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SIMCOA OPERATIONS PTY LTD

ANNUAL COMPLIANCE ASSESSMENT REPORT

SILICON PROJECT: KEMERTON SMELTER AND MOORA MINE



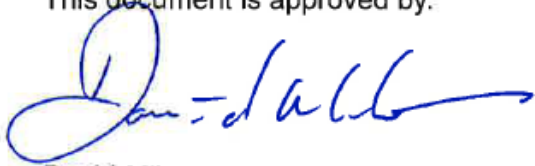
NOVEMBER 2019

REVISION HISTORY

Revision	Date	Prepared/Reviewed	Comments
Draft	11/11/2019	Daniel Mance (Simcoa)	Draft document for review
Draft	11/11/2019	David Miles (Simcoa)	Reviewed draft
Final	11/11/2019	David Miles (Simcoa)	Endorsed document

APPROVAL

This document is approved by:



David Miles
Vice President (Site Services and Marketing)
SIMCOA OPERATIONS PTY LTD

TABLE OF CONTENTS

1. INTRODUCTION 3

2. STATEMENT OF COMPLIANCE 4

3. NON COMPLIANCES AND CORRECTIVE ACTIONS..... 4

4. COMPANY ENDORSEMENT 5

5. AUDIT TABLE 5

6. PUBLIC AVAILABILITY 5

7. PROPOSED CHANGES TO THE PLAN 5

APPENDIX A

AUDIT TABLE

APPENDIX B

COMPARISON BETWEEN PROPOSAL CHARACTERISTICS AND RECENT DATA

1. INTRODUCTION

This Compliance Assessment Report (“Report”) is submitted to meet Condition 4.6 of Ministerial Statement 813 for the Simcoa Operations Pty Ltd Silicon Project (Smelter and Mine). The Report has been prepared in accordance with Revision 01 of the Compliance Assessment Plan (“Plan”) approved by the Office of the EPA.

The report covers the 12 months ending on 16 November 2019, unless otherwise noted in the audit table.

2. STATEMENT OF COMPLIANCE

During the reporting period, Simcoa has complied with all of the relevant conditions of Ministerial Statement 813.

Refer to **Appendix A** to review an audit table detailing compliance to Ministerial Statement 813 conditions

Appendix B shows comparisons between the authorised extent of physical and operational elements and recent data

Please note that in October 2016, the EPA amended Statement 813 in response to a 45c application from Simcoa. This resulted in the removal of Schedule 1 from statement 813, and its replacement with an amended Attachment 1.

This resulted in several changes to the authorised extent of physical and operational elements, most notably:

- Amended depth of pit to allow mining below the water table;
- Increased the groundwater requirements at Moora from 80,000 kilolitres per annum to 250,000 kilolitres per annum;
- Included water discharge via Kiaka Creek to the Conderoo River wetlands;
- Removed key characteristics which are not environmentally significant or regulated by other authorities.

3. NON COMPLIANCES AND CORRECTIVE ACTIONS

There were no non-compliances identified in the compliance assessment.

Note:

- The authorised extent for Wood for Charcoal consumption in attachment 1 of Statement 813 is given as 110,000 tonnes (approximately). Wood use in 2018 was 110,717 tonnes, which marginally exceeded this 110,000 tonne (approximately) threshold.
- The authorised extent for Quartzite Production in attachment 1 of Statement 813 is given as 160,000 tonnes (approximately). Quartzite Production in 2018 was 160,293 tonnes, which marginally exceeded this 160,000 tonne (approximately) threshold.

Due to variations in raw material quality, downtime and efficiencies, wood for charcoal consumption and quartzite production is expected to marginally exceeded the approximate authorised extent on some occasions.

4. COMPANY ENDORSEMENT

This report has been endorsed by:

David Miles
Vice President (Site Services and Marketing)
SIMCOA OPERATIONS PTY LTD

Please refer to the approval section at the beginning of the report.

5. AUDIT TABLE

The audit table can be found in **Appendix A** of the report.

6. PUBLIC AVAILABILITY

This report will be made publicly available on the Simcoa website www.simcoa.com.au as required by the Compliance Assessment Plan.

Simcoa will notify the OEPA of the internet address of the report within 14 days of submission.

