This report has been cleared for submission to the Director by Programme Manager Frank Clinton.
Signed Joe Reilly Date 14/1/13

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

OFFICE OF CLIMATE, LICENSING & RESOURCE USE

INSPECTORS REPORT ON A LICENCE REVIEW

To:	Directors	
From:	Michael Owens, Gavin Clabby and Ewa Babiarczyk	- Environmental Licensing Programme
Date:	14th January 2013	
RE:	REVIEW OF A WASTE LICENCE FOR TULLIGMORE QUARRY SOLUTIONS LIMITED, LICENCE REGISTER W0255-02	

Review Details	
Licensee:	Tulligmore Quarry Solutions Limited
Location of Installation:	Tulligmore, Dripsey, County Cork
WMA Classes of activity (P = principal activity):	4th Schedule: 5 (P) and 13
Industrial Emissions Directive	No
Classes of Waste	Inert construction and demolition waste, soils and sub-soils for recycling and reinstatement.
Section 42(1)b notice sent:	30/06/2011
Review form received:	07/11/2011
Article 16(3) Notice sent:	30/06/2011, 27/11/2012
Information under Article 16(3) received:	07/11/2011, 5/12/2012, 7/12/1012, 12/12/2012, 17/12/2012
Supplementary material submitted by licensee	25/07/2012
Submissions received:	None

1.0 Reason for Licence Review

The EPA (the Agency) granted the licensee a waste licence; register number W0255-01, on the 20th July 2010, for a facility located at Tulligmore, Dripsey, County Cork. The licensee was then operating under the name O'Regan's Quarry Products Limited. The licensee changed its name to Tulligmore Quarry Solutions Limited on the 16th June 2011. The 'Certificate of Incorporation on change of name' has been submitted as part of the information required by this review. The licensee is a legal entity of normal status and the associated Companies Registration Office (CRO) number is 300658.

The waste licence relates to an existing sand and gravel quarry and the re-instatement of an exhausted area of the quarry, as well as the operation of a C&D recycling facility at the site. The licensee continues to carry out quarrying activities within the facility boundary although the waste recovery activities have yet to commence. For the original licence application, it was not possible to draw a boundary between the activities, as they are interlinked therefore, the limits in the existing licence apply to all the activities at the facility once waste recovery operations commence.

On the 30th June 2011, the Agency initiated a review of the waste licence, register number W0255-01. The review was initiated by writing to the licensee and placing a newspaper notice in the Irish Independent. The reasons for initiating the review are in light of requirements under the following Regulations:

(1) The European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended (hereafter Surface Waters Regulations).

(2) The European Communities Environmental Objectives (Ground Water) Regulations 2010, as amended (hereafter Groundwater Regulations).

(3) Waste Management (Management of Waste from the Extractive Industries) Regulations.

2.0 Emissions to Surface Waters

SW1 – Process emission

The installation's process emission is not generated by the licensable activities on-site, but rather by the associated quarrying activity. Groundwater is used to wash the sands and gravels and this water is recirculated within the quarry via settlement lagoons. The water used in the quarry washing plant is stored in a sump/pond in the southern part of the site. The spent wash water, which contains sand and silt, is pumped to settlement ponds on the site, whereupon clarification, it is recirculated back to the sump/pond. Recent wet summers have caused significant increases in the water levels within the site, impeding traffic on site access roads; thereby giving rise to the requirement for seasonal discharging to a stream on the eastern site boundary (the Deeshart/Meeshal stream, WFD Code: IE_SW_19_1473; a tributary of the River Dripsey). The existing licence allows the discharge of 2000m^3/day (75m^3/hour) of wastewater during the months of October to April inclusive, from the quarry operations, to this stream at the eastern site boundary.

The existing licence specifies the following Emission Limit values (ELVs): pH 6 – 8.5, 25 mg/l Suspended Solids (SS), 3 mg/l Mineral Oil, and 1 mg/l Total Heavy Metals (THM). These limits were set to control any potential pollutant release to the receiving waters from C&D waste accepted at the facility. Priority substances are limited in the existing licence. According to the licensee no process water has been discharged to the stream to date.

In terms of physico-chemical status, the key parameters to be assessed, as part of this review of the licensed discharge to water, are the constituent metals of the currently specified Total Heavy Metals[1] ELV, for which there are relevant Environmental Quality Standards (EQS) set. It is notable that the only relevant EQSs are those set in the Surface Waters Regulations. No other relevant standards apply.

The constituent metals which have relevant EQSs are the following:

- Arsenic, chromium, copper and zinc (These metals are listed as Specific Pollutants in Schedule 5 of S.I. 272 of 2009.)
- Lead and nickel (These metals, and their compounds, are listed as Priority Substances in Schedule 6 of S.I. 272 of 2009.)
- Mercury and cadmium (These metals, and their compounds, are listed as Priority Hazardous Substances in Schedule 6 of S.I. 272 of 2009.)

