Activity	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC	HAP	CO_2e

Source: LNC 2019h

Note: Sum of individual values may not equal total due to independent rounding.

Commercial Production (On-site): In Phase 1 the average mining rate would be approximately 7.7 million tons per year, producing an average of approximately 3.1 million tons per year of ore and resulting in approximately 33,000 tons per year of lithium carbonate equivalent (LCE) end products. In Phase 2 the average mining rate would be approximately 11.0 million tons per year, producing an average of approximately 6.2 million tons per year of ore and resulting in approximately 66,000 tons per year of LCE end products.

Mining would result in tailpipe emissions from mining equipment (e.g., excavators), trucks and other mobile equipment, combustion emissions from blasting, and fugitive dust emissions. Mineral processing would result in particulate matter emissions from crushers, material transfers, and the attrition scrubbers. Processing of the lithium-bearing ore to produce LCE end products, operation of the sulfuric acid plant, and operation of ancillary equipment, would result in emissions of criteria pollutants, HAPs, and greenhouse gases (GHGs). **Table 4.10** presents the estimated annual emissions from on-site production activities.

Table 4.10. Facility-Wide On-site Operational Emissions (tons/year)

Source Category	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC	HAP	H_2S	H_2SO_4	CO_2e
Phase 1										
Process	1.0	78.4	71.0	65.1	75.8	17.9	0.30	0.43	26.70	21,342
Fugitive	9.1	0.2	54.5[1]	7.4[1]	-	-	0.28	-	-	-
Mobile – Tailpipe	180.0	392.5	12.1	12.0	0.4	43.5	0.82	-	-	58,746
Facility Total	**190.1**	**471.1**	**137.6**	**84.5**	**76.2**	**61.4**	**1.39**	**1.43**	**26.70**	**80,088**
Phase 2										
Process	1.8	81.2	96.3	84.5	76.1	35.2	0.58	0.86	27.85	42,656
Fugitive	9.1	0.2	96.1[1]	13.2[1]	-	-	0.48	-	-	-
Mobile – Tailpipe	276.8	587.5	18.5	18.2	0.7	67.6	1.29	-	-	90,022
Facility Total	**287.7**	**668.9**	**210.9**	**115.9**	**76.8**	**102.8**	**2.34**	**0.86**	**27.85**	**132,678**

Source: LNC 2019h

[1] Fugitive PM emissions include wind erosion of exposed material surfaces.

Note: Sum of individual values may not equal total due to independent rounding.

Commercial Production (Off-site Transport): During commercial operation, reagents for the lithium processing plant would be delivered to the processing plant by trucks from Winnemucca. The various lithium end products would be shipped by truck to Winnemucca. At present, it is not known whether the lithium end products would be sold locally or shipped further for sale or processing. For purposes of estimating emissions, LNC has assumed that all products would be

transported from Winnemucca by rail to San Francisco. **Table 4.11** presents the estimated annual off-site emissions from the reagent and product trucking operations and product rail transport.

Table 4.11. Off-site Transport Emissions (tons/year)

Activity	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOC	CO_2e
Phase 1							
Reagent Trucking	3.17	13.09	35.47	8.99	0.03	0.53	4,547
Product Trucking	0.21	0.87	2.36	0.60	0.002	0.04	303
Total Off-site Trucking	3.38	13.96	37.83	9.59	0.032	0.57	4,850
Product Transport by Rail	0.80	2.82	0.07	0.06	0.003	0.11	312
Total Off-site Transport	**7.56**	**30.74**	**75.73**	**19.24**	**0.0067**	**1.25**	**10,012**
Phase 2							
Reagent Trucking	6.34	26.18	70.93	17.98	0.061	1.07	9,095
Product Trucking	0.42	1.75	4.73	1.20	0.004	0.07	606
Total Off-site Trucking	6.77	27.93	75.66	19.18	0.065	1.14	9,701
Product Transport by Rail	1.60	5.64	0.13	0.13	0.006	0.21	623
Total Off-site Transport	**15.13**	**61.5**	**151.45**	**38.49**	**0.136**	**2.49**	**20,025**

Source: LNC 2019h

Closure and Reclamation: Closure and reclamation activities would use mobile equipment similar to that used in mining, but at a lower level of intensity. Emissions are expected to be less than for the mining activities included in the production phase (**Table 4.10**), and the resulting effects also would be less than modeled for commercial production. Therefore, closure and reclamation emissions were not quantified separately.

Downstream GHGs: In addition to the direct and indirect GHG emissions shown in **Table 4.8** through **Table 4.11**, the project would result in increased GHG emissions from downstream (off-site) transport of reagents and products as shown in **Table 4.11**. Section 2.4.1, *Offsite GHG Emissions*, of the Thacker Pass Air Quality Impact Report included as **Appendix K** of this EIS provides further detail on emissions of GHG from downstream transport of lithium products that would be produced at the proposed Thacker Pass Mine. BLM has reviewed this information and determined that further detailed analysis of downstream GHG emissions from the end uses of lithium-based products would be speculative.

Ambient Concentrations

The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) dispersion model was used along with the estimated emission rates to estimate the resulting ambient pollutant concentrations in the Project area. Phase 2 of commercial production would have the highest potential emission rates. Therefore, in order to evaluate the maximum potential effects from the Project, the air quality effect analysis was conducted using Phase 2 emission rates. **Appendix K** provides further detail on the modeling methods and results.