7. PROPOSED CHANGES TO THE PLAN

No changes to the plan have been proposed as of this time.

APPENDIX A

Audit Table

AUDIT TABLE

Proposal Implementation Monitoring Section

PROJECT: SILICON PROJECT, KEMERTON AND MINE AT MOORA

Note:

- Phases that apply in this table = **Pre-Construction, Construction, Operation, Decommissioning, Overall (several phases)**
- This audit table is a summary and timetable of conditions and commitments applying to this project. Refer to the Minister's Statement for full detail/precise wording of individual elements.
- Code prefixes: M = Minister's condition; P = Proponent's commitment; A = Audit specification; N = Procedure.
- Any elements with status = "Audited by proponent only" are legally binding but are not required to be addressed specifically in compliance reports, if complied with.
- Acronyms list:- Minister for the Environment - Min for Env; Chief Executive Officer - CEO; Department of Environment – DoE (now DWER – Dept of Water and Environmental Regulation); Evaluation Division - Part IV; Pollution Prevention Division - Part V; Waste Management Division - WMD; Department of Conservation and Land Management – CALM (now DBCA - Department of Biodiversity, Conservation and Attractions); Department of Minerals and Energy – DME (now DMIRS - Department of Mines, Industry Regulation and Safety); Environmental Protection Authority - EPA; Health Department of WA - HDWA; Water and Rivers Commission - WRC; Bush Fires Board - BFB.

Date Compiled: 4 November 2019

Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status / Remarks
813:M1.1	Proposal Implementation	The proponent shall implement the proposal as assessed by the EPA and described in schedule 1 of this statement subject to the conditions and procedures of this statement	Implement the proposal according to the requirements of Statement 813 including the key proposal characteristics	Annual Compliance Assessment Report – comparison of project against key proposal characteristics table using the most available reporting data Please note: Data from the most recently submitted annual reports will be used for comparison purposes, this may not align with the entire 12 months of the annual compliance assessment report	Min. for Env.		Overall – Kemerton and Moora	At all times	The implemented proposal is consistent, given the current implementation status of the proposal i.e. 3 operating furnaces, with the key proposal characteristics described in Statement 813 – refer to Appendix B
813:M2.1	Proponent Nomination and Contact Details	The proponent for the time being nominated by the Minister for Environment under sections 38(6) or 38(7) of the <i>Environmental Protection Act 1986</i> is responsible for the implementation of the proposal	Letter to the Min. for Env. outlining any changes to the proponent	Letter to the Min. for Env. outlining any changes to the proponent	Min. for Env.		Overall – Kemerton and Moora	At all times / Change to the proponent	Condition not triggered
813:M2.2	Proponent Nomination and Contact Details	The proponent shall notify the Chief Executive Officer of the Department of Environment and Conservation (CEO) of any change of the name and address of the proponent for the serving of notices or other correspondence within 30 days of such change	Letter to the CEO of the DEC outlining changes to the proponent	Letter to the CEO of the DEC outlining changes to the proponent	CEO		Overall – Kemerton and Moora	At all times / Within 30 days of a change to the proponent	Condition not triggered
813:M3.1	Time Limit of Authorisation	The authorisation to implement the proposal provided for in this statement shall lapse and be void five years after the date of this statement if the proposal to which this statement relates is not substantially commenced	Letter to the CEO describing the status of the proposal (either substantially commenced or not substantially commenced) on or before 16 November 2014	Letter to the CEO describing the status of the proposal (either substantially commenced or not substantially commenced) on or before 16 November 2014	CEO		Overall – Kemerton and Moora	16 November 2014	A letter confirming the status of the proposal as substantially commenced was received from the minister on the 26 th November 2014.
813:M3.2	Time Limit of Authorisation	The proponent shall provide the CEO with written evidence which	Provide written evidence of substantial commencement by 16	Copies of contracts and agreements for construction	CEO		Overall – Kemerton	16 November 2014	Notice given 12 th November 2014

