

Facility Information Summary	
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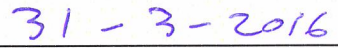
AER Reporting Year	2015
Licence Register Number	W0146-02
Name of site	Knockharely Landfill
Site Location	Knockharely, Navan, Co. Meath
NACE Code	3821
Class/Classes of Activity	11.1, 11.5
National Grid Reference (6E, 6 N)	297532 E, 267363 N

A description of the activities/processes at the site for the reporting year. This should include information such as production increases or decreases on site, any infrastructural changes, environmental performance which was measured during the reporting year **and an overview of compliance with your licence** listing all exceedances of licence limits (where applicable) and what they relate to e.g. air, water, noise.

Knockharely Landfill is an operational landfill facility. It has seen a increase in waste acceptance from 2014 to 2015. Air stack emissions are compliant with the licence limits. There are no discharges of process effluent to water or sewer. There was no exceedance of the surface water discharge limit (35 mg/l of suspended solids). There was one exceedance for TOC at the surface water inlet to the storm water pond in 2015 reported under to the Agency through Eden, INC1007892. Noise monitoring determined that there were no noise emissions from landfilling activities above the licence limit. There was two exceedances of the dust deposition limit at sampling point D6, the first was due to algal growth, the second was due to excess dirt which could not be removed from the dust pot. Details of this were discussed in the Q3-Q4 2015 report and letter relating to LR020252 (22/01/16). There were four exceedances of the methane triggerlevel at gas well LG-3 during monthly gas monitoring. These were reported under INCI006809 (Feb. 2015), INCI007261 (March 2016), INCI007533 (April 2015), INCI008993(November 2015). For the surface emissions monitoring, eight zones of surface emissions were identified within the landfill facility that exceeded recommended trigger levels (reported to EPA under INCI009561).

Declaration:

All the data and information presented in this report has been checked and certified as being accurate. The quality of the information is assured to meet licence requirements.

 Signature Group/Facility manager <small>(or nominated, suitably qualified and experienced deputy)</small>	 Date
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Yes No

Additional information

Does your site have licensed emissions direct to surface water or direct to sewer? If yes please complete table W2 and W3 below for the current reporting year and answer further questions. If you do not have licensed emissions you only need to complete table W1 and or W2 for storm water analysis and visual inspections

No	There are 9 surface water monitoring points at the facility. All of the data for monitoring of the downstream locations is hidden in the rows of Table W1. It is assumed that only data for SW9, the outlet from the storm water pond is required here.
Yes	Weekly visual inspections are required at each of the 9 surface water monitoring points as per licence. As noted above, there is no process effluent discharge. There is storm water discharge.

Was it a requirement of your licence to carry out visual inspections on any surface water discharges or watercourses on or near your site? If yes please complete table W2 below summarising only any evidence of contamination noted during visual inspections

Table W1 Storm water monitoring

Location reference	Location relative to site activities	PRTR Parameter	Licensed Parameter	Monitoring date	ELV or trigger level in licence or any revision thereof*	Licence Compliance criteria	Measured value	Unit of measurement	Compliant with licence	Comments (Baseline Data/ Reg. limits as appropriate listed below)
SW1	upstream		Temperature	2015	No		9.925	degrees C	yes	25
SW1	upstream		pH (lab)	2015	No		8.05	pH units	yes	7.94-8.20
SW1	upstream		pH (field)	2015	No		8.5925	pH units	yes	7.94-8.20
SW1	upstream		Electrical Conductivity (lab)	2015	No		598	µS/cm @20oC	yes	613-670
SW1	upstream		Electrical Conductivity (field)	2015	No		425.5	µS/cm @20oC	yes	613-670
SW1	upstream		Ammoniacal Nitrogen	2015	No		0.13	mg/L	yes	<0.2-0.6
SW1	upstream		Dissolved Oxygen (lab)	2015	No		8.725	mg/L	yes	5.3-9.4
SW1	upstream		Dissolved Oxygen field	2015	No		91.75		yes	5.3-9.4
SW1	upstream		Chloride	2015	No		28.25	mg/l	yes	21-31
SW1	upstream		Total Suspended Solids	2015	No		3	mg/l	yes	<10-48
SW1	upstream		BOD	2015	No		6	mg/l	yes	<2-2
SW1	upstream		COD	2015	No		16	mg/l	yes	<15-41
SW2	upstream		Temperature	2015	No		9.1	degrees C	yes	25
SW2	upstream		pH (lab)	2015	No		7.85	pH units	yes	7.7-8.44
SW2	upstream		pH (field)	2015	No		8.065	pH units	yes	7.7-8.44
SW2	upstream		Electrical Conductivity (lab)	2015	No		612.25	µS/cm @20oC	yes	653-682
SW2	upstream		Electrical Conductivity (field)	2015	No		519.25	µS/cm @20oC	yes	653-682
SW2	upstream		Ammoniacal Nitrogen	2015	No		0.08	mg/L	yes	<0.2
SW2	upstream		Dissolved Oxygen (lab)	2015	No		8.65	mg/L	yes	4.7-8.9
SW2	upstream		Dissolved Oxygen field	2015	No		84.55		yes	4.7-8.9
SW2	upstream		Chloride	2015	No		24.75	mg/l	yes	23-56
SW2	upstream		Total Suspended Solids	2015	No		6	mg/l	yes	<10-46
SW2	upstream		BOD	2015	No		<5	mg/l	yes	<2-12
SW2	upstream		COD	2015	No		15.75	mg/l	yes	<15-25
SW3	upstream		Temperature	2015	No		9.24	degrees C	yes	25
SW3	upstream		pH (lab)	2015	No		7.725	pH units	yes	7.75-7.98
SW3	upstream		pH (field)	2015	No		8.1925	pH units	yes	7.75-7.98
SW3	upstream		Electrical Conductivity (lab)	2015	No		588	µS/cm @20oC	yes	593-688
SW3	upstream		Electrical Conductivity (field)	2015	No		476.5	µS/cm @20oC	yes	593-688
SW3	upstream		Ammoniacal Nitrogen	2015	No		<0.08	mg/L	yes	<0.2-1.1
SW3	upstream		Dissolved Oxygen (lab)	2015	No		8.5	mg/L	yes	5.1-8.6
SW3	upstream		Dissolved Oxygen field	2015	No		85.6		yes	5.1-8.6
SW3	upstream		Chloride	2015	No		26.75	mg/l	yes	29-36
SW3	upstream		Total Suspended Solids	2015	No		3	mg/l	yes	<10-34
SW3	upstream		BOD	2015	No		<3	mg/l	yes	<2-5
SW3	upstream		COD	2015	No		16.5	mg/l	yes	<15-46
SW5	upstream		Temperature	2015	No		9.525	degrees C	yes	25
SW5	upstream		pH (lab)	2015	No		7.675	pH units	yes	7.61-8.07
SW5	upstream		pH (field)	2015	No		7.75	pH units	yes	7.61-8.07
SW5	upstream		Electrical Conductivity (lab)	2015	No		599.25	µS/cm @20oC	yes	549-726
SW5	upstream		Electrical Conductivity (field)	2015	No		512.5	µS/cm @20oC	yes	549-726
SW5	upstream		Ammoniacal Nitrogen	2015	No		<0.08	mg/L	yes	<0.2-0.5
SW5	upstream		Dissolved Oxygen (lab)	2015	No		8.475	mg/L	yes	4.4-8.4

