Prepared for
National Ceramic Industries Australia Pty Ltd
ABN: 83100467267

AECOM

Operation Environmental Management Plan

06-Feb-2024

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Operation Environmental Management Plan

Client: National Ceramic Industries Australia Pty Ltd

ABN: 83100467267

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5	23 Feb 2018	Three yearly review by Alison O'Neill	James McIntyre Associate Director	
6	6-Feb-2024	Review by Marc Wydro and Alison O'Neill	Cye Buckland Principal Technical Officer	

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1.0 Introduction

1.1 Scope and Objectives

This Operation Environmental Management Plan (OEMP) has been prepared on behalf of National Ceramic Industries Australia Pty Ltd (NCIA) to establish an environmental management framework for the operation of the ceramic tile production facility, located within the Rutherford Industrial Estate, NSW.

Following submission of an Environmental Impact Statement (EIS) (PB, 2002), NCIA was granted Development Consent (DA-449-12-2002-i) on 2 July 2003 for construction and operation of the ceramic tile production facility. In 2010, NCIA submitted an Environmental Assessment (EA) (AECOM, 2010) for expansion of the facility. On 19 January 2012, NCIA was granted Project Approval (MP 09_006), which consolidated the requirements of the proposed expansion of the facility and the development as approved under the previous Development Consent. In accordance with the requirements of the Project Approval, NCIA formally relinquished the previous Development Consent (referred to hereafter as the 'relinquished Development Consent') with effect from 19 January 2013.

This OEMP was originally developed to satisfy Condition 7.3 of the now relinquished Development Consent. The OEMP defines the environmental management practices, procedures and personnel responsibilities to ensure full compliance with conditions of the relinquished Development Consent and Environment Protection Licence (EPL) (EPL 11956) during the operational phase of the development.

The Project Approval does not include a requirement for an OEMP. Instead, Condition 56 of the Project Approval requires preparation of an Environmental Management Strategy prior to commencement of construction works. The timeline for construction of the expansion is dependent upon market demand and remains uncertain. Therefore, this condition is not yet activated and NCIA continues to operate in accordance with the OEMP. This is discussed further in **Section 3.0**.

Environmental management requirements outlined in the OEMP are to be implemented by NCIA across all areas of the operation. In accordance with Condition 7.5 of the relinquished Development Consent, the OEMP is formally reviewed on a three yearly basis to ensure that directives are up-to-date and that all changes to procedures and practices identified in prior reviews have been fully incorporated. The OEMP incorporates the requirements of the Project Approval, although many of these conditions are required prior to commencement of construction works for subsequent stages of the development and have not yet been activated.

1.2 Structure of this OEMP

This OEMP addresses the conditions of the Project Approval where relevant, the conditions of the relinquished Development Consent (with particular focus on specific requirements defined in Conditions 7.3 and 7.4), and the operating licence requirements defined in EPL 11956. The OEMP incorporates environmental management strategies and commitments defined in the 2010 EA for Stages 1 – 8.

The structure of the OEMP is as follows:

Section 2: Provides a description of activities to be undertaken on site during operation of the facility.

Section 3: Discusses the statutory requirements under the Project Approval, including the future Environmental Management Strategy and management plans.

Section 4: Provides information related to the day-to-day use and implementation of this OEMP, including roles, responsibilities and management guidelines relating to training and communication, review and reporting and control of non-conformances and incidents. **Section 4.0** also outlines obligations that NCIA is required to fulfil during operation, including all approvals, consultations and agreements required from authorities and other stakeholders, and key legislation and policies. Measures to address the requirements of the Department of Planning and Environment (DP&E) (including the Office of Environment and Heritage (OEH) and the Environment Protection Authority (EPA)) and Maitland City Council (MCC) during operation are also given.

Section 5: Presents the Air Quality Management Plan. This plan defines air quality impact mitigation and management measures, maintenance protocols, identifies dominant sources of particulate and gaseous air pollutants, and describes air quality (source and ambient) monitoring programs implemented according to DP&E and EPA requirements.

Section 6: Contains the Water Management Plan, which includes management measures designed in accordance with various guidelines, as described in the 2010 EA, to control surface water (including erosion and sedimentation), stormwater and process water associated with facility operation.

Section 7: Contains the details of the noise management and monitoring requirements and regulatory noise limits as defined in the Project Approval and EPL 11956.

Section 8: Contains the Transport Code of Conduct outlining management of traffic associated with the operation of the facility, including noise and emission mitigation measures, imposition of speed limits and management of driver conduct.

Section 9: Outlines the Emergency Plan, prepared in accordance with the *Hazardous Industry Planning Advisory Paper No. 1 – Industry Emergency Planning Guidelines*, defining the identification of, response to and management of on-site emergencies.

Section 10: Contains the Safety Management System, defining procedures, responsibilities and policies associated with safety management and their implementation. The Safety Management System has been prepared in accordance with *Hazardous Industry Planning Advisory Paper No. 9 – Safety Management System Guidelines*.

Section 11: Outlines the Landscape Management Plan to ensure suitable development and maintenance of landscaping on the site, in accordance with the landscape design described in the 2010 EA.

Section 12: Outlines the requirements for periodic review and update of the OEMP, and associated personnel responsible for such review.

Appendix A: Conditions of the Project Approval (MP 09_006).

Appendix B: Conditions of the EPL 11956.

Appendix C: Summary of the obligations, timing and responsibilities required under the relinquished Development Consent.

Appendix D: Task Instructions which detail instructions on specific routine tasks that are undertaken throughout the project and are referred to in **Section 4.0**.

Appendix E: Standard Forms that are referred to in **Section 4.0**.

Appendix F: Erosion and Sediment Control Management Plan.

Appendix G: Emergency Plan.

Appendix H: Pollution Incident Response Management Plan.

Appendix I: Safety Management System.

2.0 Overview of Facility Operation

2.1 Existing Operations

The ceramic tile manufacturing facility is located off Racecourse Road Rutherford, in the Rutherford Industrial Estate. The relinquished Development Consent provided approval for development of the facility in four stages (Stages 1 – 4), with each Stage corresponding to the number of kilns in operation. Each kiln is manufactured to produce a maximum of approximately 3.2 million square metres of tiles per annum, corresponding to the consumption of approximately 200 tonnes of raw material and approximately 82 kilolitres of water per day. Each kiln produces approximately 180 tonnes of saleable tiles per day. NCIA now solely operates under its 2012 Project Approval (MP 09_006).

Construction of Stage 1 was completed in February 2004 and operation commenced in April 2004. Construction of Stage 2 was completed in mid-2008 and operation commenced in August 2009. The facility currently produces between 5 - 6 million square metres of saleable ceramic wall and floor tiles per year, with the manufacturing process requiring approximately 400 tonnes of raw material to produce approximately 360 tonnes of tiles per day.

The facility is housed within an industrial building approximately 488 m long and 80 m wide. Ceramic tile production processes, including raw materials handling, milling and pressing, glazing and printing, tile firing and product packaging and sorting occur within this main building. Product storage and traffic access and loading facilities, water detention ponds and property landscaping are also accommodated on the premises. The site layout is shown in **Figure 1**.

2.2 Approved Future Operations

Project Approval (MP 09_0006) was granted in January 2012 for expansion of the project and provides approval for construction and operation of a second factory building with four additional production lines located adjacent to the existing facility known as Stages 5 – 8 and provides approval for all eight stages of the development (Stages 1-8). The site layout for the approved expansion (Stages 5 – 8) is shown in **Figure 2**.

To date, Stages 1 - 2 have been constructed and are operational. Commencement and scheduling of the approved Stages 3 - 8 is largely dependent on market conditions and demand.

The fully operational facility would be capable of producing up to 25.6 million m^2 of tiles per annum. This would require approximately 1600 tonnes of raw material to produce approximately 1440 tonnes of finished tiles per day.

2.3 Facility Operation

The raw materials used in the production process comprise mainly clay, white granite and rhyolite, which are naturally occurring and are supplied by quarries within Australia. The process also requires glazes, inks, additives and other consumables that are either supplied locally or imported. All processes occur within the building including unloading and storage of raw materials. Finished tiles are stored and loaded for distribution outside of the building in the south western corner of the site. All transport to and from the site is via road, with semi-trailers and B-double trucks transporting the raw materials and finished product.

The facility operates 24 hours per day, 7 days per week, and approximately 330 days per year and will directly employ approximately 140 people full time at the completion of all eight stages of the approved development, in addition to the employment generated by ancillary service providers such as transport companies.

Chapter 4 of the 2010 EA can be referred to for further detail relating to the operation of the facility.

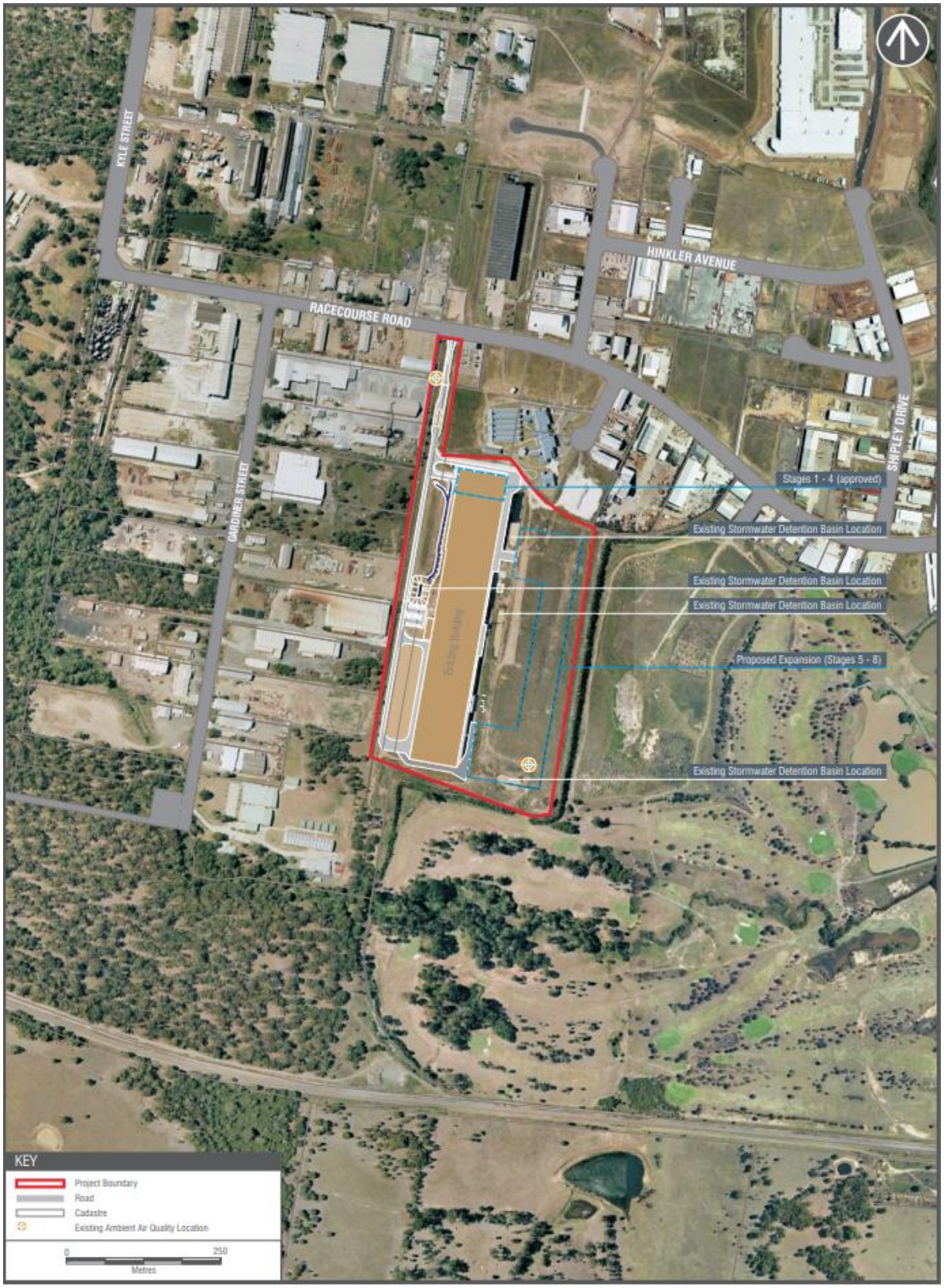

Figure 1 Existing Site Layout

Figure 2 Site Layout for Approved Future Operations

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3.0 Project Approval Implementation

3.1 Statutory Requirements

Project Approval MP 09_0006 provides the statutory requirements for environmental management during construction and operation of the facility. As previously noted in **Section 1.1**, the Project Approval was granted on 19 January 2012 for the construction, operation and expansion of the facility. The relinquished Development Consent (under which the facility had previously operated) provided approval for the construction and operation of Stages 1-4 of the development. The Project Approval provides approval for all Stages 1-8 of the development and consolidates the requirements of the previously approved development. The Project Approval is therefore the only active approval for the facility and applies to all operating and approved future Stages (Stages 1 - 8).

A modification to the Project Approval (09_0006 MOD 2, attached at **Appendix A**) was approved on 17 December 2014 and included a number of minor administrative changes to the Project Approval conditions.

Condition 2 of the Project Approval states that the project must be carried out generally in accordance with the:

- 2010 EA;
- Statement of Commitments (Appendix 1 of the Project Approval);
- Submissions Report;
- MOD 2; and
- Conditions of this approval.

In the event of any inconsistency between these documents, the conditions of the Project Approval shall prevail to the extent of the inconsistency.

Many of the requirements contained within the Project Approval conditions are only triggered prior to construction of subsequent stages. For example, Condition 56 of the Project Approval states that an Environmental Management Strategy must be prepared prior to commencement of construction works. An OEMP is not specifically required by the Project Approval. However, the Statement of Commitments made within the 2010 EA (and attached to the Project Approval as Appendix 1) stated that the existing site OEMP and environmental management plans would be reviewed, modified and updated to include the expansion project. The Statement of Commitments also noted that environmental reporting and auditing requirements specified in the relinquished Development Consent would continue where possible.

Construction of the additional Stages 3 – 8 is dependent on market conditions and demand. It is uncertain when construction of these additional Stages will commence. The existing NCIA facility will therefore continue to operate in accordance with the OEMP. Prior to commencement of construction of Stages 3 – 8, an Environmental Management Strategy will be prepared in accordance with the Project Approval requirements and this Strategy will replace the OEMP. Until such a time, the OEMP will continue to guide the environmental management requirements and practices implemented at the NCIA facility.

3.2 Future Environmental Management Strategy

Condition 56 of the Project Approval requires preparation of an Environmental Management Strategy prior to commencement of any construction works. Once prepared and approved, the Environmental Management Strategy will replace this OEMP and will provide the strategic framework for environmental management of the project.

The Environmental Management Strategy will describe the management measures and environmental monitoring to be implemented at the facility and will include copies of the various strategies and plans required under the conditions of the Project Approval. The Environmental Management Strategy will therefore incorporate the following management plans, which are required to be submitted to the Secretary of DP&E for approval prior to the commencement of construction of any subsequent stage of the project:

- Air Quality Management Plan (Condition 19);
- Noise Management Plan (Condition 27);

- Landscape Management Plan (Condition 30);
- Traffic Management Plan (Condition 40);
- Erosion and Sediment Control Plan (Condition 42); and
- Stormwater Management Plan (Condition 46).

4.0 OEMP Implementation

4.1 Roles and Responsibilities

The main responsibility for maintaining and implementing this OEMP is with the Board of Directors. Responsibility for implementing and ensuring compliance with the OEMP is the responsibility of the Factory Manager, Deputy Factory Manager and Tile writes under direction from the Board of Directors. NCIA operates under lean management principles and sub-contractors and experts are key to implementation and compliance with the OEMP under direction from Factory Management. An NCIA organisational structure is shown in **Figure** 3. A summary of NCIA personnel responsibilities is provided in **Table 1.** Specific responsibilities are also outlined in **Section 4.3.**

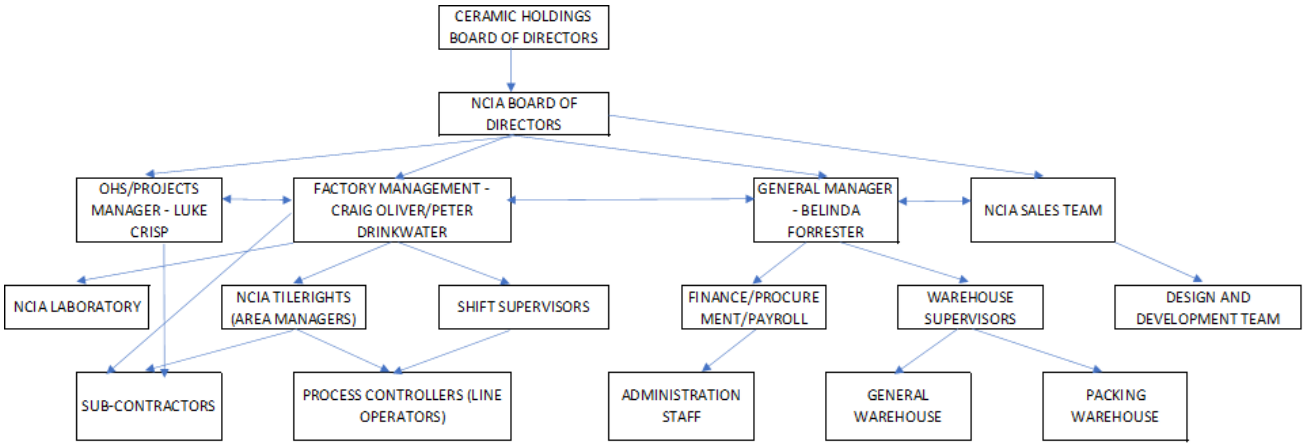

Figure 3 NCIA Organisational Structure

Table 1 Summary of NCIA Personnel Responsibilities

Title	Reports to	Summary of Responsibilities
NCIA Board of Directors	NCIA Board of Directors	• Define environmental management responsibilities for the operation of the facility • Reviewing the OEMP for compliance with approval conditions • Ensuring environmental requirements are included in contract documents • Review of any environmental audits • Address environmental audit actions in the management and operation of the facility • Appointments and delegations of authority
Factory Management	NCIA Board of Directors	• Familiarisation with OEMP requirements • Arranging reviews of the OEMP at appropriate stages • Implementing the requirements of this OEMP and ensuring its currency • Arranging and ensuring training/induction of personnel is carried out • Maintaining original records relating to OEMP implementation • Ensuring that NCIA personnel and Contractors are made aware of the management measures that are to be implemented • Ensuring that all personnel, including Subcontractors, comply with OEMP requirements relevant to their scope of work • Maintaining on-going communication with NCIA personnel and Contractors • Monitoring any environmental emergency and action taken by NCIA personnel and Contractors

Title	Reports to	Summary of Responsibilities
		• Reporting to the Managing Director on OEMP compliance during facility operation • Ensuring that management measures to be implemented by Contractors are communicated to the Contractors, incorporated into contract documentation and implemented during the works • Ensuring training/induction system is implemented • Ensuring mandatory records are maintained • Providing technical expertise and developing appropriate maintenance programs by area to facilitate operational success • Working closely with Tilewrites to ensure the requirements of this OEMP are implemented and to ensure its currency by area
OHS Manager	Factory Management/ NCIA Board of Directors	• Providing assistance to the Factory Management in implementing the requirements of this OEMP and ensuring its currency • Ensuring that management measures to be implemented by Contractors are communicated to the Contractors, incorporated into contract documentation and implemented during the works • Arranging reviews of the OEMP at appropriate stages • Developing, implementing and maintaining the OEMP • Reviewing the OEMP for compliance with approval conditions • Review of any environmental audits
Tilewrites (Area Managers)	Factory Management/ OHS Manager	• Familiarisation with OEMP requirements • Identification of environmental issues to be incorporated into OEMP • Implementing OEMP requirements where relevant to work being undertaken • Ensuring personnel training is appropriate and current • Maintaining on-going communication with Factory Manager • Responding to any environmental emergency and initiating action to limit or rectify damage caused by any work under their control • Reporting on compliance, as required • Providing technical expertise and developing appropriate maintenance programs by area to facilitate operational success
Process Controller (Line Workers)	Tilewrites/Factory Management	• Familiarisation with OEMP requirements • Identification of environmental issues to be incorporated into OEMP • Implementing OEMP requirements where relevant to work being undertaken • Attendance at Morning meeting • Operating in a safe manner • Completion of Induction
Subcontractors	Factory Management/ OHS Manager	• Familiarisation with OEMP requirements • Identification of environmental issues to be incorporated into OEMP • Implementing OEMP requirements where relevant to work being undertaken • Ensuring personnel training is appropriate and current • Maintaining on-going communication with NCIA contact

Title	Reports to	Summary of Responsibilities
		• Responding to any environmental emergency and initiating action to limit or rectify damage caused by any work under their control • Reporting on compliance, as required

4.2 Implementation Guidelines

Training and reporting guidelines are presented in **Table 2**. Guidelines for the control of environmental incidents are provided in **Table 3**. Related *Task Instructions* and *Standard Forms* are provided as **Appendix D** and **Appendix E** respectively.

Table 2 Training and Reporting Guidelines

Action	Responsibility	Audit / Evidence / Sign off
Key NCIA and construction personnel are to attend an Environmental Induction Training session conducted by the Factory Manager (or delegate) prior to undertaking works at the site (refer to Task Instruction 1).	OHS/Projects Manager	Excel Register
Prepare tender documents incorporating information relating to environmental aspects, impacts and outcomes.	NCIA Board of Directors	Tender Documents
Assessments of NCIA personnel/contractor's performance (refer to Task Instruction 4).	Factory Manager OHS/Projects Manager	Excel Register
Provide information relating to any major incidents (refer to Task Instruction 2).	Factory Management	Excel Register
Assessment of Environmental Performance annually as part of the AEMR process (refer to Task Instruction 4).	NCIA Board of Directors	Excel Register, Monthly monitoring data, Annual performance monitoring
Maintain all records relating to environmental issues in a central file (refer to Task Instruction 3).	OHS/Projects Manager	Environmental Management File (EMF)
Maintain all records relating to the OEMP implementation in a central file (refer to Task Instruction 3).	Factory Management	EMF
Maintain and update all controlled copies of the OEMP (refer to Task Instruction 3).	OHS/Projects Manager	OEMP Amendment Register
Amend OEMP as required (refer to Task Instruction 3).	NCIA Board of Directors/ OHS/Projects Manager	OEMP Amendment Register
Contractors must complete risk assessments and job safety analysis prior to commencement of work. Documentation must be maintained in a central file.	Factory Management/ OHS/Projects Manager	EMF
Noise survey reports must be maintained on a central file. Reports must also be forwarded to the EPA, MCC and where relevant, the complainant.	OHS Manager/General Manager	EMF

Table 3 Guidelines for the Control of Environmental Incidents and Non-conformances

Action	Responsibility	Audit / Evidence / Sign off
Contact details for relevant authorities are to be listed and the information is to be displayed in a prominent location.	Factory Management	Standard Form 3
Incidents are reported to the Factory Manager by NCIA personnel/Contractor(s) (refer to Task Instruction 2).	Factory Management	Excel Register
Incidents causing or threatening material harm to the environment are to be reported to the relevant regulatory authority and the Factory Manager as soon as practicable after the person becomes aware of the incident (refer to Task Instruction 2).	Factory Management	Excel Register
All incidents must be recorded by the Factory Manager (or delegate).	Factory Management	Excel Register
The Managing Director may need to amend this OEMP as a result of an incident (refer to Task Instruction 3).	NCIA Board of Directors/ OHS/Projects Manager	OEMP Amendment Register

4.3 Obligations, Timing and Responsibility

The Project Approval (MP 09_0006) provides the statutory requirements for environmental management during construction and operation of the ceramic tile manufacturing facility. In addition to the Project Approval conditions, other statutory requirements applicable to the operation of the ceramic tile manufacturing facility include:

- Specific approvals, licenses and permits required by the EPA, OEH and MCC; and
- General legislative requirements that apply to the operation of the ceramic tile manufacturing facility.

These requirements have been incorporated into the management plans set out in **Section 5.0** to **Section 11.0**.

A summary of the obligations defined in both the Project Approval and the various management plans, and the timing and responsibility for these obligations, is provided in **Table 4.** As the OEMP was prepared with specific regard to conditions within the relinquished Development Consent, a table summarising the obligations, timing and responsibilities derived from those conditions is also provided at **Appendix A**, although it is noted that there is no longer a statutory requirement to implement those obligations.