There are no other process emissions or storm water emissions at the facility.

2.1. Receiving waters and impact

The Deeshart/Meeshal stream

The following table summarises the main considerations in relation to the impact of the waste water treatment plant (WWTP) discharge on the Deeshart/Meeshal stream (hereafter the Meeshal), tributary of the River Dripsey.

Table 2.1 Receiving waters for process discharge (SW1)

Characteristic	Information	Comment
Receiving water name and code	The Deeshart/Meeshal stream (IE_SW_19_1473) Overall status: High (2010) Overall risk: 1b 'probably at risk' - diffuse source (2008) (IPPC: 2b 'not at risk)	Key parameters: BOD, MRP, ammonia. Flows in to Dripsey river 3.2 km downstream of discharge point. High status determined by extrapolation. (Donor water body IE_SW_19_1480 – Shournagh R.) Lower Lee-Owenboy Water Management Unit (WMU) from SWRBD.
EPA monitoring stations	RS19D060300 Luskin's Br. (On Dripsey R. 1.8 km upstream of confluence with Meeshal.) RS19D060400 Dripsey Br. (On Dripsey R. 2 km downstream of confluence with Meeshal.)	There are no EPA monitoring stations upstream of the facility. The nearest downstream station is on the Dripsey River (5.2 km downstream of discharge point, at Dripsey Bridge.)
Biological quality	Q4-5, 2011 unpolluted (u/s on	RS19D060300 Luskin's Br.

[1] The list of heavy metals was taken from *Parameters of Water Quality*, Environmental Protection Agency, 2001.

rating (Q value)	Dripsey) Q4-5, 2011 unpolluted (d/s on Dripsey)	RS19D060400 Dripsey Br.
EPA chemical monitoring data	n/a	No relevant parameters w.r.t. installation's discharge.
Protected Areas (see Section 2.2)	European Communities (Drinking Water) Regulations 2007 (S.I. No. 106 Of 2007)	Inniscarra Reservoir (IE_SW_19_138) 5.2 km downstream of discharge point

According to the WFD report (2008) published by the South Western River Basin District (SWRBD) and the Agency's Geographical Information System (2011), the overall status of the receiving water is 'high'. This status is not based on monitoring but rather, is an extrapolated value (inferred from the nearby Shournagh River). The overall objective for the waterbody is the protection of this 'high' status.

The receiving water drains to the Dripsey River, 3.2 km downstream of the installation's discharge point. The Dripsey River is also designated 'high' status; however, this status is based on actual monitoring data. The Q-value (biotic index) of the Dripsey River is 4-5 (unpolluted) at the nearest EPA monitoring station upstream the confluence with the Meeshal (RS19D060300).

No metals, Specific Pollutants or Priority Substances monitoring data is available for the Meeshal or the Dripsey River.

Impact of proposed discharges

SW1 – main process discharge

Under 95%ile[2] flow conditions, the volumetric flow in the Meeshal, upstream of the discharge point is about 1.5 times the facility's discharge flow at the licence limit (75 m^3/hour).

The fact that both waterbodies are assigned 'high' status, it is reasonable to assume that the natural background concentrations of heavy metals in this rural stream are below their relevant EQS limit and are probably at trace level. There are no known point, or diffuse, sources which would impact on the heavy metal concentrations in the stream. Regardless, in the absence of background metals data for the Meeshal stream (or Dripsey River), the impact assessment, rather than indicate the expected final concentration of pollutants in the stream upon discharge, instead aims to indicate the expected levels of pollutants in the stream that are due only to the discharge (i.e. the discharge's contribution is not added to any background concentration).

Tables 2.2 below summarises the contribution of SW1, at the proposed new concentration limits set in the RD (and using the current flow limit), to the Meeshal. At these limits, the table shows that at the licence limits, the SW1 discharge will contribute to about half the concentration allowable under the Surface Waters Regulations. (The mercury limit leaves less headroom; however, the limit is set at a level which is meaningful in terms of limits of detection and reportable values.)

[2] EPA Hydrometric Data System - 95%ile flow: 0.035m^3/s.

At these discharge limits, and assuming trace background levels, there is very likely sufficient assimilative capacity (AC) at 95%ile flow conditions in the receiving water to comply with the environmental quality standards (EQSs).

