



SIMCOA OPERATIONS PTY LTD

ANNUAL COMPLIANCE ASSESSMENT REPORT

SILICON PROJECT: KEMERTON SMELTER AND MOORA MINE



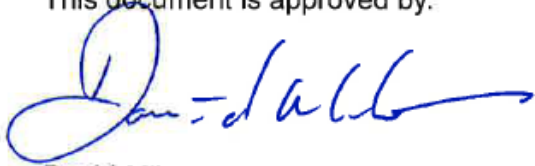
NOVEMBER 2016

REVISION HISTORY

Revision	Date	Prepared/Reviewed	Comments
Draft	9 November 2016	Daniel Mance (Simcoa)	Draft document for review
Draft	15 November 2016	David Miles (Simcoa)	Reviewed draft
Final	15 November 2016	David Miles (Simcoa)	Endorsed document

APPROVAL

This document is approved by:



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

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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 2016, 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.

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 DEC – Dept of Environment and Conservation); Evaluation Division - Part IV; Pollution Prevention Division - Part V; Waste Management Division - WMD; Department of Conservation and Land Management - CALM; Department of Minerals and Energy - DME; Environmental Protection Authority - EPA; Health Department of WA - HDWA; Water and Rivers Commission - WRC; Bush Fires Board - BFB.

Date Compiled: 4 November 2016

Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status / Remarks
813:G									
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.

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
813:M3.2	Time Limit of Authorisation	The proponent shall provide the CEO with written evidence which demonstrates that the proposal has substantially commenced on or before the expiration of five years from the date of this statement	Provide written evidence of substantial commencement by 16 November 2014	Copies of contracts and agreements for construction and supply of key equipment for proposal or photographic evidence of site works that demonstrates substantial commencement of the project	CEO		Overall – Kemerton and Moora	16 November 2014	Notice given 12 th November 2014
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 2016)
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 Env Coordinator.
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	Compliance Assessment Report	CEO		Overall – Kemerton and Moora	Annually (by 16 November each year)	Compliance Assessment Report (November 2016)

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
			CEO, delegated to sign on the Vice-President's behalf; 2. include a 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

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Proposal Implementation Monitoring Section

PROJECT: SILICON PROJECT, KEMERTON AND MINE AT MOORA

Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status / Remarks
813:M6.1	Flora	Except to the extent that the proponent has been or is granted all required 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.	<ol style="list-style-type: none"> 1. Obtain statutory approvals for activities that may result in detrimental 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 	<ol style="list-style-type: none"> 1. Copies of relevant statutory approvals for mining activities 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 	Min. for Env.		Overall – Moora	At all times	<ol style="list-style-type: none"> 1. During the reporting period the following activities, which had the potential to impact on native vegetation, were undertaken: <ol style="list-style-type: none"> 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 c) Carried out reconnaissance exploration on mining tenement M70/425. 44 holes out of a possible 53 were drilled to depths ranging from 8m – 40m during September and October, a total of 1,270 linear metres.). No approval was required under the Clearing Native Vegetation Regulations because activity of this type was considered in EPA Bulletin 1027 (refer to EPA Support Unit advice). No DRF was impacted by the activity 2. Pit extent and haul road development detailed in AER 2015

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PROJECT: SILICON PROJECT, KEMERTON AND MINE AT MOORA

Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status / Remarks
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.	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 1. Annually 2. Within 7 days of observing a discernable detrimental affect 3. As soon as practicable 	<ol style="list-style-type: none"> 1. AER 2015 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 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	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
		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 and Declared Rare flora species, to the requirements of the CEO and the Director General of the Department of Mines and Petroleum (DMP).	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 or revised mining proposal	Condition not triggered Trials were conducted during the 2014 year on transplanting propagated seedlings of DRF species <i>Daviesia dielsii</i> and <i>Acacia aristulata</i> onto existing waste dumps in mining lease M70/191. Trials resulted in the successful transplantation of both species however there were some issues with rabbit and kangaroo grazing.
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	1. Establish a schedule of rehabilitation that specifies the rate of rehabilitation and timing to meet the completion to criteria listed in	1. A schedule of the rate of rehabilitation that has been deemed acceptable to the CEO	CEO		Overall – Moora	1. Prior to first compliance report	1. Rate and rehabilitation progress is reported annually in AER. Refer 2015 AER.