AER Monitoring returns summary template-WATER/WASTEWATER(SEWER)			Lic No:	W0146-02	Year	2015				
SW5	upstream		Dissolved Oxygen field	2015	No		92.7		yes	4.4-8.4
SW5	upstream		Chloride	2015	No		28	mg/l	yes	29-35
SW5	upstream		Total Suspended Solids	2015	No		1.33	mg/l	yes	<10
SW5	upstream		BOD	2015	No		<3	mg/l	yes	<2-4
SW5	upstream		COD	2015	No		15.75	mg/l	yes	<15-43
SW6	downstream		Temperature	2015	No		10.85	degrees C	yes	25
SW6	downstream		pH (lab)	2015	No		7.275	pH units	yes	7.76-8.06
SW6	downstream		pH (field)	2015	No		7.755	pH units	yes	7.76-8.06
SW6	downstream		Electrical Conductivity (lab)	2015	No		778.25	µS/cm @20oC	yes	625-698
SW6	downstream		Electrical Conductivity (field)	2015	No		627.5	µS/cm @20oC	yes	625-698
SW6	downstream		Ammoniacal Nitrogen	2015	No		<0.08	mg/L	yes	<0.2-0.5
SW6	downstream		Dissolved Oxygen (lab)	2015	No		8.5	mg/L	yes	5.0-8.9
SW6	downstream		Dissolved Oxygen field	2015	No		82.175		yes	5.0-8.9
SW6	downstream		Chloride	2015	No		18.5	mg/l	yes	28-33
SW6	downstream		Total Suspended Solids	2015	No		7.333333333	mg/l	yes	<10-11
SW6	downstream		BOD	2015	No		<3	mg/l	yes	<2-3
SW6	downstream		COD	2015	No		16	mg/l	yes	<15-41
SW7	downstream		Temperature	2015	No		9.7	degrees C	yes	25
SW7	downstream		pH (lab)	2015	No		7.825	pH units	yes	7.42-8.37
SW7	downstream		pH (field)	2015	No		8.135	pH units	yes	7.42-8.37
SW7	downstream		Electrical Conductivity (lab)	2015	No		717	µS/cm @20oC	yes	590-694
SW7	downstream		Electrical Conductivity (field)	2015	No		600	µS/cm @20oC	yes	590-694
SW7	downstream		Ammoniacal Nitrogen	2015	No		1.3	mg/L	yes	<0.2-1.7
SW7	downstream		Dissolved Oxygen (lab)	2015	No		8.35	mg/L	yes	5.0-8.7
SW7	downstream		Dissolved Oxygen field	2015	No		84.25		yes	5.0-8.7
SW7	downstream		Chloride	2015	No		34.25	mg/l	yes	24-36
SW7	downstream		Total Suspended Solids	2015	No		16.75	mg/l	yes	<10-10
SW7	downstream		BOD	2015	No		10	mg/l	yes	<2-3
SW7	downstream		COD	2015	No		30.75	mg/l	yes	<15-29
SW8	downstream		Temperature	2015	No		10.45	degrees C	yes	25
SW8	downstream		pH (lab)	2015	No		7.825	pH units	yes	7.63-8.02
SW8	downstream		pH (field)	2015	No		8.43	pH units	yes	7.63-8.02
SW8	downstream		Electrical Conductivity (lab)	2015	No		648.25	µS/cm @20oC	yes	662-720
SW8	downstream		Electrical Conductivity (field)	2015	No		529.25	µS/cm @20oC	yes	662-720
SW8	downstream		Ammoniacal Nitrogen	2015	No		0.08	mg/L	yes	<0.2-0.4
SW8	downstream		Dissolved Oxygen (lab)	2015	No		8.45	mg/L	yes	4.6-8.5
SW8	downstream		Dissolved Oxygen field	2015	No		91.6		yes	4.6-8.5
SW8	downstream		Chloride	2015	No		25.5	mg/l	yes	30-54
SW8	downstream		Total Suspended Solids	2015	No		6.75	mg/l	yes	<10-15
SW8	downstream		BOD	2015	No		4	mg/l	yes	<2-3
SW8	downstream		COD	2015	No		18.25	mg/l	yes	<15-31
SW9	onsite		Temperature	2015	No		10.8	degrees C	yes	25
SW9	onsite		pH (lab)	2015	No		7.175	pH units	yes	5.5-8.5
SW9	onsite		pH (field)	2015	No		7.7475	µS/cm @20oC	yes	5.5-8.5
SW9	onsite		Electrical Conductivity (lab)	2015	No		780.5	mg/L	yes	1000
SW9	onsite		Electrical Conductivity (field)	2015	No		652.5	mg/L	yes	1000
SW9	onsite		Ammoniacal Nitrogen	2015	No		0.09	mg/L	yes	0.23
SW9	onsite		Dissolved Oxygen (lab)	2015	No		8.475	mg/L	yes	No abnormal change
SW9	onsite		Dissolved Oxygen field	2015	No		87.925		yes	No abnormal change
SW9	onsite		Chloride	2015	No		18.75	mg/L	yes	250
SW9	onsite		Total Suspended Solids	2015	Yes	All values < ELV	4.33	mg/L	yes	35
SW9	onsite		BOD	2015	No		<2	mg/L	yes	≤2.6 (95%ILE)
SW9	onsite		COD	2015	No		16.25	mg/L	yes	40
SW9	onsite		TOC	2015	No		2.63	mg/L	yes	
SW Pond Inlet	onsite		Ph	2015	No		9.34	pH units	yes	9.3-9.5
SW Pond Inlet	onsite		TOC	2015	Yes	All values < ELV	2.63	mg/L	yes	20
SW Pond Inlet	onsite		EC	2015	No		1540	µS/cm @20oC	yes	1269-2094

*trigger values may be agreed by the Agency outside of licence conditions

Table W2 Visual inspections-Please only enter details where contamination was observed.

Location Reference	Date of inspection	Description of contamination	Source of contamination	Corrective action	Comments
SW7	20/08/2015	Heavy Weed growth and discolouration noted on visual inspection of SW7. Elevated Ammoniacal Nitrogen was recorded in laboratory analysis from this sample.	offsite	The Ammoniacal Nitrogen result of 3.1 mg/l at SW7 in Q3 was reported to the Agency (INCI008489) as per the Agency's request in September 2015.	There is no compliance level, ELV, or trigger level for Ammonia in the site licence, but the level was higher than other levels recorded during this monitoring round. Laboratory results also showed higher than normal concentrations of Phosphorus (1.5mg/l) in SW7, leading to the conclusion that nutrient loss from agricultural practices is the most likely cause of the elevated Ammoniacal Nitrogen result. SW7 is located on a small watercourse south west of the site and does not pass through the site.
SW7	14/12/2015	Evidence of agricultural discharge (slurry) in the stream	offsite	Contamination was noted and photograph taken	SW7 is located on a small watercourse south west of the site and does not pass through the site. .The source of contamination is offsite

Licensed Emissions to water and /or wastewater(sewer)-periodic monitoring (non-continuous)

Was there any result in breach of licence requirements? If yes please provide brief details in the comment section of Table W3 below
 Was all monitoring carried out in accordance with EPA guidance and checklists for Quality of Aqueous Monitoring Data Reported to the EPA? If no please detail what areas require [External/Internal Lab Quality checklist](#)

[Assessment of results checklist](#)

No	
SELECT	

Table W3: Licensed Emissions to water and /or wastewater (sewer)-periodic monitoring (non-continuous)

AER Monitoring returns summary template-WATER/WASTEWATER(SEWER)													Lic No:	W0146-02	Year	2015
Emission reference no:	Emission released to	Parameter/ Substance <small>Note 1</small>	Type of sample	Frequency of monitoring	Averaging period	ELV or trigger values in licence or any revision thereof <small>Note 2</small>	Licence Compliance criteria	Measured value	Unit of measurement	Compliant with licence	Method of analysis	Procedural reference source	Procedural reference standard number	Annual mass load (kg)	Comments	

Note 1: Volumetric flow shall be included as a reportable parameter

Note 2: Where Emission Limit Values (ELV) do not apply to your licence please compare results against EQS for Surface water or relevant receptor quality standards

Continuous monitoring

Does your site carry out continuous emissions to water/sewer monitoring?

Additional Information	
No	Not applicable

If yes please summarise your continuous monitoring data below in Table W4 and compare it to its relevant Emission Limit Value (ELV)

Did continuous monitoring equipment experience downtime? If yes please record downtime in table W4 below

Do you have a proactive service contract for each piece of continuous monitoring equipment on site?

Did abatement system bypass occur during the reporting year? If yes please complete table W5 below

Table W4: Summary of average emissions -continuous monitoring

Emission reference no:	Emission released to	Parameter/ Substance	ELV or trigger values in licence or any revision thereof	Averaging Period	Compliance Criteria	Units of measurement	Annual Emission for current reporting year (kg)	% change +/- from previous reporting year	Monitoring Equipment downtime (hours)	Number of ELV exceedences in reporting year	Comments

note 1: Volumetric flow shall be included as a reportable parameter.

