hold bundwater pending verification of compliance with stormwater trigger levels and, if these are exceeded, the bundwater will be diverted to the on-site wastewater treatment system or discharged directly to sewer.

Condition 8.10 of the RD proposes that all waste (including unwashed empty waste container) storage is indoors or under a roof, to be implemented within 12 months of the date of grant of a revised licence.

Condition 6.14 prohibits the discharge of contaminated stormwater, that is, stormwater that exceeds trigger levels.

The licensee was invited as part of the licence review to propose new trigger levels and this was done in accordance with the EPA *Guidance on the setting of trigger values for stormwater discharges to off-site surface waters at EPA IPPC and waste licensed facilities* (2012) and using historical monitoring results. Using monitoring data at SW1 and SW2 provided by the licensee, I was unable to reproduce the licensee's proposed trigger levels. Table 7 shows the licensee's proposed trigger levels compared to my calculated values using the licensee's data.

Table 7 Trigger levels at SW1 and SW2

Parameter	**Discharge point SW1**		**Discharge point SW2**	
	Licensee's proposal	Calculation using licensee's monthly averages [Note 1]	Licensee's proposal	Calculation using licensee's monthly averages [Note 1]
COD warning value (average + 2SD)	106 mg/l	111 mg/l	102 mg/l	78 mg/l
COD action value (average + 3SD)	187 mg/l	131 mg/l	128 mg/l	93 mg/l
SS warning value (average + 2SD)	45 mg/l	34 mg/l	45 mg/l	34 mg/l
SS action value (average + 3SD)	58 mg/l	42 mg/l	59 mg/l	42 mg/l

Note 1: January 2015 to July 2016

Condition 5.8 proposes new trigger levels for implementation at discharge points SW1 and SW2, using the EPA calculated values in Table 7. Condition 6.14 provides for the biennial (every 2 years) review of trigger levels and their reduction over time if monitoring results are favourable.

The licensee was invited to propose a trigger level for TOC but was unable to do so because the existing licence doesn't require monitoring for TOC and there is no monitoring data for TOC. Schedule C.2.3 provides for weekly monitoring for TOC and, unless otherwise agreed by the Agency (condition 6.8), its continuous monitoring from 18 months of the date of grant of a revised licence. Condition 5.8 provides for the development of appropriate trigger levels for TOC within the same

18 month period. Continuous monitoring is a better sentinel of contaminated discharges compared to weekly monitoring.

The licensee's Natura Impact Statement sets out a number of mitigation measures proposed to be adopted, as follows:

- condensate and blowdown from the steam-raising boiler will not be discharged into the main tank farm bund. Rather, it will be captured and discharged to sewer.
- the continuous discharge of bundwater will cease. Rather, bundwater will be held pending assessment against stormwater trigger levels. If exceeded, the bundwater will be diverted to the effluent system.
- the frequency for cleaning silt traps will be increased to bi-monthly during winter and silt traps will be checked following heavy rainfall. The purpose is to avoid spikes in suspended solids in stormwater.
- the frequency of routine road-sweeping will be increased to at least monthly.
- to avoid spikes in mineral oil in stormwater in winter, interceptors will be cleaned before winter.

12. Firewater Retention

A firewater retention report was completed for the installation in 2002. A site inspection report dated September 2013 states that the recommendations of the report had not at that time been fully implemented. It is appropriate to update the assessment and condition 3.10 of the RD provides for this as well as the implementation of relevant findings and recommendations.

13. Emissions to ground or groundwater

There are no emissions to ground or groundwater at the installation. Groundwater monitoring for the years 2014 to mid-2016 indicates the periodic presence of VOCs, chlorinated VOCs, PAHs and petroleum hydrocarbons across the site and in particular towards the south-east of the site. The licensee refers to a 2008 groundwater investigation that concluded that contamination is most likely from historical soil contamination from a former oil receptor sump, an off-site automotive repair workshop to the south and the Irish Rail depot to the east.

