ANNUAL ENVIRONMENTAL REPORT

Waste Licence Registration No.:	W0167-02
Licensee:	Indaver Ireland Limited
Location of Activity:	Carranstown, Duleek, Co-Meath
Attention:	Environmental Protection Agency Office of Environmental Enforcement McCumiskey House, Richview Clonskeagh Road Dublin 14

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1.0 Introduction

1.1 Reporting Period

The following is the Annual Environmental Report (AER) for the period 1st January 2013 to the 31st December 2013 for the Waste to Energy Facility located at Carranstown, Duleek, Co-Meath, operated by Indaver Ireland Limited. Waste activities commenced at the site on the 15th August 2011.

This report has been prepared as per schedule D of Indaver's waste licence (Register No. W0167-02)

1.2 Description of On-Site Waste Activities

Indaver commenced operations in 1977 and is one of Ireland's leading companies in the recovery, treatment and disposal of hazardous and non hazardous waste.

Indaver has offices in Dun Laoghaire, Dublin Port, Cork and Meath and operates:

- A custom-built hazardous waste transfer station and solvent recovery facility in Dublin Port
- A Waste to Energy Facility in Duleek, Co Meath
- Civic amenity sites in Newcastle West, Killmallock and Mungret on behalf of Limerick County Council

The development in Meath is valued at €130 million and represents the largest ever single investment in solid waste management infrastructure in Ireland. Indaver's Meath facility uses the most advanced technology, to process 200,000 tonnes of waste annually, generating enough energy to meet the needs of 20,000 homes. The development of a thermal treatment plant with energy recovery is in line with the North East Regional Waste Management Plan.

Construction of the facility began in September 2008. This state of the art WTE facility provides the Northeast region and surrounding areas with an alternative recovery treatment solution to landfill. It offers municipal waste collectors and Local Authorities a treatment solution for their residual waste.

Indaver currently employs 180 people with 39 of these working at the Meath facility

Meath Waste to Energy Facility:

The primary operation on the Meath Waste-to-Energy Facility is the incineration of non hazardous wastes with associated energy recovery in the form of steam which is used to generate electricity.

In general terms, the Meath WtE Facility is designed to incinerate and recover energy from the residual fraction of non-hazardous household, commercial and industrial waste and non-hazardous wastewater sludge. It consists of an incineration plant with energy recovery and ancillary services, and the throughput of the facility for incineration is 200,000tpa.

The facility comprises of the following main elements:

- The main process building (comprising of tipping hall, waste bunker, furnace boiler, steam turbine, flue gas treatment and ash storage) including the control room, labs and administration offices
- The building housing the air cooled condenser
- A contractors' compound / building with workshop
- A transformer compound and ESB substation with emergency generator
- A security building with weighbridge at facility entrance
- A water storage tank and pump house

The main process building is approximately 160 m long, 40 m wide at the widest point and 40 m above ground at the highest point. The stack is 65 m tall and vents the treated combustion gases to atmosphere. The plant is based on conventional grate furnace technology with a horizontal steam boiler and an advanced flue gas treatment system designed to meet the current emissions regulations. The plant will produce up to 17.2 MW electricity of which approximately 15.1MW is exported to the national grid.

Waste is transported to the site by waste contractors in accordance with the site's licensed opening hours. On entering the site, waste contractors follow a well marked two-way route to the tipping hall where inspections on the waste are conducted by Indaver on a routine basis. There is a large turning area outside the tipping hall to allow the waste delivery vehicles turn safely before entering the hall and a maximum speed limit of 15 km/h. In the tipping hall, waste is deposited into the waste bunker where it is mixed by the crane before being placed in the hopper for the furnace. In the furnace, the waste is incinerated at temperatures exceeding 850ºC. The ash collected from the bottom of the furnace passes through a wet bath before being stored for collection and removal from the site. The combustion gases from the process pass through a number of treatment stages. This includes two stages of dosing (lime milk and lime) for acid removal and two stages of dosing (expanded clay and activated carbon) for dioxin removal, before passing through filter bags and being discharged to atmosphere via the emissions stack. The emissions to air is continuously monitored automatically and fed back to the control room for the facility where the levels of dosing can be adjusted if required.

1.3 Summary of quantity and composition of waste received, recovered and disposed of in reporting period

1.3.1 Waste received on site for recovery

For a full breakdown of the waste accepted on site please see Appendix 1.

All waste accepted to site was accepted from within the State.

1.3.2 Waste moved off site for recovery/disposal

For a full breakdown of the waste removed from site please see Appendix 2.

1.4 Summary Report on emissions

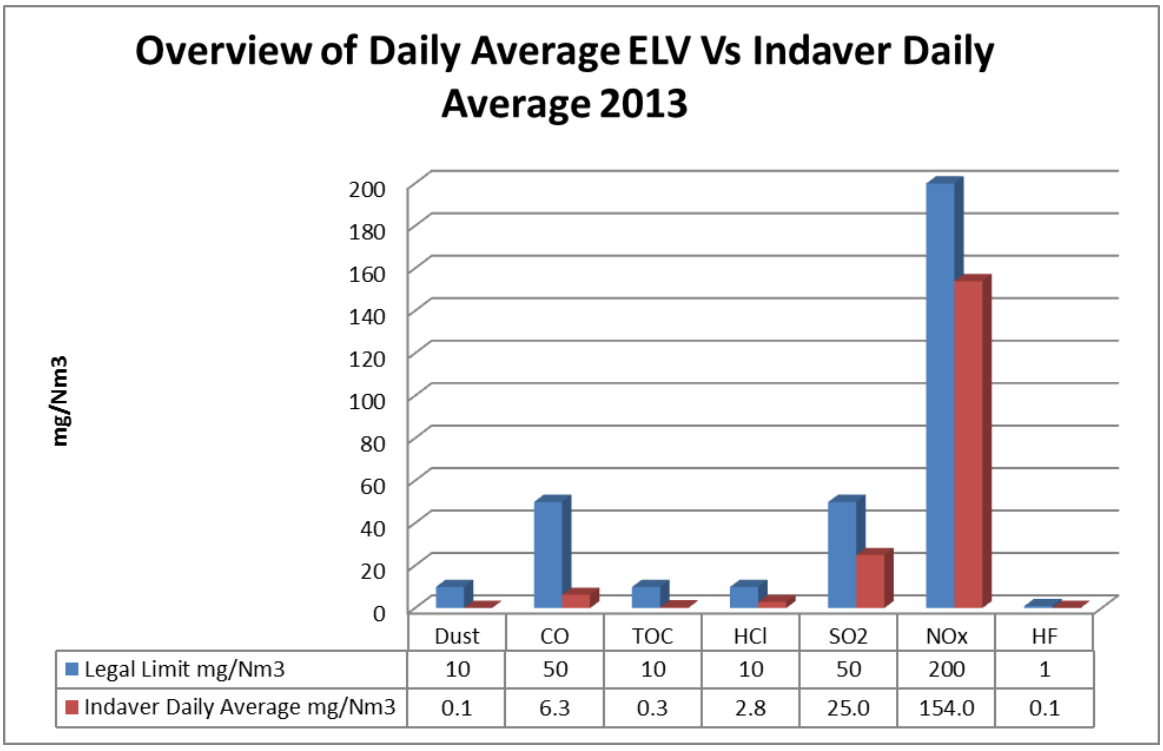
1.4.1 Air Emission Reports

1.4.1.1 Continuous Monitoring

Please see below the summary report on the continuous air monitoring emissions.

Please see below *figure 1.4.1.1.1,* in graphical format which shows the average value for each parameter as listed in Schedule B of the licence. As can be seen below the results for the average result for each parameter for 2013 is below the ELV.

Figure 1.4.1.1.1



Please see below *figure 1.4.1.1.2*, a graphical representation of the dioxin result for a one year period. Dioxins are sampled continuously and tested every 2 weeks. All results were below the threshold value of 0.1ng/Nm^3.

Figure 1.4.1.1.2

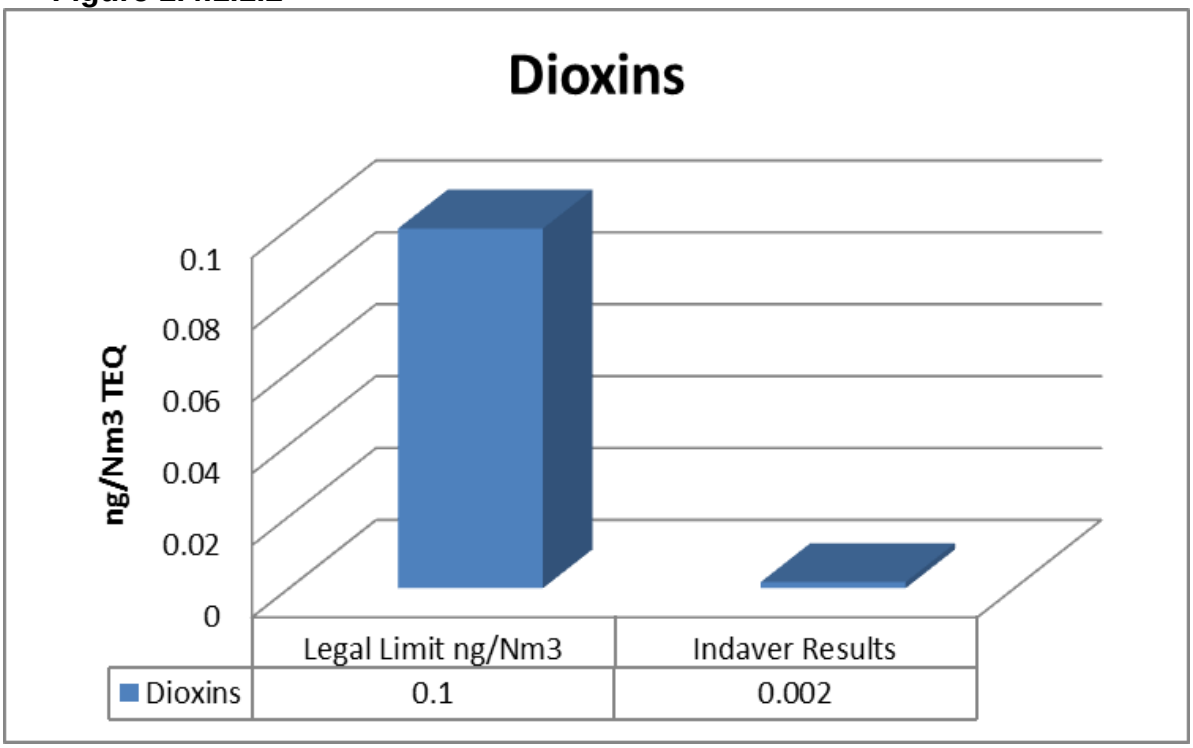


Figure 1.4.1.1.3 below gives an overview of compliance against the A and B norm. All results are given without taking into account the confidence interval but standardised to standard temperature and pressure and 11% oxygen and dry gas.