AUDIT TABLE

Proposal Implementation Monitoring Section

PROJECT: SILICON PROJECT, KEMERTON AND MINE AT MOORA

Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status / Remarks
		demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement	November 2014	and supply of key equipment for proposal or photographic evidence of site works that demonstrates substantial commencement of the project			and Moora		
813:M4.1	Compliance Reporting	The proponent shall prepare and maintain a compliance assessment plan to the satisfaction of the CEO	Prepare and maintain a Compliance Assessment Plan	Approved Compliance Assessment Plan	CEO		Overall – Kemerton and Moora	At all times	Compliance Assessment Plan (Revision 01) approved by OEPA (Ref:DEC14210)
813:M4.2	Compliance Reporting	The proponent shall submit to the CEO, the compliance assessment plan required by condition 4-1 at least six months prior to the first compliance assessment report required by condition 4-6.	The compliance assessment plan shall indicate: 1. the frequency of compliance reporting; 2. the approach and timing of compliance assessments; 3. the retention of compliance assessments; 4. reporting of potential non-compliances and corrective actions taken; 5. the table of contents of compliance assessment reports; and 6. public availability of compliance assessment reports.	Evidence of submittal or receipt from the DEC	CEO		Overall – Kemerton and Moora	31 May 2010	Compliance Assessment Plan (Revision 01) received by OEPA (Ref: DEC14210)
813:M4.3	Compliance Reporting	The proponent shall assess compliance with conditions in accordance with the compliance assessment plan required by condition 4-1	Undertake assessment according to the approved Compliance Assessment Plan	Compliance Assessment Report	CEO		Overall – Kemerton and Moora	At all times	Compliance Assessment Report (November 2019)
813:M4.4	Compliance Reporting	The proponent shall retain reports of all compliance assessments described in the compliance assessment plan required by condition 4-1 and shall make those reports available when requested by the CEO.	Retain electronic and hardcopies of Compliance Assessment Reports for the life of the project	Compliance Assessment Report(s)	CEO		Overall – Kemerton and Moora	At all times	Hardcopy and electronic copy retained by QHSE Supervisor.
813:M4.5	Compliance Reporting	The proponent shall advise the CEO of any potential non-compliance as soon as practicable.	Advise the CEO of any potential non-compliance as soon as practicable	Correspondence to the CEO advising of potential non-compliance	CEO		Overall – Kemerton and Moora	At all times – when a potential non-conformance is discovered	Condition not triggered
813:M4.6	Compliance Reporting	The proponent shall submit a compliance assessment report annually from the date of issue of this Implementation Statement addressing the previous twelve-month period or other period as agreed by the CEO	Submit a Compliance Assessment Report. The compliance assessment report shall: 1. be endorsed by the proponent's Vice-President or a person, approved in writing by the CEO, delegated to sign on the Vice-President's behalf; 2. include a	Compliance Assessment Report	CEO		Overall – Kemerton and Moora	Annually (by 16 November each year)	Compliance Assessment Report (November 2019)

AUDIT TABLE

Proposal Implementation Monitoring Section

PROJECT: SILICON PROJECT, KEMERTON AND MINE AT MOORA

Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status / Remarks
			statement as to whether the proponent has complied with the conditions; 3. identify all potential non-compliances and describe corrective and preventative actions taken; 4. be made publicly available in accordance with the approved compliance assessment plan; and 5. indicate any proposed changes to the compliance assessment plan required by condition 4-1.						
813:M5.1	Performance Review and Reporting	The proponent shall submit to the CEO Performance Review Reports at the conclusion of the second and fourth years after the commencement of operation of the fourth submerged arc furnace and then, at such intervals as the CEO may regard as reasonable	Submit a Performance Review Report. The Performance Review Report shall address: 1. the environmental risks and impacts; the performance objectives, standards and criteria related to these; the success of risk reduction/impact mitigation measures and results of monitoring related to the management of the risks and impacts; 2. the level of progress in the achievement of sound environmental performance, including industry benchmarking, and the use of best available technology where practicable; and 3. improvements gained in environmental management, which could be applied to this and other similar projects.	Performance Review Report	CEO		Overall – Kemerton and Moora	2 and 4 years following the commissioning of the fourth submerged arc furnace and then as specified by the CEO	Condition not triggered
813:M5.2	Performance Review and Reporting	The proponent shall make the Performance Review Reports required by Condition 5-1 publicly available in a manner approved by the CEO	Make Performance Review Reports publicly available on the Simcoa website www.simcoa.com.au for a period of 12 months, within 14 days of submission to the CEO	Forward a copy of the webpage address and link to the document to the Office of the EPA	CEO		Overall – Kemerton and Moora	Within 14 days of submission of the documents to the CEO	Condition not triggered
813:M6.1	Flora	Except to the extent that the proponent has been or is granted all required	1. Obtain statutory approvals for activities that may result in detrimental	1. Copies of relevant statutory approvals for mining activities	Min. for Env.		Overall – Moora	At all times	1. During the reporting period the following