Soil monitoring was carried out in 2001 and contaminants were detected but at levels lower than the Dutch intervention values – diesel range organics, BTEX, PAHs and heavy metals were detected. During localised works in 2003 on the eastern part of the site, soil excavations were carried out and some hydrocarbons, PAHs and BTEX (other than benzene) were detected.

In 2004 approximately 25cm of LNAPL[6] was encountered in one borehole and was described as 'unweathered diesel'. The substance was removed and no evident soil contamination was noted.

Groundwater flows from the south-west to the north-east beneath the installation. the public water supply for Portlaoise is located approximately 5.5km to the north-east with a source protection zone from 3.2km from the installation.

[6] Light non-aqueous phase liquid

Schedule C.6 of the RD requires ongoing analysis of groundwater. Condition 6.15 requires the assessment of monitoring results for conformance with the European Communities Environmental Objectives (Groundwater) Regulations, 2010, and sets out the actions to be taken in the event of non-conformance.

14. Baseline report

A baseline report was sought and was provided by the licensee. The baseline report provides a list of hazardous substances used or produced at the installation that are capable of contaminating soil and groundwater. Due to containment all substances have a low probability of release to ground, but the licensee refers to evidence of historic spills or leaks and these are partly summarised in section 13 above. Waste oil processing and storage has been carried out at the site of the installation since the late 1970s.

The baseline report evaluates the risk of contamination using the source-pathway-receptor model and concludes that whilst a pathway to receptors exists, good source control and natural attenuation processes limit the creation and migration potential of any contaminant plumes.

15. Waste generation at the installation

A range of wastes are generated at the installation, principally as a result of waste treatment. The licensee has a well-developed network of outlets for waste, including waste generated at the installation.

Wastewater is generated from the treatment of waste oil. The treatment of wastewater results in the generation of treated wastewater that is discharged to sewer and a sludge that is dispatched to disposal facilities.

Treated waste soil is generated from contaminated soil treatment. Other materials are separated out from waste soil before or after treatment, for example stone and rubble. Treated soil that meets prescribed criteria is dispatched to either soil recovery facilities or inert landfills. The criteria used by the licensee are taken from Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to the Landfill Directive. These criteria are applicable at lined landfills. Condition 8.17 of the RD prohibits the dispatch of waste or treated waste from the installation to unlined soil recovery facilities.

16. Noise

Noise emissions arise from operational plant and traffic at the installation. Other than waste unloading, the majority of waste operations take place in enclosed areas. Noise surveys have not indicated any noise issue of concern. The information provided by the licensee identifies the following specific sources of noise:

- oil filtration room;
- waste off-loading;
- tank farm steam valves and pumps;
- boiler room; and
- processing area.

The licensee was asked to carry out an assessment of the potential for a new soil washing installation to cause noise emissions beyond the installation boundary. In response, the licensee stated that no equipment has been procured at this time and no accurate simulation of the noise impact of proposed plant is possible. Rather, the

licensee proposes to carry out such an assessment in advance of the installation of the plant and ensure that no noise nuisance will occur during operation of the plant. This proposal is reflected in condition 6.16.2 of the RD.

17. Habitats Directive (92/43/EC) & Birds Directive (79/409/EEC)

Appropriate Assessment

Describe any SPA/SAC in the vicinity, specifying any species or areas of specific importance. Regardless of whether there are discharges/emissions directly to a European Site, consider whether there is likely to be a significant effect on the European Site from the activity/activities, e.g., a discharge into the catchment of an SAC via a tributary.

There are six European sites within 15km of the installation, as follows:

- River Barrow and River Nore SAC [002162]
- Ballyprior Grassland SAC [002256]
- Slieve Bloom Mountains SAC [000412]
- Slieve Bloom Mountains SPA [004160]
- River Nore SPA [004233]
- Mountmellick SAC [002141]

Only the River Barrow and River Nore SAC has hydrological connectivity with the installation. All others are too far away to experience any likely significant effect as a result of emissions to air.