Figure 1.4.1.1.3

A norm Compliance

Installation	Parameter	# half hours year to date	# of half hours lower than ELV	# half-hours above A norm ELV
ME1	Dust	16160	16160	0
	CO	16122	16080	42
	TOC	16088	16088	0
	HCl	16090	16090	0
	HF	16090	16090	0
	SO2	16122	16121	1
	NOx	16122	16122	0
	Temp of oven	16125	16124	1

B norm Compliance

Installation	Parameter	# Half-hours	97% B-norm	Ok/NOK
ME1	Dust	16160	100	Ok
	CO	16122	No B norm	Ok
	TOC	16088	100	Ok
	HCl	16090	99.8	Ok
	HF	16090	100	Ok
	SO2	16122	97.9	Ok
	NOx	16122	99.2	Ok
	Temp of oven	16125	No B norm	Ok

Figure 1.4.1.1.4 Overview of compliance with the daily emission limit value excluding confidence intervals (measured to standard conditions including 11% O_2, dry gas)

Installation	Parameter	# of Days	% Day Norm Compliance	# of Compliant days
ME1	Dust	333	100	333
	CO	334	100	334
	TOC	332	100	332
	HCl	332	100	332
	HF	332	100	332
	SO2	334	100	334
	NOx	334	100	334
	T oven	334	100	334

1.4.1.1.2 Non Continuous Monitoring

Each quarter Indaver Ireland Limited organises for an external contractor to take measurements of the non continuous monitoring parameters as listed in Schedule C.1.2 of W0167-02. These are sent quarterly to the Agency as per the licence requirement. Please see below the average results with legal limit where applicable and the measurement uncertainty shown for the reporting period 2013.

PM10	Year 2013 Average mg/Nm3	Measurement Uncertainty mg/Nm3
Average for 2013	0.6875	0.4925

PM2.5	Year 2013 Average mg/Nm3	Measurement Uncertainty mg/Nm3
Average for 2013	0.3325	0.325

Cadmium & Thallium	ELV mg/Nm^3	Year 2013 Average	Measurement Uncertainty mg/Nm3
Average for 2013	0.05	0.0025	0.000475

Mercury	ELV mg/Nm^3	Year 2013 Average	Measurement Uncertainty mg/Nm3
Average for 2013	0.05	0.000325	0.0000525

Heavy Metals	ELV mg/Nm^3	Year 2013 Average	Measurement Uncertainty mg/Nm3
Average for 2013	0.5	0.03425	0.00525

Arsenic	ELV mg/Nm^3	Year 2013 Average	Measurement Uncertainty mg/Nm3
Average for 2013	0.2	0.001225	0.0001325

Dioxins	ELV ng/TEQ	Year 2013 Average	Measurement Uncertainty mg/Nm3
Average for 2013	0.1	0.0053	0.0011

1.4.2 Surface Water Emissions

Surface Water/Pond
The system is monitored continuously at the DCS by the operators. The discharge is checked daily in accordance with the licence. There has been no unusual discharges in 2013. Also, no water can be discharged when the readings are over the trigger levels.

Surface Water Agreed Trigger Levels:

pH	TOC	Conductivity
6-9	Warning Level 25 mg/L Action Level 30mg/L	Warning Level 1000 µScm^{-1} Action Level 1200 µScm^{-1}

Average Results per quarter for 2013:

Quarter	pH	TOC mg/L	Conductivity µScm^{-1}	Discharge Volume m^3
Quarter 1	7.95	7.22	402.25	6040
Quarter 2	7.65	12.93	239.97	2533.33
Quarter 3	8.4	17	177.1	1311.33
Quarter 4	7.67	23.06	298.7	3983

Agreement was received in 2013 to change the trigger levels to the levels shown above. The reference for this correspondence is W0167-02/SI11MG.

1.5 Summary of Noise Survey

Noise levels were outside the permitted day time noise limit of 55 dB(A) and night time noise limit of 45 dB(A) at monitoring locations AN1-1, AN1-2 and AN1(3). This is due to road traffic on the busy R152 which runs adjacent to the front of the Indaver facility. Noise levels were within the permitted day noise levels at monitoring location AN1-4 to the rear of the site for 2 of the 3 readings recorded. Cattle calling in the field immediately adjacent to the AN1-4 caused elevation in recorded noise levels (60.28 dB) during day time reading 1. Cattle were being moved from one field to another immediately opposite location AN1-4 during this reading.

The noise level at AN1-4 exceeded the night time limit of 45 dB(A) from reading 1 starting at 23:03.This reading was 47 dB and was due to off site traffic passing along the front of the site on the R152 approx. 200m from location AN1-4.

LA90 readings are the noise levels recorded over 90% of the monitoring duration. These readings remove intermittent noise from the recorded noise level such as noise from passing road traffic. The LA90 readings are a truer reflection of noise from Indaver site operations and are within the licensed noise limits at all locations for day and night time noise. No tonal or impulsive noise from site activities was recorded during day or night time monitoring.

In conclusion, noise emissions from the site have a minimal impact on the local environment.

1.5.1 Noise Level Results

Monitoring Point	Date/Time	Sampling Interval minutes	L(A) eq	L(A) 10	L(A) 90	Audible Noise Source
AN1-1	20/09/2013					
	11:17	30	59.2	63.0	46.3	Low level audible noise from site activities during daytime hours. Road traffic noise from R152 main audible noise source. Some site
	11:51	30	60.07	63.54	47.74	traffic noise entering and exiting main gate
	12:21	30	59.40	63.43	46.85	approx. 120m away.
	23:20	30	52.43	53.87	37.15	Little if any noise from site activities. Road traffic noise from R152 main audible noise source. Low level noise from incinerator just
	23:52	30	54.2	58.1	39.2	audible.
AN1-2	20/09/2013					
	11:54	30	67.7	71.8	52.7	Little if any noise from site activities. Road traffic noise from R152 main audible noise
	12:33	30	68.3	72.4	52.2	source. Some site traffic noise entering and
	13:11	30	68.74	72.86	54.75	exiting main gate approx 40m away
	21/09/2013					
	00:38	30	59.5	61.7	36.0	Little if any noise from site activities. Road traffic noise from R152 main audible noise source. Low level noise from incinerator just
	01:09	30	58.93	60.28	34.36	audible.
AN1-3	20/09/2013					
	13:07	30	67.4	71.3	56.3	Little if any noise from site activities. Some site traffic noise entering and exiting main
	13:49	30	67.73	72.02	57.57	gate approx. 60m away. Road traffic noise from
	14:39	30	66.9	71.0	54.7	R152 main audible noise source.
	21/09/2013					
	00:28	30	60.28	62.6	35.55	Little if any noise from site activities. Road traffic noise from R152 main audible noise source. Low level noise from incinerator just
	01:13	30	58.6	57.3	34.5	audible.
AN1-4	20/09/2013					
	10:28	30	60.13	54.72	48.25	Forklift operating approx 70m away and waste truck unloading approx. 80m away main source of site noise during daytime hours. Cattle calling in adjacent field main source of noise during day reading 1.
	10:59	30	49.47	50.94	46.40	Noise audible from bottom ash hall and local
	14:28	30	52.23	56.45	48.16	alarm sounding during readings 1 and 2. Off
	23:03	30	47.21	49.49	43.2	site road traffic caused elevation during
	23:58	30	44.7	46.1	42.1	reading 1.

1.5.2 Tonal or Impulsive Noise

Monitoring Point	Time	Tonal or Impulsive Noise from site activity	Comments
AN1-1	Day	No	No significant tonal and impulsive noise from site activities.
	Night	No	No significant tonal and impulsive noise from site activities.
AN1-2	Day	No	No significant tonal and impulsive noise from site activities.
	Night	No	No significant tonal and impulsive noise from site activities.
AN1-3	Day	No	No significant tonal and impulsive noise from site activities.
	Night	No	No significant tonal and impulsive noise from site activities.
AN1-4	Day	No	No significant tonal and impulsive noise from site activities.
	Night	No	No significant tonal and impulsive noise from site activities.

1.6 Summary of all Environmental Monitoring

1.6.1 Groundwater Monitoring

It is a requirement of Schedule C.6.1 of W0167-02 that monthly groundwater monitoring and biannual monitoring of the groundwater monitoring boreholes takes place. Please see below a summary of the results for the same. All these results have been sent to the Agency previously as part of the requirement to send quarterly reports.

AGW1-1 Upgradient Monitoring Point

Monitoring Frequency	TOC(mg/L)	Ammonia (NH4) Ug/L as N	Conductivity uscm-1@25C
Jan-13	2.37	10	890
Feb-13	1.89	10	976
Mar-13	0.91	10	928
Apr-13	0.94	10	867
May-13	1.18	10	870
Jun-13	1.08	10	741
Jul-13	6.66	58	678
Aug-13	1.84	17	717
Sep-13	3.62	10	751
Oct-13	4.30	15	931
Nov-13	2.76	10	556
Dec-13	2.47	10	906

AGW1-2 Downgradient Monitoring Point

Monitoring Frequency	TOC(mg/L)	Ammonia (NH4) Ug/L as N	Conductivity uscm-1@25C
Jan-13	2.27	10	630
Feb-13	2.12	10	628
Mar-13	2.45	10	624
Apr-13	1.97	10	694
May-13	2.03	10	715
Jun-13	2.73	10	749
Jul-13	2.41	10	565
Aug-13	3.58	10	760

Sep-13	2.2	10	723
Oct-13	1.17	10	723
Nov-13	2.67	10	681
Dec-13	4.76	10	688

AGW1-3 Downgradient Monitoring Point

Monitoring Frequency	TOC(mg/L)	Ammonia (NH4) Ug/L as N	Conductivity uscm-1@25C
Jan-13	2.03	10	599
Feb-13	1.83	10	622
Mar-13	2.61	10	617
Apr-13	2.04	10	614
May-13	2.06	10	607
Jun-13	2.44	10	579
Jul-13	2.69	10	762
Aug-13	1.55	10	565
Sep-13	2.57	10	564
Oct-13	1.29	10	582
Nov-13	2.76	10	556
Dec-13	2.21	10	542

Biannual Results

	AGW1-1	AGW1-2	AGW1-3	AGW1-1	AGW1-2	AGW1-3
Date	**22/04/13**	**22/04/13**	**22/04/13**	**24/09/13**	**24/09/13**	**24/09/13**
pH	7.1	7.3	7.2	7.2	7.3	7.3
Nitrate(mg/L as N)	3.25	10.38	8.4	3.41	9.17	7.73
Nitrite(mg/L as N)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chloride (mg/L)	98.2	70.29	40.91	85.92	98.79	39.29
Fluoride (mg/L)	0.11	0.15	0.14	0.13	0.1	0.11
Metals-Cd (ug/L)	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Metals Tl (ug/L)	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06
Metals Hg (ug/L)	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Metals Pb (ug/L)	<0.02	<0.02	<0.02	0.197	0.605	<0.02
Metals Cr (ug/L)	<2.14	<2.14	2.65	2.249	5.08	<2.14
Metals Cu (ug/L)	<0.11	2.209	1.248	5.309	5.107	2.767
Metals Mn (ug/L)	0.446	0.363	1.983	3.165	5.725	1.371
Metals Ni (ug/L)	0.177	4.227	3.558	0.687	0.426	0.825
Metals As (ug/L)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Metals CO (ug/L)	<0.02	0.091	0.136	0.069	0.108	0.132
Metals V (ug/L)	<0.16	0.166	0.655	0.341	0.349	0.61
Metals Sn (ug/L)	<2.8	<2.8	<2.8	<2.8	<2.8	<2.8
Organohalogens	18.743*	16.386*	22.16*	<1	<1	<1
Total coliforms(no/100ml)	21	0	0	13	0	0
Faecal Coliforms(no/100ml)	0	0	0	0	0	0

*These results were queried with the laboratory as they were outliers and retested on the 13/05/2013 and the result was below the limit of detection(<1)

Overall it can be stated the activities on the site at W0167-02 has no significant impact on the groundwater quality as can be shown by the above results.