AUDIT TABLE

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PROJECT: SILICON PROJECT, KEMERTON AND MINE AT MOORA

Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status / Remarks
		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.	813:M8.3 2. Progressive rehabilitation of mining areas according to the schedule.	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				2. According to schedule	2. In process; rehabilitation monitoring was included in the 2015 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 / DMP will be referenced and this may not align with the entire 12 months of the annual compliance assessment report	CEO	DEC and DMP	Overall – Moora	Annually (following approval of rehabilitation schedule)	Rehabilitation monitoring and report was included in the 2015 AER.
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 /	CEO		Overall – Moora	Annually (following approval of rehabilitation schedule)	Rehabilitation monitoring and report was included in the 2015 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: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 practicable, adoption of advances in technology and process management.	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 practicable adopt advances in technology and process management to achieve continuous improvement in “greenhouse gas” intensity	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 reasonably be 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	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. The review showed Simcoa’s Scope 1 GHG intensity is currently 40-60% lower than equivalent Silicon smelters 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,							

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
		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)	49,575 tonnes	AER 2015
Quartzite Consumption	160,000 tonnes per annum (approximately)	128,831 tonnes	AER 2015
Wood for Charcoal	110,000 tonnes per annum (approximately)	108,710 tonnes	AER 2015
Charcoal Production	27,000 tonnes per annum (approximately)	24,727 tonnes	AER 2015
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)	246,499 kL	Kemerton Silicon Smelter Annual Groundwater Review 2015/16
Truck Movements	Deleted as not an environmentally significant key characteristic.		
Quartzite Production	160,000 tonnes per annum of lump quartz (approximately)	129,285 tonnes	AER 2015 (Moora)
Operational life	Deleted as not an environmentally significant key characteristic.		
Total area of disturbance	Not more than 60 hectares (Moora Mine)	46.0 hectares	AER 2015 (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	215 metres RL	AER 2015 (Moora)
Water requirements (Groundwater)	250,000 kilolitres per annum (Moora mine)	49,411 kL	AER 2015 (Moora)
Water source	Fractured Rock Aquifer (Moora Mine)	Fractured Rock Aquifer	AER 2015 (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 2015 AER, the plant had 3 operating furnaces. The 3rd furnace was commissioned in September 2012.

APPENDIX B

Comparison between Key Proposal Characteristics and most recently reported data.

Table 1: Key Proposal Characteristics – Kemerton Plant

Element	Quantities/Description	Actual	Data Source
Silicon Production	64,000 tonnes per annum (approximately)	47,745 tonnes	AER 2014
Quartzite Consumption	160,000 tonnes per annum (approximately)	119,061 tonnes	AER 2014
Wood for Charcoal	110,000 tonnes per annum (approximately)	98,041 tonnes	AER 2014
Charcoal	Production 27,000 tonnes per annum (approximately)	24,136 tonnes	AER 2014
Smelter Furnaces	4 x submerged electric arc furnaces	3 x submerged electric arc furnaces	Direct observation
Off-gas Cleaning Plant (Baghouses)	One large baghouse with stacks One large baghouse without stacks	One large baghouse with stacks One large baghouse without stacks	Direct observation
Greenhouse Gas Emissions:			
Scope 1 (emissions from processing)	147,000 tonnes per annum CO ₂ -e (approximately)	99,290 tonnes CO ₂ -e (Smelter)	NGER 2014/15
Scope 2 (emissions generated off-site by electricity generation)	656,000 tonnes per annum CO ₂ -e (approximately)	458,265 tonnes CO ₂ -e (Smelter)	NGER 2014/15
Total	803,000 tonnes per annum CO ₂ -e (approximately)	557,555 tonnes CO ₂ -e (Smelter)	NGER 2014/15
Electric Power Consumption	190,000 kWh per annum per furnace (approximately)	200,993 MWh per annum per furnace*	NGER 2014/15
Natural Gas Consumption	100,000 GJ per annum (approximately)	114,155 GJ	NGER 2014/15
Water Consumption (Groundwater)	290,000 kL per annum (approximately)	254,534 kL	Kemerton Silicon Smelter Annual Groundwater Monitoring Review 2014/15

Truck Movements	44 trucks per day (approximately, averaged over 365 days)	30 trucks per day (approximately)	Calculated from 2014/15 Kemerton Gatehouse Records
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Please note: The quantities specified in the Key Characteristics Table are based on a 4 furnace operation. At the time of the 2014 AER, the plant had 3 operating furnaces. The 3rd furnace was commissioned in September 2012.

*As noted in previous Compliance assessment reports, a typographical error was discovered in the “Key Characteristics Table – Kemerton Plant” of statement 0813. Electrical power consumption is stipulated as being 190,000kWh per annum per furnace. This is incorrect and should read 190,000MWh

Table 2: Key Proposal Characteristics – Moora Mine

Element	Quantities/Description	Actual	Data Source
Quartzite Production	160,000 tonnes per annum of lump quartz (approximately)	131,228 tonnes lump quartz	AER 2014
Operational life	10 years (approximately) – under current mine plan	Approximately 8 years at a production rate of 160,000 tpa lump quartz	AER 2014
Total area of disturbance	Not more than 60 hectares	46.1 hectares	AER 2014
Area of rehabilitation	All disturbed areas	All areas disturbed by mining activities areas are subject to rehabilitation which is outlined in the rehabilitation schedule	N/A
Depth of pit	Not more than 215 metres RL	215 metres RL	AER 2014
Water requirements (Groundwater)	80,000 kL per annum (approximately)	55,972 kL	AER 2014
Water source	Superficial Formation	Superficial Formation	AER 2014