Table 4 Summary of Obligations, Timing and Responsibility

Document Reference	Facility Operation Requirement	Timing	Responsibility
Project Approval Condition 1	The Proponent shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, maintenance, decommissioning and/or rehabilitation of the project.	Throughout life of the facility	NCIA Board of Directors
Project Approval Condition 2	The Proponent shall carry out the project generally in accordance with the: • EA; • Statement of Commitments; • Submissions Report; • MOD 2; and • Conditions of this approval. If there is any inconsistency between the above, the conditions of this approval shall prevail to the extent of the inconsistency.	Throughout life of the facility	NCIA Board of Directors

Document Reference	Facility Operation Requirement	Timing	Responsibility
Project Approval Condition 3	The Proponent shall comply with any reasonable requirement/s of the Secretary arising from the Department's assessment of: • any reports, plans, strategies or correspondence that are submitted in accordance with this approval; and • the implementation of any actions or measures contained in these reports, plans, strategies or correspondence submitted by the Proponent.	As required	NCIA Board of Directors
Project Approval Condition 4	The Proponent shall not produce more than 25.6 million m^2 of ceramic tiles per annum on site.	Throughout life of the facility	NCIA Board of Directors
Project Approval Condition 5	The Proponent shall ensure that an increase or progression to a Stage represents an increase in production by no more than an additional 3.2 million m^2 of tiles.	During construction and operation of each new Stage	NCIA Board of Directors
Project Approval Condition 6	Within 12 months of this approval, or as otherwise agreed by the Secretary, the Proponent shall surrender all existing development consents and project approvals for the site, apart from this project approval, in accordance with Sections 75YA and 104A of the EP&A Act.	Item Completed (previous Development Consent was relinquished within 12 months from date of approval)	NCIA Board of Directors
Project Approval Condition 7	The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.	Throughout construction of each new Stage	NCIA Board of Directors
Project Approval Condition 8	The Proponent shall ensure that all necessary licences, permits and approvals are obtained and kept up-to-date as required throughout the life of the project. No condition of this approval removes the obligation for the Proponent to obtain, renew or comply with such licences, permits or approvals.	Throughout life of the facility	NCIA Board of Directors
Project Approval Condition 9	The Proponent shall: • repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the project; and • relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the project.	As required	NCIA Board of Directors
Project Approval Condition 10	Prior to the construction of any utility works, the Proponent shall obtain the relevant approvals from service providers, including Hunter Water Corporation, Integral Energy and Council.	Prior to construction of each new Stage, where relevant	OHS/Projects Manager
Project Approval Condition 11	The Proponent shall ensure that all plant and equipment used on site is: • maintained in a proper and efficient condition; and	Throughout life of the facility	Factory Management

Document Reference	Facility Operation Requirement	Timing	Responsibility
	• operated in a proper and efficient manner.		
Project Approval Condition 12	With the written approval of the Secretary, the Proponent may submit any management plan, strategy or monitoring program required by this approval on a progressive basis.	As required	NCIA Board of Directors
Project Approval Condition 13	In the event that a dispute arises between the Proponent and Council or a public authority other than the Department, in relation to a specification or requirement applicable under this approval, the matter shall be referred by either party to the Secretary, or if not resolved, to the Minister, whose determination of the dispute shall be final and binding to all parties. For the purpose of this condition, 'public authority' has the same meaning as provided under Section 4 of the Act.	As required	NCIA Board of Directors
Project Approval Condition 14	During operations, the Proponent shall pay Council an annual contribution of 4.1 cents per kilometre per tonne of product trucked from the site along Racecourse Road to its intersection with the New England Highway (1.7 km). The contribution amount shall be adjusted annually from the date of this approval to account for the effects of inflation (Consumer Price Index).	Throughout life of the facility	General Manager
Project Approval Condition 15	The Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the project do not exceed the criteria listed in Tables 1 or 2 of this condition at any residence on privately-owned land.	Throughout life of the facility	Factory Management
Project Approval Condition 16	Unless the OEH specifies otherwise, the Proponent shall ensure that the annual total load discharged from the site does not exceed the load limit specified for that pollutant in Table 3 of this condition.	Throughout life of the facility	Factory Management
Project Approval Condition 17	The Proponent shall: • design, construct, operate and maintain the project in a manner that minimises or prevents the emission of dust from the site; • take all practicable measures to ensure that all vehicles entering or leaving the site and carrying a load that may generate dust are covered at all times, except during loading and unloading. Any such vehicles shall be covered or enclosed in a manner that will prevent emissions of dust from the vehicle at all times; • maintain all trafficable areas and vehicle manoeuvring areas on the site in a condition that will minimise the	Throughout life of the facility and during construction of each new Stage	NCIA Board of Directors

Document Reference	Facility Operation Requirement	Timing	Responsibility
	generation or emission of windblown or traffic generated dust from the site; and • ensure each kiln is fitted with a dust collection system to capture emissions, to the satisfaction of the Secretary.		
Project Approval Condition 18	Unless otherwise specified by the Secretary, the Proponent shall: • comply with all monitoring (points) requirements and pollutant discharge concentrations as specified by the OEH in the EPL; and • ensure that the stack discharge design requirements comply with the EPL.	Throughout life of the facility	NCIA Board of Directors
Project Approval Condition 19	The proponent shall prepare and implement an Air Quality Management Plan for the project to the satisfaction of the Secretary. The Plan must: • be prepared by suitably qualified expert and submitted to the Secretary for approval prior to commencement of construction of any subsequent stage of the project; • identify all major sources of particulate and gaseous air pollutants that may be emitted as result of the operation of the project, including identification of the major components and quantities of these emissions; • include monitoring of particulate and gaseous emissions from the project, in accordance with any requirements of the EPL; • include continuous dust-leak detection monitoring of fabric filter discharges; • include monitoring of the impacts of fluoride on vegetation in accordance with the EPL with sampling/observations designed to assess impacts on sensitive ornamental plants in adjacent residential areas; • include procedures for the minimisation of particulate and gaseous emissions from the project, and the reduction of these emissions over time, where appropriate; • include protocols for regular maintenance of process equipment to minimise the potential for dust emissions; • detail procedures to be undertaken if any non-compliance is detected; • include mechanisms to consider cumulative air quality impacts in the context of development in the Rutherford industrial area; and • outline how data from the relocated meteorological station site would be used	Prior to commencement of construction of any subsequent Stage	NCIA Board of Directors

Document Reference	Facility Operation Requirement	Timing	Responsibility
	as part of the validation modelling required under condition 20.		
Project Approval Condition 20	The Proponent shall prepare and implement Air Emissions Validation Reports to the satisfaction of the Secretary and OEH. These reports must: • be prepared by a suitably qualified expert whose appointment has been endorsed by the Secretary; • be undertaken within 90 days of the commencement of operation of each stage (stages 1 to 8) of the project and during a period in which the facility is operating under design loads and normal operating conditions; • be conducted in accordance with the documents "*Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales'* and *" Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*"; and • include: - a program for point source emission testing on each stack as described in the site EPL; - the results of the stack testing and a validation with the project's air emission limits; - a validation against the predictions made in the 2010 EA using both simulated and actual site meteorological data collected in accordance with the EPL and as modified by Condition 19(j) above; - details of any exceedances or non-compliance with the limits in the EPL and approval; and - measures to mitigate the exceedance or non-compliance. Should any Air Emissions Validation Reports identify an exceedance or non-compliance, then the Proponent shall implement additional mitigation or attenuation to the satisfaction of the OEH and Secretary within the timeframe specified by the Secretary and prior to any progression to the next stage.	Within 90 days of commencement of operation of each new Stage	OHS/Projects Manager
Project Approval Condition 21	Prior to the commencement of construction of each stage of the project, the Proponent shall provide manufacturer's performance guarantees for all plant and equipment to demonstrate that all sources of air pollutants will comply with the emission concentration limits specified in the EPL, to the satisfaction of the OEH.	Prior to commencement of construction of each new Stage	OHS/Projects Manager

Document Reference	Facility Operation Requirement	Timing	Responsibility
Project Approval Condition 22	The Proponent shall not cause or permit the emission of any offensive odour from the site.	Throughout life of the facility	Factory Management
Project Approval Condition 23	The Proponent shall implement all reasonable and feasible measures to minimise: • energy use on site; and • the scope 1 and 2 greenhouse gas emissions produced on site, to the satisfaction of the Secretary.	Throughout life of the facility	Factory Management
Project Approval Condition 24	The Proponent shall prepare and implement an Energy Savings Action Plan (ESAP) for the project to the satisfaction of the Secretary. The plan shall: • be submitted to the Secretary for approval within 12 months of this approval; and • be prepared in accordance with the *Guidelines for Energy Savings Action Plans (DEUS 2005)*.	Within 12 months of the Project Approval date. Preparation of an ESAP was initiated; however following consultation with the Department, involvement with the Energy Efficiency Opportunities program was recommended and pursued as an appropriate alternative. As agreed with the Department, NCIA opted out of the program due to the low level of emissions from the facility. The EEO program is now closed.	Factory Management
Project Approval Condition 25	The Proponent shall comply with the hours of operation in Table 4 of this condition, unless otherwise agreed by the Secretary. Construction activities (with the exception of earthworks and building construction activities) are permitted to occur outside of these hours provided it meets the operational noise criteria as defined in Table 6 of this approval.	Throughout life of the facility and during construction of each new Stage	Factory Management
Project Approval Condition 26	The Proponent shall ensure that noise generated from the project does not exceed the noise limits presented in Table 5 of this condition. Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.	Throughout life of the facility	Factory Management

Document Reference	Facility Operation Requirement	Timing	Responsibility
Project Approval Condition 27	The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Secretary. The Plan must: • be prepared by a suitably qualified acoustical expert and submitted to the Secretary for approval prior to commencement of construction of any subsequent stage of the project; • identify all specific activities that will be carried out during construction and operation and associated noise sources; • identify all potentially affected sensitive receivers; • specify noise criteria (reflect the noise limits presented in Table 5); • describe management methods and procedures and specific noise mitigation treatments that will be implemented to control noise emissions; • detail an operational noise monitoring program to be prepared by a qualified acoustic consultant and implemented to monitor the effects of the project on the acoustic environment during operation, including road traffic noise, with details of procedures to be undertaken if any non-compliance is detected; • detail procedures to receive, record and respond to complaints; and • describe the contingencies that would be implemented, and the timing for implementation, should non compliances be detected.	Prior to commencement of construction of any subsequent Stage	NCIA Board of Directors
Project Approval Condition 28	The Proponent shall prepare and implement Noise Validation Reports to the satisfaction of the Secretary. These reports must: • be prepared by a suitably qualified acoustical expert whose appointment has been endorsed by the Secretary; • be undertaken within 90 days of the commencement of operation of each subsequent stage (stages 1 to 8) of the project and during a period in which the facility is operating under normal operating conditions; • be conducted in accordance with the NSW Industrial Noise Policy; and • include: - a validation against the predictions made in the 2010 EA including the proposed noise attenuation; - details of any exceedances or non-compliance with the noise limits in this approval; and - measures to mitigate the exceedance or non-compliance.	Within 90 days of commencement of operation of each new Stage	NCIA Board of Directors

Document Reference	Facility Operation Requirement	Timing	Responsibility
	Should any Noise Validation Reports identify an exceedance or non-compliance, then the Proponent shall implement additional mitigation or attenuation to the satisfaction of the OEH and Secretary within the timeframe specified by the Secretary and prior to any progression to the next stage.		
Project Approval Condition 29	The Proponent shall construct the facility generally in accordance the elevations shown in Appendix 4 of this approval, including additional noise attenuation of building sections. Building design shall incorporate the following noise mitigation features: • increased thickness of metal sheeting to 0.48 BMT on the east façade, south façade and roof (previous assumption in noise model was 0.3 BMT) with 55 mm insulation fixed to underside of roof; • existing dust extractor to be enclosed; • alsynite roofing on the proposed main building located only on the west section of the roof. This is assuming the roof is pitched and therefore the alsynite panelling is angled away from Heritage Green receivers to the east; • no alsynite panels on the east and south walls of the proposed Mill & Spray Dryer section of the building; • the bag-houses for the proposed kiln stacks shall be located inside the factory building; and • the dust extraction unit, located on the southern end of the eastern wall of the factory building, shall be enclosed to reduce noise emission to the east and south.	During construction of each new Stage	OHS/Projects Manager
Project Approval Condition 30	The Proponent shall prepare and implement a Landscape Management Plan for the project to the satisfaction of the Secretary. The plan shall; • be submitted to the Secretary for approval prior to commencement of construction of any subsequent stage of the project; • be prepared in consultation with Council; • detail existing and proposed landscaping on the site; • maximise the use of flora species endemic to the locality in landscaping the site; • incorporate weed management for the site; and • include a schedule for implementation and maintenance.	Prior to commencement of construction of any subsequent Stage	NCIA Board of Directors

Document Reference	Facility Operation Requirement	Timing	Responsibility
Project Approval Condition 31	The Proponent shall complete the landscaping along the eastern site boundary within 6 months following the construction of any stage of the new factory building (see figure in Appendix 2 of this approval).	Within 6 months following construction of any stage of the new factory building (i.e. Stages 5-8)	OHS/Projects Manager
Project Approval Condition 32	The Proponent shall ensure that the lighting associated with the project: • complies with the latest version of Australian Standard AS 4282(INT) - Control of Obtrusive Effects of Outdoor Lighting; • is adequate for night time security purposes; and • is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.	Throughout life of the facility	OHS/Projects Manager
Project Approval Condition 33	The Proponent shall not erect any signage and advertising media at the site, with the exception of internal site signage for traffic management and safety purposes. Any proposed signage will be subject to further application and approval by the Secretary.	Throughout life of the facility	NCIA Board of Directors
Project Approval Condition 34	The Proponent shall erect security fencing around the perimeter of the site with lockable gates at each entry point.	Throughout life of the facility	Factory Management
Project Approval Condition 35	The Proponent shall obtain a permit for an oversized and over mass load from the RMS, if transportation of oversized or over mass materials or machinery is required for the project.	As required	OHS/Projects Manager
Project Approval Condition 36	The Proponent shall: • ensure that all vehicles entering and exiting the site do so in a forward direction; and • install a median strip or similar device on the driveway to ensure that internal two-way traffic is separated.	Throughout life of the facility	Factory Management
Project Approval Condition 37	The Proponent shall ensure that: • a minimum of 70 parking spaces are provided on site; • all parking generated by the project is accommodated on site, and that no vehicles associated with the project are parked on the public road system at any stage; • the project does not result in any vehicles queuing on the public road network; and • provide direction line marking and signage on site to direct heavy vehicles, staff and visitors to the relevant parking	Throughout life of the facility	Factory Management

Document Reference	Facility Operation Requirement	Timing	Responsibility
	areas, loading docks and exits to ensure safe traffic flow.		
Project Approval Condition 38	The Proponent shall ensure that the parking dimensions, internal circulation, aisle widths, kerb splay corners, head clearance heights, ramp widths and grades of the car parking area in accordance with the current relevant Australian Standards *AS2890.1:2004*, except where amended by other conditions of this approval.	Throughout life of the facility	Factory Management
Project Approval Condition 39	The Proponent shall ensure that disabled parking and assess is provided on-site and shall comply with Australian Standard *AS1428.1 (2001) - Design for Access and Mobility - Part 1 General Requirements for Access – Buildings*.	Throughout life of the facility	Factory Management
Project Approval Condition 40	The Proponent shall prepare and implement a Traffic Management Plan for the project to the satisfaction of the Secretary. The plan must: • be prepared in consultation with the RMS and Council, and be submitted to the Secretary for approval prior to commencement of construction of any subsequent stage of the project; • be prepared by a suitably qualified expert; • detail construction and operation vehicle routes, access and parking arrangements, traffic restrictions and traffic control; and • include a Driver Code of Conduct.	Prior to commencement of construction of any new Stage	Factory Management
Project Approval Condition 41	Except as may be expressly provided in an EPL for the project, the Proponent shall comply with section 120 of the Protection of the Environment Operations Act 1997 (POEO Act).	Throughout life of the facility	Factory Management
Project Approval Condition 42	The Proponent shall prepare and implement an Erosion and Sediment Control Plan for the project to the satisfaction of the Secretary. This plan must: • be submitted to the Secretary before the commencement of construction of any subsequent stage of the project; • be prepared in accordance with Landcom's *Managing Urban Stormwater: Soils and Construction* manual; • identify the works that could cause soil erosion and generate sediment; • describe the location, function, and capacity of the erosion and sediment controls that would be implemented; and • describe the measures that would be implemented to maintain these controls during the construction period.	Prior to commencement of construction of any new Stage	NCIA Board of Directors
Project Approval	All erosion and sedimentation controls required as part of this approval shall be	During construction	OHS/Projects Manager

Document Reference	Facility Operation Requirement	Timing	Responsibility
Condition 43	maintained at design capacity for the duration of the construction works, and until such time as all ground disturbed by the construction works has been stabilised and rehabilitated so that it no longer acts as a source of sediment.	works for each new Stage	
Project Approval Condition 44	Prior to exceeding a water consumption level of 92 megalitres (ML)/year, the Proponent shall obtain written approval from HWC that the amount required for each new Stage of the project is within the capacity able to be provided by HWC, to the satisfaction of the Secretary.	Prior to exceeding water consumption of 92 ML/year	Factory Management
Project Approval Condition 45	Prior to the installation of any alternative water supply infrastructure, the Proponent shall consult with, and seek the approval of Hunter Water Corporation and Council.	Prior to installation of any alternative water supply infrastructure	OHS/Projects Manager
Project Approval Condition 46	Proponent shall prepare and implement a Stormwater Management Plan for the project to the satisfaction of the Secretary. This plan must: • be prepared in consultation with Council and be submitted to the Secretary for approval prior to the commencement of construction of any subsequent stage of the project; • be prepared in accordance with the latest version of Managing Urban Stormwater: Council Handbook (DECC); • outline measures to manage stormwater to prevent the pollution of waters; • include a program to monitor stormwater quantity and quality; and • include detailed plans of the stormwater system.	Prior to commencement of construction of any new Stage	NCIA Board of Directors
Project Approval Condition 47	The Proponent shall ensure that the construction and operation of the facility does not concentrate or lead to an increase in the rate of flow of stormwater discharged from the site over and above the predevelopment flow conditions.	Throughout life of the facility	NCIA Board of Directors
Project Approval Condition 48	The Proponent shall design, construct, operate and maintain all stormwater infrastructure to direct all stormwater runoff to the site's stormwater detention basins. Such stormwater infrastructure shall be capable of handling all stormwater discharges up to and including a 1 in 100 year ARI storm event.	Throughout life of the facility	NCIA Board of Directors
Project Approval Condition 49	The Proponent shall cease all works on site in the event that any Aboriginal cultural object(s) or human remains are uncovered onsite. The NSW Police, the Aboriginal Community and the OEH are to be notified. Works shall not resume in the designated area until approval in writing from the NSW Police and/or the OEH has been obtained.	Throughout life of the facility and during construction of new Stages	OHS/Projects Manager

Document Reference	Facility Operation Requirement	Timing	Responsibility
Project Approval Condition 50	The Proponent shall ensure all reasonable and feasible measures are made to avoid impacts to Aboriginal Cultural Heritage values for the life of the project. If impacts are unavoidable, mitigation measures are to be negotiated with the Aboriginal community and the OEH.	Throughout life of the facility and during construction of new Stages	OHS/Projects Manager
Project Approval Condition 51	The Proponent shall: • prepare an Aboriginal Cultural Education Program for the induction of personnel and contractors involved in construction and landscaping activities on site, prior to the commencement of construction of any subsequent stage of the project: and • undertake consultation with Aboriginal stakeholders in the event of the discovery of Aboriginal cultural object(s) throughout the construction of the project, to the satisfaction of the Secretary.	Prior to commencement of and during construction of new Stages	OHS/Projects Manager
Project Approval Condition 52	A designated area for the storage and collection of waste and recyclable materials shall be provided at the site and shall be designed, constructed, operated and maintained in a manner so as not to cause a nuisance to adjoining properties.	Throughout life of the facility	Factory Management
Project Approval Condition 53	The Proponent shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing or disposal, or any waste generated at the site to be disposed of at the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997*.	Throughout life of the facility	Factory Management
Project Approval Condition 54	All wastes generated on site during construction and operation of the project shall be classified in accordance with the Waste Classification Guidelines, December 2009 (or later version) and disposed of to a facility that may lawfully accept the waste.	Throughout life of the facility	Factory Management
Project Approval Condition 55	The Proponent shall ensure that the fuel storage tank is surrounded by a bund with a capacity to contain 110% of the largest tank within the bund. The bund(s) must be designed and installed in accordance with the requirements of the relevant Australian Standards and/or the OEH's *Environmental Protection Manual Technical Bulletin Bunding and Spill Management*.	Throughout life of the facility	Factory Management
Project Approval Condition 56	The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Secretary. This strategy must: • be submitted to the Secretary for approval prior to commencement of any construction works;	Prior to commencement of construction of any new Stage	NCIA Board of Directors

Document Reference	Facility Operation Requirement	Timing	Responsibility
	• be prepared by a suitably qualified and experienced expert; • provide the strategic framework for environmental management of the project; • identify the statutory requirements that apply to the project; • describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the project. • describe in detail the management measures that would be implemented to address environmental issues; • describe in general how the environmental performance of the project would be monitored and managed; • describe the procedures that would be implemented to: - keep the local community and relevant agencies informed about the operation and environmental performance of the project; - receive, handle, respond to, and record complaints; - resolve any disputes that may arise during the course of the project; - respond to any non-compliances; and - respond to emergencies; and • include copies of the various strategies and plans that are required under the conditions of this approval once they have been approved.		
Project Approval Condition 57	The Proponent shall prepare and implement a Construction Environmental Management Plan (CEMP) to outline environmental management practices and procedures to be followed during the construction of the ceramic tile manufacturing facility. The Plan shall include, but not necessarily be limited to: • a description of all activities to be undertaken on the site during construction of the ceramic tile manufacturing facility, including an indication of stages of construction, where relevant; • statutory and other obligations that the Proponent is required to fulfil during construction, including all approvals, consultations and agreements required from authorities and other stakeholders, and key legislation and policies; • detailed management measures that would be implemented to address environmental issues (i.e. noise, air	Prior to commencement of construction of any new Stage 5 - 8	OHS/Projects Manager

Document Reference	Facility Operation Requirement	Timing	Responsibility
	quality, heritage, water, potential acid sulphate soil); • specific consideration of measures to address any requirements of the Department, Council and the OEH during construction; • details of how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts; and • a description of the roles and responsibilities for all relevant employees involved in the construction of the ceramic tile manufacturing facility. The CEMP shall be submitted for the approval of the Secretary prior to the commencement of construction of any subsequent stage of the project.		
Project Approval Condition 58	Within 24 hours of the occurrence of an incident that causes (or may cause) harm to the environment, the Proponent shall notify the Department and any other relevant agencies of the incident.	Within 24 hours of the occurrence of an incident	Factory Management
Project Approval Condition 59	Within 7 days of the detection of the incident, the Proponent shall provide the Secretary and any relevant agencies with a detailed report on the incident.	Within 7 days of the detection of an incident	NCIA Board of Directors
Project Approval Condition 60	Every year from the date of this approval, unless the Secretary agrees otherwise, the Proponent shall submit an Annual Environmental Management Report (AEMR) to the Secretary and relevant agencies. The AEMR shall: • be conducted by a suitably qualified and experienced team; • be submitted within 3 months of the period being assessed by the AEMR; • identify the standards and performance measures that apply to the development; • include a summary of the complaints received during the past year, and compare this to the complaints received in previous years; • include a summary of the monitoring results for the development during the past year; • include an analysis of these monitoring results against the relevant: - impact assessment criteria; - monitoring results from previous years; and - predictions in the 2010 EA; • identify any trends in the monitoring results over the life of the development;	Annually throughout life of the facility	OHS/Projects Manager

Document Reference	Facility Operation Requirement	Timing	Responsibility
	• identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; • identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance; and • identify continuous improvement measures, outlining new developments in air quality and noise control, and detailing practices that have been implemented on the site during the previous year, to reduce air quality and noise impacts.		
Project Approval Condition 61	Every 3 years from the date of this approval, unless the Secretary directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must: • be conducted by a suitably qualified, experienced, and independent team of experts whose appointment has been endorsed by the Secretary; • be undertaken in consultation with the OEH and Council; • include an assessment of the noise and air quality performance of the project; • assess the environmental performance of the project and undertake any works necessary to determine whether it is complying with the relevant standards, performance measures, and statutory requirements; • review the adequacy of any strategy/plan/program required under this approval; and, if necessary, • recommend measures or actions to improve the environmental performance of the project, and/or any strategy/plan/program required under this approval.	Every 3 years from the date of approval. First audit due 19 January 2015. Due to COVID 19, the 2021 audit was postponed to 2023 meaning the next audit is due in 2026.	OHS/Projects Manager
Project Approval Condition 62	Within 6 weeks of completing this audit, or as otherwise agreed by the Secretary, the Proponent shall submit a copy of the audit report to the Secretary with a response to any recommendations contained in the audit report.	Submission of report due within 6 weeks of completion of audit	OHS/Projects Manager
Project Approval Condition 63	Within 3 months of submitting an audit report to the Secretary, the Proponent shall review and if necessary revise the strategy/plans/programs and undertake additional mitigation measures as required under this approval to the satisfaction of the Secretary.	Within 3 months of submission of audit report	OHS/Projects Manager
Project Approval	Within 3 months of the approval of any strategy/plan/program required under this	Within 3 months of the approval of	OHS/Projects Manager

Document Reference	Facility Operation Requirement	Timing	Responsibility
Condition 64	approval (or any subsequent revision of these strategies/plans/programs), or the completion of the audits or annual reports required under this approval, the Proponent shall: • provide a copy of the relevant documents/data to the relevant agencies; and • make the documents publically available in an appropriate electronic format on the Proponent's web site, should one exist. If a web site does not exist, the documents are to be made available upon request.	any strategy/ plan/program, or completion of audits or annual reports, required under the approval	
OEMP Air Quality Management Plan (**Section 5.0**)	Implementation of Air Quality Management Plan including: • routine and performance-based source emission testing in accordance with EPL 11956; • development and maintenance of air emission minimisation and reduction measures; • maintenance of process and emission control equipment; • detection, documentation and notification of non-compliance; and • validation of point source emissions for each Stage of the project, and response to issues related to cumulative impact.	Throughout life of the facility.	NCIA Board of Directors
OEMP Water Management Plan (**Section 6.0**)	Implementation of Water Management Plan, including: • ESCMP to be implemented to mitigate effects of potential erosion and sedimentation during site activities (e/g excavations and landscaping); • maintenance of Stormwater Management System (including wet detention basins, grass swales, pits and pipe work); • monitoring and maintenance of process water reuse and recycling systems; and • with exception of waters discharged to sewer and lost to atmosphere as steam, zero discharge of process waters off site.	Throughout life of the facility.	NCIA Board of Directors
OEMP Noise Management and Monitoring **(Section 7.0)**	Implementation of noise management and monitoring procedures, including: • routine noise monitoring in accordance with the Project Approval and EPL 11956; • allocation of maximum noise power levels to noise generating plant and equipment; • use of noise controls for plant and equipment where required; • limited truck movements during the night; and • validation of noise emission for each subsequent Stage of the project.	Throughout life of the facility.	NCIA Board of Directors

Document Reference	Facility Operation Requirement	Timing	Responsibility
OEMP Transport Code of Conduct (**Section 8.0**)	Implementation of Transport Code Of Conduct, including: • observance of speed limits defined external to and on site of the facility; • loading and unloading activities to be undertaken at designated points only; • vehicle parking and waiting to occur at designated points only; and • maintenance of plant and vehicle condition per manufacturer's specifications.	Throughout life of the facility	Factory Management
OEMP Emergency Plan (**Section 9.0**)	Implementation of the Emergency Plan, including: • training of NCIA and contractor personnel regarding accountabilities and responsibilities; • training of NCIA and contractor personnel regarding emergency response procedures; • maintenance of emergency response systems; • maintenance of documentation; and • notification of affected personnel, including neighbours.	Throughout life of the facility	Factory Management
OEMP Safety Management System (**Section 10.0**)	Implementation of the Safety Management System, including: • training of NCIA and contractor personnel regarding accountabilities and responsibilities; • training of NCIA and contractor personnel regarding safety related procedures; • implementation of induction process; • implementation of Permit to Work system; • undertake safety management audits and modification to SMS, as required; and • maintenance of documentation.	Throughout life of the facility	Factory Management/ OHS/Projects Manager
OEMP Landscape Management Plan (**Section 11.0**)	Implementation of the Landscape Management Plan, including: • development of landscape in accordance with concept plan defined in the 2010 EA, including the planting of native and indigenous species; • adoption of other visible screening measures defined in the 2010 EA; • conducting landscape condition monitoring inspections on quarterly basis; • undertaking landscape maintenance, as required.	Throughout life of the facility.	NCIA Board of Directors

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5.0 Air Quality Management Plan

5.1 Air Emission Sources

A review of air emission (particulate and gaseous pollutant) sources associated with the operation of the facility was undertaken as part of the 2010 EA for the expansion project. Two modelling scenarios were examined; Scenario 1 to establish the baseline approved level of impacts (Stages 1 – 4) and Scenario 2 to assess the impact of all existing and future emission sources (Stages 1 – 8).