1.7 Summary record of the use of the emergency generator

The emergency generator was used a total of 57 hours in 2013. The majority of these hours were for testing purposes. It is tested weekly and these records are stored at the facility. Any plant trips would trigger the generator to start and these hours are all included within the 57 hours for 2013.

1.8 Resource and Energy Consumption Summary

1.8.1 Diesel Usage

For the year 2013 Indaver Ireland Limited used 647,423L of Diesel fuel oil. This is a greater than 20% reduction in diesel fuel usage compared to the previous year 2012. During 2013 the plant was running under general operating conditions and so this amount of diesel is more normal for a plant of this type. This is used in the auxiliary burners of the plant. The majority of this fuel usage was during the start up and shut down periods for planned maintenance. In 2013 there was a reduced number of shutdowns than in 2012 and this will account for the reduction in diesel usage between the two years. Fuel oil is also used whenever the temperature goes below 850°C .

1.8.2 Water Usage

1.8.2.1 Groundwater:

For the year 2013, Indaver Ireland Limited used 64068m^3 of groundwater for use in the process. This is used for the process to mix with lime which creates lime milk for use in the flue abatement system. Water would also be used inside the plant for clean down purposes. All the clean down washings are reused in the process again. Indaver also has a demineralisation plant to ensure water is of a sufficient quality for use in the boiler. This is an increase on the amount used in 2012 but there was more tonnage treated in 2013 so the increase is in line with the increased tonnage treated. It is anticipated that the volumes will be similar for the year 2014 also.

1.8.2.2 Public Supply:

The public water supply is only used on site for general office purposes and welfare facilities (Showers/toilets/drinking water etc) in the administration block. It is not envisaged to monitor or reduce the amount of water used here.

1.8.3 Consumable Usage

The following consumables are used in the process to ensure compliance with the emission limits of W0167-02.

Consumable	Usage during 2013	Usage during 2012
Quicklime	2671 Ton	2209 Ton
Hydrated Lime	655 Ton	1318 Ton
Expanded Clay	199 Ton	150 Ton
Activated Carbon	92 Ton	88 Ton
Ammonia	788 Ton	606 Ton

Hydrated lime is lower than 2012 because of changes that were made to the lab loop, the consumption of quick lime had increased this year so this also accounts for less hydrated lime being used due to the acids being treated better with the lime milk.
Expanded clay-this can be accounted for in the increase in tonnage treated-nearly 10% more waste treated in 2013 than in 2012.
Ammonia-this can be accounted for in the increase in tonnage treated-nearly 10% more waste treated in 2013 than in 2012. Also, this year we have stayed consistent e.g. each month is around the same, last year we had peaks and troughs.

Resource efficiency and consumable usage is a key performance indicator and is monitored daily and reported on a monthly basis.

1.8.4 Energy Consumption

An energy audit was completed at the facility on the 18th November 2013 as required by Condition 7.3 of W0167-02. The energy efficiency calculations as required by Condition 7.3.3 is attached in Appendix 5. Actions arising out of this audit report have been included in our schedule of objectives and targets (Indaver Improvement Plan).

For the reporting year 2013 Indaver exported 126722MWH of electricity to the national grid and imported 753MWH. This is an increase in >20% on the amount of electricity exported and a 10% reduction in the amount of energy imported. Indaver produce electricity to run the facility and only import electricity when in shutdown or constrained by the national grid.

1.9 Waste Recovery Report

The End of Life Vehicles Directive sets a minimum reuse and recovery target of 85% from 2006 increasing to 95% reuse and recovery by 2015. Up to 10% of this target may be met through energy recovery. The Meath waste-to-energy facility is positioned to accept End of Life Vehicle residue in the form of car shred and contribute to this recovery target from 2011 onwards.
In the reporting year 2013, a figure of 5747.5 Ton of automotive shredder waste was accepted and recovered.

As a recovery option, the waste-to-energy facility can contribute to packaging recovery targets set out under the Packaging Directive (currently 60% recovery). It is estimated that up to 48,000t residual packaging waste in the MSW accepted will be recovered at the facility.

The facility contributed to the national target of diverting 50% household waste from landfill. Approximately 176016 tonnes of municipal type waste (EWC code Chapter 20) was treated at the facility in 2013, compared with 750,066 tonnes[1] household waste disposed of to landfill in the country. Therefore, the facility contributed 23.5% towards this diversion target.

Flue Gas Residue and Boiler ash are removed from site and where possible sent to an underground salt mine in Germany. This is considered a recovery operation, R5, as the mine is being filled up with this material in order to remediate the ground above.

Ferrous metals are recovered from the bottom ash on site using a magnet and sent to metal brokers within Ireland.

Residue	Tonnage	Recovery Option
Ferrous Metal	3961	R4
Flue Gas Residue	7685	R5
Boiler Ash	2057	R5
Bottom Ash	7844	R10

Bottom ash is currently being landfilled. An alternative landfill to Whiteriver has been used and the bottom ash is being used for cover which allows the recovery code R10 to be assigned.

[1] *Figures from 2011, From the National Waste Report 2011, EPA*

1.10 Tank, drum, pipeline and bund testing and inspection report

There were several bund and double skinned tanks that were retested in 2013. These were sent into the EPA as part of the quarterly reports. There were no failures.
In 2013 a map was produced showing the location of all the bunds and this was checked during a recent EPA audit. This testing is followed up on the maintenance programme in SAP.

Item	Serial Number	Manufacturer	Date of Factory Initial test	3 Year test	Next Test	SAP Plan N
Main diesel tank	EGB10 BB001	Kingspan	Sep-10	Sep-13	Sep-16	2870
3 * diesel for pump house	IFP-C013714-001/002/003	Patterson Pump Ireland Ltd	12.07.2010	Jul-13	Jul-16	2871
Back up diesel generator tank	MTD 0842	Multi-Tech Design Ltd	20.09.2010	Sep-13	Sep-16	2872
Transformer bunds 1 under electrical rooms (T1, T2, T3,)		Sisk		Oct-13	Oct-16	2882
Nitric acid spill containment	00031/TSUS/P/2010	Slavia Gratings, s.r.o.	13.10.2010	Oct-13	Oct-16	2877
Ammonia solution tank spill containment	EVC 056-07-09	Sinclair Stainless Fabricatations Ltd	19.01.2010	Jan-13	Jan-16	2878
Transformer Compound in Sub Station		Suir		Oct-13	Oct-16	2882
Bund at transformer at warehouse		Castlerock Building Services	11.12.2012	Oct-13	Oct-16	2882

1.11 Summary of reported incidents and complaints

1.11.1 Summary of Incidents

All Environmental Incidents are dealt with as per the Environmental Incident Investigation and Reporting Procedure.

There were 30 reported environmental incidents in 2013 which is a reduction of >30% compared to 2012. Please see breakdown of the incidents below. All incidents have been closed out.

Rank of Incident	Incident Type	# of Reported Incidents for 2013
1	ELV Elevated Value: CO	27
1	Groundwater Trigger level Reached (subsequently found to be a lab error in reporting)	1
1	ELV Elevated Value: SO2	1
1	Breakdown: Weather Monitoring Station	1

1.11.2 Summary of complaints

All Environmental Complaints are dealt with as per the Environmental Complaints Procedure.

There were 13 environmental complaints registered in 2013 which is a vast reduction from the 2012 figure of 27. There were a number of complaints registered at the facility which upon investigation were not linked to any of our activities e.g. slurry spreading on neighbouring land. This is shown in the table below. All 2013 complaints have been closed out.

	Complaints Investigated	Complaints actually related to our activities
Detail	**Total**	**Total**
Litter	2	0
Noise	1	1
Plant Emissions	1	0
Odour	9	1

1.12 Summary of audits of waste disposal, treatment and recovery sites for the residues from facility

During 2011, Indaver Group audited K&S, the facility for the recovery of our flue gas residues and boiler ash. There two minor observations raised at this audit. The facility was approved for use and continued use.
There was a planned audit of Hammond lane, the outlet for ferrous metals in 2013 however a suitable time was not agreed. This was completed in March 2014.

1.13 Environmental Management System

1.13.1 Environmental Management Programme – Report for previous year

Indaver Ireland Limited commenced waste activities on the 15th August 2011. Condition 2.3.2.3 of W0167-02 requires that an Environmental Management Programme be submitted to the Agency not later than six months from the date of commencement of waste activities. The EMP was submitted in February 2012. Correspondence (W0167-02/ap02mg) was received from the Agency stating that the EMP was largely to the Agency's agreement and any changes that were required to the schedule of objectives and targets were updated in accordance to the letter that was received by the Agency.

1.13.2 Environmental Management Programme – Proposal for current year- Indaver Improvement Plan - Schedule of QESH Objectives and Targets

The Indaver Improvement Plan details the company's objectives and targets for the improvement and maintenance of the quality, environmental and safety & health management systems. It is used to comply with Condition 2.3.2.3 in relation to the implementation and management of objectives and targets.

Version 67 of the Indaver Improvement Plan was issued on the 22nd March 2013. A number of new actions were added to this Version.

The following are our 9 core Objectives:

OBJECTIVE 1: LEGISLATIVE COMPLIANCE INCLUDING WASTE LICENCES AND PERMITS
OBJECTIVE 2: CUSTOMER FOCUS
OBJECTIVE 3: OPERATIONAL EFFICIENCY & BUSINESS PERFORMANCE
OBJECTIVE 4: EMPLOYEE DEVELOPMENT AND INVOLVEMENT
OBJECTIVE 5: ENERGY AND RESOURCE USE
OBJECTIVE 6: HEALTH AND SAFETY
OBJECTIVE 7: QESH SYSTEMS
OBJECTIVE 8: CONTROL AND MANAGEMENT OF SUPPLIERS & CONTRACTORS
OBJECTIVE 9: WASTE HANDLING AND TRANSPORT

Under each of these Objectives the Indaver Improvement Plan specifies the following information:

1. Specific objective and associated targets
2. The specific actions outlined for achieving targets
3. Where the action arose from
4. Target date for completion of the action
5. Person responsible for completion of the action
6. Manager of person responsible for completion of the action
7. Department of the person responsible for completion of the action
8. Current status of objective/target

Actions are added and closed on an ongoing basis.

