

Albemarle Kemerton Plant - Greenhouse Gas Environmental Management Plan – Summary Plan – December 2023																																																																												
Proposal	Albemarle Kemerton Plant																																																																											
Proponent	Albemarle Lithium Pty Ltd																																																																											
Proposal description and scope:	The proposal is for the construction and operation of the Albemarle Kemerton Plant, and associated infrastructure, within the Kemerton Strategic Industrial Area (KSIA), approximately 17 kilometres north-east of Bunbury Western Australia. The proposal includes construction of up to five lithium hydroxide product process trains and associated infrastructure.																																																																											
Purpose of the GHG EMP summary plan	<p>MS1187: Condition 9-6 requires: <i>Within one (1) month of receiving confirmation in writing from the CEO that:</i> <i>(1) the Greenhouse Gas Management Plan referred to in condition 9-4 satisfies condition 9-4; or</i> <i>(2) any subsequent version of the Confirmed Greenhouse Gas Management plan submitted under condition 9-5 satisfies condition 9-4, the proponent must submit a separate summary of the relevant plan to the CEO for public disclosure, which must:</i> <i>(3) include a summary of the matters specified in conditions 9-4(1) to 9-4(4); and</i> <i>(4) be published as required by condition 9-11(2).</i></p> <p>This GHG EMP Summary Plan will be published on the Albemarle Corporation’s Australian website: https://www.albemarle.au/</p> <p>Ministerial Statement 1187, which amends Ministerial Statement 1085 is available at: https://www.epa.wa.gov.au/sites/default/files/1MINSTAT/1717%20Statement%201187%20for%20publishing%20-%20Albemarle%20Kemerton%20Lithium%20Plant.pdf</p>																																																																											
Compliance period	Annual Compliance Period is a calendar year 1 January to 31 December																																																																											
Emissions estimates and trajectory of emissions reductions	<p>Ministerial Statement 1187, Conditions 9-1 and 9-2 specify the Scope 1 emission limits on the facility which reduce over time to zero. These are presented below in tabular and graphical format.</p> <table border="1"> <thead> <tr> <th rowspan="2">Start of Period</th> <th rowspan="2">End of Period</th> <th colspan="2">Limit (tCO₂^e) for period</th> <th>Total Scope 1 Limit for period</th> <th colspan="2">Per Annum (Average) Limit (tCO₂^e)</th> <th rowspan="2">Total Scope 1 tCO₂^e / annum</th> </tr> <tr> <th>PS Net GHG Emissions</th> <th>Plant Net GHG Emissions</th> <th>tCO₂-e</th> <th>PS Net GHG Emissions</th> <th>Plant Net GHG Emissions</th> </tr> </thead> <tbody> <tr> <td>15-Mar-22</td> <td>31-Dec-24</td> <td>956,000</td> <td>1,240,000</td> <td>2,196,000</td> <td>239,000</td> <td>310,000</td> <td>549,000</td> </tr> <tr> <td>1-Jan-25</td> <td>31-Dec-29</td> <td>1,195,000</td> <td>1,550,000</td> <td>2,745,000</td> <td>239,000</td> <td>310,000</td> <td>549,000</td> </tr> <tr> <td>1-Jan-25</td> <td>31-Dec-34</td> <td>1,186,000</td> <td>1,000,000</td> <td>2,186,000</td> <td>237,200</td> <td>200,000</td> <td>437,200</td> </tr> <tr> <td>1-Jan-25</td> <td>31-Dec-39</td> <td>1,110,000</td> <td>1,000,000</td> <td>2,110,000</td> <td>222,000</td> <td>200,000</td> <td>422,000</td> </tr> <tr> <td>1-Jan-25</td> <td>31-Dec-44</td> <td>960,000</td> <td>1,000,000</td> <td>1,960,000</td> <td>192,000</td> <td>200,000</td> <td>392,000</td> </tr> <tr> <td>1-Jan-25</td> <td>31-Dec-49</td> <td>700,000</td> <td>740,000</td> <td>1,440,000</td> <td>140,000</td> <td>148,000</td> <td>288,000</td> </tr> <tr> <td>1-Jan-50</td> <td>onwards</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <p>Note: PS = Power Station, Plant refers to all non-power station scope 1 emissions.