A summary of emission rates for particulate and gaseous pollutants associated with each emission source is provided in **Table 5**. Source emission rates were based on results of stack testing between 2014 and 2017. Identified stack emission sources and related emission controls for the completed Stages 1 and 2 are illustrated in **Figure 4**.

Table 5 Emission rates and concentrations

Source	Pollutant	Emission Rate	Emission Concentration
		g/s	mg/m^3
Clay Preparation	Total Particulate	0.13	11
	PM_{10}	0.046	4
Pressing and Drying	Total Particulate	0.19	20
	PM_{10}	0.041	4.7
Dryer	Total Particulate	0.011	9.2
	PM_{10}	0.0065	7.8
Glaze Line	Total Particulate	0.062	6.5
	PM_{10}	0.02	2.1
Selection Line	Total Particulate	0.0087	8.5
	PM_{10}	0.0046	4.5
Sprayer Dryer	Total Particulate	0.096	4.8
	PM_{10}	0.05	2.5
Kiln	Total Particulate	0.19	16
	PM_{10}	0.13	13
	Total Fluoride	0.066	15.2
	Sulfuric Acid	0.55	77
	Sulfur Dioxide	1.7	350
	Hazardous Substances	0.0014	0.25
	Antimony	0.0000033	0.0021
	Arsenic	0.00011	0.016
	Beryllium	0.0000033	0.00059
	Cadmium	0.00011	0.016
	Chromium	0.00033	0.059
	Copper	0.0022	0.32
	Lead	0.00055	0.089
	Magnesium	0.0017	0.3

Source	Pollutant	Emission Rate	Emission Concentration
		g/s	mg/m^3
	Manganese	0.0001	0.018
	Mercury	0.000017	0.003
	Nickel	0.000078	0.012
	Zinc	0.038	5.9
	NOx	0.505	50
Hot Air Cooling	Total Particulate	0.16	9.7
	PM_{10}	0.066	3.5

5.2 Emission Monitoring Requirements

5.2.1 Source Emission Monitoring

Condition 18 of the Project Approval requires NCIA to comply with monitoring requirements and pollutant discharge concentrations as specified in the EPL. Source emission testing will be performed for the emission parameters defined and at the frequency specified in EPL 11956.

All source emission sampling and analysis will be performed in accordance with the EPA's publication *Approved methods for the sampling and analysis of air pollutants in New South Wales*. Sample analyses will be undertaken by NATA certified laboratories. Results of source emission testing will be assessed against the concentration and load limits defined in EPL 11956.

5.2.2 Ambient Air Quality Monitoring

Monitoring of ambient (ground-level) air quality will be undertaken in accordance with the existing ambient air monitoring program. The location of existing ambient air monitoring stations is shown on **Figure 5**. A brief overview of the ambient air quality monitoring program is presented below.

PM_{10} Monitoring: Two sampling locations have been established for the monitoring of ambient PM_{10} concentrations at the NCIA property boundary, generally along the dominant southeast-northwest wind axis (refer to **Figure 5**). The monitors were sited in accordance with AS2922 (1987) (now superseded by AS 3580.1.1:2016). Sampling and analyses are undertaken per AS 3580.9.6 (2015). Discrete 24-hour samples are collected every 6 days according to the NSW EPA schedule. Analyses of PM_{10} are performed by a NATA certified laboratory.

Hydrogen Fluoride Monitoring: Two fluoride monitoring units (manual, double filter paper samplers) have been sited at each of the two locations identified for monitoring of PM_{10} (refer to **Figure 5**), and are operated in accordance with AS3580.13.2 (2013). At each location, one monitor operates continuously over a 7-day period to provide weekly fluoride concentration averages. The remaining unit at each site operates continuously for discrete 24-hour periods according to the NSW EPA 6-day cycle to provide 24-hour averages for sampler operation days. Samples are analysed by a NATA accredited laboratory for particulate and gaseous fluoride.

Meteorological Monitoring: Meteorological data is sourced from the onsite meteorology station located at the southeast air quality monitoring site (refer to **Figure 5**). The onsite weather station is sited in accordance with AM-1 (EPA, 2006) for the continuous measurement of wind speed (10 m), wind direction (10 m), temperature (5 m) and sigma theta (10 m). A tipping bucket rain gauge is also located at the site to permit the measurement of daily rainfall rates.

Fluoride Vegetation Impact Monitoring: Assessment methodology of vegetation in the area surrounding the NCIA premises was developed by Dr David Doley (University of Queensland). Sites selected for periodic visual assessment will be consistent, as practically possible, with specimens chosen in the completed background survey. Annual and quarterly visual assessment of vegetation will be undertaken by an appropriately skilled and experienced sampling consultant. Monitoring of fluoride content in vegetation will be performed as part of the visual assessment surveys. Foliage samples will

be collected from locations and vegetation types defined by the background survey for subsequent analysis. Provision has also been made for periodic review of each monitoring program.

Vegetation Sampling and Handling Procedure

Sample Procedure

The sampling procedure for the quarterly surveys requires two samples of mixed season leaves (current season growth and previous season growth). During the annual survey, where it is possible, both current season and previous season leaves are collected separately. If this is possible during the annual survey duplicates of both sets of leaves is required. The sampling locations are shown on **Figure 6.**

The size of each sample should fill approximately one third to one half of the brown paper sampling bag (size 15cm x 15cm). One sample is sent to a NATA certified laboratory for analysis (see below) and the other is securely stored in the sampling consultant's laboratory.

Each foliage sample collected in the brown paper sampling bags should be labelled with:

- Project reference;
- sampling location;
- date and time of sample collection; and
- name of sampler(s).

Sample Analysis

One of each foliage samples is to be transported to the NATA Certified laboratory and stored under refrigeration prior to analysis for fluoride content. The grape leaves sample should be rinsed prior to fluoride analysis. Remaining samples are to be analysed as received.

A request for an LOR of 1 µg/g must be made on the Chain of Custody (COC).

Stored Vegetation Samples

One of each foliage samples is to be securely stored in the sampler's laboratory for a period of not less than 12 months (in accordance with EPL Condition M4.1). The set of duplicate samples that are stored are to remain in their labelled storage bag and securely grouped together with all other samples from the same survey period.

5.3 Emission Minimisation and Reduction Measures

Results of air dispersion modelling undertaken as part of the 2010 EA indicate that there is a potential for ambient air concentrations of PM_{10} to exceed the EPA's 24-hour maximum assessment criterion as background PM_{10} levels at times exceed the criterion. Consequently, emission reduction efforts to be implemented throughout the operation phase of the facility are primarily focussed at reducing particulate emissions contributing to the elevated background levels.

Emissions associated with the operation of the facility will be minimised via the following:

- adoption of best-practice technology in air control equipment, potentially including targeted ventilation systems, fabric filters and lime scrubber emission reduction systems;
- design, construct and operate the emission stacks for remaining Stages in accordance with the 2010 EA and EPL;
- undertake maintenance of the emission infrastructure to optimise emission reduction and dispersion efficiencies; and
- upgrade emission technologies when and where appropriate to enhance emission reduction during the life of the facility.

5.4 Maintenance of Process and Emission Control Equipment

Dust emission control devices will be employed to service dust generating activities within the facility, and to control emissions of particulate matter discharged from identified emission stacks. Dust emission control devices, including ventilation systems and fabric filters, as well as process equipment contributing to dust generation, will be checked and maintained in accordance with manufacturer's specifications.

Fugitive emissions of dust external to the main building as a result of traffic movements and potential wind-blown dust will be controlled by conformance with the Transport Code of Conduct (**Section 8.0**) and the Landscape Management Plan (**Section 11.0**).

5.5 Detection of Non-Compliance

In the event of an incident causing or threatening material harm to the environment, the procedures set out in **Section 9.0** of this OEMP are to be followed.

This section relates to minor non-compliances against the air quality management requirements, in which case the following procedure is to be followed:

- identify the nature of the non-conformance and the duration over which the non-conformance has occurred;
- identify the cause(s) of the non-conformance.
- notify the EPA and DP&E of the occurrence of the non-compliance as soon as practicable (in the case of an incident causing or threatening material ham to the environment, notification is required immediately);
- if required by the EPA or DP&E, notify potentially affected residents of the occurrence of the non-compliance; and
- design and implement remedial measures to mitigate recurrence of the non-compliance.

5.6 Cumulative Air Quality Impacts

The 2010 EA for the expansion of the facility considered the cumulative impact of all eight Stages of the facility. The modelling undertaken for the air quality assessment included regional background air emission data from NCIA's ambient air monitoring stations, Hydro Aluminium (formerly located at Kurri Kurri about 20km south of NCIA) and regulatory monitoring undertaken by the EPA. It is noted that Hydro Aluminium is now decommissioned.

Condition 20 of the Project Approval requires preparation of an Air Emissions Validation Report within 90 days of commencement of operation of each Stage of the development. This allows for validation of point source emissions against predictions made in the 2010 EA. In the event that an exceedance or non-compliance with EPL limits is identified within these Air Emissions Validation Reports, the implementation of additional mitigation measures or attenuation will be discussed with the EPA and DP&E.

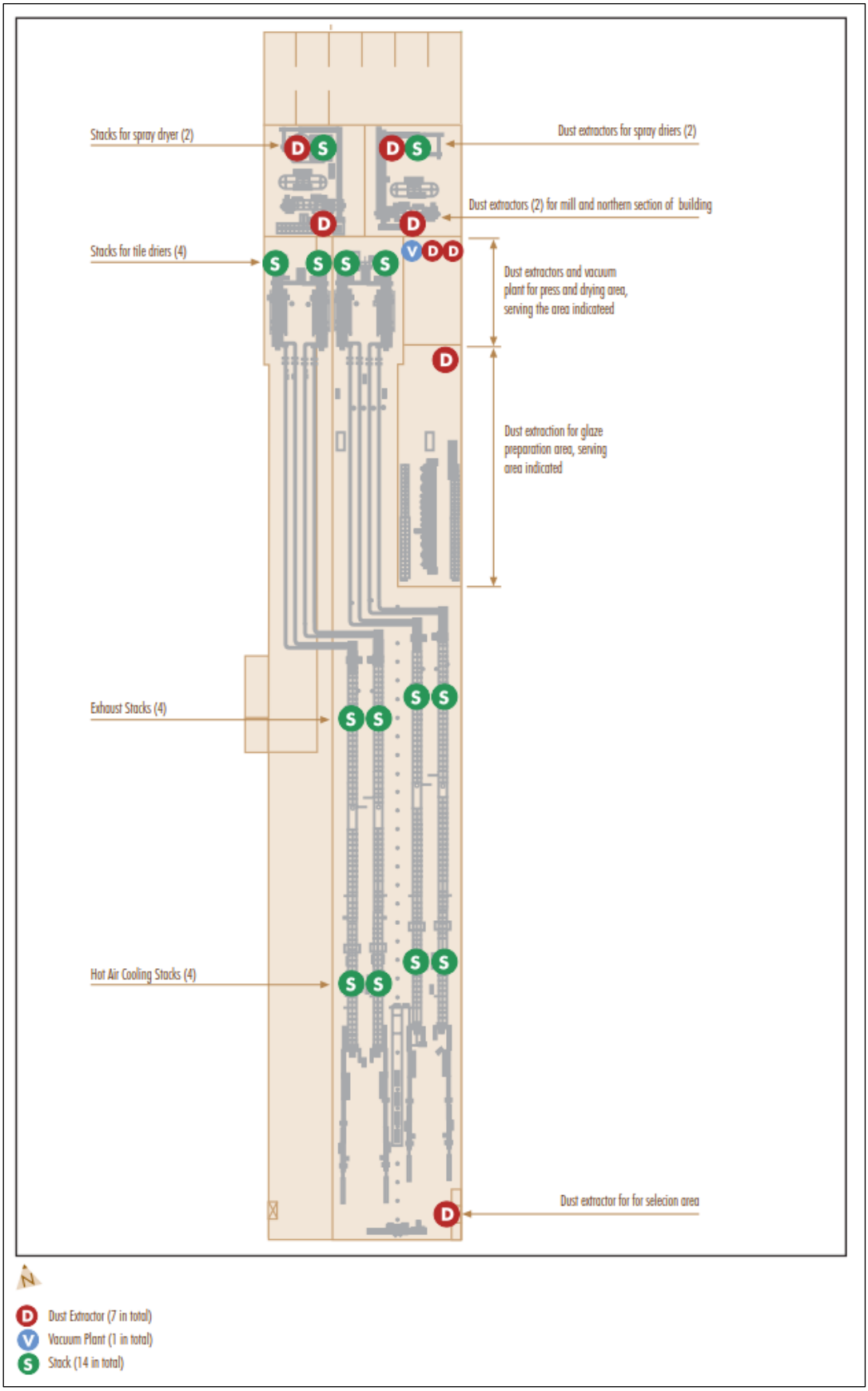

Figure 4 Identified Stack Emission Sources and Related Emission Controls

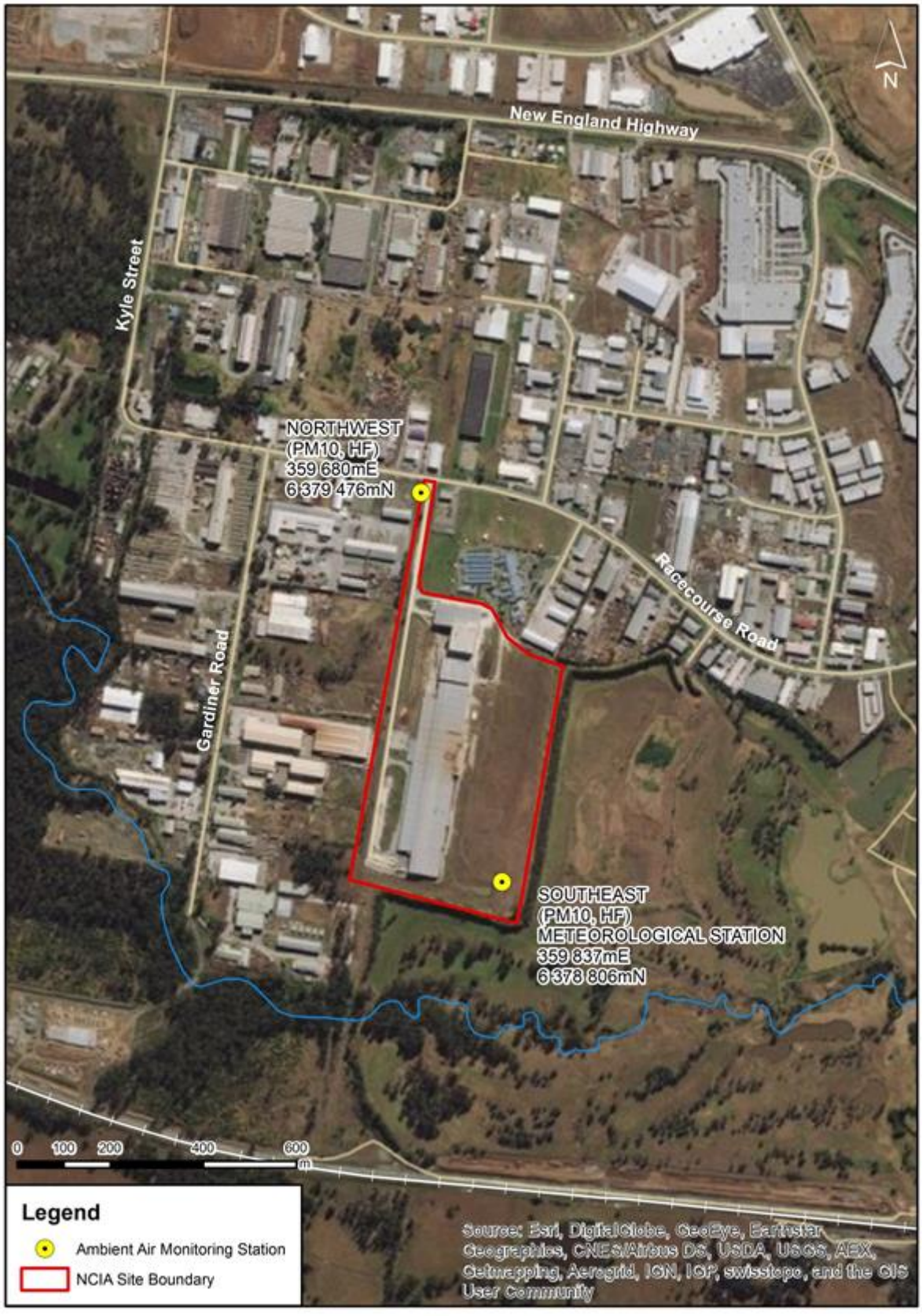

Figure 5 Ambient Air Quality Monitoring Sites – PM_{10}, HF and Meteorological Monitoring

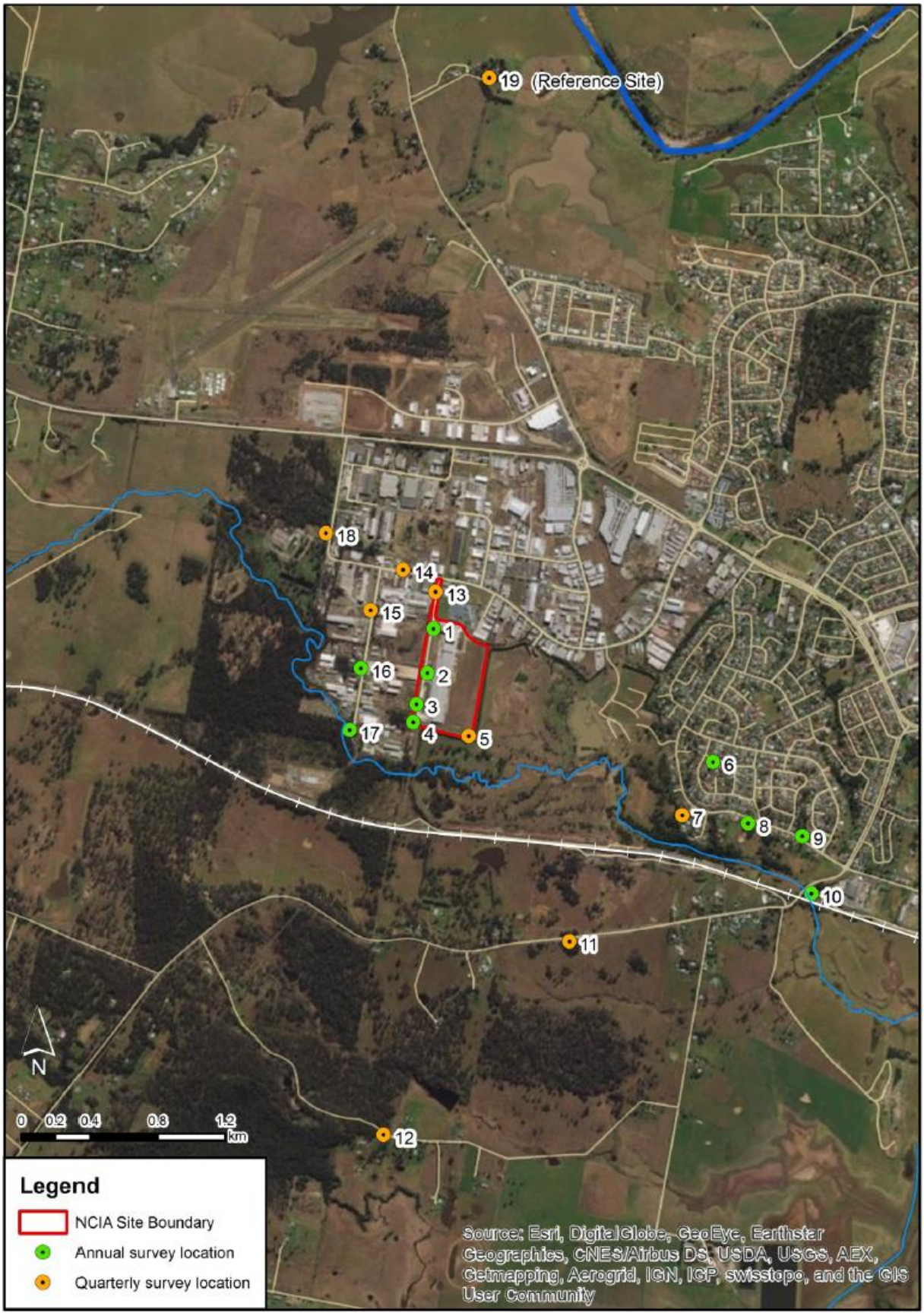

Figure 6 **Fluoride Vegetation Monitoring Locations**

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6.0 Water Management Plan

A description of the existing catchment, site hydrology, water quality and predicted impacts associated with the operation of the facility is provided in the 2010 EA. The strategies, procedures and processes for the management of surface water, erosion and sedimentation were addressed in the 2010 EA and the CEMP developed for construction of Stages 1 and 2. A brief outline of the respective management plans is provided in the sections below.

6.1 Erosion and Sedimentation Management

An Erosion and Sediment Control Management Plan (ESCMP) (provided at **Appendix F** of this OEMP) was prepared in 2003 to form part of the CEMP guiding construction of Stages 1 and 2. The ESCMP was developed in accordance with the relevant guidelines, including:

- *Soil and Water Management for Urban Development* (Department of Housing, 1990);
- *Managing Urban Stormwater – Soils and Construction* (the "Blue Book") (Department of Housing, 1998) (this has since been revised by Landcom in 2004);
- *Urban Erosion and Sediment Control Handbook* (Department of Land and Water Conservation, 1992); and
- *Pollution Control Manual for Urban Stormwater* (Environment Protection Authority, 1989).

Activities undertaken during the operation of the facility which have the potential to lead to erosion and sedimentation (e.g. excavation works, landscaping) will be subjected to the measures, procedures, principles, personnel responsibilities and maintenance requirements defined in the ESCMP.

Measures to be implemented to rehabilitate erosion-affected areas (as well as areas the subject of excavation, including tree, shrub and/or cover crop species) during the operation facility are defined in the Landscape Management Plan (refer to **Section 11.0**).

Failure to operate and maintain the erosion and sedimentation control system could result in increased levels of suspended solids in receiving water bodies, potentially leading to impact on aquatic biota and water quality in downstream waterways.

6.2 Stormwater Management

The existing stormwater management system was designed to minimise the changes to the flow regime from Stages 1 – 4 of the project. The management of stormwater at the site is achieved via four wet detention basins (WDB1, WDB2, WDB3, and WDB4), which are connected by grass swales (servicing surface water flows from roof, roadway and landscaped areas) and a series of pits and pipe work (servicing car park and hardstand areas).

The grass swales have been designed to control surface flow velocities from runoff areas to no greater than 2 m/s. Final low flow stormwater discharges from the site (via WDB3) occurs at the channel outlet, located at south eastern corner of the site. Discharged water is then piped underground to the existing artificial wetland.

The detention basins have been designed with sufficient retention to reduce peak stormwater flows and improve the quality of water ultimately discharged from the site. The combined surface area of the four water detention basins is approximately 6,600 m^2, which represents approximately 6.6% of the total catchment area. This exceeds the minimum requirement of 2% permanent water area defined in the *Constructed Wetlands Manual* (DLWC, 1998). As such, the level of water treatment offered by the wet detention system surpasses the guideline requirements. Growth of planted macrophytes will facilitate water purification mechanisms.

An illustration of the existing stormwater management strategy, including associated infrastructure is provided in **Figure 7**. For Stages 5 – 8 of the project, the stormwater management system will be modified and expanded, including an additional 3 wet detention basins to replace two existing basins that would be removed, and a series of large rainwater detention tanks. The expanded stormwater management system is detailed in the 2010 EA, and is illustrated on **Figure 2** of this OEMP.

6.3 Process Water Management

Process water consumption requirements and management strategies, including reuse and recycling throughout the tile manufacturing process, is detailed in the 2010 EA. Management of process waters during the operation of the tile manufacturing facility will be undertaken in accordance with that outlined in the 2010 EA.

The facility requires water for tile production and washdown, and this water is currently sourced from mains supply. Water is also required for staff amenities, landscaping and firefighting.

As noted in the 2010 EA, water consumption for Stages 1 – 4 will be approximately 1,772 kilolitres (kL) per week (approximately 92 ML per annum). Water consumption for the expanded facility (Stages 1 – 8) is expected to be approximately 3,544 kL per week (approximately 184 ML per annum). Prior to exceeding a water consumption level of 92 ML/year, In accordance with Condition 44 of the Project Approval, NCIA will obtain written approval from Hunter Water Corporation (HWC) to verify that the amount required for each new Stage of the project is able to be provided by HWC.

The requirement for water has the potential to place stress on the current reticulation system, particularly during periods of drought. To minimise the use of mains supply water in the process, all process water is recycled within the operation of the facility. Additionally, for the expanded Stages 5 -8, rainwater tanks will be installed which will minimise the facility's requirement for potable water. Captured rainwater would be used to supplement the water requirements for irrigation of site vegetation and landscaping and possibly staff amenities.

The NCIA facility does not result in the discharge of process or washdown water to the natural creek system. Water used for process requirements is discharged in the form of steam to the atmosphere. Washdown water is captured within an internal reticulation system and recirculated for reuse as process water. Approximately 95 percent of the washdown water is recirculated for reuse as process water. The remaining 5 percent of washdown water evaporates.

Apart from discharges to the sewer, there would be no discharge of process or washdown water from the site other than as steam. Recirculated washdown water, which is high in suspended solids, is added to the process water stream. Raw materials stored for the manufacturing process are housed within the building to ensure that there are no spills from the site.

Plant equipment operated at the facility is maintained in accordance with manufacturer's specifications to ensure that water use, reuse and recycling efficiencies are optimised. The consumption of water is monitored via metering systems associated with plant equipment. Process water consumption rates will be reviewed on a six-monthly basis.

NCIA utilise stormwater back into the process where possible by pumping from the stormwater dams to the process water dam (not shown on Figure 7) which is recirculated to the process water stream, reducing the demand water consumption from HWC.