AUDIT TABLE

Proposal Implementation Monitoring Section

PROJECT: SILICON PROJECT, KEMERTON AND MINE AT MOORA

Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status / Remarks
		statutory approvals to disturb or take the following flora, the proponent shall manage mining activities such that there are no discernible detrimental changes in the following flora: 1. the Coomberdale Chert Threatened Ecological Community; 2. populations of <i>Regelia megacephala</i> ; and 3. other Priority and Declared Rare flora species.	changes to the flora listed. 2. Prevent detrimental changes (other than those approved) by restricting mining activities to areas free of the flora listed. Ensure that the extent of pit and haul road development and the associated flora disturbance is consistent with that documented in the supporting documentation of EPA Bulletin 1027	that have disturbed the flora listed 2. Provide an annual surveyed mine plan showing pit and haul road development against the design provided in the supporting documentation of EPA Bulletin 1027					activities, which had the potential to impact on native vegetation, were undertaken: a) Continued development of North waste dump on pasture (no native vegetation impact) b) Development of the Main and Western pit consistent with EPA Bulletin 1027 2. Pit extent and haul road development detailed in AER 2018
813:M6.2	Flora	The proponent shall provide annual reports to the CEO on mining activities, indicating those areas cleared, and shall advise the CEO within seven days of the event that detrimental effects on any of the abovementioned flora is observed. Close liaison with the Department of Environment and Conservation (DEC) should take place.	1. Report annually to the CEO on clearing and disturbance of listed flora in the Annual Environmental Report 2. Advise the CEO within 7 days of observing a discernable detrimental effect that could be reasonably attributed to mining activities (with the exception of that approved in 6-1) 3. Advise the DEC as soon as practicable when unplanned impacts to native vegetation are observed	1. Moora Quartz Mine Annual Environmental Report with distribution to the DEC 2. Letter to the CEO advising of detrimental affect 3. Correspondence with DEC stating that native vegetation has been affected	CEO		Overall – Moora	1. Annually 2. Within 7 days of observing a discernable detrimental affect 3. As soon as practicable	1. AER 2018 2. No discernable effect outside of 6-1 3. Not triggered
813:M7.1	Mining and Conservation Strategy	Prior to expansion of mining into the Eastern Ridge area, the proponent shall revise and update the Mining and Conservation Strategy required under Condition 20 of Statement 575, in co-operation with the DEC, and to the requirements of the Minister for Environment on advice of the DEC. The objective of this strategy is to ensure that conservation of biodiversity values is achieved whilst maintaining long-term access to the chert resource. The Mining and Conservation Strategy shall address the following matters: 1. Additional reconnaissance exploration to identify other parts of the Coomberdale Chert formation, both within and outside current lease areas G70/91, G70/92, G70/93 and M70/101, which may contain sufficiently high grade quartz in	Revise the Mining and Conservation Strategy and ensure that it addresses the matters listed in 7-1.	Mining and Conservation Strategy	Min. for Env.	DEC	Overall – Moora	Prior to expansion of mining into the Eastern Ridge area of M70/191.	Condition not triggered