Table 2.2: Mass Balance for proposed discharges (SW1)

Parameter Note1	**Current ELVs (µg/l)**	**Proposed ELVs (µg/l)**	**Contribution from the discharge (µg/l)**	**EQS (µg/l)** Note 2, Note 3
Mercury	n/a	**0.15**	0.056	0.07
Cadmium	n/a	**0.6**	0.224	0.45 Note4
Arsenic	n/a	**35**	13.1	25
Lead	n/a	**10**	3.73	7.2
Chromium	n/a	**5**	1.86	3.4
Copper	n/a	**7**	2.61	5 Note5
Nickel	n/a	**25**	9.33	20
Zinc	n/a	**70**	26.1	50 Note6

Note 1: To include the metal and its compounds, expressed as the metal.
Note 2: European Communities Environmental Objectives (Surface Waters) Regulations 2009, SI 272 of 2009, as amended. Maximum allowable concentration (MAC-EQS) limit applied where available, otherwise annual average (AA-EQS) used.
Note 3: Certain EQSs below are dependent on the water hardness (alkalinity) of the receiving water. As there is no monitoring data for the Meeshal, the alkalinity is assumed be that of the Dripsey River, downstream of the confluence (45 mg $CaCO_3$/l).
Note 4: Class 2 limit based on water hardness 40mg/l to <50mg/l $CaCO_3$/l.
Note 5: Limit based on water hardness <100mg/l $CaCO_3$/l.
Note 6: Limit based on water hardness >10mg/l and <100mg/l $CaCO_3$/l.

Recommended Decision

The RD replaces the current Total Heavy Metals limit of 1 mg/l (1000 µg/l) with the individual concentration limits as indicated in the table above. The RD clarifies that compliance with these individual limits are set such that the relevant EQSs may be achieved in the receiving water. The sum of these individual limits (152 µg/l) represents a significant reduction on the current limit. However, as the discharge is mainly surface water which has settled in the ponds, the proposed limits in the RD are regarded as achievable.

Schedules C.2.1 *Monitoring of Emissions to Water* and Schedule C.3.2 *Monitoring of Groundwater* of the RD include lists of heavy metals. These lists were set with regards to the EQSs in S.I. 272 of 2009, as amended, and the Groundwater Threshold Values in S.I. 9 of 2010, as amended.

The daily volumetric discharge limit has been carried forward in the RD. In addition, as per the current licence the RD limits the discharge to the winter period, unless, due to high rainfall, the licensee has the agreement of the Agency to discharge at other times.

The RD also replaces the mineral oil ELV of 3 mg/l with a total petroleum hydrocarbon (TPH) ELV of 0.1 mg/l. The TPH parameter is a more up-to-date and suitable parameter for the detection of petroleum-range and diesel-range hydrocarbons which may be present in the discharge. The new quantitative limit also effectively represents a stricter control on fuel/oil handling at the facility, and is considered achievable, and appropriate for the protection of the high status Meeshal stream and Dripsey River.

Specific pollutants and Priority substances

As previously mentioned, Specific Pollutants and Priority substances are regarded as characteristic of the facility's emissions to water.

The Surface Waters Regulations, as amended, require the drawing up, by June 2014, of pollution reduction plans (PRPs) by coordinating local authorities (in consultation with the Agency) to reduce pollution by priority substances and to cease and/or phase out discharges, emissions or losses of priority hazardous substances. The relevant PRP has not yet been completed. These compounds are regarded as characteristic of the discharge and therefore, operation of the facility is not compatible with the complete elimination of these substances from the discharge. New stricter limits have been set in the RD to deal with these compounds.

The RD requires the licensee to review the plan when it is established; implement appropriate measures or controls and report them in the AER.

2.2 Specific Standards or Objectives for Protected Areas

Drinking water lake

Inniscarra Reservoir (IE_SW_19_138) is 5.2 km downstream of the facility's discharge point. According to the Agency's GIS system this reservoir is on the Register of Protected Areas (Lakes for Drinking Water). The European Communities (Quality of Water Intended for Human Consumption) Regulations 1989 (S.I. No. 294 of 1989) have recently been revoked by European Communities Environmental Objectives (Surface Waters) (Amendment) Regulations 2012. The ELV's specified in the RD have been set with regards to the Surface Waters Regulations and are therefore, regarded as providing protection for drinking water abstraction waterbodies.

2.3 Emission controls and environmental quality standards

The ELVs specified in the RD have been established according to the combined approach whereby the stricter of the requirements which would result from the application of limits which aim to achieve the quality standards and the application of limits based on BAT as well as any other relevant specific standards or any objectives for protected areas.

The ELVs specified in the RD aim to achieve the environmental objectives and standards established in the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

3.0 Emissions to Groundwater

Sanitary effluent generated at the installation is discharged to an on-site biological treatment plant and percolation area. This sanitary effluent is considered a point source of pollutant input to groundwater.