Appendix 1 (page 44 of this report) lists the European site assessed, associated qualifying interests and conservation objectives along with the assessment of the effects of the activity on the European Site.

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the activity, individually or in combination with other plans or projects is likely to have a significant effect on any European Site. In this context, particular attention was paid to the European Sites at River Barrow and River Nore SAC [002162], Ballyprior Grassland SAC [002256], Slieve Bloom Mountains SAC [000412], Slieve Bloom Mountains SPA [004160], River Nore SPA [004233], Mountmellick SAC [002141].

The activity is not directly connected with or necessary to the management of any European Site and the Agency considered, for the reasons set out below, that it cannot be excluded, on the basis of objective information, that the activity, individually or in combination with other plans or projects, will have a significant effect on any European Site and accordingly determined that an appropriate assessment of the activity was required, and for this reason determined to require the licensee to submit a Natura Impact Statement.

The reasons for this determination are as follows:

1. According to the licensee, there are two stormwater discharges (SW1 and SW2) from the installation to the local water network. This network drains into the River Triogue which converges 13km downstream with the River Barrow and the River Barrow and River Nore SAC.
2. The following represents the nature of the discharge between January 2014 and July 2016 according to monitoring data provided by the licensee:
    - SW1

    - COD: average 62mg/l, maximum 227mg/l
    - Suspended solids: average 18mg/l, maximum 59mg/l
- SW2
    - COD: average 44mg/l, maximum 168mg/l
    - Suspended solids: average 20mg/l, maximum 59mg/l

3. It is evident from the monitoring results that rainwater falling on the installation is becoming contaminated before it is discharged from the installation to the local drainage network and ultimately the River Triogue.
4. According to EPA data the WFD ecological status (10-12) of the Triogue River and feeder streams in the vicinity of the installation is "poor". The status is "moderate" some 350m upstream of the confluence of the feeder streams and the Triogue River. The status is "moderate" again in the Triogue River some 7.7km downstream of the confluence (this stretch of the river having passed through Portlaoise and received the licensed discharge (register number D0001-01) from the Portlaoise waste water treatment plant) and remains so until its confluence with the River Barrow and the River Barrow and River Nore SAC.
5. There remains doubt as to the potential impact of the discharge from the installation on water quality in the local surface water network and downstream in the River Barrow and River Nore SAC.

An Inspector's Appropriate Assessment has been completed and has determined, based on best scientific knowledge in the field and in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 as amended, pursuant to Article 6(3) of the Habitats Directive, that the activity, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site, in particular River Barrow and River Nore SAC [002162], having regard to its conservation objectives and will not affect the preservation of the site at favourable conservation status if carried out in accordance with the Recommended Determination and the conditions attached thereto for the following reasons:

- Many of the qualifying interests in the River Barrow and River Nore SAC are located a long distance downstream from the installation and/or have no hydrological connectivity with the River Triogue into which stormwater from the installation is indirectly discharged.
- The closest qualifying interests are located some 14km downstream of the installation and the risk of stormwater discharges having an adverse impact on water chemistry or of sediments being of such concentration at that distance as to adversely affect species or habitats of the River Barrow and River Nore SAC is low.
- Nonetheless, mitigation measures are included in the RD to ensure the quality of stormwater from the installation is such that it will not interfere with restoring or maintaining the favourable conservation status of habitats and several relevant species including otter, Atlantic salmon, Brook lamprey and white-clawed crayfish. Mitigation measures will also ensure oxygen levels are maintained in surface waters.
- Existing mitigation measures include:
    - separation of process and stormwater systems;
    - roofing over certain areas of the installation, preventing rainwater falling on the materials stored or processed in these areas;

- using a road sweeper to keep roadways clean and prevent grit and solids from entering the stormwater system;
- the use of silt traps and class I interceptors in accordance with existing licence conditions;
- use of trigger levels to indicate contamination of stormwater discharges.