AUDIT TABLE

Proposal Implementation Monitoring Section

PROJECT: SILICON PROJECT, KEMERTON AND MINE AT MOORA

Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status / Remarks
		areas where the chert-associated vegetation is already absent or degraded; 2. Provision of support (subject to negotiation) to the DEC for regional flora surveys to identify and map other parts of the Coomberdale Chert formation which may contain the same or other significant flora associated with the chert; 3. Based on the outcomes of 7-1-1 and 7-1-2 above, and in cooperation with the DEC, development of the best strategy to ensure both access to high grade quartz and conservation, in secure reserves, of the flora of the Coomberdale Chert formation; 4. Additional conservation offsets such as the Cairn Hill North area and other areas of significant vegetation identified by 7-1-2 to form 'linkages' with Cairn Hill and other ridges in the area; and 5. Provision for fencing, to the requirements of the DEC, of areas of significant vegetation identified by 7-1-2, whether part of reserves or other properties, and, during the operational life of the mine, provision of resources for conservation management.							
813:M7.2	Mining and Conservation Strategy	The proponent shall implement the Mining and Conservation Strategy required by condition 7-1 in liaison with the DEC			Min. for Env.	DEC	Overall – Moora	Prior to expansion of mining into the Eastern Ridge area of M70/191.	Condition not triggered
813:M8.1	Rehabilitation	Prior to the commencement of ground-disturbing activities in an area to be mined, the proponent shall conduct surveys of the area to collect baseline information on the following: 1. pre-mining soil profiles; 2. groundwater levels; 3. surface water flows; 4. vegetation complexes; and 5. landscape and landforms.	Conduct the surveys listed as part of new or revised mining proposals (this does not include exploration activities)	Provide survey reports as part of new or revised mining proposals			Overall – Moora	Prior to commencing ground disturbing activities for a new mining or revised mining proposal	Condition not triggered Preliminary work on all items listed in condition 8.1 has been completed. The results of these surveys will be communicated prior to further ground disturbing activities.
813:M8.2	Rehabilitation	The proponent shall conduct/commence rehabilitation trials within one calendar year of the commencement of ground disturbing activity to determine criteria for successful re-growth, using local native flora species, including Priority	Conduct or commence rehabilitation trials using local native flora species, including Priority and Declared Rare flora species, to determine criteria for successful re-growth	Report on rehabilitation trials which identifies the criteria for successful re-growth	CEO and DMP		Overall – Moora	Prior to commencing ground disturbing activities for a new mining	Condition not triggered Trials continued during the 2018/19 year on transplanting propagated seedlings of DRF species

AUDIT TABLE

Proposal Implementation Monitoring Section

PROJECT: SILICON PROJECT, KEMERTON AND MINE AT MOORA

Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status / Remarks
		and Declared Rare flora species, to the requirements of the CEO and the Director General of the Department of Mines and Petroleum (DMP).						or revised mining proposal	<i>Daviesia dielsii</i> and <i>Acacia aristulata</i> onto existing waste dumps in mining lease M70/191. Additional work has also been performed on the use of annual native ground cover as weed control. A full report on rehabilitation activities and status is provided in the 2018 AER
813:M8.3	Rehabilitation	The proponent shall progressively rehabilitate the mine site area in accordance with the following: 1. Re-establishment of vegetation in the rehabilitation area to be comparable in species composition with that of the pre-mining vegetation such that the following criteria are met: a. revegetation to achieve the re-establishment of an area of vegetation coverage (not including weed species) of not less than 70 percent of the rehabilitation area as defined in Schedule 1; b. weed coverage less than 10 percent; and c. within a time frame specified in the rehabilitation schedule required Condition 8-3-2. 2. A schedule of the rate of rehabilitation acceptable to the CEO.	1. Establish a schedule of rehabilitation that specifies the rate of rehabilitation and timing to meet the completion to criteria listed in 813:M8.3 2. Progressive rehabilitation of mining areas according to the schedule.	1. A schedule of the rate of rehabilitation that has been deemed acceptable to the CEO 2. Annual Environmental Report (which will contain monitoring data that includes species composition, coverage, area under rehabilitation, photographs of rehabilitation areas and progress against the schedule) Please note: The most recent Annual Environmental Report (AER) submitted to DEC / DMP will be referenced and this may not align with the entire 12 months of the annual compliance assessment report	CEO		Overall – Moora	1. Prior to first compliance report 2. According to schedule	1. Rehabilitation scheduling and planning is detailed in the Moora Mine site Mine Closure Plan, that is updated every 3 years Rate and rehabilitation progress is reported annually in AER. Refer 2018 AER. 2. In process; rehabilitation monitoring was included in the 2018 AER.
813:M8.4	Rehabilitation	In liaison with the DEC and DMP, the proponent shall monitor annually the performance of rehabilitation required by condition 8-3.	Monitor rehabilitation to evaluate progress against criteria and schedule of rehabilitation in 813:M8.3	Annual Environmental Report (which will contain monitoring data that includes species composition, coverage, area under rehabilitation, photographs of rehabilitation areas and progress against the schedule) Please note: The most recent Annual Environmental Report (AER) submitted to DEC /	CEO	DEC and DMP	Overall – Moora	Annually (following approval of rehabilitation schedule)	Rehabilitation monitoring and report was included in the 2018 AER.