Condition 3.21 of the RD requires that the systems used to treat sanitary effluent at the installation meet the requirements of the Agency Code of Practice on wastewater treatment systems.

Sand and gravel will not be extracted from below the water table and therefore, dewatering of the working areas is not required. The C&D recycling plant will be located in the north-eastern area of the site, which is underlain by up to 5m of low permeability silty sands which will serve to protect the lower water bearing sands and gravels.

The potential risks to groundwater quality from waste activities at the site are as follows:

- Accidental spillage of fuel or lubricants from construction plant;
- Increase in suspended solids and potential for contaminated run-off entering groundwater; and
- Rogue loads of contaminated material being deposited at the site.

The RD specifies requirements which minimise the risk of groundwater contamination from activities at this facility. Condition 3 deals with fuel storage & bunding requirements, wheel wash operation, and the collection and disposal of potentially contaminated drainage from the waste quarantine area. The licensee is required to implement robust waste acceptance and inspection procedures to ensure that only inert wastes are used in site restoration works.

The measures specified in the RD include monitoring to enable early detection of any deterioration in quality or change in groundwater elevations. The current licence's requirements for groundwater monitoring have substantially been carried forward in the RD. However, Schedule C.3.2 *Monitoring* of *Groundwater* of the RD proposes annual monitoring for hazardous substances (in substitution for the current licence's requirement for List I/II organic substances). This schedule also includes a specific list of dissolved metals. This list was set with regards to the Agency document, *Parameters of Water Quality* (2001) as well as Schedule 5 of the European Communities Environmental Objectives (Ground Water) Regulations 2010, as amended.

In general, the requirements specified in the RD also aim to achieve the environmental objectives and standards set out in the Ground Water Regulations 2010, as amended.

4.0 Extractive Waste Regulations

The Waste Management (Management of Waste from the Extractive Industries) Regulations (hereafter the 'extractive waste regulations') came into force on 31st December 2009 thereby transposing Directive 2006/21/EC on the 'Management of Waste from the Extractive Industries' (known commonly as the 'Mine Waste Directive') into national legislation.

The extractive waste regulations set out a range of requirements in relation to the management of certain wastes from the extractive industries (e.g. mines, quarries, peat

extraction sites). These wastes are known as 'extractive wastes' and can include materials such as waste overburden and rock.

The licensee operates a sand and gravel quarry within the licence boundary and so the facility falls within the remit of the extractive waste regulations. Some parts of the extractive waste regulations do not apply to sites where only unpolluted soils, stones and inert extractive wastes are being managed. It is however recognised that heaps or mounds of unpolluted soil can have an environmental impact in terms of environmental emissions and risk of collapse. There are stock piles of sub-soils and other extractive wastes at the facility. Where such piles exist for a period of time greater than 3 years they must then be regarded as an extractive 'waste facility' as defined in the Regulations.

The following are the principal requirements proposed for the revised licence on foot of the extractive waste regulations:

- Condition 8.12 - Preparation of an extractive waste management plan for the minimisation, treatment, recovery and disposal of extractive waste to be reviewed at least once every five years;
- Condition 8.13 - Controls in relation to the deposition of extractive waste in excavation voids; and
- Condition 8.14 - Controls in relation to extractive waste facilities.

Schedule A *Limitations* of the licence specifies the waste types and amounts that can be imported to the facility for quarry restoration. The additional controls set out above to implement the extractive waste regulations relate only to the management of extractive waste. They do not impose any additional controls on the other non-extractive inert wastes imported to the site for restoration of the quarry.

5.0 Updating the existing licence

The RD has transposed all relevant licence conditions from the existing licence (No. W0255-01) into the Agency's current licence format. Consequently the RD specifies various amendments and additional requirements. In addition, where requirements specified in the existing licence have been satisfactorily addressed, these requirements have been removed from the RD.

6.0 Cross Office Liaison

The Office of Environmental Enforcement (OEE) confirmed the approved changes declared in the review application form. In addition, it confirmed that any relevant conditions or Schedules in the existing licence which required actions to be completed, could be amended, or removed from the RD, due to those actions being completed.

The Office of Environmental Assessment (OEA) was consulted in relation to monitoring data for Dripsey River catchment.

7.0 Submissions

No submissions were received.

Charges

The charge specified in the RD is **€10,861.72**, as per the OEE recommended invoice charges for 2012.

Recommendation

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

Signed

Ewa Babiarczyk

Procedural Note

In the event that no objections are received to the Proposed Determination of the review, a licence will be granted in accordance with Section 87(4) of the Environmental Protection Agency Acts 1992 and 2012 as soon as may be after the expiration of the appropriate period.

APPENDIX

Site Location Map