Table W5: Abatement system bypass reporting table

Date	Duration (hours)	Location	Resultant emissions	Reason for bypass	Corrective action*	Was a report submitted to the EPA?	When was this report submitted?
						SELECT	

*Measures taken or proposed to reduce or limit bypass frequency

AIR-summary template	Lic No:	W0146-02	Year	2014
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Answer all questions and complete all tables where relevant

1	<p>Does your site have licensed air emissions? If yes please complete table A1 and A2 below for the current reporting year and answer further questions. If you do not have licensed emissions and do not complete a solvent management plan (table A4 and A5) you <u>do not</u> need to complete the tables</p>	Additional information
	Yes	<p>There are three flares on site and four engines. These are used to extract and treat landfill gas. Stack emissions monitoring was carried out on operational flares and engines as tabulated in A1.</p>

Periodic/Non-Continuous Monitoring

2	<p>Are there any results in breach of licence requirements? If yes please provide brief details in the comment section of TableA1 below</p>	No
3	<p>Was all monitoring carried out in accordance with EPA guidance note AG2 and using the basic air monitoring checklist? Basic air monitoring checklist AGN2</p>	Yes

Table A1: Licensed Mass Emissions/Ambient data-periodic monitoring (non-continuous)

Emission reference no:	Parameter/ Substance	Frequency of Monitoring	ELV in licence or any revision thereof	Licence Compliance criteria	Measured value	Unit of measurement	Compliant with licence limit	Method of analysis	Annual mass load (kg)	Comments - reason for change in % mass load from previous year if applicable
Flare 1	Carbon monoxide (CO)	annual	50		0.57	mg/m3	Yes	NCIR by Horiba PG-250	0.41	
Flare 1	Nitrogen oxides (NOx/NO2)	annual	150		92.59	mg/m3	Yes	Chemiluminescence	66.84	
Flare 1	Volatile organic compounds (as TOC)	annual	10		3.48	mg/m3	Yes	FID	2.51	
Flare 1	Chlorine and inorganic compounds (as HCl)	annual	50		0.52	mg/m3	Yes	Ion chromatography	0.38	
Flare 1	Fluorine and inorganic compounds (as HF)	annual	5		2.07	mg/m3	Yes	Ion chromatography	1.49	
Flare 1	Sulphur oxides (SOx/SO2)	annual			202.33	mg/m3	N/A	NDIR Adsorption	146.07	
KHO2 engine	Total Particulates	annual	130		3.04	mg/m3	Yes	Gravimetric	2.92	
KHO2 engine	Carbon monoxide (CO)	annual	1400		877.24	mg/m3	Yes	NCIR by Horiba PG-250	1008.94	
KHO2 engine	Nitrogen oxides (NOx/NO2)	annual	500		317.01	mg/m3	Yes	Chemiluminescence	364.50	
KHO2 engine	Chlorine and inorganic compounds (as HCl)	annual	50	at mass flows >0.3 kg/h	0.75	mg/m3	Yes	Ion chromatography	0.87	
KHO2 engine	Fluorine and inorganic compounds (as HF)	annual	5	at mass flows >0.05 kg/h	1.54	mg/m3	Yes	Ion chromatography	1.46	
KHO2 engine	TA Luft organic substances class 1	annual	20	at mass flows > 0.1 kg/h	<1.21	mg/m3	Yes	Thermal Desorption	1.46	
KHO2 engine	Sulphur oxides (SOx/SO2)	annual			289.2	mg/m3	N/A	NDIR Adsorption	332.42	
KH03 engine	Total Particulates	annual	130		2.31	mg/m3	Yes	Gravimetric	15.32	
KH03 engine	Carbon monoxide (CO)	annual	1400		845.72	mg/m3	Yes	NCIR by Horiba PG-250	5423.28	
KH03 engine	Nitrogen oxides (NOx/NO2)	annual	500		277.56	mg/m3	Yes	Chemiluminescence	1777.12	
KH03 engine	Chlorine and inorganic compounds (as HCl)	annual	50	at mass flows >0.3 kg/h	0.47	mg/m3	Yes	Ion chromatography	3.06	
KH03 engine	Fluorine and inorganic compounds (as HF)	annual	5	at mass flows >0.05 kg/h	1.12	mg/m3	Yes	Ion chromatography	7.66	
KH03 engine	TA Luft organic substances class 1	annual	20	at mass flows > 0.1 kg/h	<0.84	mg/m3	Yes	Thermal Desorption	7.66	
KH03 engine	Sulphur oxides (SOx/SO2)	annual			313.04	mg/m3	Yes	NDIR Adsorption	2006.92	
KH04 engine	Total Particulates	annual	130		2.66	mg/m3	Yes	Gravimetric	16.04	
KH04 engine	Carbon monoxide (CO)	annual	1400		858.31	mg/m3	Yes	NCIR by Horiba PG-250	5527.16	

AIR-summary template				Lic No: W0146-02		Year		2014		
KH04 engine	Nitrogen oxides (NOx/NO2)	annual	500		326.15	mg/m3	Yes	Chemiluminescence	2101.76	
KH04 engine	Chlorine and inorganic compounds (as HCl)	annual	50	at mass flows >0.3 kg/h	0.31	mg/m3	Yes	Ion chromatography	1.60	
KH04 engine	Fluorine and inorganic compounds (as HF)	annual	5	at mass flows >0.05 kg/h	2.42	mg/m3	Yes	Ion chromatography	16.04	
KH04 engine	TA Luft organic substances class 1	annual	20	at mass flows > 0.1 kg/h	<0.82	mg/m3	Yes	Thermal Desorption	8.02	
KH04 engine	Sulphur oxides (SOx/SO2)	annual			318.29	mg/m3	N/A	NDIR Adsorption	2045.61	
KH02 engine	Volumetric Flow	annual	3000		789	m3/hr	Yes	Pitot		
KH03 engine	Volumetric Flow	annual	3000		838	m3/hr	Yes	Pitot		
KH04 engine	Volumetric Flow	annual	3000		802	m3/hr	Yes	Pitot		

Note 1: Volumetric flow shall be included as a reportable parameter

<p>4 Does your site carry out continuous air emissions monitoring?</p> <p>If yes please review your continuous monitoring data and report the required fields below in Table A2 and compare it to its relevant Emission Limit Value (ELV)</p>	Yes	
<p>5 Did continuous monitoring equipment experience downtime? If yes please record downtime in table A2 below</p>	No	
<p>6 Do you have a proactive service agreement for each piece of continuous monitoring equipment?</p>	Yes	
<p>7 Did your site experience any abatement system bypasses? If yes please detail them in table A3 below</p>	No	

Table A2: Summary of average emissions -continuous monitoring

Emission reference no:	Parameter/ Substance	ELV in licence or any revision therof	Averaging Period	Compliance Criteria	Units of measurement	Annual Emission	Annual maximum	Monitoring Equipment downtime (hours)	Number of ELV exceedences in current reporting year	Comments
Flare 1	Carbon monoxide	500	Annual	All 30-minutes averages < 2 x ELV	mg/m3	0.57			0	0
KH02	Carbon monoxide	1400	Annual	No 30min mean can exceed the ELV	mg/m3	877.24			0	0
KH03	Carbon monoxide	1400	Annual	No 30min mean can exceed the ELV	mg/m3	845.72			0	0
KH04	Carbon monoxide	1400	Annual	No 30min mean can exceed the ELV	mg/m3	858.31			0	0
	SELECT				SELECT					

note 1: Volumetric flow shall be included as a reportable parameter.

[Bypass protocol](#)

Table A3: Abatement system bypass reporting table

Date*	Duration** (hours)	Location	Reason for bypass	Impact magnitude	Corrective action

* this should include all dates that an abatement system bypass occurred

** an accurate record of time bypass beginning and end should be logged on site and maintained for future Agency inspections please refer to bypass protocol link

Solvent use and management on site

8 Do you have a total Emission Limit Value of direct and fugitive emissions on site? if yes please fill out tables A4 and A5

SELECT

Table A4: Solvent Management Plan Summary Total VOC Emission limit value			Solvent regulations Please refer to linked solvent regulations to complete table 5 and 6		
Reporting year	Total solvent input on site (kg)	Total VOC emissions to Air from entire site (direct and fugitive)	Total VOC emissions as %of solvent input	Total Emission Limit Value (ELV) in licence or any revision thereof	Compliance
					SELECT
					SELECT

Table A5: Solvent Mass Balance summary								
	(I) Inputs (kg)	(O) Outputs (kg)						
Solvent	(I) Inputs (kg)	Organic solvent emission in waste gases(kg)	Solvents lost in water (kg)	Collected waste solvent (kg)	Fugitive Organic Solvent (kg)	Solvent released in other ways e.g. by-passes (kg)	Solvents destroyed onsite through physical reaction e.g.	Total emission of Solvent to air (kg)
							Total	

Bund testing

dropdown menu click to see options

Additional information

Are you required by your licence to undertake integrity testing on bunds and containment structures ? if yes please fill out table B1 below listing all **new bunds and containment structures** on site, in addition to **all bunds which failed** the integrity test-**all bunding structures which failed including mobile bunds must be listed in the table below, please include all bunds outside the licenced testing period** (mobile bunds and chemstore included)

Please provide integrity testing frequency period

Does the site maintain a register of bunds, underground pipelines (including stormwater and foul), Tanks, sumps and containers? (containers refers to "Chemstore" type units and mobile bunds)

How many bunds are on site?