AUDIT TABLE

Proposal Implementation Monitoring Section

PROJECT: SILICON PROJECT, KEMERTON AND MINE AT MOORA

Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status / Remarks
				DMP will be referenced and this may not align with the entire 12 months of the annual compliance assessment report					
813:M8.5	Rehabilitation	The proponent shall submit annually a report of the rehabilitation performance monitoring required by condition 8-4 to the CEO.	Report on rehabilitation performance	Annual Environmental Report (which will contain monitoring data that includes species composition, coverage, area under rehabilitation, photographs of rehabilitation areas and progress against the schedule) Please note: The most recent Annual Environmental Report (AER) submitted to DEC / DMP will be referenced and this may not align with the entire 12 months of the annual compliance assessment report	CEO		Overall – Moora	Annually (following approval of rehabilitation schedule)	Rehabilitation monitoring and report was included in the 2018 AER
813:M9.1	Greenhouse Gas Abatement	The proponent shall prepare and submit to the Minister for Environment, within 18 months of commencement of ground-disturbing activities, a Greenhouse Gas Abatement Report which meets the objectives set out in condition 9-2, as determined by the Minister for Environment.	Prepare and submit a Greenhouse Gas Abatement Report	Greenhouse Gas Abatement Report	Min. for Env.		Overall – Kemerton	Within 18 months of commencement of ground-disturbing activities – 2 Sept 2011	Greenhouse Gas Abatement Report (Rev 01) submitted to OEPA on 2 Sept. 2011 and final revision on 5 Sept. 2011
813:M9.2	Greenhouse Gas Abatement	The objectives of the Greenhouse Gas Abatement Report required by condition 9-1 are to: 1. Demonstrate that maximising energy efficiency and opportunities for future energy recovery have been given due consideration in the design of the third and fourth submerged electric arc furnaces; 2. Ensure that the “greenhouse gas” intensity (“greenhouse gas” per unit of silicon produced) is equivalent to, or better than, benchmarked world’s best practice; and 3. Achieve continuous improvement in “greenhouse gas” intensity through triennial review, and if	Ensure that the Greenhouse Gas Abatement Report demonstrates/includes: 1. Consideration has been given to maximising energy efficiency and future energy recovery in the design of furnaces 3 and 4 2. “Greenhouse gas” intensity is equivalent or better than benchmarked world’s best practice, provided that furnace 3 and/or 4 have been commissioned at the time the report is due 3. Undertake a triennial review meeting to identify and where	Greenhouse Gas Abatement Report includes: 1. Information on relevant design alternatives, comparative energy efficiencies, design features that facilitate future application of energy recovery 2. Justification where the most efficient design alternatives were not selected 3. Comparison between Scope 1 GHG intensity of the Simcoa Smelter and a cohort of smelters that can	Min. for Env.		Overall – Kemerton	Within 18 months of commencement of ground-disturbing activities – 2 Sept 2011	Greenhouse Gas Abatement Report (Rev 01) submitted to OEPA on 2 Sept. 2011 and final revision on 5 Sept. 2011 Triennial review completed in 2014 and 2017 The 2017 review showed Simcoa’s Scope 1 GHG intensity is currently 37-46% lower than equivalent Silicon smelters