See Appendix 6 for a list of actions closed.

See Appendix 7 for a list of planned actions.

1.13.3 Overview of Environmental Management System

It is the policy of Indaver to conduct its activities in such a manner as to minimise or eliminate any potential adverse effects on the environment

This commitment is expressed in the company's QESH (Quality, Environmental and Safety & Health) Policy and by the installation of an Environmental Management System to control and minimise the environmental impact that the activities on site may pose.

1.13.4 Structure of Environmental Management System

Indaver have an integrated Quality, Environmental and Safety & Health (QESH) management system. The Quality, Environmental or the Health & Safety Management Systems for the Facility were certified by NSAI to the ISO 9001, ISO 14001 and OHSAS 18001 standards in July 2013. This now means that all of Indaver's activities are certified to ISO 9001, ISO 14001 and OHSAS 18001 standard.

Figure 1.13.4.1 shows the basic structure of the QESH Management System.

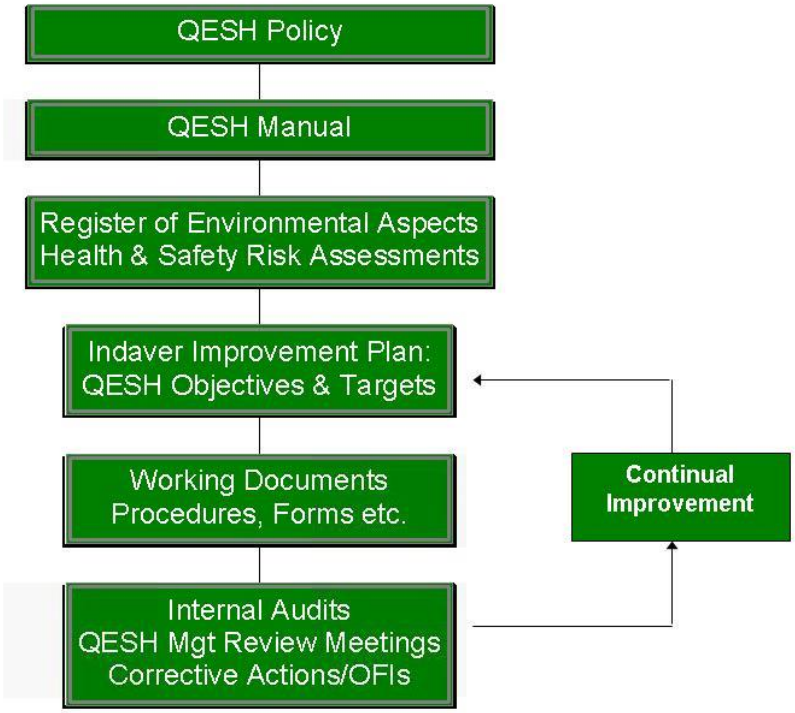


Figure 1.13.4.1 Structure of QESH Management System

1.13.5 Register of Environmental Aspects

The Register of Environmental Aspects identifies any significant environmental aspects of Indaver's activities. An environmental aspect is an element of Indaver's activities that can interact with the environment. The Register of Environmental Aspects for the Meath facility was drawn up in 2012 after consultation with the management and staff at the facility and finalized and issued in 2013.

The following 9 aspects are currently in place:

1. Vehicle Movements
2. Tipping Hall
3. Storage & mixing of wastes
4. Incineration of wastes
5. Ash and metal handling & storage
6. Air emissions treatment process
7. Fire & Firewater
8. Ancillary Services
9. Resource, Consumable usage and generation of waste

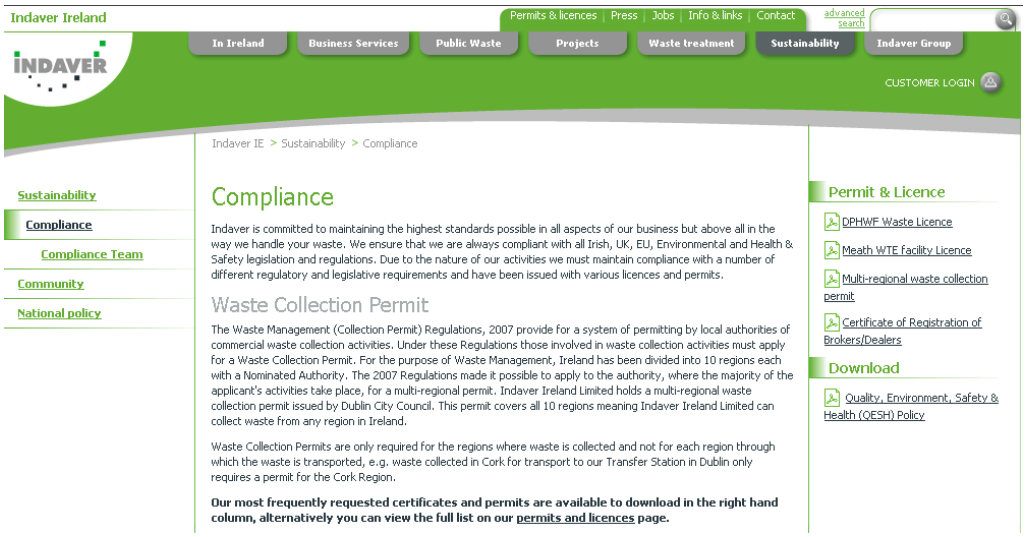
Each aspect is assigned a Significance Rating. All of these aspects were deemed significant and are controlled via the objectives and targets or through operational procedures.

1.13.6 Communication/Public Information

All communications with interested parties is dealt with as per Operations 6.1 Internal & External Communications Procedure. Indaver had 2 audits from customers during 2012 and over 30 visits from interested parties e.g. schools, universities etc

Environmental information is made available to interested parties upon request and Indaver aims to facilitate all requests by customers to conduct audits and by interested partied to conduct visits of the facility.

Indaver's website, www.indaver.ie, is a valuable source of information for customers and interested parties.



The "Compliance" Page provides access to downloads of the following:

- All of Indaver's waste licences, waste permits and waste collections permit
- Indaver's ISO 9001, ISO 14001 and OHSAS 18001 certificates
- Indaver's Quality, Environmental and Health & Safety Policy
- Certificate of Registration of Brokers and Dealers

Indaver is also an active member of the Indaver Community Liaison Committee which consists of Slane Area Councillors, Carranstown Residents Committee and Indaver personnel and is chaired by Meath County Council.

1.14 Pollutant Release and Transfer Register-report for previous year

As per the PRTR regulations, S.I. No 123 of 2007, require that Indaver report releases of pollutants and off site transfers of waste. Indaver submitted their E-PRTR on 26th March 2013 and is attached in Appendix 4.

1.15 Pollutant Release and Transfer Register-proposal for current year

It is anticipated that Indaver will continue to monitor the same pollutants in our air emissions as in 2013. These are TOC, HCl, HF, SO_2, NO_x, CO, dust and dioxins.

1.16 Particulates Monitoring

Dust is monitored continuously using as per Schedule B of W0167-02. The quarterly reports contain the results for each months results for dust measurements. Here is the summary of dust figures for 2013.

The dust produced and emitted through A1-1 for the year 2013 is the following:

Dust ELV mg/Nm3	Average Result for 2013 mg/Nm3	Mass of dust emitted in 2013
10	0.08	77Kg

Quarterly testing took place in 2013 as per the licence schedule and the following is the results of the particulate monitoring from this campaign. The full reports have been sent to the Agency as part of the quarterly reports.

PM10	**Year 2013 Average mg/Nm3**	**Measurement Uncertainty mg/Nm3**
Average for 2013	0.6875	±0.4925

PM2.5	**Year 2013 Average mg/Nm3**	**Measurement Uncertainty mg/Nm3**
Average for 2013	0.3325	±0.325

1.17 Review of Decommissioning Management Plan

The Closure, Restoration, Aftercare management plan was completed and sent to the EPA for review in 2011. This was approved by the Agency on the 22nd August 2011. This was reviewed during 2013 and there have been no amendments or adjustments required. This will be reviewed again in 2014.

1.18 Statement of measures in relation to prevention of environmental damage and remedial actions (Environmental Liabilities)

Condition 12.2.1 of waste licence W0167-02 requires Indaver to submit an annual statement as to the measures taken or adopted at the site in relation to the prevention of environmental damage.

The statement of measures is outlined in Appendix 5 of the Environmental Liabilities Risk Assessment that was submitted to the Agency and agreed by the Agency on 22nd August 2011. A copy of this is attached in Appendix 3.

1.19 Environmental Liabilities Risk Assessment Review (every 3 years or more frequently as dictated by relevant on site change including financial provisions)

Condition 12.2.2 requires that the ELRA shall be reviewed as necessary to reflect any significant changes on site and in any case within three years following initial agreement. The ELRA was submitted to the Agency and received agreement on the 22nd August 2011. The financial provisions which were in place were also agreed with the Agency on the same date. This will be reviewed in light of any significant changes which occur and in any case within the three years i.e. by August 2014. There were no significant changes during 2013.

