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Lobinstown Quarry

Environmental Impact Assessment Report

Appendix 8

Climate

Calculation of GHG Emissions

2024

Table 8.1 Annual GHG Emissions During Operational Phase at Lobinstown Quarry (200,000 tpa Scenario)

Source	Value	Unit	Week (km/hour)	Week/Year	Subtotal	Loading Factor	Conversion Factor	Total (kg CO ₂ e)
HGV (out - laden)	8,000	trips/yr	25		200,000	0.90	1.0013	180,234
HGV (in - unladen)	8,000	trips/yr	25		200,000	0.90	0.6577	118,386
LGV (Staff & Contractors)	5,400	trips/yr	15		81,000	0.90	0.1684	12,276
Site Vehicles & Processing Plant	222,000	Ltr				1.00	2.63	583,860
ESB (Office, Lighting, pumps, etc)	72,184	kWh				1.00	0.210	15,171
Total								909,927
								910 tpa

Notes: Assumptions.

1. All exiting HGVs hauling aggregate are fully laden and return unladen.
2. Average HGV trips for aggregate are 25 km.
3. No. of HGV movements based on 29 trips per working day
4. For details of HGV movements refer to EIAR Section 14.
5. Total number of staff: 4.
6. Conversion Factors from SEAI (2022) and DBEIS & DEFRA (2022).
7. Fuel consumption values from Klanfar et al. (2016).
8. Loading Factors based on averaged values from Klanfar et al. (2016) or otherwise estimated, i.e., percent time plant operating during 11 hour workday.
9. Refer to EIAR Section 8.7 References for studies cited above.

Table 8.2 Annual GHG Emissions During Operational Phase at Lobinstown Quarry (300,000 tpa & Concrete Plant Scenario)

Source	Value	Unit	Week (km/Hour)	Week/Year	Subtotal	Loading Factor	Conversion Factor	Total (kg CO ₂ e)
HGV - Aggregate (out - laden)	12,000	trips/yr	25		300,000	0.90	1.0013	270,351
HGV - Aggregate (in - unladen)	12,000	trips/yr	25		300,000	0.90	0.6577	177,579
HGV - Readymix (out - laden)	3,000	trips/yr	25		75,000	0.90	1.0013	67,588
HGV - Readymix (in - unladen)	3,000	trips/yr	25		75,000	0.90	0.6577	44,395
HGV – Sand, Cement & Admixture (in - laden)	1,200	trips/yr	25		30,000	0.90	1.0013	27,035
HGV – Sand, Cement & Admixture (out - unladen)	1,200	trips/yr	25		30,000	0.90	0.6577	17,759
LGV - Staff & Contractors	5,400	trips/yr	15		81,000	0.90	0.1684	12,276
Site Vehicles & Processing Plant	332,992	ltr			332,992	1.00	2.63	875,769
ESB (Office, Lighting, pumps, etc)	72,184	kWh			72,184	1.00	0.210	15,171
Concrete Plant	110	kWh	62	50	341,000	0.65	0.3856	85,468
Total								1,593,390
								1,593 tpa

Notes: Assumptions.

1. All exiting HGVs hauling aggregate or concrete are fully laden and return unladen.
2. All arriving HGVs hauling sand, cement and admixtures are fully laden and exit unladen.
3. No. of HGVs trips related to readymix plant are based on: 10 concrete; 2 sand; 1 cement; and 1 admixture trip per day.
4. Average HGV trips are 25 km.
5. For details of HGV movements refer to EIAR Section 14.
6. Working Hours: 62 per week; and 50 weeks per year
7. Total number of staff: 4.
8. Conversion Factors from SEAI (2022) and DBEIS & DEFRA (2022).
9. Fuel consumption values from Klanfar et al. (2016).
10. Loading Factors based on averaged values from Klanfar et al. (2016) or otherwise estimated, i.e., percent time plant operating during 11 hour workday.
11. Refer to EIAR Section 8.7 References for studies cited above.

Table 8.3 Annual GHG Emissions During Decommissioning Phase at Lobinstown Quarry

Source	Value	Unit	Distance (km)	No. per Week (Hours)	No. per Year (Weeks)	Subtotal (Km or Lites)	Loading Factor	Conversion Factor	Total (kg CO ₂ e)
LGV - Staff & Contractors	48	trips/wk	15		12	8,640	0.90	0.1684	1,309
Site Vehicles	50	l/wk			12	600	0.90	2.63	1,420
Excavator	20.5	l/h		62	12	15,252	0.56	2.63	22,463
Dump Truck	20.0	l/h		62	12	14,880	0.23	2.63	9,001
Bulldozer	22.7	l/h		62	12	16,888	0.48	2.63	21,320
Total									55,514
									56 tpa

Notes: Assumptions.

1. Calculations assume 3 month Intensive Closing Stage as part of the decommissioning and restoration stage.
2. LGVs (i.e., staff and contractors) are assumed to have trips of 15 km.
3. Working Hours: 62 per week; and 50 weeks per year
4. A total of 4 staff during closure.
5. For details of truck movements refer to EIAR Section 14.
6. Conversion Factors from SEAI (2022) and DBEIS & DEFRA (2022); Fuel Consumption values from Klanfar et al. (2016).
7. Loading Factors based on averaged values from Klanfar et al. (2016) or otherwise estimated, i.e., percent time plant operating during 11 hour workday.
8. Refer to EIAR Section 8.7 References for studies cited above.