How many of these bunds have been tested within the required test schedule?

How many mobile bunds are on site?

Are the mobile bunds included in the bund test schedule?

How many of these mobile bunds have been tested within the required test schedule?

How many sumps on site are included in the integrity test schedule?

How many of these sumps are integrity tested within the test schedule?

Please list any sump integrity failures in table B1

Do all sumps and chambers have high level liquid alarms?

If yes to Q11 are these failsafe systems included in a maintenance and testing programme?

Is the Fire Water Retention Pond included in your integrity test programme?

Yes	
3 years	due again in 2017
Yes	
6	
6	
4	
Yes	
4	
0	
0	
N/A	
SELECT	
N/A	

Table B1: Summary details of bund /containment structure integrity test

Bund/Containment structure ID	Type	Specify Other type	Product containment	Actual capacity	Capacity required*	Type of integrity test	Other test type	Test date	Integrity reports maintained on site?	Results of test	Integrity test failure explanation <50 words	Corrective action taken	Scheduled date for retest	Results of retest(if in current reporting year)
Bund : Mobile Bund	prefabricated	PE bund located inside oil storage container	oil	1m3	1.1 m3	Other (please specify)	visual assessment and partial hydrostatic test	14 & 15/07/14	Yes	Pass	n/a	n/a	no	
Bund B3 : Mobile Bund	prefabricated	PE bund located inside oil storage container	oil	1 m3	1.14m3	Hydraulic test	visual assessment and partial hydrostatic test	14 & 15/07/14	Yes	Pass	n/a	n/a	no	
Bund B4: Mobile Bund	prefabricated	PE bund located inside oil storage container	oil	0.22m3	0.25m3	Hydraulic test	visual assessment and partial hydrostatic test	14 & 15/07/14	Yes	Pass	n/a	n/a	no	
Bund B2: Mobile Bund	prefabricated	PE bund located inside oil storage container		0.22m3	0.25 m3	Hydraulic test	visual assessment and partial hydrostatic test	14 & 15/07/14	Yes	Pass	n/a	n/a	no	
Bunded Storage Container	other (please specify)	steel constructed bund within a storage container in the	hydraulic oils	1.6m3	1.8m3	Hydraulic test	visual assessment and partial hydrostatic test	14 & 15/07/14	Yes	Pass	n/a	n/a	no	
Diesel Bund B1 : Diesel Storage Compound	reinforced concrete		diesel	6 m3	6.6 m3	Hydraulic test	visual assessment and partial hydrostatic test	14, 15 & 16/07/14	Yes	Pass	n/a	n/a	no	

* Capacity required should comply with 25% or 110% containment rule as detailed in your licence

Has integrity testing been carried out in accordance with licence requirements and are all structures tested in line with BS8007/EPA Guidance?

[bundling and storage guidelines](#)

Are channels/transfer systems to remote containment systems tested?

Are channels/transfer systems compliant in both integrity and available volume?

Commentary

Yes	
N/A	
N/A	

Pipeline/underground structure testing

Are you required by your licence to undertake integrity testing* on underground structures e.g. pipelines or sumps etc ? if yes please fill out table 2 below listing all underground structures and pipelines on site **which failed the integrity test and all which have not been tested within the integrity test period as specified**

Please provide integrity testing frequency period

*please note integrity testing means water tightness testing for process and foul pipelines (as required under your licence)

No	
SELECT	

Table B2: Summary details of pipeline/underground structures integrity test

Structure ID	Type system	Material of construction:	Does this structure have Secondary containment?	Type of secondary containment	Type integrity testing	Integrity reports maintained on site?	Results of test	Integrity test failure explanation <50 words	Corrective action taken	Scheduled date for retest	Results of retest(if in current reporting year)
	SELECT	SELECT	SELECT	SELECT	SELECT	SELECT	SELECT				SELECT

Please use commentary for additional details not answered by tables/ questions above

Groundwater/Soil monitoring template

Lic No:

W0146-02

Year

2015

		Comments
1	Are you required to carry out groundwater monitoring as part of your licence requirements?	yes
2	Are you required to carry out soil monitoring as part of your licence requirements?	no
3	Do you extract groundwater for use on site? If yes please specify use in comment section	no
4	Do monitoring results show that groundwater generic assessment criteria such as GTVs or IGVs are exceeded or is there an upward trend in results for a substance? If yes, please complete the Groundwater Monitoring Guideline Template Report (link in cell G8) and submit separately through ALDER as a licensee return AND answer questions 5-12 below.	Groundwater monitoring template no
5	Is the contamination related to operations at the facility (either current and/or historic)	N/A
6	Have actions been taken to address contamination issues? If yes please summarise remediation strategies proposed/undertaken for the site	N/A
7	Please specify the proposed time frame for the remediation strategy	N/A
8	Is there a licence condition to carry out/update ELRA for the site?	yes
9	Has any type of risk assesment been carried out for the site?	yes GW risk assessment submitted to EPA
10	Has a Conceptual Site Model been developed for the site?	yes
11	Have potential receptors been identified on and off site?	yes
12	Is there evidence that contamination is migrating offsite?	no

Please provide an interpretation of groundwater monitoring data in the interpretation box below or if you require additional space please include a groundwater/contaminated land monitoring results interpretaion as an additional section in this AER

Groundwater monitoring data at Knockharely are compared to Groundwater Triger Levels as approved by the Agency, 23 December 2011. There is an upward trend in monitoring results for potassium, sodium and total and faecal coliforms at MD6D. However, none of the reusults exceed the MAC and all of the upward trends are very slight, generally caused for one or two peaks and one or two results of zero or less than the limit of detection.

Table 1: Upgradient Groundwater monitoring results

Date of sampling	Sample location reference	Parameter/ Substance	Methodology	Monitoring frequency	Maximum Concentration++	Average Concentration+	unit	GTV's*	IGV	Upward trend in pollutant concentration over last 5 years of monitoring data
2015	MW1D	pH (Field)	Field probe	Quarterly	8.23	7.46175	pH unit	6.5-9.5	IGV	No
2015	MW1D	Electrical Conductivity (Field)	Field probe	Quarterly	675	624	µS/cm	1000	IGV	No
2015	MW1D	Temperature (Field)	Field probe	Quarterly	19.6	13.125	mg/l	25	site GTL	No
2015	MW1D	Ammoniacal Nitrogen as N	Kone Spectrophotometric Analyser	Quarterly	0.647	0.4595	mg/l	1.96	site GTL	Yes
2015	MW1D	Oxygen Dissolved (Field)	Field probe	Quarterly	6.06	3.886	mg/l	NAC	IGV	No
2015	MW1D	Chloride	Kone Spectrophotometric Analyser	Quarterly	23.9	23.1	mg/l	31.28	site GTL	No
2015	MW1D	Iron	ICP-OES	Quarterly	<0.019	<0.019	mg/l	0.2	IGV	No
2015	MW1D	Potassium	ICP-OES	Quarterly	3.85	3.625	mg/l	6.25	site GTL	No
2015	MW1D	Sodium	ICP-OES	Quarterly	37.7	37.425	mg/l	112.3	site GTL	No
2015	MW1D	Total Oxidised Nitrogen	Kone Spectrophotometric Analyser	Quarterly	<0.1	<0.1	mg/l	NAC	site GTL	No
2015	MW1D	Total Organic carbon	Colorimetry	Quarterly	<3	<3	mg/l	12.99	site GTL	No
2015	MW1D	Phenols	HPLC	Quarterly	<0.002	<0.002	mg/l	0.02	site GTL	No
2015	MW1D	Faecal coliforms	Membrane Filtration	Quarterly	4	4	cfu/100ml	0 counts per 100ml	IGV	No
2015	MW1D	Total coliforms	Colilert System	Quarterly	365	148	cfu/100ml	0 counts per 100ml	IGV	Yes

.+ where average indicates arithmetic mean

.++ maximum concentration indicates the maximum measured concentration from all monitoring results produced during the reporting year