Appendix 1: Waste accepted at the facility for recovery from 1st January 2013 to the 31st December 2013

Material Accepted	Quantity/Tonnes
020203 MATERIALS UNFIT FOR CONSUMPTION	33.70
040222 WASTE FROM PROCESSED TEXTILE	61.46
070512 NON HAZ ORGANIC SLUDGE	3926.20
070514 NON HAZ PHARMA WASTE SOLID	165.46
070514 NON HAZ SOLID WASTE	4.94
08 03 08 WASTE INK SOLUTION	224.64
080318 WASTE PRINTING TONER	119.44
090108 PHOTOGRAPHIC WASTE WITHOUT SILVER	6.80
110110 SLUDGES AND FILTERCAKES	7.06
150101 PAPER & CARDBOARD PACKAGING	7.58
150102 EMPTY PLASTIC PACKAGING	7.00
160306 OFF SPEC ORGANIC SOLID	193.76
170604 INSULATION MATERIALS	415.70
180104 SENSITIVE WASTE SOLID	0.02
190203 PREMIXED NON HAZ WASTE	3082.30
190501 ORGANIC MSW FINES	4485.60
190805 SLUDGES FROM URBAN WASTE WATER	9.62
191004 AUTOMOTIVE SHREDDER RESIDUE	5747.50
191006 SHREDDINGS FROM METAL CTG WASTE	286.72
191212 MT RESIDUE	25972.30
200111 TEXTILES	11.56
200139 PLASTICS	41.22
200140 METALS	1.04
200301 MUNICIPAL WASTE	175018.48
200307 BULKY WASTE	830.34
200399 MSW NOT OTHERWISE SPECIFIED	87.58

Appendix 2: Overview of waste removed from the facility from 1st January 2013 to the 31st December 2013

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 Non Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	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					
Within the Country	13 08 99	Yes	0.75	wastes not otherwise specified	R9	M	Weighed	Offsite in Ireland	Rilta Environmental,W0192-03	Block 402,Greenogue Business Park,Rathcoole,Dublin,Ireland	Rilta Environmental,W0192-03,Block 402,Greenogue Business Park,Rathcoole,Dublin,Ireland	Block 402,Greenogue Business Park,Rathcoole,Dublin,Ireland
Within the Country	16 10 02	No	1130.88	aqueous liquid wastes other than those mentioned in 16 10 01	D9	M	Weighed	Offsite in Ireland	EPS Dundalk and Drogheda WWTW,EPS Pumping & Treatment Systems	Dundalk WWTW,Lower point road,Co-Louth,Co-Louth,Ireland		
Within the Country	17 02 01	No	5.44	wood	R13	M	Weighed	Offsite in Ireland	Nurendale Limited trading as Panda Waste Services Limited,W0140 - 03	Rathdrinagh,Beauparc,Navan ,Co Meath ,Ireland		
Within the Country	17 04 05	No	14.0	iron and steel	R13	M	Weighed	Offsite in Ireland	Nurendale Limited trading as Panda Waste Services Limited,W0140 - 03	Rathdrinagh,Beauparc,Navan ,Co Meath ,Ireland		
Within the Country	17 05 04	No	16.04	soil and stones other than those mentioned in 17 05 03	D15	M	Weighed	Offsite in Ireland	Nurendale Limited trading as Panda Waste Services Limited,W0140 - 03	Rathdrinagh,Beauparc,Navan ,Co Meath ,Ireland		
Within the Country	17 09 04	No	24.24	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	R13	M	Weighed	Offsite in Ireland	Nurendale Limited trading as Panda Waste Services Limited,W0140 - 03	Rathdrinagh,Beauparc,Navan ,Co Meath ,Ireland		
Within the Country	19 01 02	No	3862.38	ferrous materials removed from bottom ash	R4	M	Weighed	Offsite in Ireland	Hammond Lane Metal Company Limited,WFP-DC-0013-01	Pigeon House Road,Ringsend,Dublin 4,Ringsend,Ireland		
Within the Country	19 01 02	No	98.24	ferrous materials removed from bottom ash	R4	M	Weighed	Offsite in Ireland	Hegarty Metal Processors (International) limited,WFP-LKC-11-001-01	Ballysimon road,.,Limerick City,Limerick City,Ireland		
To Other Countries	19 01 07	Yes	7685.0	solid wastes from gas treatment	R5	M	Weighed	Abroad	K&S Kali GmBH,LicenceM76D310/57 Whiteriver Landfill[Louth County Council]	Reutilisation Salt Mines(Phillippstaal),Nipper StraBe 33,36269 Philippsthal,36269,Germany Whiteriver and Gunstown Townland ,Dunleer,Co-Louth,Co-Louth,Ireland	K&S Kali GmBH,LicenceM76D310/57, Reutilisation Salt Mines(Phillippstaal),Nipper StraBe 33,36269 Philippsthal,36269 Philippsthal,Germany	Reutilisation Salt Mines(Phillippstaal),Nipper StraBe 33,36269 Philippsthal,36269 Philippsthal,Germany
Within the Country	19 01 12	No	32735.58	bottom ash and slag other than those mentioned in 19 01 11	D1	M	Weighed	Offsite in Ireland	,W0060-03			
Within the Country	19 01 12	No	5855.14	bottom ash and slag other than those mentioned in 19 01 11	R10	M	Weighed	Offsite in Ireland	Greenstar Knockharley,W0146-01	Knockharley,Navan,Co-Meath,.,Ireland		
To Other Countries	19 01 13	Yes	827.0	fly ash containing dangerous substances	R5	M	Weighed	Abroad	K&S Kali GmBH,LicenceM76D310/57	Reutilisation Salt Mines(Phillippstaal),Nipper StraBe 33,36269 Philippsthal,36269 Philippsthal,36269,Germany	K&S Kali GmBH,LicenceM76D310/57, Reutilisation Salt Mines(Phillippstaal),Nipper StraBe 33,36269 Philippsthal,36269 Philippsthal,Germany	Reutilisation Salt Mines(Phillippstaal),Nipper StraBe 33,36269 Philippsthal,36269 Philippsthal,Germany

To Other Countries	19 01 13	Yes	1110.38	fly ash containing dangerous substances	R5	M	Weighed	Abroad	K&S,34/Hef-79 n 330-51/153	Werk Werra,Standort Wintershall Herfagrund,36266 Herfa ,36266 Herfa ,Germany	K & S,34/Hef-79 n 330-51/153,Werk Werra,Standort Wintershall Herfagrund,36266 Herfa ,36266 Herfa ,Germany	Werk Werra,Standort Wintershall Herfagrund,36266 Herfa ,36266 Herfa ,Germany
To Other Countries	19 01 13	Yes	119.0	fly ash containing dangerous substances	D12	M	Weighed	Abroad	K & S ,34/Hef-79n330-51/153	Werra Plant Underground Waste Disposal Plant,Herfa-Neurode,36266 Heringen ,36266 Heringen ,Germany	K & S ,34/Hef-79n330-51/153,Werra Plant Underground Waste Disposal Plant,Herfa-Neurode,36266 Heringen ,36266 Heringen ,Germany	Werra Plant Underground Waste Disposal Plant,Herfa-Neurode,36266 Heringen ,36266 Heringen ,Germany
Within the Country	20 03 01	No	15.6	mixed municipal waste	R1	E	Volume Calculation	Onsite of generation	Indaver Ireland Limited,W0167-02	Carranstown,Duleek,Co-Meath,N/A,Ireland		
Within the Country	20 03 04	No	43.1	septic tank sludge	D9	M	Weighed	Offsite in Ireland	EPS Dundalk and Drogheda WWTW,EPS Pumping & Treatment Systems	Dundalk WWTW,Lower point road,Co-Louth,Co-Louth,Ireland		
Within the Country	20 03 07	No	2.88	bulky waste	D1	M	Weighed	Offsite in Ireland	Whiteriver Landfill[Louth County Council] ,W0060-03	Whiteriver and Gunstown Townland ,Dunleer,Co-Louth,Co-Louth,Ireland		
Within the Country	19 01 12	No	1989.78	bottom ash and slag other than those mentioned in 19 01 11	D1	M	Weighed	Offsite in Ireland	Scotchcorner Landfill Monaghan County Council,W0020-02	Letterbane,Annyalla,Castleblayney,Co-Monaghan,Ireland		

Appendix 3: Statement of Measures

Master List of Risk Reduction and Consequence Mitigation Measures

Ref	Process / Area	Measure
01	Vehicle movements	Vehicles only travel over hardstanding areas with drainage to surface water drainage system
		Vendor selection procedures to eliminate high risk waste contractors
		Well marked two-way system for waste deliveries on site with a large turning area at tipping hall
		Outdoor lighting in vehicle movement areas
		Security gate at weigh bridge entrance to site
		15 km/h speed limit to be set on site
		All trucks carrying waste must present paperwork prior to gaining entry to site
		Visitor pass system
02	Tipping Hall	All waste depositing operations are manned activities
		Random waste inspections carried out to identify any unsuitable wastes in contractors loads
		SOP to be developed for waste loading / unloading
		Waste quarantine area designated at delivery area for diesel storage
03	Storage & mixing of wastes	Concrete specification is impervious to liquids that could enter the waste bunker
		Automatic foam / water cannons system in waste bunker
		All waste mixing activities in waste bunker are manned activities
		All waste mixed in waste bunker by grab to achieve consistency in waste to furnace and dilute any spot contamination loads
04	Heat treatment of wastes	Furnace designed to withstand minor explosions
05	Ash handling & storage	Ash loading operations are manned activities

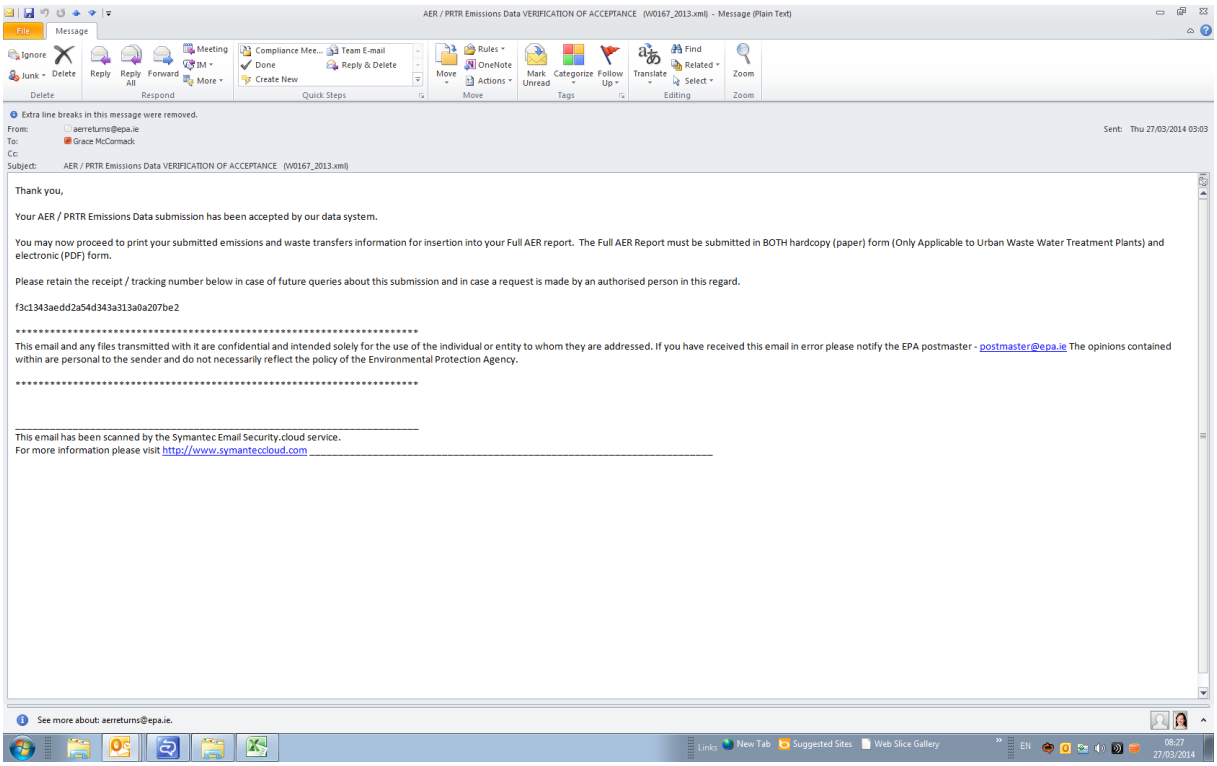
Ref	Process / Area		Measure
			High level alarms on all ash holding silos
			Low level alarms on all ash holding silos
			Fill detectors on road tankers used for unloading ash from silos
			Bottom ash holding area graded to contain wet ash
			Spill kits (including absorbent materials)
			Spill procedures for containing and disposing of ash spills
			Bottom ash storage capacity of 1,600 m^3, over one weeks estimated storage capacity
			Approved vendor supplier vetting process
			Leak detection system on waste bunker to prevent any leachate entering groundwater
			Boiler ash and bottom ash to be collected in sealed container or sealed IBCs for disposal
06	Air emissions treatment process		Ammonia solution area is kerbed & graded towards a dedicated isolated underground 10,000 litre forecourt separator with closure valve to the south west of the tank
			Ammonia solution tank filling operations are manned activities
			Double skinned tank with leak detection and overfill protection used for ammonia solution
			Tank inspection regime as part of preventative maintenance procedures
			All ammonia solution pipework above ground
			High level alarms on all air emission treatment silos
			Low level alarms on all air emission treatment silos
			All drains in process building drain to recovered water tanks beside NaOH delivery area
			Spill kits (including absorbent materials)