- Proposed mitigation measures include:
  - the diversion of condensate and boiler blowdown to the process effluent system;
  - enhanced testing of bundwater before it discharges to the stormwater system;
  - more frequent road sweeping;
  - more frequent cleaning and maintenance of silt traps and interceptors, especially during and before winter, respectively;
  - the introduction of lower trigger levels for stormwater discharges and the introduction of continuous monitoring of discharges.

In light of the foregoing reasons no reasonable scientific doubt remains as to the absence of adverse effects on the integrity of this European site at River Barrow and River Nore SAC [002162].

18. Use of Resources

A range of materials and substances are used at the installation as waste and wastewater treatment agents (including waste oil de-emulsifiers, additives for fuel oils manufactured at the installation, and fuel for energy generation (gas, gas oil). A large number of materials and substances are hazardous substances but none are substances of very high concern in the context of REACH.

19. National Hazardous Waste Management Plan

The licensee provided commentary on the installation's contribution to the objectives of the Plan, some of the key points of which can be summarised as follows:

- a fleet of 18 vehicles collecting waste from 26 counties and servicing over 4,000 customers;
- servicing over 150 civic amenity sites;
- operating, since 2015, the farm hazardous waste collection scheme.

The licensee states that the installation has the capacity to process over 40,000 tonnes of oily waste liquids each year. Currently the process is operating at approximately 30,000 tonnes per annum leading to the recovery of approximately 13,000 tonnes of waste oil. A small quantity of waste generated by this process (approximately 300 tonnes per annum) is exported for co-incineration in cement kilns overseas.

The licensee states that the installation provides the only facility for the treatment of contaminated soils that are classified as hazardous waste. This service avoids these soils having to be exported overseas.

The licensee that the wastes accepted at the installation are predominantly directed down the recovery route (as opposed to disposal) and pre-treats or re-packages significant volumes of waste prior to export. To avoid future export, the licensee is

monitoring any future development of hazardous waste co-incineration at cement kilns and anticipates providing waste preparatory services for that industry.

20. Measures to prevent accidents and limit their consequences

The licensee has operated a hazardous waste treatment facility at this location since the late 1970s. A health and safety management system is employed that is accredited to OSHAS18001 and provides a continuous improvement and risk reduction approach to health and safety management. Risk assessments include hazard and operability studies (HAZOPs) and explosion protection documents. The health and safety management system has an emergency identification and preparedness aspect. The licensee cites the recent installation of lightning protection on the tank farm as an example of this.

In relation to the proposed ring main and the concentration of relatively high VOC off-gases, the licensee outlines the monitoring system for operational pressure in the ring main and the pressure and vacuum relief valves in place to prevent over- and under-pressure in the system.

The regenerative thermal oxidiser has been designed to prevent the occurrence of a potentially explosive atmosphere by limiting the concentration of VOCs in the feed gas to 25% LEL by using dilution air. In the event of the regenerative thermal oxidiser shutting down, exhaust gas will vent to an emergency valve and alarms will be activated to attract the operators' attention. The flash distillation unit will automatically shut down in an orderly and safe manner. The RD defines any emergency shutdown of the regenerative thermal oxidiser as an incident.

Condition 9 of the RD requires the maintenance of an accident prevention procedure and emergency response procedure. Condition 9 also requires the preparation of a fire risk assessment that will inform the development of a waste and materials storage plan as required by condition 8.11.

21. Compliance with EU Directives

Directive	Comment
Industrial Emissions Directive	The RD as drafted takes account of the relevant requirements of Article 11 of the Directive.
Waste Framework Directive	The provision of the licensee's waste management services at Portlaoise serves a national need as described in section 19 of this report and prioritises the recovery of waste over its disposal to landfill or destruction without energy recovery by incineration. The RD as drafted takes account of the relevant requirements of Articles 13 and 23 of the Directive. These articles set out the minimum requirements for waste management and waste installation licences respectively.
Water Framework Directive [2000/60/EC] • European Communities Environmental Objectives (Surface Water) Regulations, S.I. No. 272 of 2009 • European Communities Environmental	Stormwater discharges will keep within the trigger levels proposed in the RD. The RD requires ongoing assessment of groundwater monitoring results against the Groundwater Regulations and the carrying