AUDIT TABLE

Proposal Implementation Monitoring Section

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Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status / Remarks
		practicable, adoption of advances in technology and process management.	practicable adopt advances in technology and process management to achieve continuous improvement in "greenhouse gas" intensity	reasonably considered to be world's best practice in terms of "greenhouse gas" intensity, using available industry data (CRU Analysis - Silicon Production Cost Analysis) and applying the current NGERS estimation methodology 4. Minutes and outcomes of triennial review meetings					located in Europe and North America.
813:N1	Procedures	Where a condition states "on advice of the EPA", the EPA will provide that advice to the DEC for the preparation of written notice to the proponent							
813:N2	Procedures	The EPA may seek advice from other agencies or organisations, as required, in order to provide its advice to the DEC.							
813:N3	Procedures	The Minister for Environment will determine any dispute between the proponent and the EPA or the DEC over the fulfillment of the requirements of the conditions							
813:N4	Procedures	Where a condition lists advisory bodies, it is expected that the proponent will obtain the advice of those listed as part of its compliance reporting to the DEC							

APPENDIX B

Comparison between proposal characteristics and recent data

APPENDIX B

In October 2016, the EPA amended Statement 813 in response to a 45c application from Simcoa. This resulted in the removal of Schedule 1 from statement 813, and its replacement with an amended Attachment 1.

The most notable changes resulting from this change are as follows:

- Remove depth of pit to mine below the water table;
- Increase the groundwater requirements at Moora from 80,000 kilolitres per annum to 250,000 kilolitres per annum;
- Include water discharge via Kiaka Creek to the Conderoo River wetlands;
- Administrative changes to remove key characteristics which are not environmentally significant or regulated by other authorities.

These changes are shown in **bold** in the below table, which details the comparison between the authorised extent of physical and operational elements, and most recently reported data.

Authorised extent of physical and operational elements

Element	Authorised Extent	Actual Extent	Data Source
Silicon Production	64,000 tonnes per annum (approximately)	48,680 tonnes	AER 2018
Quartzite Consumption	160,000 tonnes per annum (approximately)	117,642 tonnes	AER 2018
Wood for Charcoal	110,000 tonnes per annum (approximately)	110,717 tonnes*	AER 2018
Charcoal Production	27,000 tonnes per annum (approximately)	25,167 tonnes	AER 2018
Smelter Furnaces	4 submerged electric arc furnaces	3 submerged electric arc furnaces	Direct observation
Greenhouse Gas Emissions: Scope 1 (emissions from processing) Scope 2 (emissions generated off-site by electricity generation)	Deleted as regulated through other legislative processes.		

Electric Power Consumption	Deleted as not an environmentally significant key characteristic.		
Natural Gas Consumption	Deleted as not an environmentally significant key characteristic.		
Water Consumption (Groundwater)	290,000 kL per annum (Kemerton)	263,438kL	Kemerton Silicon Smelter Annual Groundwater Review 2018/19
Truck Movements	Deleted as not an environmentally significant key characteristic.		
Quartzite Production	160,000 tonnes per annum of lump quartz (approximately)	160,293 tonnes*	AER 2018 (Moora)
Operational life	Deleted as not an environmentally significant key characteristic.		
Total area of disturbance	Not more than 60 hectares (Moora Mine)	49.5 hectares	AER 2018 (Moora)
Area of rehabilitation	All disturbed areas (Moora Mine)	All areas disturbed by mining activities areas are subject to rehabilitation which is outlined in the rehabilitation schedule	NA
Depth of pit	Not more than 165 metres RL	210 metres RL	AER 2018 (Moora)
Water requirements (Groundwater)	250,000 kilolitres per annum (Moora mine)	76,023 kL	AER 2018 (Moora)
Water source	Fractured Rock Aquifer (Moora Mine)	Fractured Rock Aquifer	AER 2018 (Moora)
Water Discharge	Discharge of up to 122,000 kL per annum	0 kL (Dewatering yet to be undertaken)	NA

	of dewatered groundwater via Kiaka Creek to the Conderoo River wetlands. (Moora Mine)		
Dewater discharge pipeline (Moora mine)	Dewater discharge pipeline routed along an existing access road. (Moora Mine)	NA (Dewatering yet to be undertaken)	NA

Please note: The quantities specified in the above table are based on a 4 furnace operation. At the time of the 2018 AER, the plant had 3 operating furnaces. The 3rd furnace was commissioned in September 2012.

*Note: Due to variations in raw material quality, downtime and efficiencies, wood for charcoal consumption at Kemerton, and quartz production at Moora are expected to marginally exceeded the approximate authorised extent on some occasions.