Ref	Process / Area		Measure
			Emergency overpressure vent on activated carbon silo - if overpressure a vent system relieves overpressure to atmosphere
			Approved vendor supplier vetting process
			All NaOH and Nitric acid will be contained in IBCs
			Activated carbon quantities will be minimised once the process has been established
			Duty standby motors for suction fan for process
			Automatic process shutdown for fan failure
07	Fires & Firewater		Fire detection across site with smoke detectors in buildings (connected to fire alarm)
			UV / IR combined fire detectors used in waste bunker are better and more effective than smoke detectors due to height of bunker and dust levels expected
			Four directable water cannons in waste bunker for extinguishing spot fires
			Firewater retention tank with diversion valve linked to control room
			Waste bunker is impermeable and can contain firewater. Manual system for pumping out bunker after a fire event if required
			Fire main & hydrants across process building (hose reels inside, hydrants outside)
			Hand held fire extinguishers across site
			Foam supplies
			TOC, pH and conductivity of runoff monitored twice before leaving outfall
			All surface water runoff must be pumped to hydrobreak before release to drainage ditch
08	Ancillary services		Routine inspections of piping and tanks as per maintenance programme
			Diesel storage area is kerbed & graded towards a dedicated isolated underground 10,000 litre forecourt separator to the south west of the tank

Ref	Process / Area		Measure
			Diesel tank filling operations are manned activities
			Double skinned tank with leak detection used for diesel
			Engine shutoff during diesel unloading
			All diesel pipework above ground
			Spill kits (including absorbent materials)
			Concrete specification is impervious to liquids that could enter the septic tank
			Tank inspection regime as part of preventative maintenance procedures
			Automatic foam / water deluge system in Turbine area for turbine lube oil tank and pipework
			Spill procedure for containment and removal of material/chemical spills
			Break Glass Units across site
			All electrics to ETCI Rules
			Elevated pipe tracks, all process pipes are above ground (apart from drain pipes)
			Planned / preventative maintenance
			Operator training
			Safety briefing for contractors
			Use of qualified vendors
			Chemstore units with spill trays to be used in the contractors' compound for small quantities of hazardous materials stored there
			Inspection / monitoring chamber on puraflo system for domestic type waste effluent
			Bunding around transformers on site

Ref	Process / Area		Measure
			Eye washes and safety showers will be placed in the required locations across the site
			Emergency response and spill response drills will be carried out quarterly as part of the annual training regime for the site

Appendix 4: E-PRTR



AER / PRTR Emissions Data VERIFICATION OF ACCEPTANCE (W0167_2013.xml) - Message (Plain Text)

File | Message

Ignore | Junk | Delete | Reply | Reply All | Forward | Meeting | IM | More | Compliance Mee... | Team E-mail | Done | Reply & Delete | Create New | Move | Rules | OneNote | Actions | Mark Unread | Categorize | Follow Up | Translate | Find | Related | Select | Zoom

Extra line breaks in this message were removed.

From: aerreturns@epa.ie
To: Grace McCormack
Cc:
Subject: AER / PRTR Emissions Data VERIFICATION OF ACCEPTANCE (W0167_2013.xml)

Sent: Thu 27/03/2014 03:03

Thank you,

Your AER / PRTR Emissions Data submission has been accepted by our data system.

You may now proceed to print your submitted emissions and waste transfers information for insertion into your Full AER report. The Full AER Report must be submitted in BOTH hardcopy (paper) form (Only Applicable to Urban Waste Water Treatment Plants) and electronic (PDF) form.

Please retain the receipt / tracking number below in case of future queries about this submission and in case a request is made by an authorised person in this regard.

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Guidance to completing the PRTR workbook

AER Returns Workbook

Version 1.1.17

REFERENCE YEAR	2013

1. FACILITY IDENTIFICATION

Parent Company Name	Indaver Ireland Limited
Facility Name	Indaver Ireland Limited (Duleek)
PRTR Identification Number	W0167
Licence Number	W0167-02

Waste or IPPC Classes of Activity

No.	class_name
3.8	Incineration on land or at sea.
3.12	Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule.
3.13	Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced.
3.7	Physico-chemical treatment not referred to elsewhere in this Schedule (including evaporation, drying and calcination) which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. to 10. of this Schedule.
4.13	Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced.
4.2	Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes).
4.3	Recycling or reclamation of metals and metal compounds.
4.4	Recycling or reclamation of other inorganic materials.
4.6	Recovery of components used for pollution abatement.
4.9	Use of any waste principally as a fuel or other means to generate energy.

Address 1	Carranstown
Address 2	Duleek
Address 3	Meath
Address 4	
	Meath
Country	Ireland
Coordinates of Location	-6.39215 53.6765
River Basin District	IEEA
NACE Code	3821
Main Economic Activity	Treatment and disposal of non-hazardous waste
AER Returns Contact Name	Grace McCormack
AER Returns Contact Email Address	grace.mccormack@indaver.ie
AER Returns Contact Position	Quality and Environmental Manager
AER Returns Contact Telephone Number	041 213 4005
AER Returns Contact Mobile Phone Number	086 046 4224
AER Returns Contact Fax Number	None
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	0
Number of Employees	35
User Feedback/Comments	Some of the parameters listed in the releases to air are more than 50% variance than last years data. This is because there was an issue with the flow. This was fixed and corrected in 2013 therefore resulting in a higher flow rate and the results given are the average result x the flow rate x run hours. This higher flow rate from the correction on the system has caused the results for the year to be higher than in 2012. Also operationally we were running for longer as we had fewer shutdowns. Also, we burned more waste in 2013 than in 2012 so the figures for emissions to air will be higher. For the increase in SO2 the incoming waste also appeared more acidic and needed more consumables to tre
Web Address	www.indaver.ie

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
5(b)	Installations for the incineration of non-hazardous waste in the scope of Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste
5(c)	Installations for the disposal of non-hazardous waste
50.1	General

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

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

4. WASTE IMPORTED/ACCEPTED ONTO SITE

Guidance on waste imported/accepted onto site

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

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

4.1 RELEASES TO AIR

Link to previous years emissions data

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
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
02	**Carbon monoxide (CO)**	M	OTH	EN 14181 (Continuous Monitoring using FID)	6004.0	6004.0	0.0	0.0
80	Chlorine and inorganic compounds (as HCl)	M	OTH	EN 14181 (Continuous Monitoring using FTIR)	2690.0	2690.0	0.0	0.0
84	Fluorine and inorganic compounds (as HF)	M	OTH	EN 14181 (Continuous Monitoring using FTIR)	105.0	105.0	0.0	0.0
21	Mercury and compounds (as Hg)	M	OTH	EN 14181 (Continuous Monitoring using FTIR)	0.312	0.312	0.0	0.0
08	Nitrogen oxides (NOx/NO2)	M	OTH	EN 14181 (Continuous Monitoring using FTIR)	147934.0	147934.0	0.0	0.0
11	Sulphur oxides (SOx/SO2)	M	OTH	EN 14181 (Continuous Monitoring using FTIR)	24015.0	24015.0	0.0	0.0
03	Carbon dioxide (CO2)	M	OTH	EN 14181 (Continuous Monitoring using FTIR)	237366260.0	237366260.0	0.0	0.0
05	Nitrous oxide (N2O)	M	OTH	EN 14181 (Continuous Monitoring using FTIR)	360.23	360.23	0.0	0.0
47	PCDD + PCDF (dioxins + furans)(as Teq)	M	EN 1948-1 to3:2003		0.0000052	0.0000052	0.0	0.0
86	Particulate matter (PM10)	M	CRM	BS EN ISO 23210	660.42	660.42	0.0	0.0
					0.0	0.0	0.0	0.0

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

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
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 AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
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
351	Total Organic Carbon (as C)	M	OTH	EN 14181 (Continuous Monitoring using FID)	327.0	327.0	0.0	0.0
210	Dust	M	OTH	EN 14181 (Continuous Monitoring)	77.0	77.0	0.0	0.0
347	Total heavy metals	M	EN 14385:2004	This is inclusive of Cd/Tl figures	35.16	35.16	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: Indaver Ireland Limited (Duleek)

Please enter summary data on the quantities of methane flared and / or utilised	**T (Total) kg/Year**	**M/C/E**	**Method Used: Method Code**	**Method Used: Designation or Description**	**Facility Total Capacity m3 per hour**	
Total estimated methane generation (as per site model)	0.0				N/A	
Methane flared	0.0				0.0	(Total Flaring Capacity)
Methane utilised in engine/s	0.0				0.0	(Total Utilising Capacity)
Net methane emission (as reported in Section A above)	0.0				N/A	