Objectives (Ground Water) Regulations, S.I. No. 9 of 2010	out of a detailed assessment should non-conformance become evident.
Air Quality Directives (Cafe and daughter directives)	Air dispersion modelling as reported in section 8.7 of this report shows no predicted exceedence of air quality standards. Ambient air quality monitoring in the vicinity of the installation shows no exceedence of air quality standards.
Environmental Liabilities Directive (2004/35/EC)	CRAMP and ELRA costings have been agreed and a bond put in place for CRAMP costs.
Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (Seveso)	The licensee notified the installation as a lower tier site to the Health and Safety Authority due to the storage inventory of petroleum products (specifically alternative fuels). According to the licensee, the HSA subsequently indicated that the facility does not fall under the Regulations.

22. Cross Office Liaison

I consulted internally as follows during the preparation of this report and the RD:

- OEE: Ms Mary Frances Rochford, Ms Joan Fogarty and Dr. Ian Marnane, in relation to operations at the installation, enforcement of the existing licence, complaints, air emissions modelling and assessment and conditions and schedules of the RD.
- OES: Ms Deirdre French, Ms Ciara Maxwell and Dr Karen Creed, in relation to appropriate assessment and compliance with the Habitats Directive and relevant national regulations.
- OEA: Dr Catherine Bradley in relation to water quality in the context of appropriate assessment screening.

23. Site Visits

Site visits were undertaken on 2 February 2016 and 28 October 2016.

The earlier site visit was arranged in advance with the licensee by OEE. On the topic of the licence review, the licensee was briefed on the procedure for the review. The licensee's questions on the Agency's notice of 26 January 2016 were answered. A tour of the installation was conducted in the company of the licensee's representative and three members of OEE staff. The following items were noted and are worthy of mention here:

- Simple water traps were in place to prevent uncontrolled fugitive emissions from waste oil storage and treatment tanks – see Figure 12(a) for an example. The water was dosed with a deodorising chemical.
- The condition of the installation was generally good except for some areas where containers and material were being stored out of doors.
- The soil building was at that time covered but not enclosed – see Figure 12(b).
- Waste and empty containers were being stored out of doors – see Figure 10 and Figure 13.

Figure 12 (a) Water trap for controlling fugitive emissions. The drum contains water plus a deodorising chemical. (b) Unenclosed, covered soil treatment area.

Figure 13 Recovered rubble and stone stored outdoors, in addition to empty drums and other containers. The stone and rubble are screened out of waste soil accepted at the installation for treatment.

The second site visit was unannounced. There were no other EPA personnel in attendance. I conducted a site tour in the company of the licensee's representative. The following items were noted and are worthy of mention here:

- The simple water traps (see Figure 12(a)) have been replaced by multi-stage treatment involving condensate knock-out, moisture absorption and carbon filtration – see Figure 14 for an example. These new systems were referred to in the licensee's May 2016 submission.

- The oil filtration plant (comprising 3 agitating filters) has been contained behind a partition within its building in order to contain fugitive emissions arising from the process – see Figure 15.
- The acid scrubber and carbon filter serving the Hodgefield separator (used for the treatment of water from oil dewatering processes) are in place – see Figure 16.
- The yard area was generally clean.
- It is evident that some bunds have not been cleaned out for some time – see Figure 17.
- The soil treatment building was enclosed on two sides - see section 5.6 above for photos and description.