To mitigate the risk of the overflow from the process water dam to the stormwater system NCIA will:

- Maintain an appropriate bund around the process water dam
- Maintain appropriate alarm systems within the process water dam
- Perform and document regular checks of the process water dam for review of capacity and risk of overflow

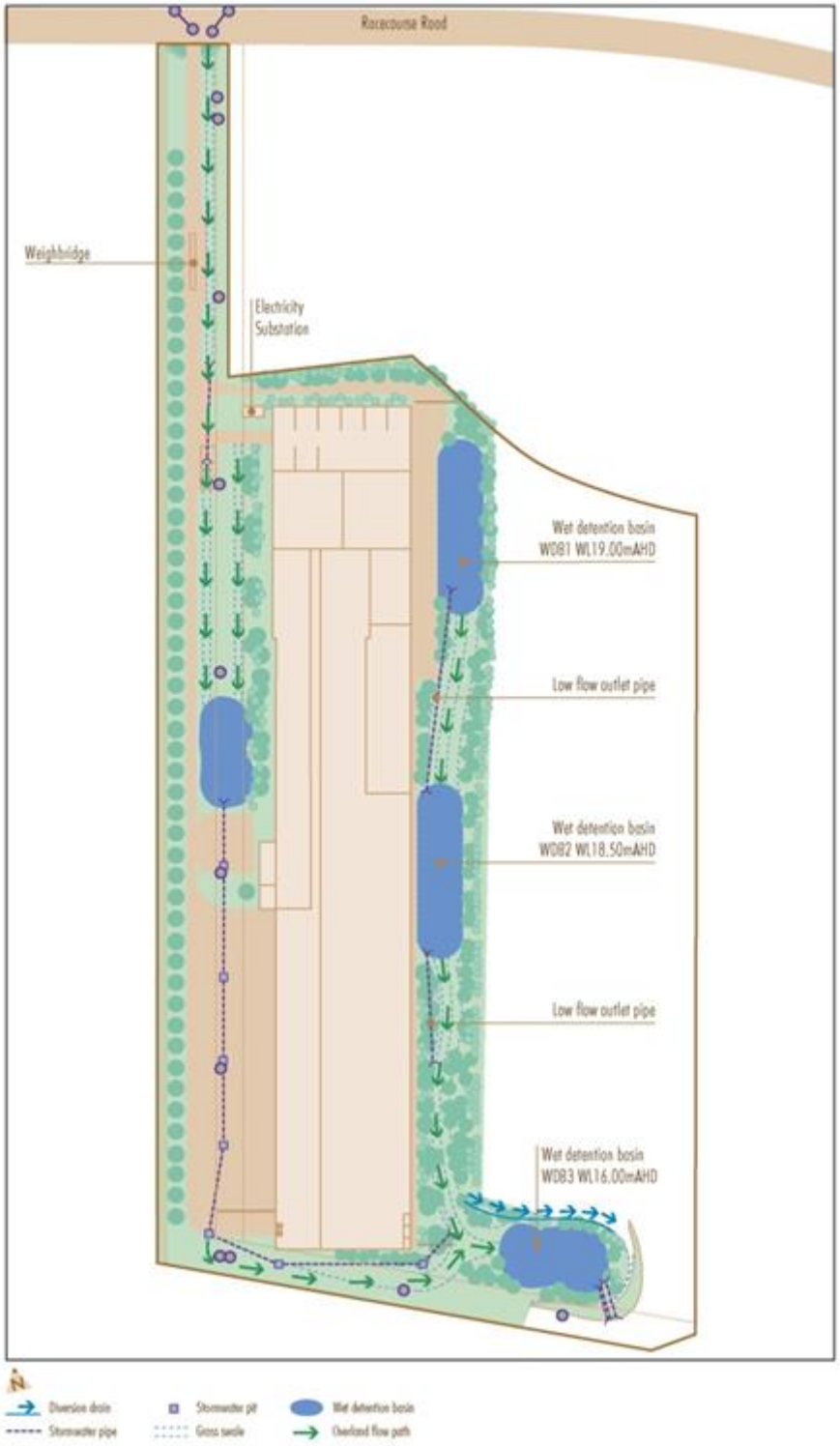

Figure 7 Existing Stormwater Management Strategy

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7.0 Noise Management and Monitoring

7.1 Noise Limits

Noise limits set out in the Project Approval are more stringent than the limits set out in the EPL. Therefore, the Project Approval limits (set out in **Table 6** of this OEMP) are used to assess the site's compliance with noise requirements. Condition 26 of the Project Approval states:

> *The Proponent shall ensure that noise generated from the project does not exceed the noise limits presented in Table 5* [of the Project Approval]. *Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.*

Table 6 Project Noise Limits, dB(A)

Location	Day	Evening	Night	
	$L_{Aeq\ (15\ minute)}$	$L_{Aeq\ (15\ minute)}$	$L_{Aeq\ (15\ minute)}$	L_{Amax}
Kenvil Close	35	35	35	45
Wollombi Road	35	35	35	45

Note: Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm on Sundays and public holidays. Evening is defined as the period from 6pm to 10pm Monday to Sunday and public holidays. Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am on Sundays and public holidays.

7.2 Noise Monitoring

7.2.1 Performance Monitoring

Condition 28 of the Project Approval requires the preparation of Noise Validation Reports within 90 days of commencement of operation of each subsequent Stage of the project. Specifically, the condition states:

The Proponent shall prepare and implement Noise Validation Reports to the satisfaction of the Secretary. These reports must:

a. be prepared by a suitably qualified acoustical expert whose appointment has been endorsed by the Secretary;

b. be undertaken within 90 days of the commencement of operation of each subsequent stage (stages 1 to 8) of the project and during a period in which the facility is operating under normal operating conditions;

c. be conducted in accordance with the NSW Industrial Noise Policy; and

d. include:

- a validation against the predictions made in the EA including the proposed noise attenuation;
- details of any exceedances or non-compliance with the noise limits in this approval; and
- measures to mitigate the exceedance or non-compliance.

Should any Noise Validation Reports identify an exceedance or non-compliance, then the Proponent shall implement additional mitigation or attenuation to the satisfaction of the OEH and Secretary within the timeframe specified by the Secretary and prior to any progression to the next stage.

7.2.2 Annual Acoustic Monitoring

To enable compliance with the annual reporting requirements (Condition 60 of the Project Approval), NCIA conducts annual noise monitoring. The noise monitoring program enables NCIA to demonstrate compliance with the project noise limits specified in the Project Approval.

7.3 Noise Management

Condition 27 of the Project Approval requires a Noise Management Plan to be prepared and submitted to the Secretary prior to commencement of construction of any subsequent Stage of the project. Specifically, Condition 27 states:

The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Secretary. The Plan must:

a. be prepared by a suitably qualified acoustical expert and submitted to the Secretary for approval prior to commencement of construction of any subsequent stage of the project;

b. identify all specific activities that will be carried out during construction and operation and associated noise sources;

c. identify all potentially affected sensitive receivers;

d. specify noise criteria (reflect the noise limits presented in Table 5 of the Project Approval);

e. describe management methods and procedures and specific noise mitigation treatments that will be implemented to control noise emissions;

f. detail an operational noise monitoring program to be prepared by a qualified acoustic consultant and implemented to monitor the effects of the project on the acoustic environment during operation, including road traffic noise, with details of procedures to be undertaken if any non-compliance is detected;

g. detail procedures to receive, record and respond to complaints; and

h. describe the contingencies that would be implemented, and the timing for implementation, should non-compliances be detected.

A Noise Management Plan will be prepared and submitted for approval in accordance with this condition, prior to commencement of construction of subsequent Stages of the project.

The following noise management measures were identified in the 2002 EIS for Stages 1 - 4, and are integrated into the operational processes at the ceramic tile facility:

- Allocation of a maximum noise power level to noise generating plant and equipment. Suppliers would be required to meet these maximum noise power level requirements. Possible noise control options that may be implemented by the supplier include the addition of acoustically stronger panels or additional panels around the machines, use of acoustic louvres where ventilation is required and use of duct silencers on stacks;
- If required, a residential grade exhaust silencer would be fitted to the loader to minimise low frequency exhaust noise. The loader would not be used outside the building at night; and
- The total number of truck movements during the night would be limited. The time trucks spend moving and idling on site would be minimised.

The following noise mitigation and management measures for Stages 5 – 8 were identified in the 2010 EA, and will be incorporated into the operational procedures for the facility expansion:

- No truck deliveries of raw products or final product despatch will occur during the night time period;
- Electric, laser guided forklifts will be utilised to transport final product from the new factory building to the product despatch area;
- The transport route for both forklifts and delivery/product despatch trucks has been designed to minimise the need for reversing and, as such, the use of reversing alarms;
- The bag-houses of the proposed kiln stacks will be located inside the eastern wall of the new factory building; and
- The dust extraction units, located on the southern end of the eastern wall of the new factory building will be enclosed to reduce noise emissions to the east and south.

8.0 Transport Code of Conduct

A review of traffic conditions, predicted traffic growth and an assessment of potential impact associated with the operation of the ceramic tile facility is given in the 2010 EA. The traffic studies were prepared in accordance with the RTA's publication *Guide to Traffic Generating Developments*. Measures designed to minimise the effects of increased traffic movements during facility operation were also identified.

Findings of the traffic study and impact assessment revealed that operation of the facility would result in a small increase in traffic generated over background levels in the long term, yet the impact on traffic by truck (B-double) and light vehicle movements (associated with the operation of the facility) on Rutherford Road, Kyle Avenue and the New England Highway, would not be significant. Consequently, the impact to traffic movement is minimal, and the need to upgrade the critical intersections as a result of facility operation (at full scale) is not required.

Operators of B-double trucks and light vehicles associated with the operation of the facility are to conform to the following instructions to ensure that potential traffic conflicts to and from the site, and within the site, are appropriately managed:

- Traffic movements on public roads external to the facility are to adhere to the stated speed limits established by the RMS;
- Appropriate signage of the speed limit is to be posted on the site. The speed limit on the NCIA site is 20 km/hr. Vehicle operators are to observe this speed limit at all times;
- Raw materials unloading and product loading facilities on the site are to be appropriately signposted. Loading and unloading activities on the site are to be undertaken at these designated points only;
- Vehicle (light and truck) parking facilities on the site are to be appropriately signposted. On-site parking is to be undertaken at these designated points only. No vehicles associated with the operation of the facility are to park or queue on the public road network (Rutherford Road and Kyle Avenue);
- Only vehicles displaying the appropriate permit may use the disabled car parking facilities provided on the site;
- Plant vehicles, including sub-contracted plant, employed on the site shall be maintained in accordance with manufacturer's specifications (at a minimum) to ensure vehicle noise and exhaust emissions are controlled. Modifications are to be made to plant vehicles should noise or exhaust emissions be deemed excessive;
- All loads of bulk granular material delivered to site are to be covered in accordance with the *Load Restraint Guide* (National Heavy Vehicle Regulator (2018)); and
- Trucks exiting the site must be adequately clean so that pollution of roads (e.g. by dirt) does not occur.

The transport code of conduct will be relayed to facility employees and contractors as part of the formal induction process. Furthermore, the installation of appropriate signage, as outlined above, is considered to be the most effective way to convey site expectations of truck driver's code of conduct. Conformance with the Transport Code of Conduct will be monitored and drivers found breaching the requirements will be counselled.

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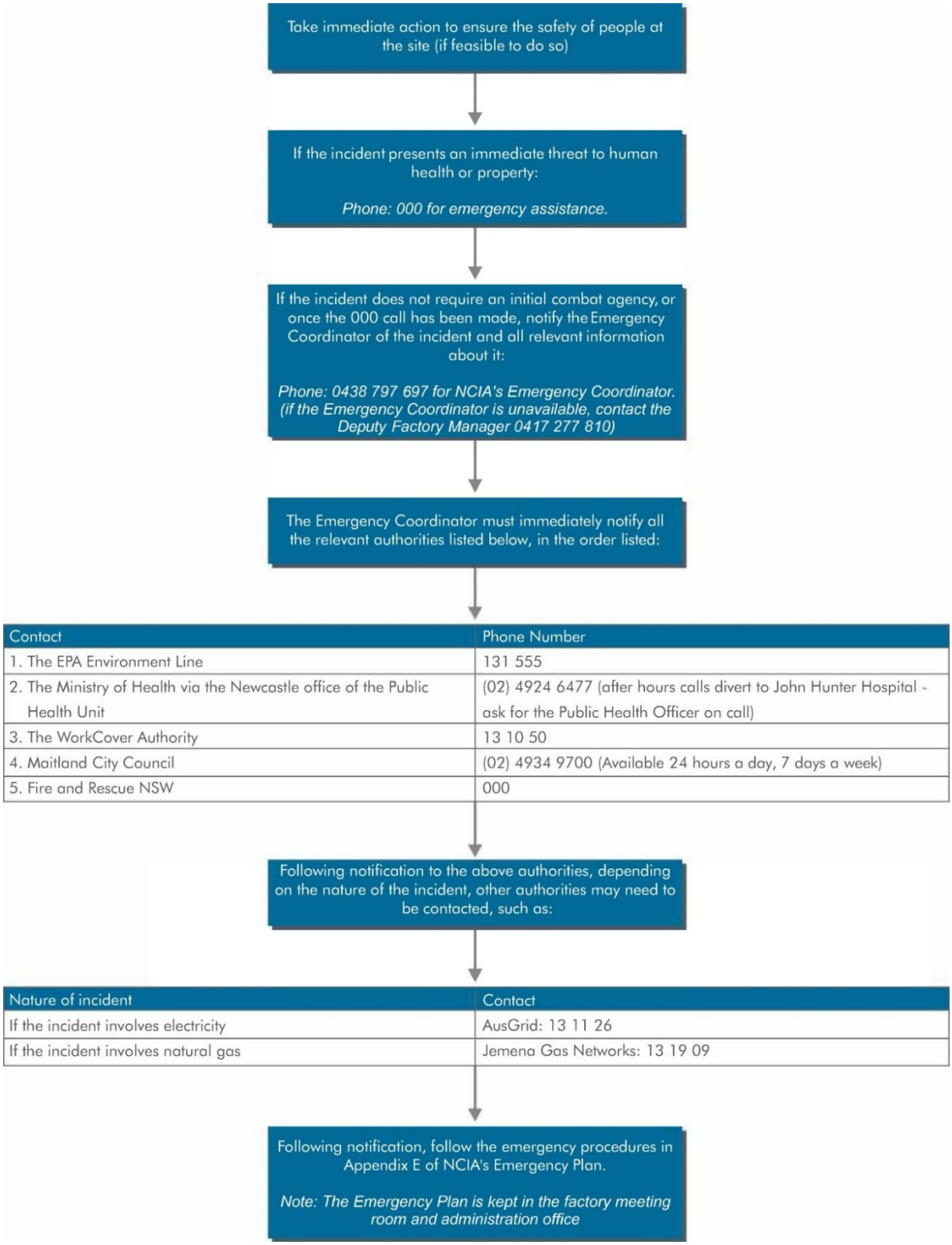
9.0 Emergency Plan and PIRMP

An Emergency Plan was developed for implementation during the operation of the facility. The Plan was prepared in accordance with the former NSW Occupational Health and Safety Act 2000 and Regulation (2001) (since superseded by the *Work Health and Safety Act 2011* (WHS Act) and WHS Regulation 2017), and various Australian Standards and guidelines, including the Department of Urban and Transport Planning publication *Hazardous Industry Planning Advisory Paper No. 1 – Industry Emergency Planning Guidelines* (1993) (since superseded by the 2011 version).

A Pollution Incident Response Management Plan (PIRMP) was prepared in 2012 in accordance with legislative amendments to the *Protection of Environment Operations Act 1997* (POEO Act). In the event of a "pollution incident" causing or threatening material harm to the environment, the PIRMP must be implemented immediately. 'Material harm' is defined under the POEO Act as on-site or off-site harm which:

- involves actual or potential harm to the health or safety of human beings or ecosystems that is not trivial; or
- results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000.

As part of this OEMP revision, the Emergency Plan and PIRMP were reviewed to ensure the policies and procedures set out in these documents remain current and are in accordance with relevant legislative requirements. A copy of the NCIA Emergency Plan is presented in **Appendix G** and a copy of the PIRMP is attached at **Appendix H**. A summary of the steps to be followed in the event that a pollution incident occurs is provided in **Figure 8**.



Contact	Phone Number
1. The EPA Environment Line	131 555
2. The Ministry of Health via the Newcastle office of the Public Health Unit	(02) 4924 6477 (after hours calls divert to John Hunter Hospital - ask for the Public Health Officer on call)
3. The WorkCover Authority	13 10 50
4. Maitland City Council	(02) 4934 9700 (Available 24 hours a day, 7 days a week)
5. Fire and Rescue NSW	000

Nature of incident	Contact
If the incident involves electricity	AusGrid: 13 11 26
If the incident involves natural gas	Jemena Gas Networks: 13 19 09

Figure 8 PIRMP Procedure to be followed in the event of a pollution incident

10.0 Safety Management Plan

A Safety Management System was developed for implementation during the operation of the facility. The Safety Management System was prepared in accordance with the NSW Occupational Health and Safety Act 2000 (since superseded by the WHS Act 2011 and WHS Regulation 2017), various Australian Standards, and the Department of Urban and Transport Planning publication *Hazardous Industry Planning Advisory Paper No. 9 – Safety Management* (1998) (since superseded by the 2011 version).

As part of this OEMP revision, the Safety Management System has been reviewed to ensure the policies and procedures set out in the document remain current and are in accordance with relevant legislative requirements. A copy of the NCIA Safety Management System is presented in **Appendix I**.

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11.0 Landscape Management Plan

This Landscape Management Plan was developed for Stages 1 – 4 to outline the landscaping concept and to define monitoring and maintenance practices associated with managing the landscape condition and development throughout the operational phase of the facility.

The Project Approval includes some conditions specific to landscaping requirements. Condition 30 of the Project Approval requires the preparation of a Landscape Management Plan prior to commencement of construction of any subsequent Stage of the project. Condition 31 of the Project Approval also specifies that the landscaping along the eastern site boundary must be completed within 6 months of the construction of any stage of the new factory building.

The Landscape Management Plan will be revised prior to commencement of construction of subsequent Stages of development and submitted to DP&E for approval.

11.1 Objectives

The primary objectives of the Landscape Management Plan are to ensure that:

a. landscaping of the NCIA property is developed generally in accordance with the landscape design outlined in 2010 EA;

b. visual impact of the operation of the facility is minimised;

c. floristic values on the site are maximised to improve ecological functionality of the site (increase habitat opportunities); and

d. erosion and sedimentation on the site are mitigated through the planting and maintenance of appropriate plant species.

NOTE: Given the erodibility of soils on the site, the control of erosion and sedimentation potential was of significant importance during the construction phase of the development. In accordance with the soil landscape map for the area, the landscape is identified as having a ‘high water erosion hazard’ landscape. Whilst the dominant outcome of site landscaping is to provide a visual screen and to enhance the ecological values, erosion and sedimentation control is still required during the operation of the facility, particularly where excavation activities may take place from time to time.

11.2 Landscape Concept Plan

The facility comprises 10.8 hectares of the property. Of this, approximately 5 hectares is impervious area occupied by buildings and hardstand. The majority of the site has been extensively cleared through historical land use, with only small stands of trees and some understorey remaining. In response, the landscape concept plan was developed, in part, to enhance the vegetation values on the site, and to reintroduce ecological functionality (improve habitat opportunities) through the appropriate planting and maintenance of native and locally indigenous species.

The current landscape design described in the 2010 EA is illustrated on **Figure 2** of this OEMP. Existing and proposed utilities relating to the ceramic tile manufacturing facility are also illustrated.

Two additional phases of vegetation planting have been identified along with the existing plantings. The location of existing plantings is generally consistent with the 2002 EIS landscape design. Likewise, the location of Phase 1 plantings along the western drainage channel will be consistent with that detailed in the 2002 EIS. The location of Phase 2 plantings is different to that identified in the 2002 EIS, due to the inaccessibility of land to the east of the existing factory building. Phase 2 plantings will be undertaken along the eastern site boundary within 6 months of the construction of the new factory building, as required by Condition 31 of the Project Approval.

A list of suitable native plant species has been prepared for the revegetation activities, and plantings will incorporate species specified in **Table 7** of this Landscape Management Plan.

As described in **Section 8.0**, parking of trucks and light vehicles will be permitted in the designated signposted areas only. Parking of vehicles is not permitted on open landscaped areas. Grassed areas on the site will be adequately signposted to ensure that vehicles, plant equipment or product materials

are not stored on designated landscaped areas. Conformance to this requirement will be monitored in accordance with the Transport Code of Conduct.

While Phase 1 and Phase 2 plantings are not yet completed, visual screening of the ceramic tile manufacturing facility is to be achieved via the planting and maintenance of canopy trees and shrub understorey around the western perimeter of the site. Screening of the site to the south and east is currently provided by the existing mature bamboo plantings on the earth mound adjacent to and on the outside of the site's perimeter fence. Visual impact mitigation achieved via tree planting will also be supported via the following:

- External building construction materials will be coloured dull greys and dull grey-greens so that they blend into the surrounding environment in order to reduce the visual dominance of the building. A range of cladding materials and colours will be used to reduce the scale of the building and break up its monotony. The use of shiny materials that may cause reflection and glare will be minimised;
- Ongoing maintenance is undertaken to ensure that landscape works are allowed to grow to their full potential and that established landscaping is kept in good condition. Landscaping works will be maintained for a minimum of 12 months, after which the plants should have established; and
- General landscaping principles will be employed. These will include the use of heavily mulched planting beds to reduce evapotranspiration, edging to the interface of planting and turf grass areas, use of native (preferably indigenous to the site) species, low maintenance plant selections, no lawns in non-accessible or high shade areas and use of ground covers that act like a green mulch.

11.3 Landscaping Maintenance

Maintenance of landscape health and appearance form a critical component to the ongoing implementation of the Landscape Management Plan. Maintenance requirements are listed below.

The goals of the landscaping maintenance include:

- maintenance of vegetation health (trees, shrubs, reeds and grasses);
- continued vegetation growth development;
- control of weed presence and degree of weed infestation;
- maintaining adequate vegetation clearance from stormwater easements; and
- ensuring grass swales efficiently convey stormwater within the stormwater management system.

Maintenance requirements to be implemented on an as-required basis include:

- replanting of trees, shrubs, reeds, grasses (including swales) in response to failed development or damage. this includes rehabilitation of areas impacted by erosion and sedimentation;
- periodic pruning of trees and shrubs to maintain growth and to ensure that utilities (e.g. overhead power lines) and visibility by operators on site are not impeded;
- use of mulch to reduce demand on watering;
- mowing of grassed lawn areas;
- appropriate use of fertiliser - under unforeseen wet weather conditions, this is to be supported in combination with erosion and sedimentation controls to minimise impact of nutrient runoff to downstream receiving waters;
- removal of litter and waste materials on landscaped areas;
- appropriate removal of weed species; and
- alteration to the design of the landscape, including the removal of trees and use of alternative planting species, may be subject to specific approval processes.

Table 7 Suitable Native Plant Species

Botanical Name	Common Name
Trees	
**Angophora costata*	Smooth barked apple
**Casuarina glauca*	Swamp oak
**Corymbia maculate*	Spotted gum
**Eucalyptus fibrosa*	-
**Eucalyptus paniculata*	-
**Eucalyptus molucanna*	Grey gum
**Eucalyptus tereticornis*	Forest red gum
**Melaleuca styphelloides*	Prickly paperbark
Shrubs and Groundcovers	
**Acacia falcata*	-
**Acacia implexa*	-
**Banksia spinulosa var. collina*	Hairpin Banksia
**Hakea dactyloides*	-
**Lambertia Formosa*	Mountain devil
**Melaleuca decora*	-
**Melaleuca nodosa*	Prickly paperbark
**Melaleuca thymifolia*	Thyme honey myrtle
**Persoonia linearis*	-
**Pultenaena villosa*	Bush pea
Grasses	
Imperata cylindrica	Blady Grass
Lomandra longifolia 'Cassica'	Mat rush
Poa labillardieri 'Eskdale'	Blue tussock grass
**Themeda australis*	Kangaroo grass

* Species marked with an '*' are native to the Rutherford area

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12.0 Review of OEMP

In accordance with Condition 7.5 of the relinquished Development Consent, NCIA undertake a formal review of the OEMP every three years from the commencement of operation of the facility. The dominant focus of the review is to ensure that the OEMP is current and that all changes to operating procedures and practice identified in the interim periods have been incorporated into the updated OEMP.

Notification of completion of each review is given in writing to the Secretary of DP&E, Maitland City Council and the EPA, and a copy of the updated OEMP is provided to authorities if requested.

Availability of the updated OEMP for public inspection may also be requested of NCIA.

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13.0 References

AECOM Australia (2010) *Environmental Assessment, National Ceramic Industries Australia Expansion*, AECOM Australia, Newcastle.

Department of Land and Water Conservation (1992) *Urban Erosion and Sediment Control Handbook*, NSW Government Department of Land and Water Conservation, Sydney.

Department of Land and Water Conservation (DLWC) (1998) *The Construction Wetlands Manual*, V 1 & 2, NSW Government Department of Land and Water Conservation, Sydney.

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Environment Protection Authority (EPA) (2022) *Approved methods for the sampling and analysis of air pollutants in New South Wales*, NSW Government Environment Protection Authority, Sydney.

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Environment Protection Authority (EPA) (2000) *NSW Industrial Noise Policy*, NSW Government Environment Protection Authority, Sydney.

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National Heavy Vehicle Regulator (2018), *Load Restraint Guide, 2018, 3rd Edition*, National Transport Commission, Melbourne.

Parsons Brinckerhoff (2003) *Ceramic Tile Manufacturing Facility at Rutherford NSW – Construction Environmental Management Plan*, Parsons Brinckerhoff, Newcastle.

Parsons Brinckerhoff (2002) *Environmental Impact Statement, Ceramic Tile Manufacturing Facility at Rutherford NSW*, Parsons Brinckerhoff, Newcastle.

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Appendix A

Conditions of Project Approval

Appendix A Conditions of Project Approval

Project Approval

Section 75J of the *Environmental Planning and Assessment Act 1979*

Under the Minister's delegation of 14 September 2011, and as members of the Planning Assessment Commission of New South Wales (the Commission), we approve the project application referred to in schedule 1, subject to the conditions in schedules 2 to 4.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the Project.