Groundwater/Soil monitoring template

Lic No:

W0146-02

Year

2015

Table 2: Downgradient Groundwater monitoring results

Date of sampling	Sample location reference	Parameter/ Substance	Methodology	Monitoring frequency	Maximum Concentration	Average Concentration	unit	GTV's*	IGV	Upward trend in yearly average pollutant concentration over last 5 years of monitoring data
2015	MW6D	pH (Field)	Field probe	Quarterly	8.25	7.5965	pH unit	6.5-9.5	IGV	no
2015	MW6D	Electrical Conductivity (Field)	Field probe	Quarterly	616	566	mg/l	1000	IGV	no
2015	MW6D	Temperature (Field)	Field probe	Quarterly	13.6	10.8	SELECT	25	site GTL	no
2015	MW6D	Ammoniacal Nitrogen as N	Kone Spectrophotometric Analyser	Quarterly	0.798	0.68075	mg/l	1.96	site GTL	no
2015	MW6D	Oxygen Dissolved (Field)	Field probe	Quarterly	7.81	5.155	SELECT	NAC	IGV	no
2015	MW6D	Chloride	Kone Spectrophotometric Analyser	Quarterly	17.2	16.5	mg/l	31.28	site GTL	no
2015	MW6D	Iron	ICP-OES	Quarterly	2.87	2.74	mg/l	0.2	IGV	no
2015	MW6D	Potassium	ICP-OES	Quarterly	24.9	23.325	mg/l	6.25	site GTL	yes
2015	MW6D	Sodium	ICP-OES	Quarterly	<0.019	<0.019	mg/l	112.3	site GTL	yes
2015	MW6D	Total Oxidised Nitrogen	Kone Spectrophotometric Analyser	Quarterly	<0.1	<0.1	mg/l	NAC	site GTL	no
2015	MW6D	Total Organic carbon	Colorimetry	Quarterly	<3	<3	mg/l	12.99	site GTL	no
2015	MW6D	Phenols	HPLC	Quarterly	<0.002	<0.002	mg/l	0.02	site GTL	no
2015	MW6D	Faecal coliforms	Membrane Filtration	Quarterly	13	5.333333333	cfu/100ml	0 counts per 100ml	IGV	yes
2015	MW6D	Total coliforms	Colilert System	Quarterly	138	64.6	cfu/100ml	0 counts per 100ml	IGV	yes

*please note exceedance of generic assessment criteria (GAC) such as a Groundwater Threshold Value (GTV) or an Interim Guideline Value (IGV) or an upward trend in results for a substance indicates that further interpretation of monitoring results is required. In addition to completing the above table, please complete the Groundwater Monitoring Guideline Template Report at the link provided and submit separately through ALDER as a licensee return or as otherwise instructed by the EPA.

[Groundwater monitoring template](#)

More information on the use of soil and groundwater standards/ generic assessment criteria (GAC) and risk assessment tools is available in the EPA published guidance (see the link in G31)

[Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites \(EPA 2013\)](#)

**Depending on location of the site and proximity to other sensitive receptors alternative Receptor based Water Quality standards should be used in addition to the GTV e.g. if the site is close to surface water compare to Surface Water Environmental Quality Standards (SWEQS), If the site is close to a drinking water supply compare results to the Drinking Water Standards (DWS)

[Groundwater regulations](#) [Drinking water \(private supply\) standards](#) [Drinking water \(public supply\) standards](#) [Interim Guideline Values \(IGV\)](#)
[Surface water EQS](#) [GTV's](#)

Table 3: Soil results

Date of sampling	Sample location reference	Parameter/ Substance	Methodology	Monitoring frequency	Maximum Concentration	Average Concentration	unit
							SELECT
							SELECT

Where additional detail is required please enter it here in 200 words or less

Environmental Management Programme/Continuous Improvement Programme template

Lic No:

W0146-02

Year

2014

Highlighted cells contain dropdown menu click to view

Additional Information

- 1 Do you maintain an Environmental Mangement System (EMS) for the site. If yes, please detail in additional information
- 2 Does the EMS reference the most significant environmental aspects and associated impacts on-site
- 3 Does the EMS maintain an Environmental Management Programme (EMP) as required in accordance with the licence requirements
- 4 Do you maintain an environmental documentation/communication system to inform the public on environmental performance of the facility, as required by the licence

Yes	
Yes	
Yes	
Yes	

Environmental Management Programme (EMP) report

Objective Category	Target	Status (% completed)	How target was progressed	Responsibility	Intermediate outcomes
Reduction of emissions to Air	Bi-annual gas management meetings to review existing infrastructure, discuss maintenance and required upgrades.	Ongoing	Meetings held and documented	Section Head	Increased compliance with licence conditions
Reduction of emissions to Air	Reduce number of fugitive VOC emissions detected during surveys.	Ongoing	Progressive final and intermediate capping, continuous gas extraction.	Individual	Reduced emissions
Reduction of emissions to Air	All waste filled to final levels during 2013 to have final cap installed within 24 months	Ongoing	Structured capping programme due for completion in 2017	Section Head	Reduced emissions
Reduction of emissions to Air	Maintain O2 level at 2.5% or below for optimal running and output of generators.	Ongoing	Regular landfill infrastructure checks and field balancing.	Individual	Reduced emissions
Reduction of emissions to Air	Continue with placement of Geo Multi cover temporary capping along the outer flanks of the landfill	Ongoing	Placement of geohess on outer flank of landfill	Section Head	Reduced emissions
Reduction of emissions to Air	Increase use of double lifts and horizontal wells along exposed outer flanks of landfill	Ongoing	as per target	Section Head	Increased compliance with licence conditions
Reduction of emissions to Wastewater	Continue to monitor and control leachate through quarterly leachate quality monitoring and weekly leachate level checks.	Ongoing	Weekly and quarterly checks completed	Section Head	Increased compliance with licence conditions

Environmental Management Programme/Continuous Improvement Programme template				Lic No:	W0146-02	Year	2014
Reduction of emissions to Wastewater	Implement recirculation of leachate at the landfill.	Ongoing	Approved by the Agency. Now implemented in Cells 3 & 4	Section Head	Reduced emissions		
Reduction of emissions to Wastewater	Continually assess and upgrade infrastructure as necessary. Cells are filled on an individual basis, which decreases leachate volume.	Ongoing	Cells filled on individual basis, on site checks are completed during cell construction	Section Head	Reduced emissions		
Reduction of emissions to Wastewater	Construct leachate processing plant on site. Investigations underway to source new WWTP's within 100kms of the landfill which has the capacity to accept leachate in tankers from the site.	Plans on hold	Plans on hold		Reduced emissions		
Reduction of emissions to Wastewater	Install permanent capping to all finished areas of landfill and extra clay capping on intermediate areas. Geo Hess Flanks of Cell 11.	Ongoing	Start geo hess placement in 2016	Individual	Reduced emissions		
Additional improvements	Maintain and continue to improve all on site landscaping and the wetland area.	Ongoing (seasonal)	Contractor employed	Section Head	Improved Environmental Management Practices		
Additional improvements	Employ a landscape contractor to assess plantations, replace failed trees/plants and improve the overall general appearance of the landfill site.	Ongoing	Contractor employed	Individual	Improved Environmental Management Practices		
Additional improvements	Implement planting of fruit and nut trees as part of landscaping in planning application.	Plans on hold	Planning application withdrawn	Section Head	Improved Environmental Management Practices		
Additional improvements	Review relationships with neighbours and interested parties on a continual basis and review communications programme annually.	Ongoing	Assess communications programme annually.	Section Head	Improved Environmental Management Practices		
Additional improvements	Review the number and composition of complaints to determine any trends.	100%	Monthly assesment of complaints.	Section Head	Less complaints		
Additional improvements	Extend litter picking to include inner boundary road as illegal dumping appears to occur here occasionally.	Ongoing	As per target	Individual	Increased compliance with licence conditions		
Additional improvements	Continue to hold regular meetings with local residents.	Ongoing	Meetings held and documented	Section Head	Improved Environmental Management Practices		