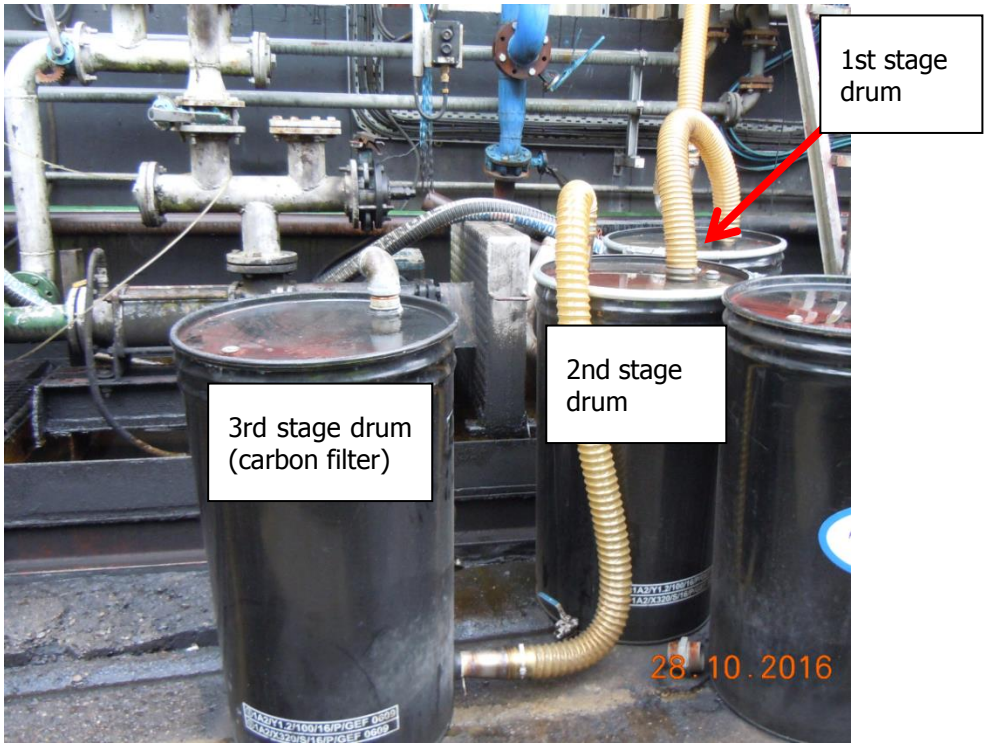

Figure 14 Three stage treatment of passive emissions from waste oil storage and treatment tanks. See the flexible hoses connecting the three drums in series and the final emission point on the top of the 3rd drum. (The 4th drum on the extreme right is not part of the treatment equipment).

Figure 15 New screening partition (left photo) separating the oil filtration plant (which is located behind the partition) from the remainder of the treatment building (which currently contains centrifuges and heat exchangers and will, if it's installed, contain elements of the flash distillation plant). The area behind the wall is mechanically ventilated and off-gases are treated in a carbon filter **(right photo)**. The vertical orange pipe is the feed into the base of the carbon filter. The emission point is at the top.

Figure 16 Acid scrubber (taller black tank in centre) and carbon filter (shorter black tank on left) for treatment of mechanically-drawn off-gas emissions from the Hodgefield oil-water separator