4.2 RELEASES TO WATERS

Link to previous years emissions data

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

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

4.3 RELEASES TO WASTEWATER OR SEWER

Link to previous years emissions data

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

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

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

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

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

4.4 RELEASES TO LAND

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

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

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

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

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

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

Please enter all quantities on this sheet in Tonnes 3

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used: M/C/E	Method Used: Method Used	Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility / Non Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility / Non Haz Waste: Address of Recover/Disposer	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)
To Other Countries	06 01 05	Yes	0.0	nitric acid and nitrous acid	D10	M	Weighed	Abroad	Indaver Ireland Limited,W0036-02	Tolka Quay Road,Dublin Port,D1,D1,Ireland	Abfall Verwertungs Gesellschaft GmbH (AVG),B223AVG-GENB-2,Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany	Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany
To Other Countries	06 01 06	Yes	0.0	other acids	D10	M	Weighed	Abroad	Indaver Ireland Limited,W0036-02	Tolka Quay Road,Dublin Port,D1,D1,Ireland	Abfall Verwertungs Gesellschaft GmbH (AVG),B223AVG-GENB-2,Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany	Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany
To Other Countries	06 02 03	Yes	0.0	ammonium hydroxide	D10	M	Weighed	Abroad	Indaver Ireland Limited,W0036-02	Tolka Quay Road,Dublin Port,D1,D1,Ireland	Abfall Verwertungs Gesellschaft GmbH (AVG),B223AVG-GENB-2,Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany	Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany
To Other Countries	06 02 04	Yes	0.0	sodium and potassium hydroxide	D10	M	Weighed	Abroad	Indaver Ireland Limited,W0036-02	Tolka Quay Road,Dublin Port,D1,D1,Ireland	Abfall Verwertungs Gesellschaft GmbH (AVG),B223AVG-GENB-2,Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany	Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany
To Other Countries	13 02 08	Yes	0.0	other engine, gear and lubricating oils	D10	M	Weighed	Abroad	Indaver Ireland Limited,W0036-02	Tolka Quay Road,Dublin Port,D1,D1,Ireland	Abfall Verwertungs Gesellschaft GmbH (AVG),B223AVG-GENB-2,Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany	Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany
Within the Country	13 05 07	Yes	0.0	oily water from oil/water separators	D9	M	Weighed	Offsite in Ireland	Enva Ireland Ltd,196-1	Unit 196, John F Kennedy Industrial Estate John F Kennedy Road,Naas Road,Dublin 12,Ireland	Mac Anulty Clear Drains,John F Kennedy Industrial Estate John F Kennedy Road,Naas Road,Dublin 12,Ireland	Mac Anulty Clear Drains,John F Kennedy Industrial Estate John F Kennedy Road,Naas Road,Dublin 12,Ireland
To Other Countries	13 07 01	Yes	0.0	fuel oil and diesel	D10	M	Weighed	Abroad	Indaver Ireland Limited,W0036-02	Tolka Quay Road,Dublin Port,D1,D1,Ireland	Abfall Verwertungs Gesellschaft GmbH (AVG),B223AVG-GENB-2,Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany	Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany
Within the Country	13 08 99	Yes	0.75	wastes not otherwise specified	R9	M	Weighed	Offsite in Ireland	Rilta Environmental,W0192-03	Block 402,Greenogue Business Park,Rathcoole,Dublin,Ireland	Rilta Environmental,W0192-03,Block 402,Greenogue Business Park,Rathcoole,Dublin,Ireland	Block 402,Greenogue Business Park,Rathcoole,Dublin,Ireland
To Other Countries	15 02 02	Yes	0.0	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances	D10	M	Weighed	Abroad	Indaver Ireland Limited,W0036-02	Tolka Quay Road,Dublin Port,D1,D1,Ireland	Abfall Verwertungs Gesellschaft GmbH (AVG),B223AVG-GENB-2,Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany	Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany
To Other Countries	16 05 04	Yes	0.0	gases in pressure containers (including halons) containing dangerous substances	D10	M	Weighed	Abroad	Indaver Ireland Limited,W0036-02	Tolka Quay Road,Dublin Port,D1,D1,Ireland	Abfall Verwertungs Gesellschaft GmbH (AVG),B223AVG-GENB-2,Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany	Borsigstr. 2,D-22113 Hamburg,Hamburg,D-22113 Hamburg,Germany
Within the Country	16 10 01	Yes	0.0	aqueous liquid wastes containing dangerous substances	D9	M	Weighed	Offsite in Ireland	Rilta Environmental,W0192-03	Block 402,Greenogue Business Park,Rathcoole,Dublin,Ireland	Rilta Environmental,W0192-03,Block 402,Greenogue Business Park,Rathcoole,Dublin,Ireland	Block 402,Greenogue Business Park,Rathcoole,Dublin,Ireland
Within the Country	16 10 02	No	1130.88	aqueous liquid wastes other than those mentioned in 16 10 01	D9	M	Weighed	Offsite in Ireland	EPS Dundalk and Drogheda WWTW,EPS Pumping & Treatment Systems	Dundalk WWTW,Lower point road,Co-Louth,Co-Louth,Ireland Block 402,Greenogue Business Park,Rathcoole,Dublin,Ireland		
Within the Country	16 10 02	No	0.0	aqueous liquid wastes other than those mentioned in 16 10 01	D9	M	Weighed	Offsite in Ireland	Rilta Environmental,W0192-03			
Within the Country	17 02 01	No	5.44	wood	R13	M	Weighed	Offsite in Ireland	Nurendale Limited trading as Panda Waste Services Limited,W0140 - 03	Rathdrinagh,Beauparc,Navan,Co.Meath,Ireland		
Within the Country	17 04 05	No	14.0	iron and steel	R13	M	Weighed	Offsite in Ireland	Nurendale Limited trading as Panda Waste Services Limited,W0140 - 03	Rathdrinagh,Beauparc,Navan,Co.Meath,Ireland		
Within the Country	17 05 04	No	16.04	soil and stones other than those mentioned in 17 05 03	D15	M	Weighed	Offsite in Ireland	Nurendale Limited trading as Panda Waste Services Limited,W0140 - 03	Rathdrinagh,Beauparc,Navan,Co.Meath,Ireland		
Within the Country	17 06 04	No	0.0	insulation materials other than those mentioned in 17 06 01 and 17 06 03	D15	M	Weighed	Offsite in Ireland	Nurendale Limited trading as Panda Waste Services Limited,W0140 - 03	Rathdrinagh,Beauparc,Navan,Co.Meath,Ireland		
Within the Country	17 09 04	No	24.24	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	R13	M	Weighed	Offsite in Ireland	Hammond Lane Metal Company Limited,WFP-DC-013-01	Pigeon House Road,Ringsend,Dublin 4,Ringsend,Ireland		
Within the Country	19 01 02	No	3862.38	ferrous materials removed from bottom ash	R4	M	Weighed	Offsite in Ireland	Hegarty Metal Processors (International) limited,WFP-LKC-11-001-01	Ballysimon road,,,Limerick City,Limerick City,Ireland		
Within the Country	19 01 02	No	98.24	ferrous materials removed from bottom ash	R4	M	Weighed	Offsite in Ireland	AES t/A Midland Waste Disposal Company Limited,W0131-02	Clonmagadden,Proudstown,Navan,Co-Meath,Ireland		
Within the Country	19 01 02	No	0.0	ferrous materials removed from bottom ash	R12	M	Weighed	Offsite in Ireland			K&S Kali GmbH,Licence/M76D310/57,Reutilisation Salt Mines(Philippsstadt),Nipper Straße 33,36269 Philippsthal,36269,Germany	Reutilisation Salt Mines(Philippsstadt),Nipper Straße 33,36269 Philippsthal,36269 Philippsthal,Germany
To Other Countries	19 01 07	Yes	7685.0	solid wastes from gas treatment	R5	M	Weighed	Abroad	K&S Kali GmbH,Licence/M76D310/57			
Within the Country	19 01 07	Yes	0.0	solid wastes from gas treatment	D9	M	Weighed	Abroad	Indaver NV,MLAV1/980000485/MVfb d	Industriele Afvalverwerking,Polderdijkweg,B-2030 Antwerpen 3,B-2030 Antwerpen 3,Belgium	Indaver NV,MLAV1/980000485/MVfb d,Industriele Afvalverwerking,Polderdijkweg,B-2030 Antwerpen 3,B-2030 Antwerpen 3,Belgium	Industriele Afvalverwerking,Polderdijkweg,B-2030 Antwerpen 3,B-2030 Antwerpen 3,Belgium
To Other Countries	19 01 07	Yes	0.0	solid wastes from gas treatment	R5	M	Weighed	Abroad	K&S,34/Hef-79 n 330-51/153 Whitetver Landfill(Louth County Council]	Werk Werra,Standort Wintershall Herfagrund,36266 Herfa ,36266 Herfa ,Germany	Werk Werra,Standort Wintershall Herfagrund,36266 Herfa ,36266 Herfa ,Germany	Werk Werra,Standort Wintershall Herfagrund,36266 Herfa ,36266 Herfa ,Germany
Within the Country	19 01 12	No	32735.58	bottom ash and slag other than those mentioned in 19 01 11	D1	M	Weighed	Offsite in Ireland	,W0060-03 Greenstar	,Dunleer,Co-Louth,Ireland Knockharley,Navan,Co-Meath,,Ireland		
Within the Country	19 01 12	No	5855.14	bottom ash and slag other than those mentioned in 19 01 11	R10	M	Weighed	Offsite in Ireland	Knockharley,W0146-01			
To Other Countries	19 01 13	Yes	827.0	fly ash containing dangerous substances	R5	M	Weighed	Abroad	K&S Kali GmbH,Licence/M76D310/57	Reutilisation Salt Mines(Philippsstadt),Nipper Straße 33,36269 Philippsthal,36269,Germany	K&S Kali GmbH,Licence/M76D310/57,Reutilisation Salt Mines(Philippsstadt),Nipper Straße 33,36269 Philippsthal,36269 Philippsthal,Germany	Reutilisation Salt Mines(Philippsstadt),Nipper Straße 33,36269 Philippsthal,36269 Philippsthal,Germany
To Other Countries	19 01 13	Yes	0.0	fly ash containing dangerous substances	D9	M	Weighed	Abroad	Indaver NV,MLAV1/980000485/MVfb d	Industriele Afvalverwerking,Polderdijkweg,B-2030 Antwerpen 3,B-2030 Antwerpen 3,Belgium	Indaver NV,MLAV1/980000485/MVfb d,Industriele Afvalverwerking,Polderdijkweg,B-2030 Antwerpen 3,B-2030 Antwerpen 3,Belgium	Industriele Afvalverwerking,Polderdijkweg,B-2030 Antwerpen 3,B-2030 Antwerpen 3,Belgium
To Other Countries	19 01 13	Yes	1110.38	fly ash containing dangerous substances	R5	M	Weighed	Abroad	K&S,34/Hef-79 n 330-51/153	Werk Werra,Standort Wintershall Herfagrund,36266 Herfa ,36266 Herfa ,Germany	K & S,34/Hef-79 n 330-51/153,Werk Werra,Standort Wintershall Herfagrund,36266 Herfa ,36266 Herfa ,Germany	Werk Werra,Standort Wintershall Herfagrund,36266 Herfa ,36266 Herfa ,Germany
To Other Countries	19 01 13	Yes	119.0	fly ash containing dangerous substances	D12	M	Weighed	Abroad	K. & S. ,34/Hef-79n'330-51/153	Werra Plant Underground Waste Disposal Plant,Herfa-Neurode,36266 Heringen ,36266 Heringen ,Germany	Werra Plant Underground Waste Disposal Plant,Herfa-Neurode,36266 Heringen ,36266 Heringen ,Germany	Werra Plant Underground Waste Disposal Plant,Herfa-Neurode,36266 Heringen ,36266 Heringen ,Germany
Within the Country	20 01 39	No	0.0	plastics	R13	M	Weighed	Offsite in Ireland	Nurendale Limited trading as Panda Waste Services Limited,W0140 - 03	Rathdrinagh,Beauparc,Navan,Co.Meath,Ireland		
Within the Country	20 03 01	No	0.0	mixed municipal waste	R13	M	Weighed	Offsite in Ireland	Nurendale Limited trading as Panda Waste Services Limited,W0140 - 03	Rathdrinagh,Beauparc,Navan,Co.Meath,Ireland		
Within the Country	20 03 01	No	15.6	mixed municipal waste	D15	M	Weighed	Offsite in Ireland	Nurendale Limited trading as Panda Waste Services Limited,W0140 - 03	Rathdrinagh,Beauparc,Navan,Co.Meath,Ireland		
Within the Country	20 03 01	No	0.0	mixed municipal waste	R1	E	Volume Calculation	Onsite of generation	Indaver Ireland Limited,W0167-02	Carranstown,Dulleek,Co-Meath,NA,Ireland		
Within the Country	20 03 03	No	0.0	street-cleaning residues	R1	M	Weighed	Onsite of generation	Indaver Ireland Limited,W0167-02	Carranstown,Dulleek,Co-Meath,NA,Ireland		
Within the Country	20 03 04	No	43.1	septic tank sludge	D9	M	Weighed	Offsite in Ireland	EPS Dundalk and Drogheda WWTW,EPS Pumping & Treatment Systems	Dundalk WWTW,Lower point road,Co-Louth,Co-Louth,Ireland		
Within the Country	20 03 04	No	0	septic tank sludge	D9	M	Weighed	Offsite in Ireland	Meath County Council-Navan,D0059-01	County Hall,Railway Street,Navan,Co-Meath,Ireland		
Within the Country	20 03 07	No	2.88	bulky waste	D1	M	Weighed	Offsite in Ireland	Whitetver Landfill[Louth County Council]	Whitetver and Gunstown Townland ,Dunleer,Co-Louth,Co-Louth,Ireland		
Within the Country	19 01 12	No	1969.78	bottom ash and slag other than those mentioned in 19 01 11	D1	M	Weighed	Offsite in Ireland	Scotchcorner Landfill Monaghan County Council,W0020-02	Letterbane,Annyalla,Castleblayney,Co-Monaghan,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