Environmental Management Programme/Continuous Improvement Programme template				Lic No:	W0146-02	Year	2014
Additional improvements	Finish cell 12 and go into cell 11 where visual aspect can be minimised.	Ongoing	As per development of landfill	Individual	Increased compliance with licence conditions		
Additional improvements	Continue with litter patrols and litter picking	Ongoing	Done weekly	Individual	Increased compliance with licence conditions		
Additional improvements	Actively encourage site visits from interested parties i.e. local community groups, schools, clubs, etc.	Ongoing	Ongoing	Section Head	Improved Environmental Management Practices		
Additional improvements	Continue distribution of newsletter to local people at regular intervals.	Ongoing	Ongoing	Section Head	Improved Environmental Management Practices		
Additional improvements	Continue to provide sponsorship of interested local parties, clubs, etc.	Ongoing	Ongoing	Section Head	Improved Environmental Management Practices		
Additional improvements	Keep Public Information Room updated and current.	Ongoing	Ongoing in 2016	Section Head	Less complaints		
Additional improvements	Review Communications Programme	Ongoing	Jan-16	Section Head	Less complaints		
Energy Efficiency/Utility conservation	Review the energy usage on site and explore options for reduction	100%	Implement an updated Energy Awareness Programme incorporating the recommendations from	Section Head	Reduced emissions		
Reduction of emissions to Air	Cap in progressive, small sections to reduce of potential fugitive emissions. Coordinate with the contractor on this and include nuisance issues in regular	Ongoing	As per target	Individual	Reduced emissions		
Materials Handling/Storage/Bunding	Construction of an extension to the concrete plinth of the diesel storage area, to include a berm on the bund.	Ongoing	Due for completion in April 2016	Individual	Increased compliance with licence conditions		
Additional improvements	Development of a new 'evaluation of legal compliance' tool. Implementation of Pegasus (Register of Legislation)	Ongoing	Due for completion in April 2016	Section Head	Increased compliance with licence conditions		
Additional improvements	Develop and implement environmental training for all staff	100%	Ongoing on an annual basis	Section Head	Improved Environmental Management Practices		
SELECT		SELECT		SELECT	SELECT		

Environmental Liabilities template

Lic No:

W0146-02

Year

2015

[Click here to access EPA guidance on Environmental Liabilities and Financial provision](#)

			Commentary
1	ELRA initial agreement status	Required but not submitted	To be forwarded to the Agency in due course.
2	ELRA review status	SELECT	
3	Amount of Financial Provision cover required as determined by the latest ELRA	Specify	
4	Financial Provision for ELRA status	SELECT	
5	Financial Provision for ELRA - amount of cover	Specify	
6	Financial Provision for ELRA - type	SELECT	
7	Financial provision for ELRA expiry date	Enter expiry date	
8	Closure plan initial agreement status	SELECT	
9	Closure plan review status	SELECT	
10	Financial Provision for Closure status	SELECT	
11	Financial Provision for Closure - amount of cover	Specify	
12	Financial Provision for Closure - type	SELECT	
13	Financial provision for Closure expiry date	Enter expiry date	

Noise monitoring summary report

Lic No: W0146-02

Year

2015

1 Was noise monitoring a licence requirement for the AER period?
If yes please fill in table N1 noise summary below

Yes

2 Was noise monitoring carried out using the EPA Guidance note, including completion of the "Checklist for noise measurement report" included in the guidance note as table 6?

[Noise Guidance note NG4](#)

Yes

3 Does your site have a noise reduction plan

No

4 When was the noise reduction plan last updated?

Enter date

5 Have there been changes relevant to site noise emissions (e.g. plant or operational changes) since the last noise survey?

No

Table N1: Noise monitoring summary

Date of monitoring	Time period	Noise location (on site)	Noise sensitive location -NSL (if applicable)	LA _{eq}	LA ₉₀	LA ₁₀	LA _{max}	Tonal or Impulsive noise* (Y/N)	If tonal /impulsive noise was identified was 5dB penalty applied?	Comments (ex. main noise sources on site, & extraneous noise ex. road traffic)	Is site compliant with noise limits (day/evening/night)?
10/06/2015	09:11-09:41	N1		53	36	51		No	SELECT	Site: No emissions audible, Offsite: Sporadic passing road traffic dominant when present. N2 traffic present to N, NE and E continuously audible at low level. Sporadic dog barking audible at nearby and more distant dwellings. Bird song/calls and aircraft.	Yes
10/06/2015	10:28-10:58	N2		51	38	49		No		Site: No emissions audible either other than sporadic audible truck movements on access roads, Offsite: N2 road traffic to E and NE continuously audible and dominant. Sporadic local traffic dominant when present. Bird song/calls and aircraft/ Grass mowing near dwelling to N <100m continuously significant until 10:49	Yes
10/06/2015	08:16-08:46	N3		45	40	48		No		Site: Leachate tanker pump slightly audible to 08:39. Sporadic truck movements on access road faintly audible. Offsite: Distant road traffic to NE continuously audible at low level and dominating background. Sporadic traffic audible at low level on local road to E. Bird song/calls. Aircraft. Occasional dog barking audible at 2 dwellings to NE and E at approx. 100m.	Yes
10/06/2015	09:21-09:51	N4		45	34	48		No		Site: No site emissions audible, Offsite: Sporadic traffic passing dominant when present. N2 traffic to NE continuously audible at low level. Dog barking occasionally audible at distance. Birdsong significant. Aircraft. Noise emissions from construction activity at yard at approximately 100m clearly audible throughout interval, including some plant noise, and significant bangs from metal sheets being thrown (or similar).	Yes

*Please ensure that a tonal analysis has been carried out as per guidance note NG4. These records must be maintained onsite for future inspection

If noise limits exceeded as a result of noise attributed to site activities, please choose the corrective action from the following options?

nothing**

Noise has been attributed to offsite sources and not landfill activities
Any additional comments? (less than 200 words)

- capital investment
- operational changes
- noise reduction plan

1 When did the site carry out the most recent energy efficiency audit? Please list the recommendations in table 3 below

2 Is the site a member of any accredited programmes for reducing energy usage/water conservation such as the SEAI programme linked to the right? If yes please list them in additional information

3 Where Fuel Oil is used in boilers on site is the sulphur content compliant with licence conditions? Please state percentage in additional information

Additional information

Sep-10	
No	
SELECT	Not applicable

Table R1 Energy usage on site				
Energy Use	Previous year	Current year	Production +/- % compared to previous reporting year**	Energy Consumption +/- % vs overall site production*
Total Energy Used (MWHrs)				
Total Energy Generated (MWHrs)				
Total Renewable Energy Generated (MWHrs)				
Electricity Consumption (MWHrs)	129.8	135.4	4.3%	
Fossil Fuels Consumption:				
Heavy Fuel Oil (m3)				
Light Fuel Oil (m3)	59.104	87.232	48%	-47.59%
Natural gas (m3)				
Coal/Solid fuel (metric tonnes)				
Peat (metric tonnes)				
Renewable Biomass				
Renewable energy generated on site				

* where consumption of energy can be compared to overall site production please enter this information as percentage increase or decrease compared to the previous reporting year

** where site production information is available please enter percentage increase or decrease compared to previous year

Table R2 Water usage on site					Water Emissions	Water Consumption	
Water use	Water extracted Previous year m3/yr.	Water extracted Current year m3/yr.	Production +/- % compared to previous reporting year**	Energy Consumption +/- % vs overall site production*	Volume Discharged back to environment(m ³ /yr):	Volume used i.e not discharged to environment e.g. released as steam m3/yr	Unaccounted for Water:
Groundwater							
Surface water							
Public supply	3361	3769	12%				
Recycled water							
Total							

* where consumption of water can be compared to overall site production please enter this information as percentage increase or decrease compared to the previous reporting year

** where site production information is available please enter percentage increase or decrease compared to previous year

Table R3 Waste Stream Summary					
	Total	Landfill	Incineration	Recycled	Other
Hazardous (Tonnes)					
Non-Hazardous (Tonnes)					

Resource Usage/Energy efficiency summary Lic No: W0146-02 Year 2015

Table R4: Energy Audit finding recommendations								
Date of audit	Recommendations	Description of Measures proposed	Origin of measures	Predicted energy savings %	Implementation date	Responsibility	Completion date	Status and comments
Sep-10			SELECT					
			SELECT					
			SELECT					

Table R5: Power Generation: Where power is generated onsite (e.g. power generation facilities/food and drink industry)please complete the following informatior

	Unit ID	Unit ID	Unit ID	Unit ID	Station Total
Technology					
Primary Fuel					
Thermal Efficiency					
Unit Date of Commission					
Total Starts for year					
Total Running Time					
Total Electricity Generated (GWH)					
House Load (GWH)					
KWH per Litre of Process Water					
KWH per Litre of Total Water used on Site					