Gabrielle Kibble AO
Member of the Commission

John Court
Member of the Commission

Sydney 19 January 2012

SCHEDULE 1

Application No:	09_0006
Proponent:	National Ceramics Industries Australia
Approval Authority:	Minister for Planning
Land:	175 Racecourse Road, Rutherford Lot 101 DP 1062820 Maitland local government area
Project:	National Ceramic Industries Australia Tile Manufacturing Facility Expansion Project

TABLE OF CONTENTS

DEFINITIONS

AEMR	Annual Environmental Management Report
ARI	Average recurrence interval
Approval	The Minister's approval of the project (Project Application No 09_0006)
BCA	Building Code of Australia
Construction	Includes any activity requiring a Construction Certificate, significant excavation work, road works, demolition, or any construction related activity as described in Major Projects Application 09_0006
Council	Maitland City Council
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
Department	Department of Planning and Infrastructure or its successors in title
Director-General	Director-General of the Department of Planning and Infrastructure, or delegate
EA	Environmental assessment titled *National Ceramics Industries Australia Expansion - Environmental Assessment*, dated 5 July 2010 and prepared by AECOM
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence
Evening	The period from 6pm to 10pm
Facility	Ceramic Tile Manufacturing Facility to which this approval applies
Feasible	Feasible relates to engineering considerations and what is practical to build
HWC	Hunter Water Corporation
Incident	An incident causing or threatening material harm to the environment or human health, and/or an exceedance of the limits or performance criteria in this approval
Minister	Minister for Planning and Infrastructure, or delegate
Mitigation	Activities associated with reducing the impacts of the project
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
OEH	Office of Environment and Heritage
Operation	The production of tile products
POEO Act	*Protection of the Environment Operations Act, 1997*
POEO Regulation	*Protection of the Environment Operations (Waste) Regulation, 1995*
Project	The development described in schedule 1 and the EA, which includes the continued implementation of all existing and approved development on site
Proponent	National Ceramic Industries Australia Pty Ltd, or its successor
Principal Certifying Authority	The Minister or an accredited certifier, appointed under section 109E of the Act, to issue a Part 4A Certificate as provided under section 109C of the Act
Reasonable	Reasonable relates to the application of judgment in arriving at a decision, taking into account: mitigation benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements
RTA	NSW Roads and Traffic Authority
Site	The land referred to in schedule 1
Statement of Commitments	The Proponent's commitments in Appendix 1
Stage	Installation of an additional production line and kiln, and an increase in productivity of up to 3.2 million m^2 of tiles, as detailed in the EA
Submissions Report	The Proponent's response to issues raised in submissions titled *Expansion of National Ceramic Industries Australia Facility, Rutherford NSW, Environmental, Assessment, Submissions Report,* prepared by AECOM, dated 2 November 2010
Utility	Any infrastructure or service associated with water supply, sewerage, electricity supply, telecommunications or gas supply

SCHEDULE 2: GENERAL ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

1. The Proponent shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, maintenance, decommissioning and/or rehabilitation of the project.

Terms of Approval

2. The Proponent shall carry out the project generally in accordance with the:
   a) EA;
   b) Statement of Commitments;
   c) Submissions Report; and
   d) conditions of this approval.

   Note: The Proponent's Statement of Commitments are included as Appendix 1. The Project Site Plan, Floor Plan and Elevations are included as Appendix 2, 3 and 4 respectively.

   If there is any inconsistency between the above, the conditions of this approval shall prevail to the extent of the inconsistency.

3. The Proponent shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
   a) any reports, plans, strategies or correspondence that are submitted in accordance with this approval; and
   b) the implementation of any actions or measures contained in these reports, plans, strategies or correspondence submitted by the Proponent.

Limits on Approval

4. The Proponent shall not produce more than 25.6 million m^2 of ceramic tiles per annum on site.

   Note: The capacity of the ceramic tile manufacturing facility at the completion of each stage of construction shall be consistent with that described in the EA.

5. The Proponent shall ensure that an increase or progression to a Stage represents an increase in production by no more than an additional 3.2 million m^2 of tiles.

Surrender of Existing Development Consent Rights

6. Within 12 months of this approval, or as otherwise agreed by the Director-General, the Proponent shall surrender all existing development consents and project approvals for the site, apart from this project approval, in accordance with Sections 75YA and 104A of the EP&A Act.

   Note: This requirement does not extend to the surrender of construction and occupation certificates for existing and proposed building works under Part 4A of the EP&A Act. Surrender of a consent or approval should not be understood as implying that works legally constructed under a valid consent or approval can no longer be legally maintained or used.

Structural Adequacy

7. The Proponent shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

   Notes:
   - *Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works.*
   - *Part 8 of the EP&A Regulation sets out the requirements for the certification of the Project.*

Statutory Requirements

8. The Proponent shall ensure that all necessary licences, permits and approvals are obtained and kept up-to-date as required throughout the life of the project. No condition of this approval removes the obligation for the Proponent to obtain, renew or comply with such licences, permits or approvals.

Protection of Public Infrastructure

9. The Proponent shall:
   a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the project; and
   b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the project.

Utilities

10. Prior to the construction of any utility works, the Proponent shall obtain the relevant approvals from service providers, including Hunter Water Corporation, Integral Energy and Council.

Operation of Plant and Equipment

11. The Proponent shall ensure that all plant and equipment used on site is:
   a) maintained in a proper and efficient condition; and
   b) operated in a proper and efficient manner.

Staged Submission of Plans, Strategies and Programs

12. With the written approval of the Director-General, the Proponent may submit any management plan, strategy or monitoring program required by this approval on a progressive basis.

Dispute Resolution

13. In the event that a dispute arises between the Proponent and Council or a public authority other than the Department, in relation to a specification or requirement applicable under this approval, the matter shall be referred by either party to the Director-General, or if not resolved, to the Minister, whose determination of the dispute shall be final and binding to all parties. For the purpose of this condition, 'public authority' has the same meaning as provided under Section 4 of the Act.

Section 94 Contributions

14. During operations, the Proponent shall pay Council an annual contribution of 4.1 cents per kilometre per tonne of product trucked from the site along Racecourse Road to its intersection with the New England Highway (1.7 km). The contribution amount shall be adjusted annually from the date of this approval to account for the effects of inflation (Consumer Price Index).

SCHEDULE 3: SPECIFIC ENVIRONMENTAL CONDITIONS

AIR QUALITY

Dust Limits

15. The Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the project do not exceed the criteria listed in Tables 1 or 2 at any residence on privately-owned land.

Table 1: Long term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	30 µg/m^3

Table 2: Short term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion
Particulate matter < 10 µm (PM_{10})	24 hour	50 µg/m^3

Load Limits

16. Unless the OEH specifies otherwise, the Proponent shall ensure that the annual total load discharged from the site does not exceed the load limit specified for that pollutant in Table 3.

Table 3: Maximum Allowable Load Limits (Air)

Assessable Pollutant	Maximum Allowable Load Limit (kg/yr)
Fine Particulates	74,210
Coarse Particulates	32,073
Fluoride	3,701
Sulfur oxides (as sulphuric acid mist and sulfur trioxide (as SO_3))	73,657
Nitrogen oxides	110,000

Note: The total load of the assessable pollutant shall be calculated in accordance with the relevant load calculation protocol, as defined by OEH guidelines.

Dust Management

17. The Proponent shall:
    a) design, construct, operate and maintain the project in a manner that minimises or prevents the emission of dust from the site;
    b) take all practicable measures to ensure that all vehicles entering or leaving the site and carrying a load that may generate dust are covered at all times, except during loading and unloading. Any such vehicles shall be covered or enclosed in a manner that will prevent emissions of dust from the vehicle at all times;
    c) maintain all trafficable areas and vehicle manoeuvring areas on the site in a condition that will minimise the generation or emission of wind blown or traffic generated dust from the site; and
    d) ensure each kiln is fitted with a dust collection system to capture emissions,

    to the satisfaction of the Director-General.

Discharge Limits and Stack Discharge Design Requirements

18. Unless otherwise specified by the Director-General, the Proponent shall:
    a) comply with all monitoring (points) requirements and pollutant discharge concentrations as specified by the OEH in the EPL; and
    b) ensure that the stack discharge design requirements comply with the EPL.

Air Quality Management Plan

19. The proponent shall prepare and implement an Air Quality Management Plan for the project to the satisfaction of the Director-General. The Plan must:
    a) be prepared by suitably qualified expert and submitted to the Director-General for approval prior to commencement of construction of any subsequent stage of the project;
    b) identify all major sources of particulate and gaseous air pollutants that may be emitted as result of the operation of the project, including identification of the major components and quantities of these emissions;
    c) include monitoring of particulate and gaseous emissions from the project, in accordance with any requirements of the EPL;
    d) include continuous dust-leak detection monitoring of fabric filter discharges;
    e) include monitoring of the impacts of fluoride on vegetation in accordance with the EPL with sampling/observations designed to assess impacts on sensitive ornamental plants in adjacent residential areas;
    f) include procedures for the minimisation of particulate and gaseous emissions from the project, and the reduction of these emissions over time, where appropriate;
    g) include protocols for regular maintenance of process equipment to minimise the potential for dust emissions;
    h) detail procedures to be undertaken if any non-compliance is detected;
    i) include mechanisms to consider cumulative air quality impacts in the context of development in the Rutherford industrial area; and
    j) outline how data from the relocated meteorological station site would be used as part of the validation modelling required under condition 20.

Performance Validation Monitoring

20. The Proponent shall prepare and implement Air Emissions Validation Reports to the satisfaction of the Director-General and OEH. These reports must:
    a) be prepared by a suitably qualified expert whose appointment has been endorsed by the Director-General;
    b) be undertaken within 90 days of the commencement of operation of each stage (stages 1 to 8) of the project and during a period in which the facility is operating under design loads and normal operating conditions;
    c) be conducted in accordance with the documents "*Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales'* and " *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*"; and
    d) include:
        - a program for point source emission testing on each stack as described in the site EPL;
        - the results of the stack testing and a validation with the project's air emission limits;
        - a validation against the predictions made in the EA using both simulated and actual site meteorological data collected in accordance with the EPL and as modified by Condition 19(j) above;
        - details of any exceedances or non-compliance with the limits in the EPL and approval; and
        - measures to mitigate the exceedance or non-compliance.

    Should any Air Emissions Validation Reports identify an exceedance or non-compliance, then the Proponent shall implement additional mitigation or attenuation to the satisfaction of the OEH and Director-General within the timeframe specified by the Director-General and prior to any progression to the next stage.

Performance Guarantees

21. Prior to the commencement of construction of each stage of the project, the Proponent shall provide manufacturer's performance guarantees for all plant and equipment to demonstrate that all sources of air pollutants will comply with the emission concentration limits specified in the EPL, to the satisfaction of the OEH.

Odour

22. The Proponent shall not cause or permit the emission of any offensive odour from the site.

    Note: Section 129 of the POEO Act provides that the Proponent shall not cause or permit the emission of any offensive odour from the site, but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

Greenhouse Gas Emissions

23. The Proponent shall implement all reasonable and feasible measures to minimise:
    a) energy use on site; and
    b) the scope 1 and 2 greenhouse gas emissions produced on site,
    to the satisfaction of the Director-General.

24. The Proponent shall prepare and implement an Energy Savings Action Plan for the project to the satisfaction of the Director-General. The plan shall:
    a) be submitted to the Director-General for approval within 12 months of this approval; and
    b) be prepared in accordance with the *Guidelines for Energy Savings Action Plans (DEUS 2005)*.

NOISE

Construction and Operation Hours

25. The Proponent shall comply with the hours of operation in Table 4, unless otherwise agreed by the Director-General. Construction activities (with the exception of earthworks and building construction activities) are permitted to occur outside of these hours provided it meets the operational noise criteria as defined in Table 6.

Table 4: Hours of Operation

Activity	Day	Hours
Construction	Monday - Saturday	7 am – 5 pm
	Sunday & Public Holidays	Nil
Operation	Monday - Sunday	No Restriction
Truck deliveries to the site and dispatch from the site	Monday - Sunday	7 am – 10 pm

Noise Limits

26. The Proponent shall ensure that noise generated from the project does not exceed the noise limits presented in Table 5. Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

Table 5: Project Noise Limits, dB(A)

Location	Day	Evening	Night	
	$L_{Aeq\ (15\ minute)}$	$L_{Aeq\ (15\ minute)}$	$L_{Aeq\ (15\ minute)}$	L_{Amax}
Kenvil Close	35	35	35	45
Wollombi Road	35	35	35	45

Noise Management

27. The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Director-General. The Plan must:
    a) be prepared by a suitably qualified acoustical expert and submitted to the Director-General for approval prior to commencement of construction of any subsequent stage of the project;
    b) identify all specific activities that will be carried out during construction and operation and associated noise sources;
    c) identify all potentially affected sensitive receivers;
    d) specify noise criteria (reflect the noise limits presented in Table 5);
    e) describe management methods and procedures and specific noise mitigation treatments that will be implemented to control noise emissions;
    f) detail an operational noise monitoring program to be prepared by a qualified acoustic consultant and implemented to monitor the effects of the project on the acoustic environment during operation, including road traffic noise, with details of procedures to be undertaken if any non-compliance is detected;
    g) detail procedures to receive, record and respond to complaints; and
    h) describe the contingencies that would be implemented, and the timing for implementation, should non compliances be detected.

Validation

28. The Proponent shall prepare and implement Noise Validation Reports to the satisfaction of the Director-General. These reports must:
    a) be prepared by a suitably qualified acoustical expert whose appointment has been endorsed by the Director-General;
    b) be undertaken within 90 days of the commencement of operation of each subsequent stage (stages 1 to 8) of the project and during a period in which the facility is operating under normal operating conditions;
    c) be conducted in accordance with the *NSW Industrial Noise Policy*; and
    d) include:
        - a validation against the predictions made in the EA including the proposed noise attenuation;
        - details of any exceedances or non-compliance with the noise limits in this approval; and
        - measures to mitigate the exceedance or non-compliance.

    Should any Noise Validation Reports identify an exceedance or non-compliance, then the Proponent shall implement additional mitigation or attenuation to the satisfaction of the OEH and Director-General within the timeframe specified by the Director-General and prior to any progression to the next stage.

DESIGN

Architectural Design

29. The Proponent shall construct the facility generally in accordance the elevations shown in Appendix 4 including additional noise attenuation of building sections. Building design shall incorporate the following noise mitigation features:
    a) increased thickness of metal sheeting to 0.48 BMT on the east façade, south façade and roof (previous assumption in noise model was 0.3 BMT) with 55 mm insulation fixed to underside of roof;
    b) existing dust extractor to be enclosed;
    c) alsynite roofing on the proposed main building located only on the west section of the roof. This is assuming the roof is pitched and therefore the alsynite panelling is angled away from Heritage Green receivers to the east;
    d) no alsynite panels on the east and south walls of the proposed Mill & Spray Dryer section of the building;
    e) the bag-houses for the proposed kiln stacks shall be located inside the factory building; and
    f) the dust extraction unit, located on the southern end of the eastern wall of the factory building, shall be enclosed to reduce noise emission to the east and south.

VISUAL

Landscape Design

30. The Proponent shall prepare and implement a Landscape Management Plan for the project to the satisfaction of the Director-General. The plan shall;
    a) be submitted to the Director-General for approval prior to commencement of construction of any subsequent stage of the project;
    b) be prepared in consultation with Council;
    c) detail existing and proposed landscaping on the site;
    d) maximise the use of flora species endemic to the locality in landscaping the site;
    e) incorporate weed management for the site; and
    f) include a schedule for implementation and maintenance.

31. The Proponent shall complete the landscaping along the eastern site boundary within 6 months following the construction of any stage of the new factory building (see figure in Appendix 2).

Lighting

32. The Proponent shall ensure that the lighting associated with the project:
    a) complies with the latest version of Australian Standard *AS 4282(INT) - Control of Obtrusive Effects of Outdoor Lighting*;
    b) is adequate for night time security purposes; and
    c) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

Signage

33. The Proponent shall not erect any signage and advertising media at the site, with the exception of internal site signage for traffic management and safety purposes. Any proposed signage will be subject to further application and approval by the Director-General.

Fencing

34. The Proponent shall erect security fencing around the perimeter of the site with lockable gates at each entry point.

TRAFFIC AND ACCESS

Oversized Transportation

35. The Proponent shall obtain a permit for an oversized and over mass load from the RTA, if transportation of oversized or over mass materials or machinery is required for the project.

Access

36. The Proponent shall:
    a) ensure that all vehicles entering and exiting the site do so in a forward direction; and
    b) install a median strip or similar device on the driveway to ensure that internal two-way traffic is separated.

Vehicle Queuing and Parking

37. The Proponent shall ensure that:
    a) a minimum of 70 parking spaces are provided on site;
    b) all parking generated by the project is accommodated on site, and that no vehicles associated with the project are parked on the public road system at any stage;
    c) the project does not result in any vehicles queuing on the public road network; and
    d) provide direction line marking and signage on site to direct heavy vehicles, staff and visitors to the relevant parking areas, loading docks and exits to ensure safe traffic flow.

38. The Proponent shall ensure that the parking dimensions, internal circulation, aisle widths, kerb splay corners, head clearance heights, ramp widths and grades of the car parking area in accordance with the current relevant Australian Standards AS*2890.1:2004,* except where amended by other conditions of this approval.

39. The Proponent shall ensure that disabled parking and assess is provided on-site and shall comply with Australian Standard *AS1428.1 (2001) - Design for Access and Mobility - Part 1 General Requirements for Access – Buildings*.

Traffic Management

40. The Proponent shall prepare and implement a Traffic Management Plan for the project to the satisfaction of the Director-General. The plan must:
    a) be prepared in consultation with the RTA and Council, and be submitted to the Director-General for approval prior to commencement of construction of any subsequent stage of the project;
    b) be prepared by a suitably qualified expert;
    c) detail construction and operation vehicle routes, access and parking arrangements, traffic restrictions and traffic control; and
    d) include a Driver Code of Conduct.

SOIL AND WATER

41. Except as may be expressly provided in an EPL for the project, the Proponent shall comply with section 120 of the POEO Act.

Erosion and Sediment Control

42. The Proponent shall prepare and implement an Erosion and Sediment Control Plan for the project to the satisfaction of the Director-General. This plan must:
    a) be submitted to the Director-General before the commencement of construction of any subsequent stage of the project;

b) be prepared in accordance with Landcom's *Managing Urban Stormwater: Soils and Construction* manual;
c) identify the works that could cause soil erosion and generate sediment;
d) describe the location, function, and capacity of the erosion and sediment controls that would be implemented; and
e) describe the measures that would be implemented to maintain these controls during the construction period.

43. All erosion and sedimentation controls required as part of this approval shall be maintained at design capacity for the duration of the construction works, and until such time as all ground disturbed by the construction works has been stabilised and rehabilitated so that it no longer acts as a source of sediment.

Water Demand

44. Prior to exceeding a water consumption level of 92ML/year, the Proponent shall obtain written approval from HWC that the amount required for each new Stage of the project is within the capacity able to be provided by HWC, to the satisfaction of the Director-General.

Alternative Water Source

45. Prior to the installation of any alternative water supply infrastructure, the Proponent shall consult with, and seek the approval of Hunter Water Corporation and Council.

Stormwater Management

46. Proponent shall prepare and implement a Stormwater Management Plan for the project to the satisfaction of the Director-General. This plan must:
a) be prepared in consultation with Council and be submitted to the Director-General for approval prior to the commencement of construction of any subsequent stage of the project;
b) be prepared in accordance with the latest version of *Managing Urban Stormwater: Council Handbook* (DECC);
c) outline measures to manage stormwater to prevent the pollution of waters;
d) include a program to monitor stormwater quantity and quality; and
e) include detailed plans of the stormwater system.

47. The Proponent shall ensure that the construction and operation of the facility does not concentrate or lead to an increase in the rate of flow of stormwater discharged from the site over and above the pre-development flow conditions.

48. The Proponent shall design, construct, operate and maintain all stormwater infrastructure to direct all stormwater runoff to the site's stormwater detention basins. Such stormwater infrastructure shall be capable of handling all stormwater discharges up to and including a 1 in 100 year ARI storm event.

HERITAGE

49. The Proponent shall cease all works on site in the event that any Aboriginal cultural object(s) or human remains are uncovered onsite. The NSW Police, the Aboriginal Community and the OEH are to be notified. Works shall not resume in the designated area until approval in writing from the NSW Police and/or the OEH has been obtained.

50. The Proponent shall ensure all reasonable and feasible measures are made to avoid impacts to Aboriginal Cultural Heritage values for the life of the project. If impacts are unavoidable, mitigation measures are to be negotiated with the Aboriginal community and the OEH.

51. The Proponent shall:
a) prepare an Aboriginal Cultural Education Program for the induction of personnel and contractors involved in construction and landscaping activities on site, prior to the commencement of construction of any subsequent stage of the project: and
b) undertake consultation with Aboriginal stakeholders in the event of the discovery of Aboriginal cultural object(s) throughout the construction of the project,
to the satisfaction of the Director-General.

WASTE MANAGEMENT

52. A designated area for the storage and collection of waste and recyclable materials shall be provided at the site and shall be designed, constructed, operated and maintained in a manner so as not to cause a nuisance to adjoining properties.

53. The Proponent shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing or disposal, or any waste generated at the site to be disposed of at the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997*.

54. All wastes generated on site during construction and operation of the project shall be classified in accordance with the *Waste Classification Guidelines, December 2009* (or later version) and disposed of to a facility that may lawfully accept the waste.

HAZARDS

55. The Proponent shall ensure that the fuel storage tank is surrounded by a bund with a capacity to contain 110% of the largest tank within the bund. The bund(s) must be designed and installed in accordance with the requirements of the relevant Australian Standards and/or the OEH's *Environmental Protection Manual Technical Bulletin Bunding and Spill Management.*

SCHEDULE 4: ENVIRONMENTAL MANAGEMENT, MONITORING AND INCIDENT REPORTING

ENVIRONMENTAL MANAGEMENT

Environmental Management Strategy

56. The Proponent shall prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. This strategy must:
    a) be submitted to the Director-General for approval prior to commencement of any construction works;
    b) be prepared by a suitably qualified and experienced expert;
    c) provide the strategic framework for environmental management of the project;
    d) identify the statutory requirements that apply to the project;
    e) describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the project.
    f) describe in detail the management measures that would be implemented to address environmental issues;
    g) describe in general how the environmental performance of the project would be monitored and managed;
    h) describe the procedures that would be implemented to:
        - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
        - receive, handle, respond to, and record complaints;
        - resolve any disputes that may arise during the course of the project;
        - respond to any non-compliances; and
        - respond to emergencies; and
    i) include copies of the various strategies and plans that are required under the conditions of this approval once they have been approved.

Construction Environmental Management Plan

57. The Proponent shall prepare and implement a Construction Environmental Management Plan (CEMP) to outline environmental management practices and procedures to be followed during the construction of the ceramic tile manufacturing facility. The Plan shall include, but not necessarily be limited to:
    a) a description of all activities to be undertaken on the site during construction of the ceramic tile manufacturing facility, including an indication of stages of construction, where relevant;
    b) statutory and other obligations that the Proponent is required to fulfil during construction, including all approvals, consultations and agreements required from authorities and other stakeholders, and key legislation and policies;
    c) detailed management measures that would be implemented to address environmental issues (ie, noise, air quality, heritage, water, potential acid sulphate soil);
    d) specific consideration of measures to address any requirements of the Department, Council and the OEH during construction;
    e) details of how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts; and
    f) a description of the roles and responsibilities for all relevant employees involved in the construction of the ceramic tile manufacturing facility.

    The CEMP shall be submitted for the approval of the Director-General prior to the commencement of construction of any subsequent stage of the project.

ENVIRONMENTAL REPORTING

Incident Reporting

58. Within 24 hours of the occurrence of an incident that causes (or may cause) harm to the environment, the Proponent shall notify the Department and any other relevant agencies of the incident.

59. Within 7 days of the detection of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.

ANNUAL PERFORMANCE REPORTING

60. Every year from the date of this approval, unless the Director-General agrees otherwise, the Proponent shall submit an Annual Environmental Management Report (AEMR) to the Director-General and relevant agencies. The AEMR shall:

a) be conducted by suitably qualified and independent team of whose appointment has been endorsed by the Director- General;
b) be submitted within 3 months of the period being assessed by the AEMR;
c) identify the standards and performance measures that apply to the development;
d) include a summary of the complaints received during the past year, and compare this to the complaints received in previous years;
e) include a summary of the monitoring results for the development during the past year;
f) include an analysis of these monitoring results against the relevant:
    - impact assessment criteria;
    - monitoring results from previous years; and
    - predictions in the EA;
g) identify any trends in the monitoring results over the life of the development;
h) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies;
i) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance; and
j) identify continuous improvement measures, outlining new developments in air quality and noise control, and detailing practices that have been implemented on the site during the previous year, to reduce air quality and noise impacts.

INDEPENDENT AUDIT

61. Every 3 years from the date of this approval, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:
    a) be conducted by a suitably qualified, experienced, and independent team of experts whose appointment has been endorsed by the Director-General;
    b) be undertaken in consultation with the OEH and Council;
    c) include an assessment of the noise and air quality performance of the project;
    d) assess the environmental performance of the project and undertake any works necessary to determine whether it is complying with the relevant standards, performance measures, and statutory requirements;
    e) review the adequacy of any strategy/plan/program required under this approval; and, if necessary,
    f) recommend measures or actions to improve the environmental performance of the project, and/or any strategy/plan/program required under this approval.

62. Within 6 weeks of completing this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General with a response to any recommendations contained in the audit report.

63. Within 3 months of submitting an audit report to the Director-General, the Proponent shall review and if necessary revise the strategy/plans/programs and undertake additional mitigation measures as required under this approval to the satisfaction of the Director-General.

ACCESS TO INFORMATION

64. Within 3 months of the approval of any strategy/plan/program required under this approval (or any subsequent revision of these strategies/plans/programs), or the completion of the audits or annual reports required under this approval, the Proponent shall:
    a) provide a copy of the relevant documents/data to the relevant agencies; and
    b) make the documents publically available in an appropriate electronic format on the Proponent's web site, should one exist. If a web site does not exist, the documents are to be made available upon request.