</p>							Start of Period	End of Period	Limit (tCO ₂ ^e) for period		Total Scope 1 Limit for period	Per Annum (Average) Limit (tCO ₂ ^e)		Total Scope 1 tCO ₂ ^e / annum	PS Net GHG Emissions	Plant Net GHG Emissions	tCO ₂ -e	PS Net GHG Emissions	Plant Net GHG Emissions	15-Mar-22	31-Dec-24	956,000	1,240,000	2,196,000	239,000	310,000	549,000	1-Jan-25	31-Dec-29	1,195,000	1,550,000	2,745,000	239,000	310,000	549,000	1-Jan-25	31-Dec-34	1,186,000	1,000,000	2,186,000	237,200	200,000	437,200	1-Jan-25	31-Dec-39	1,110,000	1,000,000	2,110,000	222,000	200,000	422,000	1-Jan-25	31-Dec-44	960,000	1,000,000	1,960,000	192,000	200,000	392,000	1-Jan-25	31-Dec-49	700,000	740,000	1,440,000	140,000	148,000	288,000	1-Jan-50	onwards	0	0	0	0	0	0
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<p>Key components in the GHG EMP summary plan</p>	<ul style="list-style-type: none"> The estimated peak annual GHG emissions resulting from the Plant is 200,000 t CO₂-e (Scope 1) while producing 100,000 t LHM / year, this equates to an emissions intensity of 2 tCO₂^e / t lithium hydroxide monohydrate product (LHM). The Tianqi Kwinana plant is the only other LHM Plant in Australia. It produces 43,735 t LHM per annum resulting in 180,582 t CO₂^e Scope 1 emissions (Tianqi Lithium Corporation, 2020). This gives the Tianqi Lithium Plant a GHG emissions intensity of 4.19 t CO₂^e / t LHM for Scope 1 emissions. Albemarle's Kemerton Plant design builds from knowledge gained from the operation of its plants in China and has resulted in improved efficiency. This has generated a modelled reduction of 71,000 t CO₂-e / annum (26.2 %) in Total GHG emissions compared to the Chinese plant. Potential measures to minimise Scope 1 emissions during the construction and operation of the Plant are: <ul style="list-style-type: none"> Maintenance of vehicles, plant and equipment in accordance with manufacturer's specifications Selection of low emissions producing plant and equipment Steam boilers – economiser specified for high energy efficiency Heat recovery from roaster kiln flue gas Hot milling process – selection of energy efficient process Incorporation of kiln chains as a superior heat transfer mechanism to improve heat efficiency by stabilising kiln burner operation Plant control / monitoring system will monitor critical process and performance parameters Use of electric forklifts in product warehouse – displacement of other fuels Use of ammonia as a refrigerant – this has a zero GWP and zero ozone depleting potential properties Internal road layout design – designed to smooth the trucking speeds to minimise stop/start Provision of electric vehicle charging car bays Albemarle will continue to explore alternative power options as new technologies become available. The Plant is expected to exceed the 100,000 t CO₂^e (Scope 1) threshold for the Safeguard Mechanism. Should the Plant exceed its baseline, it will be required to offset the exceedances through Australian Carbon Credit Units (ACCUs) or Safeguard Mechanism Credits (SMCs). 																																																																		
<p>GHG EMP reviews and reporting</p>	<p>The GHG Management Plan is expected to be reviewed in 2024. Scope 1 and 2 emissions from the Plant are reported annually through the National Greenhouse and Energy Reporting (NGER) scheme. This data is publicly released by the Clean Energy Regulator (CER). Albemarle Corporation publishes an annual sustainability report including GHG emissions which is available at: https://www.albemarle.com/sustainability</p>																																																																		