Appendix 5: Energy Efficiency Report

Indaver Ireland

Report on Energy Efficiency

Waste Licence W0167-02

Introduction

This document reflects the licence requirement in Condition 7.3 to demonstrate the energy efficiency of the site. Energy Efficiency must be, as a minimum, 0.65. This document gives the result of 0.671.

Audit

Audit timing

The audit of the site took place on the 18th November 2013 and a paper based audit afterward ensued over various days.

Audit period

December 2012 to December 2013

Audit personnel

The persons involved in the audit where the Process Engineer, Aidan Kennedy, the Maintenance Manager, Rory Murphy, the Project Engineer, Oliver Kelly and the Quality and Environmental Manager, Grace McCormack.

Scope of audit

The scope of the required energy audit is as defined by the 'Guidance Note on Energy Efficiency Auditing', published by the EPA, Johnstown Castle, Co. Wexford, Ireland.

Additional requirements re the energy audit are contained in Condition 7.2 and Condition 7.3 of the Waste Licence. The scope of the audit includes these conditions which read as follows

7.2 The licensee shall build and operate the facility to achieve an energy efficiency of, as a minimum, 0.65 using the formulae below to calculate Energy Efficiency:

Energy Efficiency = [Ep– (Ef + Ei)]/0/97 x (Ew + Ef] where

Emission point = annual energy produced as heat or electricity (GJ/year) (heat produced for commercial use is multiplied by 1.1 and electricity is multiplied by 2.6)

Ef = annual energy input to the system from fuels contributing to the production of steam (GJ/year)

Ew = annual energy contained in the waste input using the net calorific value of the waste (GJ/year)

Energy Efficiency

Condition 7.2 of the Waste Licence sets minimum energy efficiency. The achievement of this parameter is reviewed.

Condition 7.3.3 requires a calculation to be determined for the net usable energy produced per tonne of waste. This calculation was performed and the result is as shown:

Net Usable Energy Per Tonne of Waste Processed	0.630	MWh/Tonne

Condition 7.3.3 also requires a full breakdown of the calculation of each parameter in the equation and the results for this is shown below:

$$\text{Energy efficiency} = \frac{E_p - (E_f + E_i)}{0.97 * (E_w + E_f)}$$

In which:

E_p *means annual energy produced as heat or electricity. It is calculated with energy in the form of electricity being multiplied by 2.6 and heat produced for commercial use multiplied by 1.1 (GJ/year)*

E_f *means annual energy input to the system from fuels contributing to the production of steam (GJ/year)*

E_w *means annual energy contained in the treated waste calculated using the net calorific value of the waste (GJ/year)*

E_i *means annual energy imported excluding* E_w *and* E_f *(GJ/year)*

0.97 *is a factor accounting for energy losses due to bottom ash and radiation*

In addition, Annex II of the WFD highlights that this formula shall be applied in accordance with the Reference Document on Best Available Techniques for Waste Incineration (BREF WI).

Data used: 5th December 2012 to 5th December 2013. This is to coincide to the issuing of the operational cert from Eirgrid.

	Total waste treated	228797	**Tonnes**		
	Total electricity produced	143677.8	**MWh**		

	Type of energy	**Unit**	**Tonne**	**NCV (kJ/kg)**	**Energy (MWh)**
1.1	Adjusted amount incinerated waste		226,387	9,000	565,969
1.2	Amount sewage sludge		-	-	-
1.3	Amount used activated carbon		-	-	-
2	**E_w Energy input of waste**	**MWh**			**565,969**
2.1 + 2.2	Ef: Light fuel oil used for startup / keeping temperature	tonne	73.5	42,000	858
2.3	Ef: Natural gas used		-	-	-
3	**Ef: Energy input by imported energy with steam**	**MWh**			**858**
3.1	Ei: Light fuel oil used for startup / shutdown	tonne	73.5	42,000	858
3.2	Ei: Natural gas used	-	-	-	-
3.3	Ei: imported electricity (multiplied with equivalence factor 2.6)	-	-	-	
3.4	Ei: imported heat	-	-	-	-
4	**Ei: Energy input by imported energy without steam**	**MWh**			**858**
4.1	Ep: Adjusted electricity produced and internally used for incineration process	MWh	15,862.60	-	142,564
4.2	Ep: electricity delivered to a third party	MWh	127,258.30	-	
5	**Ep: Electricity produced**	**MWh**	**143,120.90**		**142,563.99**
5.1 + 5.2	Ep: Heat exported	MWh	-	-	-
6	**Ep: Heat exported**	**MWh**	**-**	**-**	**-**
6.1 to 6.3	Ep: heat used internally for steam driven pumps, backflow, heating flue gas, liquid APC residues		-	-	-
6.4	Ep: for soot blowing without backflow		-	-	
6.5 to 6.7	Ep: for heating buildings, deaeration, NH4OH injection		-	-	-
7	**Ep: Heat used internally**	**MWh**	**-**	**-**	**-**
	Ep	**MWh**			**370,666**
	R1				**0.671**

R1 Adjustments: Curtailment

Objective:	Omit periods where NCC constrains / curtails plant as energy must be spilt during these periods.
Data affected:	MWh produced, waste tonnes processed, time
Obtaining data:	MWh produced during constraints:
	- electricity produced whilst under constaint from NCC
	Waste treated during constrained period
Frequency of processsing data:	monthly

Curtailment

	MWh	t waste
Jan	11	218.7
Feb	72	291.6
Mar	15	82.4
Apr	0	54.1
May	310	831.8
Jun	38	287.2
Jul	4	6.6
Aug	0	0
Sep	14	35.2
Oct	24	179.6
Nov	8	40.9
Dec	60	381.5
Total	**556.9**	**2409.6**

Appendix 6: Closed actions for 2013

Obj. Re	Target	Action	Completion date	Dept. Resp.
1	Minimise the potential for odour emissions from site	Review odour complaints on an ongoing basis, if any, and report on the investigation and the actions that were put in place to rectify the situation and the effectiveness of the actions should be reviewed.	14/05/2013	Compliance/ Operations
3	Ensure smoke vents are effective	Repair/replace smoke vents in tipping hall to ensure their effectiveness	05/04/2013	Engineering
5	Follow up on recommendations from the energy audit to increase energy efficiency	Investigate the use of Ambient light/occupancy controllers for the office lights	31/12/2013	Operations
5	Recovery/Recycling of Residues	Review quantities of residues removed from site in order to calculate the percentage of residues recycled/recovered. Put in place a KPI based on this and measure.	12/08/2013	Compliance/ Commercial / Operations
5		Education of all plant personnel in relation to waste recycling and other good environmental practices	08/05/2013	Compliance/ Operations
5		Review options and ensure adequate provision of waste disposal facilities on site and in the offices.	01/07/2013	Compliance/ Operations
7	New document control system-finalising procedures	All procedures issued and updated on the new document control system-MOSS.	30/11/2013	Compliance/ Operations

Appendix 7: Planned actions for 2014

Obj. Ref.	Target	Action	Due date	Dept. Resp.
3	Use of cleaner technology, cleaner production	Review best practice documents and BREF's and report implement where possible.	31/12/2016	Compliance/ Commercial
5	Reduction of waste going to landfill	Monitor waste generated on site for first 3 years of operation.	31/12/2016	Compliance/ Operations
5		Ensure that waste generated on site is recovered where practicable	31/12/2016	Compliance/ Operations
5	Reduction in use of water	Monitor water usage for first 3 years of operation	31/12/2014	Compliance/ Operations
5		Identify methods of reducing water use on site based on the figures for water usage	31/12/2016	Compliance/ Operations
5	Monitoring of Consumable usage	Monitor consumable usage for first 3 years of operation	31/12/2014	Compliance/ Operations
5	Energy audit	Monitor fuel usage	31/12/2014	Compliance/ Operations
5		Monitor energy use at finer level	21/01/2014	Maintenance
5		Investigate Cooler Air inlet for air compressor	31/12/2013	Operations
5		Monitor Energy Usage figures for first 3 years of operation.	31/12/2014	Compliance/ Operations
Planbook		Occupancy Controllers for Level 4(Offices and corridor), Level 1(changing room and corridor), level 0(toilet and corridor) and security building(toilet and corridor). Village office area-review and install where required.	31/12/2014	Maintenance
Planbook		Review air pressure and consider seperating instrument air from plant air: Switch Bag filter from instrument air to plant air	31/12/2014	Engineering
6	Clarify crisis communication requirements	Carry out further training and full roll out the Incident Management plan	15/01/2014	Communications
Planbook	ISO 14001	Maintain Certification to ISO 14001	31/05/2014	Compliance/ Operations