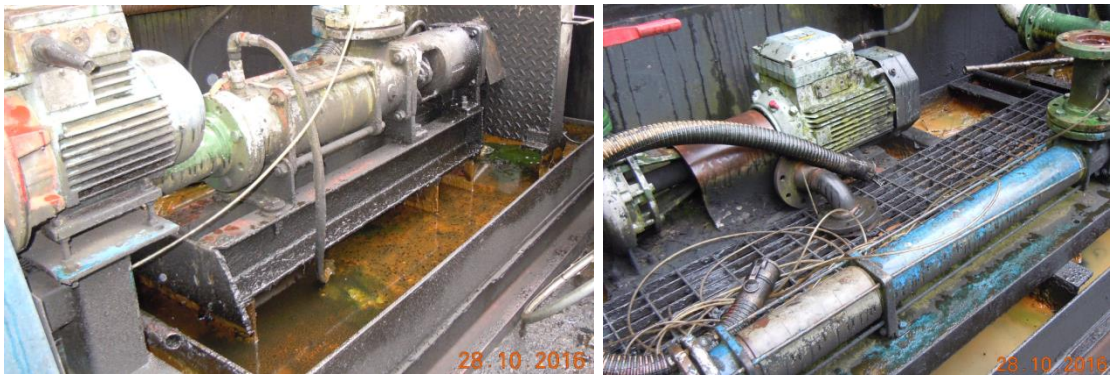

Figure 17 Bunds that require cleaning

24. Complaints

The complaints history regarding this installation is well documented elsewhere. Complaints have principally concerned odour and the effect of odour nuisance. The volume of complaints has decreased in 2016.

25. Fit and Proper Person Assessment

The fit and proper person test requires three elements of examination:

Technical Ability

The licensee has operated the installation under an EPA licence since 2000. Despite complaints of odour nuisance, the licensee has, at least since 2016, demonstrated an ability to make changes and minimise complaints. The licensee has a good understanding of the operation of the installation and key personnel have qualifications, technical knowledge and experience. The licensee's key personnel have the technical ability to competently manage the installation in accordance with the conditions of an EPA licence.

Legal Standing

On 18th December 2015, the Environmental Protection Agency prosecuted ENVA Ireland Limited in Portlaoise District Court, Co. Laois. The licensee pleaded guilty to failure to comply with Condition 7.2 of the IE Licence on 25/6/2015, 4/8/2015, 5/8/2015 and the period 4/6/2015-18/9/2015, in that they failed to ensure that odours did not give rise to nuisance at the facility or the immediate area of the facility. A fine of €2,000 was imposed on each of four charges.

Technical measures have been adopted by the licensee and further measures are in train and/or are proposed in the RD in mitigation of future occurrences of these offences.

Financial Standing

The costs for a closure, restoration and aftercare management plan and an environmental liabilities risk assessment have been agreed by OEE. A bond is in place for the closure costs and will expire in May 2019. Insurance is proposed for ELRA costs and this is being processed by OEE at present.

Conclusion

Having regard to the provisions of Section 84(5) of the EPA Act as amended and the conditions of the RD, the applicant can be deemed a fit and proper person for the purpose of this licence review.

26. Recommended Determination (RD)

The RD specifies the necessary measures to provide that the installation shall be operated in accordance with the requirements of Section 83(5) of the EPA Act 1992 as amended, and has had regard in its drafting to the appropriate assessment documented in this report. The RD gives effect to the requirements of the Environmental Protection Agency Act 1992 as amended and the Waste Framework Directive 2008/98/EC and regard was had in its drafting to submissions made by third parties.

27. Charges

The enforcement charge for 2016 was €18,623 as an A1 enforcement category. An increased charge of €23,901.86 is proposed in the RD, the increase being due to reports to be assessed concerning installation of key equipment such as a regenerative thermal oxidiser and flash distillation processes and increased and more complex monitoring requirements.

28. Recommendation

I recommend that a Proposed Determination be issued subject to the conditions and for the reasons as drafted in the RD.

Signed

Brian Meaney

Procedural Note

In the event that no objections are received to the Proposed Determination of the application, a licence will be granted in accordance with Section 87(4) of the Environmental Protection Agency Acts 1992 as amended as soon as may be after the expiration of the appropriate period.

Appendix 1: Assessment of the effects of activity on European site and proposed mitigation measures.