APPENDIX 1: NCIA's STATEMENT OF COMMITMENTS

6.0 Revised Statement of Commitments

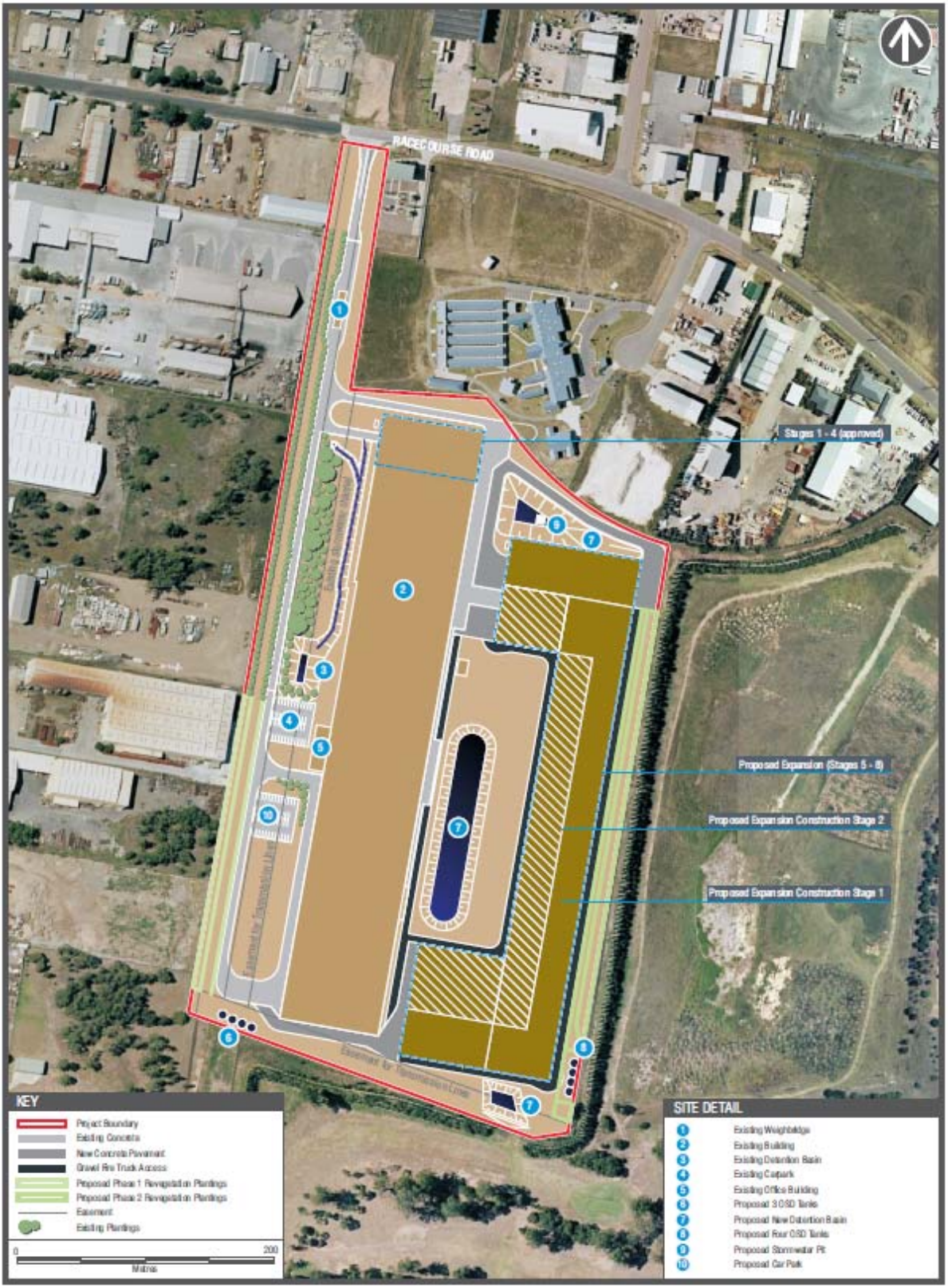
Table 15: Revised Statement of Commitments

Issue	Safeguard
Air Quality	**Construction** A Construction Environmental Management Plan (CEMP) would be prepared prior to commencement of construction of the project. The CEMP would include as a minimum: • Control of access via sealed roadways; • Vehicle speed limits on site; • Avoid dust-generating activities during undesirable conditions; • Minimisation of areas of disturbed soils during construction; • Dust suppression with water sprays or other media during windy periods (as required); • Stockpiling of soils on site kept to a practical minimum; • Construction equipment idling time minimisation and appropriate engine tuning and servicing to minimise exhaust emissions; and • Procedures to address any complaints received. **Operation** NCIA commits to the stringent air emissions concentration limits required of the approved facility for the project as detailed in the existing development consent as modified. Additionally: • Dust extraction baghouses would be integrated with the kiln stacks; • Fluoride emissions would be managed within the kiln baghouses by implementing a mechanism where a fine spray of lime is injected into the kiln exhaust flow to scrub the HF emissions; - Lime used in the baghouse would have a high percentage of Calcium available for scrubbing of HF; - Installation of additional monitoring points to monitor baghouse operational parameters e.g. pressure drop to allow more efficient tracking of the performance of the baghouses; and - All new production lines will have kiln stack filtration systems positioned internally to the buildings. The aim of this is to ensure more efficient management of the emissions. • Dust extraction baghouses would be integrated with the spray dryers; • Fabric filters would also be implemented on the extraction fans located adjacent to the selection line; • NCIA would continue their vegetation monitoring program as required by their existing consent and Environment Protection Licence; and • The clay preparation area would be located inside the factory building.
Greenhouse Gas and Energy Efficiency	• An Energy Savings Action Plan would be prepared; • New generation kilns would be installed that incorporate new energy recovery systems; and • The project would be designed to allow for the addition of electricity cogeneration facilities by way of leaving space and allowing for easy connection and integration at a later date.

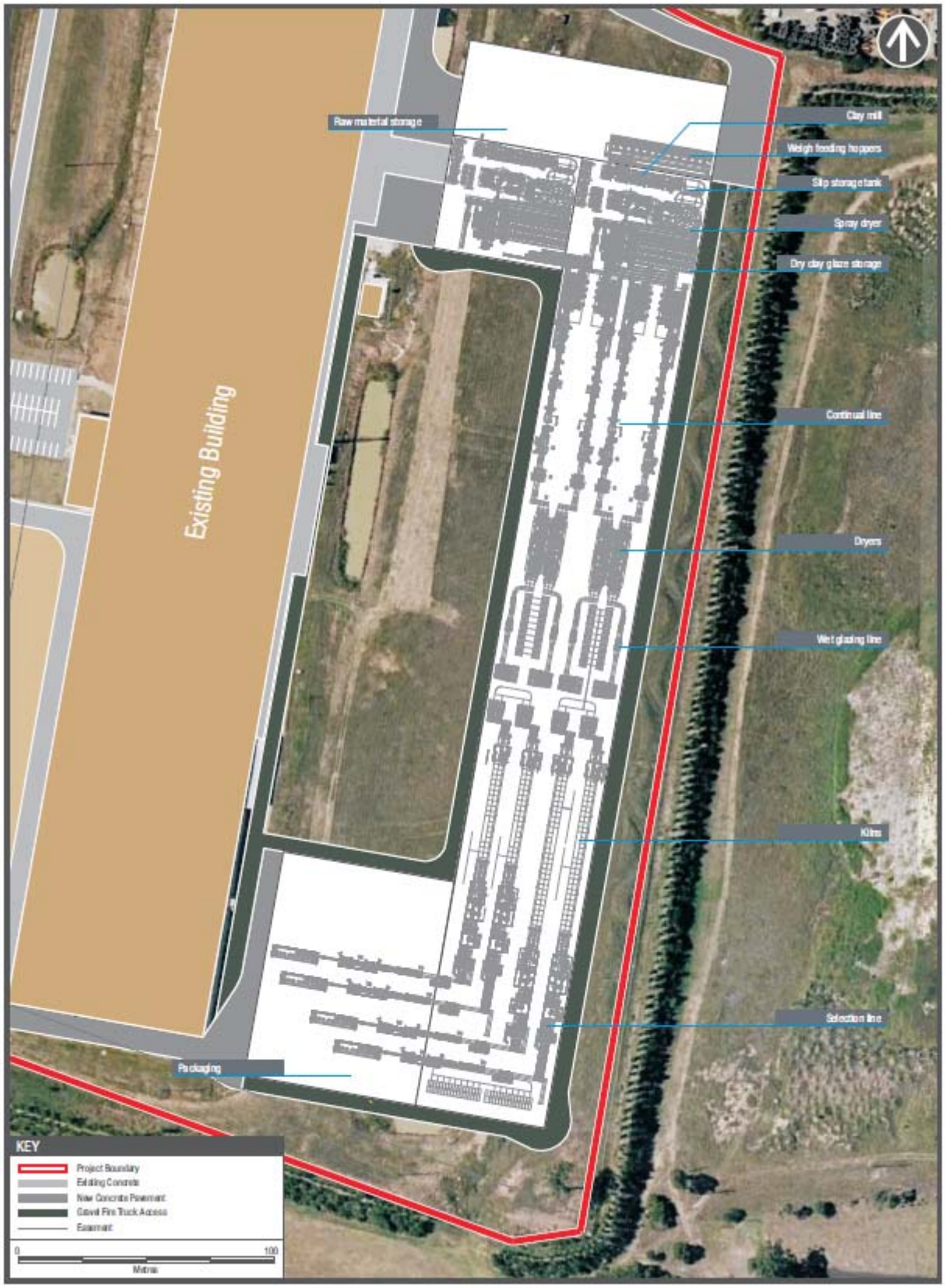
Issue	Safeguard
Noise	• The project would commit to and adopt the operational noise criteria outlined in the EA and the Submissions Report; • Increased thickness of metal sheeting to 0.48 BMT on the east façade, south façade and roof (previous assumption in noise model was 0.3 BMT) with 55 mm insulation fixed to underside of roof; • Existing dust extractor to be enclosed; • Alsynite roofing on the proposed main building located only on the west section of the roof. This is assuming the roof is pitched and therefore the alsynite panelling is angled away from Heritage Green receivers to the east; • No alsynite panels on the east and south walls of the proposed Mill & Pray Dryer section of the building; • No truck deliveries of raw products or final product despatch would occur during the night time period (night-time 10.00 pm to 7.00 am); • Electric, laser guided forklifts would be utilised to transport final product from the proposed factory building to the product despatch area of the existing building; • The transport route for both forklifts and delivery/product despatch truck would be designed to minimise the need for reversing and, as such, the use of reversing alarms; • The bag-houses for the proposed kiln stacks would be located inside the proposed factory building; and • The proposed dust extraction unit, located on the southern end of the eastern wall of the proposed factory building, would be enclosed to reduce noise emission to the east and south.
Traffic and Parking	• The onsite car parking would be increased to 70 spaces to ensure adequate provision is provided for all staff and visitors and all new spaces would be provided in accordance with AS2890.
Hazard and Risk	• The existing site emergency plan would be updated as required to include potential incidents at the expanded facility, including gas releases/fires and diesel releases/fires; and • Fuel handling management procedures would be included in the revised site Operational Environmental Management Plan.
Soil and Water	• Wet detention basins would be provided with the dual function of reducing peak stormwater flows and improving water quality by settling of sediment prior to discharge; • Rainwater tanks would be provided with the function of reducing peak stormwater flows; • Grass swales to collect runoff from beside roadways, to connect between the wet detention basins, to reduce runoff velocities, to provide some infiltration of water, and for water quality improvement; • Ground area disturbed would be minimised at any one time during construction and progressive rehabilitation/ landscaping of completed areas; • The volume of water required to be handled would be minimised by diverting clean water around all disturbed areas; • The surface of all areas required for construction traffic, parking, storage and amenities would be treated to provide adequate drainage and prevent soil loss; • Provision of sedimentation traps and fencing to capture and treat runoff from all disturbed areas would be provided, including a regime for inspection and removal of accumulated sediment; • Storage of potential contaminants (i.e. fuels, oils or chemicals) would occur offsite or within bunded, covered and lined areas;

Issue	Safeguard
	• The construction and operation of the project would not concentrate or lead to an increase in the rate of flow of stormwater discharged from the site over and above the predevelopment flow conditions; • An Acid Sulfate Soils Management Plan (ASSMP) would be prepared in accordance with the Acid Sulfate Soil Planning Guidelines (NSW Acid Sulfate Soils Management Advisory Committee, 1998) prior to the construction of Stages Five – Eight; and • The preliminary Soil and Water Management Plan and Erosion and Sediment Control Plan (Appendix D of the Submissions Report) would be generally followed and implemented during construction and operation.
Visual	• Planting of native vegetation around the perimeter of the site would be undertaken in locations unaffected by buildings, internal road ways or infrastructure easements to assist in screening outside views; • The use of appropriate building materials and colours to blend with the surrounding environment and reduce the visual dominance of the building; • Lights would be placed and designed to avoid causing glare or excessive light spillage on neighbouring sites; • Lighting near adjoining properties where appropriate would be shielded with cut off luminaries; • Building illumination would be discrete; • Lighting to car park areas and for security purposes would be low intensity; and • The updated Landscape Management Plan will include details of onsite lighting.
Ecology	• NCIA would continue its vegetation monitoring program for fluoride as required by their existing consent and EPL; and • NCIA would finalise their onsite revegetation generally in accordance with Figure 4 of the EA and as described in Section 14.1.3 of the EA.
Aboriginal Heritage	• Even though no areas or objects of Aboriginal cultural heritage significance have been identified within the project site, there still remains the potential (albeit very low) that there may be Aboriginal cultural objects below the ground surface. Agreed management procedures for unexpected finds (identified in the EA and the Submissions Report) will provide an effective way to minimise project impacts on unrecorded Aboriginal cultural heritage. Procedures for the Discovery of Archaeological Deposits and the Discovery of Human Remains are detailed in Section 14.3.1 of the EA (and refined in **Section 2.1.6**.of the Submissions Report) and would be implemented during the Project.
Environmental Monitoring	• NCIA would continue their vegetation monitoring program as required by their existing consent and EPL; and • NCIA would negotiate with DECCW and DOP an appropriate Environmental Monitoring program.
Environmental Management and Reporting	• The existing site OEMP and environmental management plans would be reviewed, modified and updated to include the project; and • NCIA would continue with its environmental reporting and auditing requirements as specified in the existing development consent (where possible).

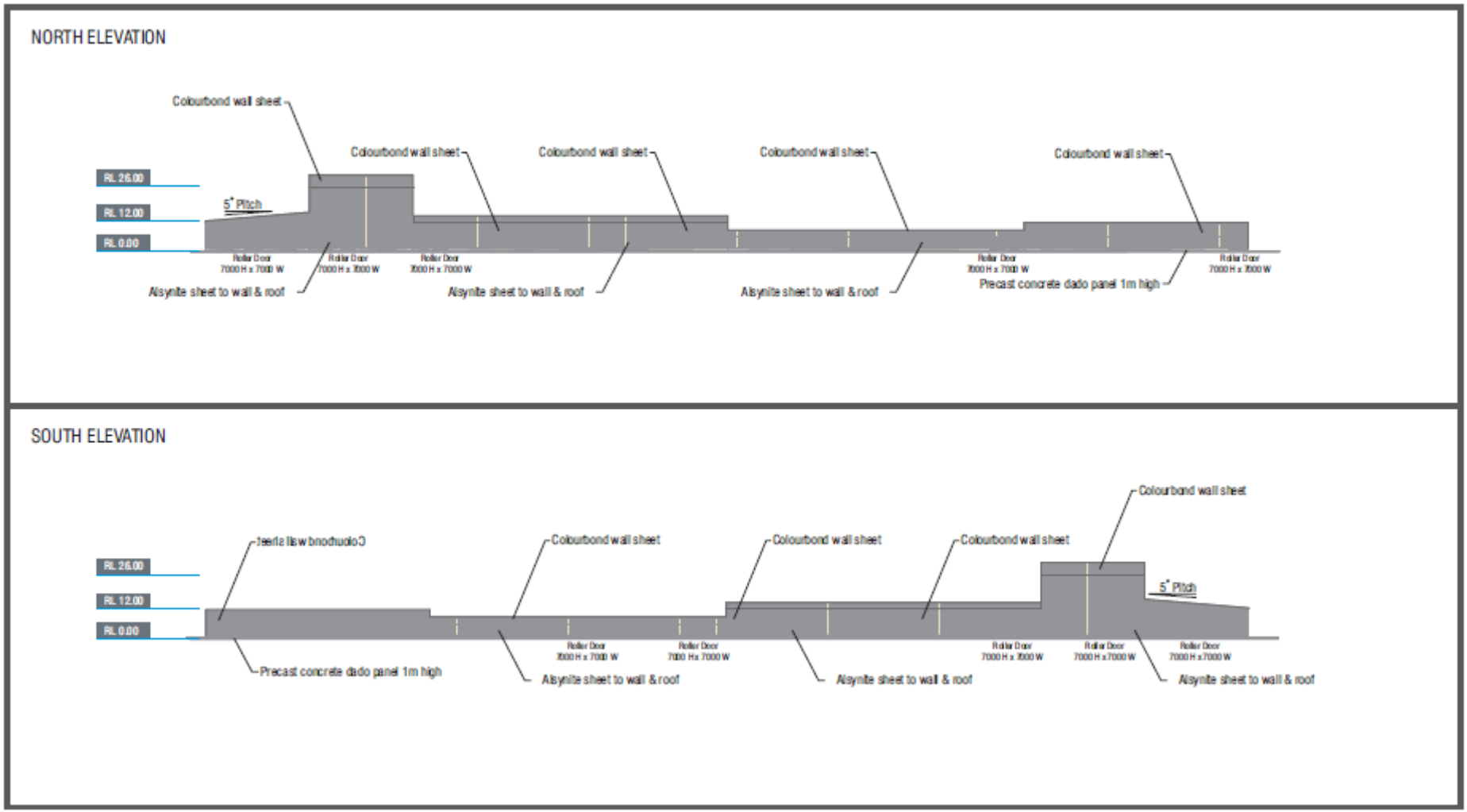
APPENDIX 2: SITE LAYOUT PLAN



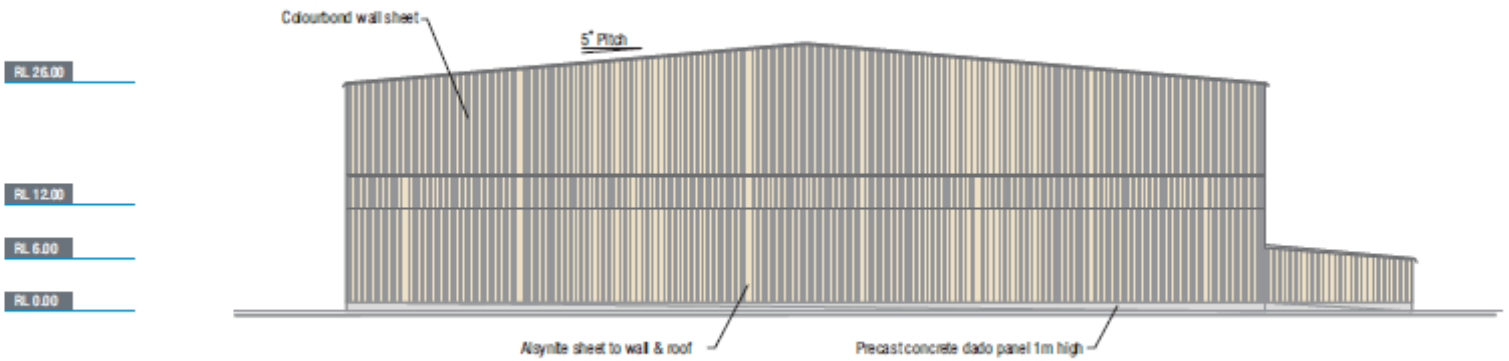
APPENDIX 3: INTERNAL FACTORY FITOUT



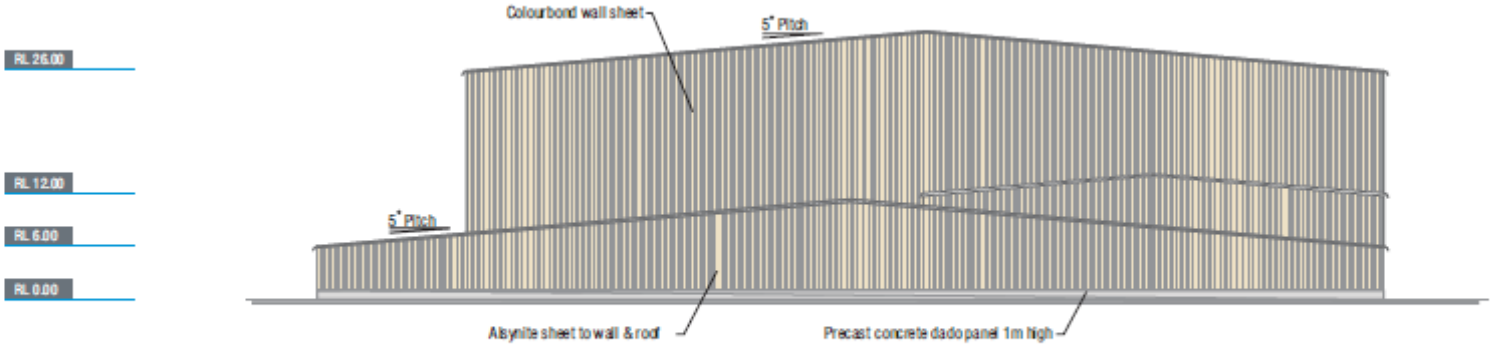
APPENDIX 4: BUILDING ELEVATIONS



NORTH ELEVATION



SOUTH ELEVATION



Notice of Modification

Section 75W of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning, under delegation dated 10 November 2014, I approve the modification of the project approval referred to in Schedule 1, subject to the modified conditions in Schedule 2.

Chris Ritchie
Manager
Industry Assessments

Sydney 17 DECEMBER 2014

SCHEDULE 1

The project approval (09_0006) granted by the Planning Assessment Commission as delegate of the Minister for Planning for the National Ceramic Industries Australia Tile Manufacturing Facility Expansion Project on 19 January 2012.

SCHEDULE 2

This approval is modified by:

1. Deleting the following from the list of Definitions:

Department	Department of Planning and Infrastructure or its successors in title
Director-General	Director-General of the Department of Planning and Infrastructure, or delegate
Minister	Minister for Planning and Infrastructure, or delegate
RTA	NSW Roads and Traffic Authority

2. Inserting new definitions in the list of Definitions in alphabetical order:

Department	Department of Planning and Environment or its successors in title
Minister	Minister for Planning, or delegate
MOD 2	Modification Application (09_0006 MOD 2) with supporting documentation titled *National Ceramic Industries Australia, Condition 60 AEMR Approval Modification*, prepared by AECOM dated 13 November 2014
RMS	NSW Roads and Maritime Services
Secretary	Secretary of the Department, or nominee

3. Deleting all references in the conditions to RTA and Director-General and replace them with RMS and Secretary respectively.

4. Replacing Condition 2 in Schedule 2 with the following:

2. The Proponent shall carry out the project generally in accordance with the:
   a) EA;
   b) Statement of Commitments;

c) Submissions Report;
d) MOD 2; and
e) conditions of this approval.

5. Replacing Condition 60a) in Schedule 4 with a new condition 60a) as follows:

a) be conducted by a suitably qualified and experienced team;

APPENDIX B: MODIFICATION APPLICATION MP 09_0006 MOD 2

Refer to http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=6813

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13 November 2014

Commercial-in-Confidence

Chris Ritchie
Manager – Industry
Industry, Social Projects and Key Sites
Department of Planning and Environment
GPO Box 39
Sydney NSW 2001

Dear Mr Ritchie

National Ceramic Industries Australia, Condition 60 AEMR Approval Modification MP 09-0006 Application

1.0 Introduction

National Ceramic Industries Australia Pty Ltd (NCIA) was granted project approval (MP 09_0006) under section 75J of the *Environmental Planning and Assessment Act 1979*, by the Planning and Assessment Commission on 19 January 2012. This project approval rationalised and consolidated the development as already approved under NCIA's development consent (DA No. 449-12-2002-I, now surrendered) and that of a proposed expansion of NCIA's ceramic tile facility based in Rutherford, NSW.

2.0 Requested modification

Schedule 6A of the *Environmental Planning & Assessment Act 1979*, provides that section 75W continues to apply for the purpose of the modification of project applications and concept plans approved before or after the repeal of Part 3A of the Act.

As such, NCIA wishes to formally request a modification to its project approval (MP 09_0006) pursuant to section 75W of the *Environmental Planning and Assessment Act 1979.*

2.1 Condition 60

Condition 60 relates to Annual Performance Reporting, and the Annual Environmental Management Report (AEMR). Condition 60 states:

> *60. Every year from the date of this approval, unless the Director-General agrees otherwise, the Proponent shall submit an Annual Environmental Management Report (AEMR) to the Director-General and relevant agencies. The AEMR shall:*
>
> > *a) be conducted by a suitably qualified and independent team of whose appointment has been endorsed by the Director- General;*
> >
> > *b) .....*

It is requested that the words *'and independent'* be removed from part a) of Condition 60. These words are underlined in the above.

2.2 Environmental implications of the requested modifications

The requested modification would not result in any changes to the approved operation or environmental implications.

As the Department of Planning and Environment (DP&E) is aware, AECOM undertakes the regulatory environmental monitoring for NCIA and has done so for the previous 10 years. As such AECOM considers it has the relevant expertise and experience in house to prepare the annual environmental reporting for NCIA. Our team has a full understanding of the NCIA facility, its environmental obligations and reporting requirements. Additionally we have the information and monitoring data needed to prepare the AEMR.

The requested modification would allow the DP&E to endorse the AECOM as the most appropriate service provider to prepare the AEMR.

Appendix B

Conditions of EPL 11956

Appendix B Conditions of EPL 11956

Environment Protection Licence

Licence - 11956

Licence Details	
Number:	11956
Anniversary Date:	01-August

Licensee

NATIONAL CERAMIC INDUSTRIES AUSTRALIA PTY LTD

PO BOX 765

MAITLAND NSW 2320

Premises

NATIONAL CERAMIC INDUSTRIES AUSTRALIA PTY LTD

RACECOURSE ROAD

RUTHERFORD NSW 2320

Scheduled Activity

Ceramic Works

Fee Based Activity	Scale
Ceramics production	> 50000-200000 T produced

Region

North East - Hunter

Ground Floor, NSW Govt Offices, 117 Bull Street

NEWCASTLE WEST NSW 2302

Phone: (02) 4908 6800

Fax: (02) 4908 6810

PO Box 488G NEWCASTLE

NSW 2300

Environment Protection Licence

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Environment Protection Licence

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Environment Protection Licence

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Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act); and
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

Environment Protection Licence

Licence - 11956

The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

NATIONAL CERAMIC INDUSTRIES AUSTRALIA PTY LTD
PO BOX 765
MAITLAND NSW 2320

subject to the conditions which follow.

Environment Protection Licence

Licence - 11956

1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Ceramic Works	Ceramics production	> 50000 - 200000 T produced

A1.2 The ultimate intended production of the licensed activity is >200 000 tonnes per annum. This licence currently only authorises activity up to 200 000 tonnes per annum. A variation application must be submitted two months prior to the commissioning of each subsequent kiln to allow for the increase in production and the addition of limit and monitoring conditions associated with the operation of each of these kilns.

