

APPENDIX 15

Greenhouse Gas and Energy Inventories



Appendix 15 - Life of Mine Calculations

LOM Stationary Diesel Use

Activity Data	Energy Use		Emission Factors		
			CO ₂	CH ₄	N ₂ O
kL	GJ/kL	GJ	kg CO ₂ -e/GJ	kg CO ₂ -e/GJ	kg CO ₂ -e/GJ
229,860	38.6	8,872,596	69.9	0.1	0.2
			t CO ₂ -e	t CO ₂ -e	t CO ₂ -e
Breakdown of individual GHG emissions (t CO ₂ -e)			620,194	887	1,775
Total GHG Emissions (t CO₂-e)			622,856		

LOM Fugitive Emissions

Activity Data	Energy Use		Emission Factors		
			CO ₂	CH ₄	N ₂ O
ROM (t)	-	-	kg CO ₂ -e/ROM t	kg CO ₂ -e/ROM t	kg CO ₂ -e/ROM t
35,000,000	N/A	N/A	N/A	54	N/A
			t CO ₂ -e	t CO ₂ -e	t CO ₂ -e
Breakdown of individual GHG emissions (t CO ₂ -e)			N/A	1,890,000	N/A
Total GHG Emissions (t CO₂-e)			1,890,000		

LOM Electricity

Activity Data		Energy Use	Emission Factors		
			CO ₂	CH ₄	N ₂ O
GJ		GJ	kg CO ₂ -e / GJ	kg CO ₂ -e / GJ	kg CO ₂ -e / GJ
1,344,768		1,344,768	230	N/A	N/A
			t CO ₂ -e	t CO ₂ -e	t CO ₂ -e
Breakdown of individual GHG emissions (t CO ₂ -e)			309,297	N/A	N/A
Total GHG Emissions (t CO₂-e)					309,297

LOM Product Use

Activity Data		Energy Production		Emission Factors		
				CO ₂	CH ₄	N ₂ O
Product	Product (t)	GJ/Product t	GJ	kg CO ₂ -e/GJ	kg CO ₂ -e/GJ	kg CO ₂ -e/GJ
Thermal coal	15,913,974	27.0	429,677,298	90	0.03	0.2
Coking coal	3,323,075	30.0	99,692,250	91.8	0.02	0.2
				t CO ₂ -e	t CO ₂ -e	t CO ₂ -e
Breakdown of individual GHG Emissions (t CO ₂ -e)				47,822,705	14,884	105,874
Total GHG Emissions (t CO₂-e)						47,943,463

LOM Extraction, Production and Distribution of Energy Purchased

Activity Data		Emission Factors		
		CO ₂	CH ₄	N ₂ O
Purchased energy	GJ	kg CO ₂ -e/GJ	kg CO ₂ -e/GJ	kg CO ₂ -e/GJ
Diesel	8,872,596	3.6	N/A	N/A
Electricity	1,344,768	33	N/A	N/A
		t CO ₂ -e	t CO ₂ -e	t CO ₂ -e
Breakdown of individual GHG Emissions (t CO ₂ -e)		76,318	N/A	N/A
Total GHG Emissions (t CO₂-e)				76,318

LOM Product Transport

Activity Data				Emission Factors		
				CO ₂	CH ₄	N ₂ O
Transport mode	Product (t)	Distance (km)	Tonne km (tkm)	kg CO ₂ -e/tkm	kg CO ₂ -e/tkm	kg CO ₂ -e/tkm
Rail	19,237,049	92	1,769,808,508	0.0054	N/A	N/A
Ship	19,237,049	9,500	182,751,965,500	0.0126	N/A	N/A
				t CO ₂ -e	t CO ₂ -e	t CO ₂ -e
Breakdown of individual GHG Emissions (t CO ₂ -e)				2,312,232	N/A	N/A
Total GHG Emissions (t CO₂-e)						2,312,232

LOM Materials Transport

Activity Data				Emission Factors		
				CO ₂	CH ₄	N ₂ O
Transport mode	Materials (t)	Distance (km)	Tonne km (tkm)	kg CO ₂ -e/tkm	kg CO ₂ -e/tkm	kg CO ₂ -e/tkm
Truck – Diesel	229,860	230	52,867,800	0.14	N/A	N/A
Truck – Explosives	111,784	100	11,178,400	0.14	N/A	N/A
				t CO ₂ -e	t CO ₂ -e	t CO ₂ -e
Breakdown of individual GHG Emissions (t CO ₂ -e)				8,966	N/A	N/A
Total GHG Emissions (t CO₂-e)						8,966