European site [site code]	Distance and direction from installation	Qualifying interests	Conservation objectives	Assessment
River Barrow and River Nore SAC [002162]	Approximately 13km downstream from the entry of stormwater in the River Triogue	**Habitats:** Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Reefs [1170] **Species** Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330] Mediterranean salt meadows (Juncetalia maritimi) [1410] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] European dry heaths [4030] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] Petrifying springs with tufa formation (Cratoneurion) [7220] Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion	As per NPWS (2011) Conservation Objectives: River Barrow and River Nore SAC 002162. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht (dated 19/7/2011)	Emissions to air from the installation will have no impact on the European site due to the distance from the installation to the European site. Emissions of stormwater to the local water network in Portlaise and ultimately to the river Triogue have the potential to adversely impact the qualifying interests of the European site some 13km downstream. However the appropriate assessment has found that the risk of contaminated stormwater have an adverse effect on water chemistry in the European site is small. Also, the risk of sediment in stormwater making its way undiluted to the European site and having an adverse impact there is small. A number of mitigation measures are in place at the installation. A number of new mitigation measures are proposed by the licensee or are mentioned in conditions of the RD. These new measures will enhance the quality of the stormwater enabling it to contribute to maintaining or restoring the favourable conservation status of species, habitats and water quality in the European site.

		incanae, Salicion albae) [91E0] Vertigo moulinsiana (Desmoulin's Whorl Snail) [1016] Margaritifera margaritifera (Freshwater Pearl Mussel) [1029] Austropotamobius pallipes (White-clawed Crayfish) [1092] Petromyzon marinus (Sea Lamprey) [1095] Lampetra planeri (Brook Lamprey) [1096] Lampetra fluviatilis (River Lamprey) [1099] Alosa fallax fallax (Twaite Shad) [1103] Salmo salar (Salmon) [1106] Lutra lutra (Otter) [1355] Trichomanes speciosum (Killarney Fern) [1421] Margaritifera durrovensis (Nore Pearl Mussel) [1990]		

<<Use the following title when screened IN for AA>> Appendix X/Table X <<Insert appendix number>>: Assessment of the effect(s) of activity/emissions/discharges on European site(s) and proposed mitigate measures.

<<Use the following title when screened OUT for AA>> Appendix X/Table X <<Insert appendix number>>: List of European Sites assessed, their associated qualifying interests and conservation objectives.
<<This table can be moved up into the body of the IR when screening out as there will be one less column>>

	European Site (site code)	Distance/ Direction from installation/ facility/ discharge(s)/ activity	Qualifying interests (* denotes a priority habitat)	Conservation objectives	Assessment <<Delete this column where a project is screened out for AA>>
1	XXXXXX SAC/SPA (00XXX X	X km north/east/south/west/downstream of the installation/facility/discharge(s) on the X River/ activity.	Habitats: <<List all habitats listed in the Conservation Objectives document on the NPWS website>> Species <<List all species listed in the Conservation Objectives document on the NPWS website. Format: English Name (Latin Name)>>	As per NPWS (20XX) Conservation objectives for XXXXX SAC/SPA [00XXX]. Generic Version X.X. Department of Arts, Heritage and the Gaeltacht (dated XX/XX/20XX). <<There is a citation in each Conservation Objectives document on the NPWS website. The date to be included above is the date referenced in the header/footer of each Conservation Objectives document>>	<<This column should contain the assessment of the potential impact from the activity on the European sites and the mitigation measures proposed to ensure that the activity will not adversely affect the integrity of the European site. All emissions from the activity should be considered here. Inspector should also consider the potential for accidents to arise.>>
1	XXXXXX SAC/SPA (00XXX X	X km north/east/south/west/downstream of the installation/facility/discharge(s) on the X River/ activity.	Habitats: <<List all habitats listed in the Conservation Objectives document on the NPWS website>> Species <<List all species listed	As per NPWS (20XX) Conservation objectives for XXXXX SAC/SPA [00XXX]. Generic Version X.X. Department of Arts, Heritage and the Gaeltacht (dated XX/XX/20XX). <<There is a citation	<<This column should contain the assessment of the potential impact from the activity on the European sites and the mitigation measures proposed to

			in the Conservation Objectives document on the NPWS website. Format: English Name (Latin Name)>>	in each Conservation Objectives document on the NPWS website. The date to be included above is the date referenced in the header/footer of each Conservation Objectives document>>	ensure that the activity will not adversely affect the integrity of the European site. All emissions from the activity should be considered here. Inspector should also consider the potential for accidents to arise.>>

Figure 7Figure 1

Figure 18