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
NATIONAL CERAMIC INDUSTRIES AUSTRALIA PTY LTD
RACECOURSE ROAD
RUTHERFORD
NSW 2320
LOT 101 DP 1062820

A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:
a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

Environment Protection Licence

Licence - 11956

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

Air

EPA identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
1	Discharge to Air	Discharge to Air	Dust extractor clay preparation CP1 & CP 2 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
2	Discharge to Air	Discharge to Air	Dust extractor clay preparation CP3 & CP4 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
3	Discharge to air	Discharge to air	Pressing and Drying PD1 & PD2 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
4	Discharge to air	Discharge to air	Pressing and drying PD3 & PD4 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
5	Discharge to air	Discharge to air	Drier D1 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
6	Discharge to air	Discharge to air	Drier D2 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
7	Discharge to air	Discharge to air	Drier D3 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
8	Discharge to air	Discharge to air	Drier D4 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
9	Discharge to air	Discharge to air	Glaze line as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
10	Discharge to air	Discharge to air	Selection SL 1234 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
12	Discharge to air	Discharge to air	Spray Drier SD1 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
13	Discharge to air	Discharge to air	Spray Drier SD2 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
14	Discharge to air	Discharge to air	Kiln KP1 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
15	Discharge to air	Discharge to air	Kiln KP2 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.

Environment Protection Licence

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16	Discharge to air	Discharge to air	Kiln KP3 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
17	Discharge to air	Discharge to air	Kiln KP4 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
18	Discharge to air	Discharge to air	Hot air cooling HAC1 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
19	Discharge to air	Discharge to air	Hot air cooling HAC2 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
20	Discharge to air	Discharge to air	Hot air cooling HAC3 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
21	Discharge to air	Discharge to air	Hot air cooling HAC4 as shown on Figure Titled: Plant Emission Locations and Air Quality Controls dated 17 July 2003.
22	Ambient Air Monitoring - PM 10		PM 10 monitoring locations as shown on diagram titled "Proposed ambient air quality monitoring sites - PM 10, HF and meteorological monitoring". Dated 20 January 2004
23	Ambient Air Monitoring - Fluoride compounds		HF monitoring locations as shown on diagram titled "Proposed ambient air quality monitoring sites - PM 10, HF and meteorological monitoring". Dated 20 January 2004.
24	Weather Monitoring		On-site meteorological station located in south east corner of premises.

3 Limit Conditions

L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Load limits

L2.1 The actual load of an assessable pollutant discharged from the premises during the reporting period must not exceed the load limit specified for the assessable pollutant in the table below.

L2.2 The actual load of an assessable pollutant must be calculated in accordance with the relevant load calculation protocol.

Assessable Pollutant	Load limit (kg)
Coarse Particulates (Air)	14338.00
Fine Particulates (Air)	26629.00
Fluoride (Air)	1850.00

Environment Protection Licence

Licence - 11956

Nitrogen Oxides (Air)	36828.00
Sulfur Oxides (Air)	36828.00

Note: An assessable pollutant is a pollutant which affects the licence fee payable for the licence.

L3 Concentration limits

L3.1 For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

L3.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.

L3.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\s.

L3.4 Air Concentration Limits

POINT 1,2,3,4,5,6,9,10,12,13

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Solid Particles	milligrams per cubic metre	20	Dry, 273K, 101.3kPa		

POINT 7,8

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Solid Particles	milligrams per cubic metre	20	Dry, 273K, 101.3kPa		

POINT 14,15

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Cadmium	milligrams per cubic metre	0.1	Dry, 273K, 101.3kPa		
Nitrogen Oxides	milligrams per cubic metre	100	Dry, 273K, 101.3kPa	18%	
Hydrogen fluoride	milligrams per cubic metre	5	Dry, 273K, 101.3kPa		
Sulfuric acid mist and sulfur trioxide (as SO3)	milligrams per cubic metre	100	Dry, 273K, 101.3kPa		

Environment Protection Licence

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Mercury	milligrams per cubic metre	0.1	Dry, 273K, 101.3kPa	
Hazardous substances	milligrams per cubic metre	1	Dry, 273K, 101.3kPa	
Solid Particles	milligrams per cubic metre	20	Dry, 273K, 101.3kPa	18%

POINT 16,17

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Nitrogen Oxides	milligrams per cubic metre	100	Dry, 273K, 101.3kPa	18%	
Sulfuric acid mist and sulfur trioxide (as SO3)	milligrams per cubic metre	100	Dry, 273K, 101.3kPa		
Solid Particles	milligrams per cubic metre	20	Dry, 273K, 101.3kPa	18%	
Hazardous substances	milligrams per cubic metre	1	Dry, 273K, 101.3kPa		
Cadmium	milligrams per cubic metre	0.1	Dry, 273K, 101.3kPa		
Mercury	milligrams per cubic metre	0.1	Dry, 273K, 101.3kPa		
Hydrogen fluoride	milligrams per cubic metre	5	Dry, 273K, 101.3kPa		

POINT 18,19

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Solid Particles	milligrams per cubic metre	5	Dry, 273K, 101.3kPa		

POINT 20,21

Pollutant	Units of measure	100 percentile concentration limit	Reference conditions	Oxygen correction	Averaging period
Solid Particles	milligrams per cubic metre	5	Dry, 273K, 101.3kPa		

L3.5 For the purposes of the above table, “hazardous substances” means type 1 and type 2 substances as defined in Part 5 of the Protection of the Environment Operations (Clean Air) Regulation 2010.

Environment Protection Licence

Licence - 11956

L4 Waste

L4.1 The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.

L5 Noise limits

L5.1 Noise from the premises must not exceed:
a) 41dB(A) LAeq(15 minute) during the day (7am to 6pm) Monday to Saturday and (8am to 6pm) Sunday and public holidays; and
b) 39dB(A) LAeq(15 minute) during the evening (6pm to 10pm) Monday to Sunday and public holidays; and
c) at all other times 35dB(A) LAeq (15 minute), except as expressly provided by this licence.

Where LAeq means the equivalent continuous noise level – the level of noise equivalent to the energy-average of noise levels occurring over a measurement period.

L5.2 Noise from the premises is to be measured at the most affected point on or within the receptor site boundary to determine compliance with this condition.

L5.3 Noise from the premises shall not exceed the L A1(1 minute) noise level of 45 dB(A) at the nearest residential receiver most affected by noise from activities at the premises. The noise limit applies 1 metre from the dwelling façade and shall apply during the night period only.

L5.4 The noise emission limits specified above apply under all meteorological conditions except:
a) during rain and wind speeds greater than 3 m/s; and
b) from 6pm to 7am during intense inversions, which are indicated by cloud cover less than 40 per cent and wind speeds less than 1.0 m/s

Note: Wind data should be collected at 10m height.

L6 Potentially offensive odour

L6.1 No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

4 Operating Conditions

Environment Protection Licence

Licence - 11956

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.
This includes:
a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
a) must be maintained in a proper and efficient condition; and
b) must be operated in a proper and efficient manner.

O3 Dust

O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

O4 Processes and management

O4.1 Where complaints of impact upon vegetation are received, the licensee must investigate and submit a written report to the EPA identifying the magnitude of the vegetation damage and potential for fluoride emissions from the plant to have contributed to the damage.

5 Monitoring and Recording Conditions

M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:
a) in a legible form, or in a form that can readily be reduced to a legible form;
b) kept for at least 4 years after the monitoring or event to which they relate took place; and
c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
a) the date(s) on which the sample was taken;
b) the time(s) at which the sample was collected;
c) the point at which the sample was taken; and
d) the name of the person who collected the sample.

Environment Protection Licence

Licence - 11956

M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Air Monitoring Requirements

POINT 1,3,5,6,9,10,12

Pollutant	Units of measure	Frequency	Sampling Method
Dry gas density	kilograms per cubic metre	Yearly	TM-23
Moisture content	percent	Yearly	TM-22
Molecular weight of stack gases	grams per gram mole	Yearly	TM-23
Solid Particles	milligrams per cubic metre	Yearly	TM-15
Temperature	degrees Celsius	Yearly	TM-2
Velocity	metres per second	Yearly	TM-2
Volumetric flowrate	cubic metres per second	Yearly	TM-2

POINT 14,15

Pollutant	Units of measure	Frequency	Sampling Method
Cadmium	milligrams per cubic metre	Yearly	TM-12, TM-13 & TM-14
Carbon dioxide	percent	Yearly	TM-24
Dry gas density	kilograms per cubic metre	Yearly	TM-23
Hazardous substances	milligrams per cubic metre	Yearly	TM-12, TM-13 & TM-14
Hydrogen fluoride	milligrams per cubic metre	Yearly	TM-9
Mercury	milligrams per cubic metre	Yearly	TM-12, TM-13 & TM-14
Moisture	percent	Yearly	TM-22
Molecular weight of stack gases	grams per gram mole	Yearly	TM-23
Nitrogen Oxides	milligrams per cubic metre	Yearly	TM-11
Oxygen (O2)	percent	Yearly	TM-25
Solid Particles	milligrams per cubic metre	Yearly	TM-15
Sulfuric acid mist and sulfur trioxide (as SO3)	milligrams per cubic metre	Yearly	TM-3
Velocity	metres per second	Yearly	TM-2
Volumetric flowrate	cubic metres per second	Yearly	TM-2

POINT 18,19

Pollutant	Units of measure	Frequency	Sampling Method
Dry gas density	kilograms per cubic metre	Yearly	TM-23

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Moisture content	percent	Yearly	TM-22
Molecular weight of stack gases	grams per gram mole	Yearly	TM-23
Solid Particles	milligrams per cubic metre	Yearly	TM-15
Temperature	degrees Celsius	Yearly	TM-2
Velocity	metres per second	Yearly	TM-2
Volumetric flowrate	cubic metres per second	Yearly	TM-2

POINT 22

Pollutant	Units of measure	Frequency	Sampling Method
PM10	micrograms per cubic metre	Every 6 days	AM-18

POINT 23

Pollutant	Units of measure	Frequency	Sampling Method
Hydrogen fluoride	micrograms per cubic metre	Special Frequency 1	Australian Standard 3580.13.2-1991

M2.3 For the purposes of the table above Special Frequency 1 means: one unit at each location will operate continuously to provide 7 day concentration averages. The second unit at each location will operate continuously for 24 hours on a six day cycle.

M3 Testing methods - concentration limits

M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:
a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or
b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or
c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

Note: The *Protection of the Environment Operations (Clean Air) Regulation 2010* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

M4 Environmental monitoring

M4.1 The licensee must monitor the impact of fluoride on vegetation as follows:

a) Annual and quarterly visual assessment of vegetation in the area surrounding the premises as outlined in the document titled Proposed Ambient Air Quality Monitoring Programs – National Ceramic Industries Australia, Rutherford dated January 2004.
b) Quarterly monitoring of the fluoride content in vegetation in the area surrounding the premises as outlined in the document titled Proposed Ambient Air Quality Monitoring Programs – National

Ceramic Industries Australia, Rutherford dated January 2004.

The licensee must maintain a list and a map of the monitoring sites used to assess the impact of the premises on the surrounding environment.

Part of each sample analysed must be carefully stored to the satisfaction of the EPA for a period of not less than 12 months and forwarded to the EPA on request.

M5 Weather monitoring

M5.1 For the monitoring point specified below, the licensee must monitor the parameters specified. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency specified.

Point 24

Parameter	Units of measure	Averaging period	Frequency	Sampling Method
Wind speed @10m	m/s	1 hour	Continuously	AM2 & AM-4
Wind direction @ 10m	degrees	1 hour	Continuously	AM-2 & AM-4
Sigma theta @ 10m	degrees	1 hour	Continuously	AM-2 & AM-4
Ambient temperature @ 5m	degrees celcius	1 hour	Continuously	AM-4
Rainfall	mm	daily	Continuously	AM-4
Siting				AM-1 & AM-4
Measurement				AM-2 & AM-4

M6 Recording of pollution complaints

M6.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M6.2 The record must include details of the following:
a) the date and time of the complaint;
b) the method by which the complaint was made;
c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
d) the nature of the complaint;
e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
f) if no action was taken by the licensee, the reasons why no action was taken.

M6.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M6.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M7 Telephone complaints line

M7.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M7.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M7.3 The preceding two conditions do not apply until 3 months after:
a) the date of the issue of this licence or
b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.

6 Reporting Conditions

R1 Annual return documents

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
a) a Statement of Compliance; and
b) a Monitoring and Complaints Summary.
At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

R1.3 Where this licence is transferred from the licensee to a new licensee:
a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

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R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 Where the licensee is unable to complete a part of the Annual Return by the due date because the licensee was unable to calculate the actual load of a pollutant due to circumstances beyond the licensee's control, the licensee must notify the EPA in writing as soon as practicable, and in any event not later than the due date. The notification must specify:
a) the assessable pollutants for which the actual load could not be calculated; and
b) the relevant circumstances that were beyond the control of the licensee.

R1.7 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.8 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
a) the licence holder; or
b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R1.9 A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R2 Notification of environmental harm

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
a) where this licence applies to premises, an event has occurred at the premises; or
b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:
a) the cause, time and duration of the event;
b) the type, volume and concentration of every pollutant discharged as a result of the event;
c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

7 General Conditions

G1 Copy of licence kept at the premises or plant

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

8 Pollution Studies and Reduction Programs

U1 Post Commissioning Air Emission Monitoring

U1.1 Within ninety (90) days of commissioning of each of the kilns, and when the plant is operating under design loads and normal operating conditions the applicant must conduct point source emission testing on each stack as specified in Condition M2.2. A dispersion modelling based air quality impact assessment must also be carried out strictly in accordance with the methodologies set out in “Approved Methods and Guidance for the Modelling and assessment of Air Pollutants in New South Wales”.

A validation report containing the monitoring results and the dispersion modelling must be submitted to the EPA’s Regional Manager, Hunter within twenty-eight days (28) of the testing being completed.

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If the point source emissions recorded or the predicted ground level concentrations of pollutants do not comply with the values specified in the Air Quality Assessment contained within the Environmental Impact Statement, the limits set in this licence and the EPA's Impact Assessment Criteria described in "Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW" an Air Quality Mitigation Study must be completed and submitted within 60 days of the submission of the validation report.

U1.2 The air quality mitigation study must address the following:
a) Using the results obtained in U1.1, a technical review of all practicable mitigation options must be carried out and the potential reduction in air quality impacts associated with each air quality mitigation option must be quantitatively evaluated;
b) The technical review referred to in U1.2 (a) must indicate whether there are air quality mitigation options available which would allow the premises to meet the appropriate impact assessment criteria detailed in U1.1 (taking into account factors such as meteorology, topography or whether the nearest sensitive receptor lies within the affected zone) and the extent of any difficulty in meeting the appropriate impact assessment criteria;
c) A cost/benefit analysis of a range of air quality mitigation options must be carried out; and
d) Using the results of U1.1 and U1.2 (a), (b) and (c), emission concentration limits (point sources only) and management practices (point and diffuse sources) must be identified for the most cost effective air quality mitigation option to ensure the appropriate impact assessment criteria detailed in U1.1 can be met;
e) It must specify a timetable to implement all recommendations of the report.

U1.3 Within ninety (90) days of commissioning of the first kiln, and when the plant is operating under design loads and normal operating conditions the licensee must conduct a noise study to assess compliance with the noise levels predicted in the EIS and specified in Condition L5.1.

The report must be submitted to the EPA's Regional Manager, Hunter within twenty-eight days (28) of the testing being completed.

If the noise levels do not comply with the specified limits the report must identify measures to be implemented and a timetable to achieve compliance.

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Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

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flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environmen t Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder describe d at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 mo nths. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.

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TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non - putrescible), special waste or hazardous waste

Mr Mitchell Bennett

Environment Protection Authority

(By Delegation)

Date of this edition: 01-August-2003

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End Notes

1	Licence varied by notice 1034919, issued on 08-Apr-2004, which came into effect on 14-Apr-2004.
2	Licence varied by notice 1048585, issued on 15-Jul-2005, which came into effect on 09-Aug-2005.
3	Licence varied by notice 1060362, issued on 17-May-2006, which came into effect on 17-May-2006.
4	Licence varied by notice 1083550, issued on 28-Apr-2008, which came into effect on 28-Apr-2008.
5	Licence varied by notice 1091855, issued on 17-Sep-2008, which came into effect on 17-Sep-2008.
6	Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
7	Licence varied by notice 1113611, issued on 21-May-2010, which came into effect on 21-May-2010.
8	Licence varied by notice 1115102, issued on 30-Jun-2010, which came into effect on 30-Jun-2010.
9	Licence varied by notice 1501330 issued on 07-Nov-2011

Appendix C

Obligations, Timing and Responsibilities under the Relinquished Development Consent

Appendix C Obligations, Timing and Responsibilities under the Relinquished Development Consent

Appendix C Summary of Obligations, Timing and Responsibilities Required under the Relinquished Development Consent (DA 449-12-2002-i)

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
Condition 1.6	NCIA shall ensure that all necessary licenses, permits and approvals are obtained and kept up-to-date as required throughout the life of the facility.	Throughout life of the facility	Managing Director
Condition 1.7	NCIA shall ensure that all employees, contractors and subcontractors are aware of, and comply with, the Development Consent Conditions.	Throughout life of the facility	Factory Manager
Condition 1.8	NCIA shall be responsible for the environmental impacts resulting from the actions of all persons on the site, including any visitors.	Throughout life of the facility	Factory Manager
Condition 1.9	Prior to the commencement of operation of the facility, or within such period as otherwise agreed by the Director General, NCIA shall certify in writing, to the satisfaction of the Director General that it has complied with all applicable Development Consent Conditions. Where operation is to be staged, NCIA may, subject to the agreement of the Director General, stage submission of compliance certification consistent with the staging of activities.	Prior to and during construction of Stages Three and Four	Managing Director
Condition 1.10	The Director General may require an update of the compliance with all, or any part of, the Development Consent Conditions.	N/A	Managing Director
Condition 1.11	NCIA shall meet the requirements of the Director General in respect of the implementation of any measure necessary to ensure compliance with the Development Consent Conditions, Development Application, EIS and other material supplied to the Department by Parsons Brinkerhoff (refer Section 4). The director general may direct that such a measure be implemented in response to the information contained within any report, plan, correspondence or other document submitted in accordance with the Development Consent Conditions, within such time as the Director General may agree.	N/A	Managing Director
Condition 1.12	In the event that a dispute arises between NCIA and Council or a public authority other than the Department, in relation to a specification or requirement applicable under the Development Consent Conditions, the matter shall be referred by either party to the Director General, or if not resolved, to the Minister, whose determination of the dispute shall be final and binding on all parties.	N/A	Managing Director

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
Condition 3.1	NCIA shall identify (including, but not limited to the position and level of service) all public utility services on the site, roadway, nature strip, footpath, public reserve, or any public areas that are associated with, and/or adjacent to the site, and/or are likely to be affected by the operation of the facility.	During operation, and prior to the commencement of Stages Three and Four construction	Managing Director (or delegate)
Condition 3.2	NCIA shall consult with the relevant utility provider of the utilities identified in Development Consent Condition 3.1 (above) and make arrangements to adjust and/or relocate their services as required. The cost of any such adjustments and/or relocation services shall be borne by NCIA.	During operation, and prior to the commencement of Stages Three and Four construction	Managing Director (or delegate)
Condition 4.1	NCIA must not cause or permit the emission of offensive odours from the site. 'Offensive odour' has the same meaning as defined under Section 129 of the Protection of the Environment Operations Act 1997.	Throughout life of the facility	Factory Manager
Condition 4.2	NCIA shall construct the facility in a manner that minimises or prevents the emission of dust from the site.	Throughout life of the facility	Factory Manager
Condition 4.3	NCIA shall take all practicable measures to ensure that all vehicles entering or leaving the site and carrying a load that may generate dust are covered at all times, except during loading and unloading. Any such vehicles shall be covered or enclosed in a manner that will prevent emissions of dust from that vehicle at all times.	Throughout life of the facility	Factory Manager
Condition 4.4	All trafficable areas and vehicle manoeuvring areas on the site shall be maintained in a condition that will minimise the generation or emission of wind-blown or traffic generated dust from the site at all times.	Throughout life of the facility	Factory Manager
Condition 4.5	NCIA shall design, construct, operate and maintain the ceramic tile manufacturing facility to ensure that emissions of pollutants to air only occur from the discharge points listed in Table 1 of this condition, and that for each discharge point, the concentration of each pollutant listed does not exceed the maximum allowable discharge concentration limit for that pollutant at the discharge point.	Throughout life of the facility	Factory Manager
Condition 4.6	For each assessable pollutant listed in Table 2 of this condition, the total load discharged from the site during the reporting period must not exceed the load limit specified for that pollutant in the table. The total load of the assessable	Throughout life of the facility	Managing Director

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
	pollutant must be calculated in accordance with the relevant load calculation protocol, as defined by EPA guidelines.		
Condition 4.7	NCIA must design air discharge points in accordance with Table 3 of this condition. All stacks are to be designed, constructed, operated and maintained in accordance with good engineering practice in order to minimize the effects of stack tip downwash and building wake effects on ground-level air pollutant concentrations.	Throughout life of the facility	Factory Manager
Condition 4.8	To ensure undesirable building wake effects do not impede the predicted dispersion of air pollution from the ceramic tile manufacturing facility, the following requirements shall be met: • no building or structure constructed at the site shall exceed the dimensions (height, width and length) specified in the EIS; • buildings and structures may only be located strictly in accordance with the layout specified in the EIA; and • only buildings and structures identified in the EIS or this consent shall be constructed.	Throughout life of the facility	Managing Director
Condition 4.9	NCIA shall design, construct, operate and maintain the ceramic tile manufacturing facility in a manner that will enable: • the kiln stacks (discharge points 14, 15, 16 and 17) to be increased in height and/or have devices attached to increase discharge velocity; and\or • retro-fitting of additional pollution control devices.	Throughout life of the facility	Factory Manager
Condition 4.11	In the event that NCIA is unable to obtain data from a meteorological station that is representative of the conditions of the site, NCIA shall establish its own meteorological station in the vicinity of the site, to meet the requirements of the EPA.	Throughout life of the facility	Managing Director
Condition 4.13	Operation activities associated with the ceramic tile manufacturing facility may be carried out 24 hours a day 7 days a week.	Throughout life of the facility	N/A
Condition 4.14	NCIA shall operate and maintain the ceramic tile manufacturing facility to ensure that for the most affected residential receiver, the noise level at that receptor does not exceed the maximum allowable noise contribution limit specified in Table 4 of this condition.	Throughout life of the facility	Factory Manager

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
Condition 4.15	For the purpose of assessment of noise contributions specified under condition 4.14, noise from the ceramic tile manufacturing facility shall be: • measured at the most affected point on or within the receptor site boundary; and • where applicable, subject to the modification factors provided in Section 4 of the New South Wales Industrial Noise Policy (EPA, 2000).	Throughout life of the facility	Managing Director
Condition 4.16	Notwithstanding condition 4.15, should direct measurement of noise from the site be impractical, NCIA may employ an alternative noise assessment method deemed acceptable by the OEH. Details of such an alternative noise assessment method accepted by the OEH shall be submitted to the Director General prior to the implementation of the assessment method	Throughout life of the facility	Factory Manager
Condition 4.17	To protect against sleep disturbance, noise from the site shall not exceed the $L_{A1(1\ minute)}$ noise level of 45 dB(A) at the nearest residential receiver most affected by noise from the operation of the ceramic tile manufacturing facility. The noise limit shall be measured at 1 metre from the dwelling façade and shall apply during the night period only.	Throughout life of the facility	Factory Manager
Condition 4.18	The maximum allowable noise contributions identified in conditions 4.14 and 4.17 ally under all meteorological conditions measured at 10 meters above ground level, except: • during rain and wind speeds greater than 3 ms^{-1}; or • from 6:00pm to 7:00am during intense temperature inversions, which are indicated by cloud cover of less than 40% and wind speeds of less than 1 ms^{-1}.	Throughout life of the facility	Factory Manager
Condition 4.19	Except as may be expressly provided by a licence under the Protection of the Environment Operations Act 1997 in relation to the ceramic tile manufacturing facility, section 120 of that Act (pollution of waters) shall be complied with, in, and in connection with, the carrying out of the ceramic tile manufacturing facility.	Throughout life of the facility	Factory Manager
Condition 4.23	The construction and operation of the ceramic tile manufacturing facility shall not concentrate or lead to an increase in the rate of flow of stormwater discharged from the site over and above the pre-development flow conditions.	Throughout life of the facility	Factory Manager

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
Condition 4.24	NCIA shall design, construct, operate and maintain all stormwater infrastructures to direct all stormwater runoff to the site's stormwater detention basins. Such stormwater infrastructure shall be capable of handling all stormwater discharges up to an including a 1 in 100 year ARI storm event.	Throughout life of the facility	Factory Manager
Condition 4.25	Where stormwater discharge from the site is proposed in any location other than existing drainage lines, NCIA shall create or have created any easements over the downstream connection point(s) such that the stormwater can legally be drained onto privately-owned adjoining property.	Throughout life of the facility	Managing Director
Condition 4.26	NCIA shall make provisions for at least 42 car parking spaces and 2 additional disabled car parking spaces on-site. The car park design shall comply with AS2890.1 (1993) Off Street Parking.	Throughout life of the facility	Managing Director
Condition 4.27	Disabled, visitor and service vehicle parking spaces and loading bays shall be clearly marked on the pavement, signposted and designated in accordance with the relevant Australian Standards.	Throughout life of the facility	Managing Director
Condition 4.29	All parking and loading/unloading bays, truck docks, driveways and turning areas shall be kept clear of obstructions and shall not be used for the storage of goods, raw materials or waste material.	Throughout life of the facility	Factory Manager
Condition 4.30	All loading and unloading of material associated with the ceramic tile manufacturing facility shall be carried out wholly within the site.	Throughout life of the facility	Factory Manager
Condition 4.31	Vehicles associated with the ceramic tile manufacturing facility may not stand or park on any public road or footpath adjacent to the site at any time.	Throughout life of the facility	Factory Manager
Condition 4.38	Heavy vehicles entering the site shall not queue on Racecourse Road at any time.	Throughout life of the facility	Factory Manager
Condition 4.43	Landscaping at the site, including advertising signs, shall not affect driver sight distances for vehicles entering and exiting the site.	Throughout life of the facility	Managing Director
Condition 4.46	A designated area for the storage and collection of waste and recyclable materials shall be provided at the site and shall be designed, constructed, operated and maintained in a manner so as not to cause a nuisance to adjoining properties.	Throughout life of the facility	Managing Director