Complaints and Incidents summary template

Lic No: W0146-02

Year 2015

Complaints

Additional information

Have you received any environmental complaints in the current reporting year? If yes please complete summary details of complaints received on site in table 1 below

Yes

Table 1 Complaints summary							
Date	Category	Other type (please specify)	Brief description of complaint (Free txt <20 words)	Corrective action< 20 words	Resolution status	Resolution date	Further information
25.05.15	Odour		Received from EPA Eden system		Complete	03.06.2015	COM003234
17.06.15	Odour		Received from EPA Eden system		Complete	18.06.2015	COM003328
19.06.15	Odour		Complainant sent a text to site		Complete	19.06.15	COM003346, COM003337
20.06.15	Odour		Complainant sent a text to site		Complete	22.06.2015	n/a
22.06.15	Odour		Complainant sent a text to site		Complete	22.06.2015	n/a
24.06.15	Odour		Complainant sent a text to site		Complete	24.06.2015	n/a
08.07.15	Odour		Complainant sent a text to site		Complete	08.07.2015	n/a
13.07.15	Odour		Complainant sent a text to site		Complete	13.07.2015	COM003553
21.07.15	Odour		Complainant made a phone call to site		Complete	21.07.2015	COM003553
24.07.15	Odour		Complainant made a phone call to site		Complete	24.07.2015	n/a
29.07.15	Odour		Complainant sent a text to site		Complete	29.07.2015	n/a
14.08.15	Odour		Complainant made a phone call to site		Complete	14.08.2015	COM003727
25.11.15	Odour		Complainant made a phone call to site & EPA		Complete	25.11.15	COM004216
Total complaints open at start of reporting year		0					
Total new complaints received during reporting year		13					
Total complaints closed during reporting year		13					
Balance of complaints end of reporting year		0					

Incidents

Additional information

Have any incidents occurred on site in the current reporting year? Please list all incidents for current reporting year in Table 2 below

Yes

*For information on how to report and what constitutes an incident	What is an incident
--	-------------------------------------

WASTE SUMMARY				Lic No:	W0146-02	Year	2015
EWC 08 03 15	08- WASTES FROM THE MANUFACTURE,	Ink sludges other than those mentioned in 08 03 14	42.56	0.00			D5- Specially engineered landfill
EWC 19 08 01	19- WASTES FROM WASTE MANAGEMENT	Screenings from waste water treatment plants	49.70	0.00			D5- Specially engineered landfill
EWC 19 12 04	19- WASTES FROM WASTE MANAGEMENT	PVC	446.70	0.00			D5- Specially engineered landfill
EWC 19 12 12	19- WASTES FROM WASTE MANAGEMENT	Fines C&D	16,733.80	0.00			D5- Specially engineered landfill
EWC 19 12 12	19- WASTES FROM WASTE MANAGEMENT	C&I Dry Mixed (residual municipal and commercial waste)	5,113.08	0.00			D5- Specially engineered landfill
EWC 19 12 12	19- WASTES FROM WASTE MANAGEMENT	Organic Fines	25.92	0.00			D5- Specially engineered landfill
EWC 20 03 01	20- MUNICIPAL WASTES (HOUSEHOLD)	Mixed Municipal Waste	45,180.64	2,680.70	1585%	market forces	D5- Specially engineered landfill
EWC 20 03 03	20- MUNICIPAL WASTES (HOUSEHOLD)	Street cleaning waste	1,174.62	192.60	510%	market forces	D5- Specially engineered landfill
EWC 20 03 07	20- MUNICIPAL WASTES (HOUSEHOLD)	Municipal Bulky Waste	2,839.72	0.00			D5- Specially engineered landfill
EWC 17 05 04	17- CONSTRUCTION AND DEMOLITION	Soil and Stone	18,500.77	3,910.00	373%	market forces	R5-Recycling/reclamation or other
EWC 19 01 12	19- WASTES FROM WASTE MANAGEMENT	Incinerator Bottom Ash	19,294.04	14,816.00	30%	market forces	R5-Recycling/reclamation or other
EWC 19 05 99	19- WASTES FROM WASTE MANAGEMENT	Residual fraction from Aerobic Treatment (CLO)	1,383.86	0.00			R3-Recycling/reclamation or organic
EWC 19 09 02	19- WASTES FROM WASTE MANAGEMENT	Sludges from water clarification	3,204.50	4,359.00	36%	market forces	R11-Use of waste obtained from any
EWC 19 12 07	19- WASTES FROM WASTE MANAGEMENT	Woodchip	2,058.76	231.40	790%	market forces	R3-Recycling/reclamation or organic
EWC 19 12 09	19- WASTES FROM WASTE MANAGEMENT	Minerals-Fines/Stones and Concrete	2,652.58	3,148.58	-16%		R5-Recycling/reclamation or other
EWC 19 12 12	19- WASTES FROM WASTE MANAGEMENT	Other waste from the mechanical treatment of waste	13,430.14	0.00			R5-Recycling/reclamation or other
EWC 19 12 12	19- WASTES FROM WASTE MANAGEMENT	C&D Fines	6,724.06	0.00			R5-Recycling/reclamation or other
EWC 19 12 12	19- WASTES FROM WASTE MANAGEMENT	C&I Fines	3,255.50	0.00			R5-Recycling/reclamation or other
EWC 17 05 04	17- CONSTRUCTION AND DEMOLITION	Soil and Stone	2,546.32	0.00			R5-Recycling/reclamation or other

SECTION C-TO BE COMPLETED BY ALL WASTE FACILITIES (waste transfer stations, Composters, Material recovery facilities etc) EXCEPT LANDFILL SITES

4 Is all waste processing infrastructure as required by your licence and approved by the Agency in place? If no please list waste processing infrastructure required onsite

N/A	
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5 Is all waste storage infrastructure as required by your licence and approved by the Agency in place? If no please list waste storage infrastructure required on site

N/A	
-----	--

6 Does your facility have relevant nuisance controls in place?

Yes	
-----	--

7 Do you have an odour management system in place for your facility? If no why?

Yes	
-----	--

8 Do you maintain a sludge register on site?

N/A	
-----	--

SECTION D-TO BE COMPLETED BY LANDFILL SITES ONLY

Table 2 Waste type and tonnage-landfill only

Waste types permitted for disposal	Authorised/licenced annual intake for disposal (tpa)	Actual intake for disposal in reporting year (tpa)	Remaining licensed capacity at end of reporting year (m3)	Comments
Municipal solid waste	88,000/175,000	144,657	1,733,685	88,000 tonnes as per planning permission, 175,000 t as per licence

Table 3 General information-Landfill only

Area ID	Date landfilling commenced	Date landfilling ceased	Currently landfilling	Private or Public Operated	Inert or non-hazardous	Predicted date to cease landfilling	Licence permits asbestos	Is there a separate cell for asbestos?	Accepted asbestos in reporting year	Total disposal area occupied by waste	Lined disposal area occupied by waste	Unlined area	Comments on liner type
										m2	m2	SELECT UNIT	
Cells 1-12		2004 ongoing		Private	Non Hazardous	2031	No	No	No	94500	94500		0.5 m BES and HDPE geomembrane

WASTE SUMMARY	Lic No:	W0146-02	Year	2015
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Table 4 Environmental monitoring-landfill only Landfill Manual-Monitoring Standards

Was meteorological monitoring in compliance with Landfill Directive (LD) standard in reporting year +	Was leachate monitored in compliance with LD standard in reporting year	Was Landfill Gas monitored in compliance with LD standard in reporting year	Was SW monitored in compliance with LD standard in reporting year	Have GW trigger levels been established	Were emission limit values agreed with the Agency (ELVs)	Was topography of the site surveyed in reporting year	Has the statement under S53(A)(5) of WMA been submitted in reporting year	Comments
Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	

+ please refer to Landfill Manual linked above for relevant Landfill Directive monitoring standards

Table 5 Capping-Landfill only

Area uncapped*	Area with temporary cap	Area with final cap to LD Standard m2 ha, a	Area with waste that should be permanently capped to date under licence	What materials are used in the cap	Comments
SELECT UNIT	SELECT UNIT		Area capped other		
18000m2	25000m2	55000 m2	6000	Final cap to LD std: gas collection layer, 1 mm fully welded LLDPE liner, sub-surface drainage layer, subsoil layer and topoil layer. Soil thickness of 1 m. Other cap: temporary cover and intermediate cap	

*please note this includes daily cover area

Table 6 Leachate-Landfill only

9 Is leachate from your site treated in a Waste Water Treatment Plant?

Yes

10 Is leachate released to surface water? If yes please complete leachate mass load information below

No

Volume of leachate in reporting year(m3)	Leachate (BOD) mass load (kg/annum)	Leachate (COD) mass load (kg/annum)	Leachate (NH4) mass load (kg/annum)	Leachate (Chloride) mass load kg/annum	Leachate treatment on-site	Specify type of leachate treatment	Comments

Please ensure that all information reported in the landfill gas section is consistent with the Landfill Gas Survey submitted in conjunction with PRTR returns

Table 7 Landfill Gas-Landfill only

Gas Captured&Treated by LFG System m3	Power generated (MW / KWh)	Used on-site or to national grid	Was surface emissions monitoring performed during the reporting year?	Comments
12,708,244	15504 MWh	14884 MWh to grid national grid, 620 MWh used onsite	Yes	

[Guidance to completing the PRTR workbook](#)

PRTR Returns Workbook

Version 1.1.19

REFERENCE YEAR	2015
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1. FACILITY IDENTIFICATION

Parent Company Name	Knockharley Landfill Limited
Facility Name	Knockharley Landfill
PRTR Identification Number	W0146
Licence Number	W0146-02

Classes of Activity

No.	class_name
-	Refer to PRTR class activities below

Address 1	Knockharley
Address 2	Navan
Address 3	(Includes Townlands of Tuiterrath & Flemingstown)
Address 4	
	Meath
Country	Ireland
Coordinates of Location	-6.57373 52.3511
River Basin District	IEEA
NACE Code	3821
Main Economic Activity	Treatment and disposal of non-hazardous waste
AER Returns Contact Name	Tom Finnegan
AER Returns Contact Email Address	tom.finnegan@landfills.ie
AER Returns Contact Position	Landfill Manager
AER Returns Contact Telephone Number	041 9821650
AER Returns Contact Mobile Phone Number	086 8076237
AER Returns Contact Fax Number	
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	2295
Number of Employees	5
User Feedback/Comments	The volume of gas extracted for utilisation in 2015 was lower than in 2014. The landfill closed to waste acceptance in late 2013 and accepted a very low volume of waste when it reopened in 2014. By May 2015, the waste volumes stated to increase significantly since closure. This has impacted on landfill gas production. There has been increased landfill gas production since Dec 15/Jan 16. Differences in emissions in section A of the Air tab are due to different runtimes for each stack over the year in comparison to the previous year. Please note on air tab, last table - flaring and utilisation capacity is recorded as m3 of lfg rather than of methane.
Web Address	

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
5(d)	Landfills
5(c)	Installations for the disposal of non-hazardous waste
5(d)	Landfills
50.1	General

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

Is it applicable?	No
Have you been granted an exemption?	
If applicable which activity class applies (as per Schedule 2 of the regulations)?	
Is the reduction scheme compliance route being used?	

4. WASTE IMPORTED/ACCEPTED ONTO SITE

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

Do you import/accept waste onto your site for on-site treatment (either recovery or disposal activities)?	
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This question is only applicable if you are an IPPC or Quarry site

4.1 RELEASES TO AIR

[Link to previous years emissions data](#)

| PRTR#: W0146 | Facility Name: Knockharley Landfill | Filename: w0146_2015.xls | Return Year: 2015 |

30/03/2016 16:55

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASERS TO AIR		Please enter all quantities in this section in KGs				QUANTITY					
No. Annex II	POLLUTANT Name	M/C/E	METHOD		Flare 1	Engine 2	Engine 3	Engine 4	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
			Method Code	Designation or Description	Emission Point 1	Emission Point 2	Emission Point 3	Emission Point 4			
02	Carbon monoxide (CO)	M	EN 15058:2004	HICR by Horiba PG-250	0.41	1008.54	5423.28	5527.16	11959.39	0.0	0.0
08	Nitrogen oxides (NOx/NO2)	M	EN 14792:2005	Chemiluminescence	66.84	364.5	1777.12	2101.76	4310.22	0.0	0.0
11	Sulphur oxides (SOx/SO2)	M	OTH	NDIR Adsorption	146.07	332.42	2006.92	2045.61	4531.02	0.0	0.0
01	Methane (CH4)	E	OTH	Calculation	0.0	0.0	0.0	0.0	1442267.0	0.0	1442267.0
07	Non-methane volatile organic compounds (NMVOC)	M	ALT	FID	2.51	0.0	0.0	0.0	2.51	0.0	0.0

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

SECTION B : REMAINING PRTR POLLUTANTS

RELEASERS TO AIR		Please enter all quantities in this section in KGs				QUANTITY					
No. Annex II	POLLUTANT Name	M/C/E	METHOD		Flare 1	Engine 2	Engine 3	Engine 4	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
			Method Code	Designation or Description	Emission Point 1	Emission Point 2	Emission Point 3	Emission Point 4			
80	Chlorine and inorganic compounds (as HCl)	M	ALT	Ion Chromatography	0.38	0.87	3.06	1.6	5.91	0.0	0.0
84	Fluorine and inorganic compounds (as HF)	M	ALT	Ion Chromatography	1.49	1.46	7.66	16.04	26.65	0.0	0.0

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

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

RELEASERS TO AIR		Please enter all quantities in this section in KGs				QUANTITY				
Pollutant No.	POLLUTANT Name	M/C/E	METHOD		Engine 2	Engine 3	Engine 4	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
			Method Code	Designation or Description	Emission Point 1	Emission Point 2	Emission Point 3			
224	TA Luft carcinogenic substances Class 1	M	ALT	Thermal Desorption	1.46	7.66	8.02	17.14	0.0	0.0
244	Total Particulates	M	ALT	Gravimetric	2.92	15.32	16.04	34.28	0.0	0.0

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

Additional Data Requested from Landfill operators

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

Landfill: Knockharley Landfill					
Please enter summary data on the quantities of methane flared and / or utilised	T (Total) kg/Year	M/C/E	Method Used		Facility Total Capacity m3 per hour
			Method Code	Designation or Description	
Total estimated methane generation (as per site model)	4613717.0	E	OTH	Gassim 2.5	N/A
Methane flared	69611.0	M	OTH	measured at flare	5500.0 (Total Flaring Capacity)
Methane utilised in engines	3101839.0	M	OTH	measured at engines	3200.0 (Total Utilising Capacity)
Net methane emission (as reported in Section A above)	1442267.0	C	OTH	estimated generation minus	N/A

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

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

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

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

SECTION B : REMAINING PRTR POLLUTANTS

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

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

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

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

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

SECTION A : PRTR POLLUTANTS

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

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

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

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

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

4.4 RELEASES TO LAND

[Link to previous years emissions data](#)

| PRTR# : W0146 | Facility Name : Knockharley Landfill | Filename : w0146_2015.xls | Return Year : 2015 |

30/03/2016 17:00

SECTION A : PRTR POLLUTANTS

POLLUTANT		METHOD			QUANTITY		
Name		M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
No. Annex II					0.0	0.0	0.0

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

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

POLLUTANT		METHOD			QUANTITY		
Name		M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
Pollutant No.					0.0	0.0	0.0

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

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

| PRTR#: W0146 | Facility Name : Knockharley Landfill | Filename : w0146_2015.xls | Return Year : 2015 |

30/03/2016 17:01

Please enter all quantities on this sheet in Tonnes

0

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility	Haz Waste : Address of Next Destination Facility	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used		Non	Non Haz Waste: Address of Recover/Disposer		
Within the Country	19 07 03	No	5368.92	landfill leachate other than those mentioned in 19 07 02	D9	M	Weighed	Offsite in Ireland	Rilta Environmental Ltd. Hazardous Waste Treatment Facility,W0192-03	Block 402,Grant's Drive,Greenogue Business Park,Rathcoole Co Dublin,ireland Drogheda,Co.		
Within the Country	19 07 03	No	11685	landfill leachate other than those mentioned in 19 07 02	D8	M	Weighed	Offsite in Ireland	EPS Ltd. WWTP,. Ringsend Wastewater Treatment Plant,.	Louth,,,,Ireland		
Within the Country	19 07 03	No	370.36	landfill leachate other than those mentioned in 19 07 02	D8	M	Weighed	Offsite in Ireland		Ringsend,Dublin,,4,Ireland		

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

[Link to previous years waste data](#)

[Link to previous years waste summary data & percentage change](#)

[Link to Waste Guidance](#)