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
Condition 4.47	NCIA shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing or disposal, or any waste generated at the site to be disposed of at the site, except as expressly permitted by a license under the *Protection of the Environment Operations Act 1997.*	Throughout life of the facility	Factory Manager
Condition 4.48	All wastes generated on site during construction and operation of the ceramic tile manufacturing facility shall be classified in accordance with the EPA's publication Environmental Guidelines: Assessment, Classification and Management of Liquid & Non-liquid Wastes and disposed of to a facility that may lawfully accept the waste.	Throughout life of the facility	Factory Manager
Condition 4.49	• NCIA shall store and handle all dangerous goods (as defined by the Dangerous Goods Code) and combustible liquids strictly in accordance with all relevant Australian Standards; • a minimum bund volume requirement of 110% of the volume of largest single stored volume within the bund; and • the EPA's Environment Protection Manual Technical Bulletin Bunding and Spill Management. In the event of inconsistency between the above requirements, the most stringent requirement shall prevail to the extent of the inconsistency.	Throughout life of the facility	Factory Manager
Condition 4.52	Landscaping works at the site shall incorporate species that are endemic to the area.	Throughout life of the facility	Managing Director
Condition 4.53	Landscaped areas at the site shall be kept clear of parked vehicles, stored goods, garbage and waste material.	Throughout life of the facility	Managing Director
Condition 4.54	NCIA shall minimise the removal of trees and other vegetation from the site, and restrict any clearance to the areas occupied by buildings and paved surfaces, and those areas necessary for fire control, and shall be done in accordance with Council requirements.	Throughout life of the facility	Managing Director
Condition 4.55	Appropriate weed management for the site, especially landscaped areas, shall be undertaken for the life of the ceramic tile manufacturing facility. Details of the weed management for the site shall be included as part of the Landscape Management Plan (refer to **Section 11.0**).	Throughout life of the facility	Managing Director

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
Condition 4.56	NCIA shall ensure that all external lighting associated with the ceramic tile manufacturing facility is mounted, screened, and directed in such a manner so as not to create a nuisance to surrounding properties or roadways. The lighting shall be the minimum level of illumination necessary and shall comply with AS 4282(INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting.	Throughout life of the facility	Factory Manager
Condition 5.1	The results of all monitoring required under the Development Consent Conditions shall be: • in a legible form, or in a form that can be readily reduced to a legible form; • kept for at least four years after monitoring or event to which results relate took place; • produced in a legible form to any authorised officer of the EPA or the Director General, upon request; and • kept with the following details for each sample required to be collected: • the date(s) on which the sample was collected; • the time(s) at which the sample was collected; • the point at which the sample was collected; and • the name of the person who collected the sample.	Throughout life of the facility	Managing Director
Condition 5.2	NCIA shall undertake ambient air monitoring for the nearest sensitive receptors or specialized land use, to be determined in consultation with the OEH, and employing the sampling and analysis method specified in Table 5 of this condition.	Throughout life of the facility	Managing Director
Condition 5.3	During operation of each stage of the ceramic tile manufacturing facility (Stages 1 to 4), NCIA shall determine the concentration of each pollutant specified in Table 6 of this condition, at the discharge points identified and employing the sampling and analysis method specified. All emission parameters for each discharge point shall be determined concurrently, at the frequency indicated in the table, and using the units of measure specified.	Throughout life of the facility	Managing Director
Condition 5.4	NCIA shall determine the sampling position for each discharge point identified in condition 5.3 in accordance with the EPA's test method TM-1.	Prior to commencement of operation of each Stage.	Managing Director

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
Condition 5.5	NCIA may seek the approval from the Director General to alter the frequency of any pollutant concentration or emission parameter determined required under condition 5.3 of this consent. Any request for approval shall only be made provided: • concentration/parameter determination has been undertaken for a period of no less than 12 months (measured from the commencement of operation of Stage 4 of the ceramic tile manufacturing facility); • there has been no exceedance of any limit placed on the subject concentration/parameter by this consent within the 12-month period; • there has been no reasonable complaint received from the public in relation to the subject concentration/parameter within the proceeding 12-month period (refer to condition 6.3); and • the request is accompanied by written agreement of OEH with the proposed alteration to the frequency of parameter determination.	No earlier than 12 months (measured from the commencement of operation of Stage 4 of the ceramic tile manufacturing facility)	Managing Director
Condition 5.6	Within 90 days of commencement of operation of each stage of the ceramic tile manufacturing facility (stages 1 to 4), and during a period in which the facility is operating under design loads and normal operating conditions, NCIA shall undertake a program for point source emission testing on each stack as described under condition 5.3 of this consent and undertake dispersion modelling of all air pollutants identified in condition 5.2 to confirm the air emission performance of the facility. The program shall meet the requirements of the EPA. For Stages 2, 3 and 4 of the ceramic tile manufacturing facility, NCIA shall confirm the results of the predictive air quality assessment undertaken to satisfy condition 1.4 of this consent, and evaluate the effectiveness of any additional mitigation measures applied to satisfy that condition. A report providing the results of the program and dispersion modelling shall be submitted to the Director General and the EPA within 28 days of completion of the testing required.	Within 28 days of performance testing associated with Stage 1, 2, 3 and 4 commencement of operation.	Managing Director
Condition 5.7	In the event that a program undertaken to satisfy condition 5.3 of the consent indicates that the operation of any stage of the ceramic tile manufacturing facility, under normal operating conditions, does not comply with the limits or performance measures specified in the EIS, condition 4.5 of this consent, and the EPA's Impact Assessment Criteria described in Approved Methods and Guidance	Refer to condition 5.3, and timing requirements in condition 5.7	Managing Director

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
	for the Modelling and Assessment of Air Pollutants in NSW, then NCIA shall undertake an Air Quality Mitigation Study to provide details of remedial measures that NCIA will implement to reduce air quality impacts to the levels required. The Air Quality Mitigation Study shall include, but not necessarily be limited to the following: • a technical review of all practicable mitigation options shall be carried out and the potential reduction in air quality impacts associated with each mitigation option quantitatively evaluated; • identification of the mitigation options(s), as determined in part a), that will enable the ceramic tile manufacturing facility to meet the air quality limits specified in the consent and the extent of any difficulty in meeting these limits; • a cost/benefit analysis of a range of mitigation options shall be carried out; and • using the results of condition 5.3 and this condition, emission concentration limits (point sources only) and management practices (point and diffuse sources) shall be specified for the most cost effective mitigation option that will ensure compliance with the conditions of this consent. Results of the Air Quality Mitigation Study and a timetable for implementation of the recommendations from the Study shall be submitted to the Director General for approval within 60 days of completion of the Study, or as otherwise agreed with the Director General, and be accompanied by evidence that the EPA is satisfied that the remedial measures are acceptable.		
Condition 5.8	Prior to the commencement of operation, NCIA shall prepare and implement a Fluoride Monitoring Program to monitor and assess the impacts of the emission and deposition of fluoride (particulate and gaseous) on the surrounding environment, particularly vegetation. The Program shall meet the requirements of OEH, should there be any. The Program shall include, but not necessarily be limited to: • locations at which monitoring of vegetation will be undertaken, including a map showing their locations in relation to the ceramic tile manufacturing facility; • monitoring of the fluoride levels in the following vegetation:	Throughout life of the facility	Managing Director

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
	- native vegetation (understorey and overstorey) within 3 kilometres of the site; - cultivated vegetation within 10 kilometres of the site. The applicant shall also undertake a visual assessment of foliar damage during the growing season at vineyards located within 10 kilometres of the site; - pasture grasses and forage crops from commercial grazing properties within 3 kilometres of the site. • procedures for monitoring and inspection of vegetation for indicators of a sub-lethal dose of fluoride or significant damage to vegetation (refer to condition 8.1); • details of at least one background survey of vegetation health that has been undertaken prior to commencement of operation of the ceramic tile manufacturing facility. The methodology for the background survey shall be approved by the EPA prior to undertaking the survey; and • a periodic schedule for the inspection of vegetation at the monitoring locations, at a frequency of at least every three months. The Fluoride Monitoring Program shall be submitted for the approval of the Director General prior to the commencement of operation of Stage 1 of the ceramic tile manufacturing, and shall be accompanied by written evidence of OEH's satisfaction with the Program.		
Condition 5.9	In the event that NCIA is unable to obtain data from a meteorological station that is representative of the conditions at the site, NCIA shall prepare and implement a Meteorological Monitoring Program to monitor meteorological conditions in the vicinity of the site. The Program shall meet the sampling requirements listed in Table 7 of this condition.	Throughout life of the facility	Managing Director
Condition 5.10	Within 90 days of commissioning of each stage of the ceramic tile manufacturing facility (stages 1 to 4), and during a period in which the facility is operating under design loads and normal operating conditions, NCIA shall undertake a program to confirm the noise emission performance of the facility. The program shall meet the requirements of OEH, and shall include, but not necessarily be limited to: • noise monitoring, consistent with the guidelines provided in the New South Wales Industry Noise Policy (EPA, 2000), to assess compliance with condition 4.14 of this consent;	Within 90 days of commissioning of each stage of the ceramic tile manufacturing facility (stages 1 to 4) (confirm noise emission	Managing Director

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
	• a comparison of the results of the noise monitoring required under part a) above, and the predicted noise impacts detailed in the documents listed under condition 1.2 b) to e) inclusive; and • details of any entries in the Complaints Register relating to noise impacts. A report providing the results of the program shall be submitted to the Director General and OEH within 28 days of completion of the testing required under a)	performance); and 28 days of completion of the testing required (reporting to Director General)	
Condition 5.11	In the event that a program undertaken to satisfy condition 5.10 of the consent indicates that the operation of any stage of the ceramic tile manufacturing facility, under normal operating conditions, will lead to greater noise impacts than permitted under conditions 4.14 and 4.17 of this consent, then NCIA shall provide details of remedial measures to be implemented to reduce noise impacts to levels required by that condition. Details of the remedial measures and a timetable for implementation shall be submitted to the Director General for approval within such period as the Director General may require, and be accompanied by evidence that OEH is satisfied that the remedial measures are acceptable.	At discretion of the Director General	Managing Director
Condition 5.12	Within three years of the commencement of Stage 1 of the operation of the ceramic tile manufacturing facility, and every three years thereafter or as required by the Director General, NCIA shall commission an independent person or team to undertake an Environmental Audit of the ceramic tile manufacturing facility. The independent person or team shall be approved by the Director General, prior to the commencement of the Audit. An Environmental Audit Report shall be submitted for comment to the Director General, the EPA and Council, within one month of the completion of the audit. The audit shall: • be carried out in accordance with ISO 14010 – Guidelines and General Principles for Environmental Auditing and ISO 14011 – Procedures for Environmental Auditing; • assess compliance with the requirements of this consent, and other licences and approvals that apply to the ceramic tile manufacturing facility; • assess the ceramic tile manufacturing facility against the predictions made and conclusions drawn in the EIS; and	Within three years of the commencement of Stage 1 of the operation of the ceramic tile manufacturing facility, and every three years thereafter or as required by the Director General (Audit); submission of Audit Report required within 1 month of completion of the Audit.	Managing Director

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
	• review the effectiveness of the environmental management of the ceramic tile manufacturing facility, including any environmental impact mitigation works. The Director General may, having considered any submission made by the EPA and/or Council in response to the Environmental Audit Report, require NCIA to undertake works to address the findings or recommendations presented in the Report. Any such works shall be completed within such time as the Director General may agree.		
Condition 6.1	Subject to confidentiality, NCIA shall make all documents required under the Development Consent Conditions available for public inspection upon request. This shall include provision of all documents at the site for inspection by visitors, and in an appropriate electronic format on NCIA's internet site, should one exist.	Throughout life of the facility	Managing Director
Condition 6.2	Prior to the commencement of construction of Stage 1 of the facility, NCIA shall ensure that the following are available for community complaints: • a telephone number on which complaints about operations on the site may be registered; • a postal address to which written complaints may be sent; and • an email address to which electronic complaints may be transmitted, should NCIA have email capabilities. The telephone number, postal address and email address shall be displayed on a sign near the entrance to the site, in a position that is clearly visible to the public. These details shall also be provided on NCIA's internet site, should one exist.	Prior to the commencement of construction of Stage 1 of the facility	Managing Director
Condition 6.3	NCIA shall record details of all complaints received through the means listed under Development Consent Condition No. 6.2 (above) in an up-to-date Complaints Register. The Register shall record, but not necessarily be limited to: • the date and time, where relevant, of the complaint: • the means by which the complaint was made (telephone, mail or email); • any personal details of the complainant that were provided, or if no details were provided, a note to that effect; • the nature of the complaint; • any action(s) taken by NCIA in relation to the complaint, including any follow-up contact with the complainant; and	Throughout life of the facility	Managing Director

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
	• if no action was taken by NCIA in relation to the complaint, the reason(s) why no action was undertaken. The Complaints Register shall be made available for inspection by OEH or the Director General upon request.		
Condition 7.3	NCIA shall prepare and implement an Operation Environmental Management Plan (OEMP) to detail an environmental management framework, practices and procedures to be followed during the operation of the ceramic tile manufacturing facility. The plan shall include, but not be limited to: • identification of all statutory and other obligations that NCIA is required to fulfil in relation operation of the ceramic tile manufacturing facility, including all consents, licences, approvals and consultations; • a description of the roles and responsibilities for all relevant employees involved in the operation of the ceramic tile manufacturing facility; • overall environmental policies and principles to be applied to the operation of the ceramic tile manufacturing facility; • standards and performance measures to be applied to the ceramic tile manufacturing facility, and a means by which environmental performance can be periodically reviewed and improved; • management policies to ensure that environmental performance goals are met and to comply with the conditions of this consent; • the Management Plans listed under condition 7.4 on this consent; and • the environmental monitoring requirements outlined under conditions 5.1 to 5.11 of this consent, inclusive. The OEMP shall be submitted for the approval of the Director General no later than one month prior to the commencement of operation of Stage 1 of the ceramic tile manufacturing facility, or within such period otherwise agreed by the Director General. Operation shall not commence until written approval has been received from the Director General. Upon receipt of the Director General's approval, NCIA shall supply a copy of the OEMP to OEH and Council as soon as practicable.	OEMP to be submitted to the Director General no later than one month prior to the commencement of operation of Stage 1	Managing Director

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
Condition 7.4	As part of the OEMP for the ceramic tile manufacturing facility, required under condition 7.3 of this consent, NCIA shall prepare and implement the following Management Plans: • An Air Quality Management Plan to outline measures to minimize and manage any impacts from the operation of the ceramic tile manufacturing facility on local air quality. The Plan shall address the requirements of the EPA (now OEH), should there be any. The Plan shall include, but not necessarily be limited to: - identification of all major sources of particulate and gaseous air pollutants that may be emitted as a result of the operation of the ceramic tile manufacturing facility, including identification of the major components and quantities of these emissions; - monitoring of particulate and gaseous emissions from the ceramic tile manufacturing facility, in accordance with any requirements of the EPA (now OEH); - procedures for the minimization of particulate and gaseous emissions from the ceramic tile manufacturing facility, and the reduction of these emissions over time, where appropriate; - protocols for regular maintenance of process equipment to minimize the potential for dust emissions; - description of procedures to be undertaken in any non-compliance is detected; and - mechanisms to consider and address cumulative air quality impacts in the context of development in the Rutherford industrial area. • A Water Management Plan to outline measures to control and manage surface water (including erosion and sedimentation), stormwater and process water associated with the operation of the ceramic tile manufacturing facility. The Plan shall be consistent with that outlined in the EIS and shall address the requirements of OEH and Council, should there be any. The Plan shall include, but not necessarily be limited to: *surface water, erosion and sedimentation management* - measures to be implemented to minimize the potential for erosion from the site during the operation of the ceramic tile manufacturing facility	Refer to requirements of condition 7.3	Managing Director

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
	and measures to maintain all erosion mitigation works at, or above design capacity; - demonstration that erosion and sedimentation control measures will conform with, or exceed, the relevant requirements and guidelines provided in DLWC's publication Pollution Control Manual for Urban Stormwater, and the Department of Housing's publication Soil and Water Management for Urban Development; and - measures to rehabilitate erosion-affected areas and areas of the subject of excavation, including tree, shrub and/or cover crop species and implementation. *Stormwater management* - details of the stormwater infrastructure to be installed; - demonstration that the stormwater control infrastructure will conform with, or exceed all relevant requirements and guidelines contained within the stormwater management plan for the catchment, should one exist, or with the EPA's publication Managing Urban Stormwater: Council Handbook should a stormwater management plan for the catchment not exist; - description of the procedures for planting and maintaining vegetation along stormwater channels and detention systems, to minimize the potential for erosion; and - description of the procedures for the installation and maintenance of the stormwater control infrastructure, including stormwater pollution control devices. *Process water management* - details of how site water consumption will be minimized through water reuse and recycling; - details of all process water treatment systems for the ceramic tile manufacturing facility, including discharge points, procedures for maintenance of the systems and water quality monitoring regimes, where relevant; and - a program to monitor consumption of water at the site.		

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
	- an Alternative Water Supply Strategy with an aim to investigate and pursue options for the use of alternative sources of water, such as treated effluent from sewerage treatment plants, as an alternative to the use of potable water to supply the facility. • A Transport Code of Conduct to outline management of traffic conflicts associated with the operation of the ceramic tile manufacturing facility. The Code shall meet the requirements of Council and the RTA, should there be any. The Code shall include, but not necessarily be limited to: - details of any restriction to traffic routes; - minimum requirements for vehicular maintenance to address noise and exhaust emissions; - speed limits to be observed along routes to and from the sites and within the site; and - behaviour requirements for vehicle drivers to and from the site and within the site. - an Emergency Plan for the ceramic tile manufacturing facility. The Plan shall be prepared in accordance with the Department's publication Hazardous Industry Planning Advisory Paper No. 1 – Industry Emergency Planning Guidelines. • A Safety Management System, covering all operations at the ceramic tile manufacturing facility and associated transport activities involving any hazardous materials. The System shall clearly specify all safety-related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to safety procedures. The System shall be developed in accordance with the Department's publication Hazardous Industry Planning Advisory Paper No. 9 – Safety Management. • A Landscape Management Plan to outline measures to ensure appropriate development and maintenance of landscaping on the site. The Plan shall meet the requirements of Council, should there be any. The Plan shall include, but not necessarily be limited to: - details of all landscaping to be undertaken on the site; - details of existing and proposed utilities, as they relate to the development;		

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
	- maximization of flora species endemic to the locality in landscaping the site; - details of the par parking area and measures to prevent vehicle encroachment onto landscaped areas; and - a program to ensure that all landscaped areas on the site are maintained in tidy, healthy state.		
Condition 7.5	Within three years of the commencement of operation, and at least every three years thereafter, NCIA shall undertake a formal review of the Operation Environmental Management Plan (OEMP) required under condition 7.3 of this consent. The review shall ensure that the OEMP is up-to-date and all changes to procedures and practices since the previous review have been fully incorporated into the OEMP. NCIA shall notify the Director General, Council and OEH of the completion of each review, and shall supply a copy of the updated OEMP to those parties on request. NCIA shall also make any revised OEMP available for public inspection on request.	Within three years of the commencement of operation, and at least every three years thereafter	Managing Director
Condition 8.1	NCIA shall notify OEH and the Director General of any incident with actual or potential significant off-site impacts on people or the biophysical environment as soon as practicable after the occurrence of the incident. NCIA shall provide written details of the incident to OEH and the Director General within seven days of the date on which the incident occurred. Such an incident includes, but is not limited to, significant damage to vegetation that is identified through the means listed under condition 6.2 or through the monitoring required under condition 5.8 of this consent	As soon as practicable after the occurrence of the incident.	Managing Director
Condition 8.2	NCIA shall meet the requirements of the Director General to address the cause or impact of any incident, as it relates to this consent, reported in accordance with condition 8.1, within such period as the Director General may agree.	Within such period as the Director General may agree.	Managing Director
Condition 8.3	NCIA shall submit an Annual Return to OEH in relation to the ceramic tile manufacturing facility, as defined and required by any licence issued under the Protection of the Environment Operations Act 1997. NCIA shall: • report on the annual monitoring undertaken (where the activity has resulted in pollutant discharges);	Per Licence requirements	Managing Director

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
	• provide a summary of complaints relating to the ceramic tile manufacturing facility; • report on compliance with licence conditions; and • provide a calculation of licence fees (administration fees and, where relevant, load-based fees) that are payable. If load-based fees apply, NCIA shall be required to submit load-based fee calculation worksheets within the Return.		
Condition 8.4	NCIA shall, throughout the life of the ceramic tile manufacturing facility, prepare and submit for the approval of the Director General, an Annual Environmental Management Report (AEMR). The AEMR shall review the performance of the ceramic tile manufacturing facility against the Operation Environmental Management Plan, the conditions of this consent and other licences and approvals relating to the ceramic tile manufacturing facility. The AEMR shall include, but not necessarily be limited to: • details of compliance with the conditions of this consent; • a copy of the Complaints Register for the preceding twelve month period (exclusive of personal details), and details of how these complaints were addressed and resolved; • a comparison of the environmental impacts and performance of the ceramic tile manufacturing facility against the environmental impacts and performance predicted in the EIS and the additional information listed under condition 1.2; • results of all environmental monitoring required under this consent and other approvals, including interpretations and discussion by a suitably qualified person; • a list of occasions in the preceding twelve-month period when environmental performance goals for the ceramic tile manufacturing facility have not been achieved, indicating the reason for failure to meet the goals and the action taken to prevent recurrence of that type of incident; • identification of trends in monitoring data over the life of the ceramic tile manufacturing facility to date;	Annually throughout life of the facility	Managing Director

Relinquished Development Consent Condition	Facility Operation Requirement	Timing	Responsibility
	• a list of variations obtained to approvals applicable to the ceramic tile manufacturing facility and to the site during the preceding twelve-month period; and • environmental management targets and strategies for the following twelve-month period, taking into account identified trends in monitoring results.		
Condition 8.5	NCIA shall submit a copy of the AEMR to the Director General, the EPA and Council every year, with the first AEMR to be submitted within twelve months of commencement of operation of the ceramic tile manufacturing facility; and the second and subsequent AEMRs to be submitted concurrently with the EPA's Annual Return.	Annually	Managing Director
Condition 8.6	The Director General may require NCIA to address certain matters in relation to the environmental performance of the ceramic tile manufacturing facility, in response to review of the Annual Environmental Report and any comments received from the EPA and/or Council. Any action required to be undertaken shall be completed within such period as the Director General may agree.	As required by Director General	Managing Director

Appendix D

Task Instructions

Appendix D Task Instructions

CONTENTS

1.0 Task Instruction 1: Record of Induction and Training

1.1 Instructions

All staff undergo an induction prior to commencement of work at NCIA. This includes:

- Employee Details Form;
- ATO Form;
- Timesheet Template;
- NCIA Emergency Plan;
- NCIA Emergency procedures;
- NCIA Pollution Incident Response Management Plan;
- Register of Injuries Form;
- Introduction to Supervisor;
- Task Description and Training; and
- Environmental induction.

Induction attendance is recorded.

Following a new staff member's induction they undergo a 1 week (four shift competency) probation period. Following this assessment period, successful staff continue their training as a 'hands on' ongoing exercise that is incorporated into the daily work responsibilities of all staff.

Following three months of employment successful staff are then assessed to be competent to continue in their role.

These periodic assessments are recognition that the staff member has attained sufficient knowledge during the preceding period.

1.2 Environmental Induction of Personnel

1.2.1 General

Environmental management can only be effectively implemented with appropriate induction of key individuals undertaking works. Induction of personnel is aimed at ensuring that the OEMP is correctly implemented, as well as focusing on individual responsibilities for management and protection of the environment.

1.2.2 Management of Induction Training

The Managing Director is required to ensure induction is conducted for all personnel who have a role in implementation of this OEMP. These personnel undergo environmental induction prior to undertaking duties assigned to them.

Throughout the facility, any new personnel with responsibility for implementation of elements of the OEMP are required to undergo the environmental induction process.

Environmental induction focuses on familiarisation with the content of the OEMP, as well as the key environmental issues, environmental aspects, potential risks and management measures which are to be implemented to ensure that potential risks are minimised.

A controlled copy of the OEMP is to be available for reference by all personnel undertaking works associated with the operation of the facility.

Any changes to the OEMP are to be communicated to relevant personnel as soon as amendments have been formally included in the OEMP.

1.2.3 Content of Induction Training

Each team member is to have access to a controlled copy of the OEMP.

Introduction:

- provide a general overview of the ceramic tile manufacturing facility (*Refer Section 2 and Figure 1*);

- describe the purpose of the OEMP (*Section 1.1*); and
- describe the general structure of the OEMP (*Section 1.2*).

Responsibilities:

- discuss the key roles and responsibilities of each of the NCIA management team (*Section 3.1*);
- discuss the key responsibilities of the personnel (*Table 1*); and
- outline organisational structure (*Figure 3*).

Obligations and Approvals:

- outline the obligations relating to facility operation (*Section 4.4 and Table 4*); and
- outline the additional licences, permits and approvals required, the requirements of these approvals and responsibility for obtaining them (*Section 4.4 and Table 4*).

Environmental Issues and Outcomes:

- summarise the key environmental aspects and issues; and
- discuss environmental objectives and outcomes.

Implementation Guidelines:

- it is important that NCIA oversees the process of implementation of the OEMP and the environmental performance of its personnel and contractors.

Outline process for monitoring personnel and contractor performance:

- daily site meetings;
- weekly factory meetings;
- monthly monitoring data; and
- environmental audits.

Outline process for reporting:

- environmental performance (monitoring and auditing);
- incidents reports at daily site meeting; and
- incidents to Authorities.

Outline requirements for maintaining records and documentation:

- explain that the OEMP is a controlled document managed by the Managing Director; and
- explain the importance of maintaining records.

Outline process for incident management:

- explain the importance of reporting incidents internally;
- explain the importance of documenting incidents accurately; and
- explain the importance of implementing remedial actions to minimise the potential for the situation to occur again.

Task Instructions and Standard Forms:

- outline what is addressed in the task instructions and standard forms and that they are triggered through the main body of the OEMP.

2.0 Task Instruction 2: Control of Non-conformance/Incidents/Complaints

2.1 General

Appropriate management of incidents and non-conformance is required to ensure that consequent impacts are mitigated and that appropriate corrective and preventative actions are implemented where required.

Non-conformance is any instance where the requirements of the OEMP or other legislative or regulatory requirements are not achieved. Non-conformances may be identified through specific incidents, site inspections, and observations by external organisations (e.g. EPA) or individuals. All instances of non-conformance, observed by internal or external parties, are to be reported to the Factory Manager.

Where the non-conformance or incident is, or is likely to, result in immediate environmental harm, actions are to be undertaken immediately to rectify the situation.

2.2 Internal Incident Reporting

Any team member involved in, or observing a significant incident (environmental or otherwise) is to verbally report the observation or incident to their area's supervisor (Tilewrite). The incident or observation is subsequently formally reported at the Daily Site Meeting where it is entered into the Microsoft Access Register of Incidents and actioned accordingly.

It is the responsibility of all staff to report incidents, near misses, non-compliances and potential non-compliances. Any injuries need to be recorded on Standard Form 1.

Incidents recorded from notification at the Daily Site Meetings, which are recorded in the Microsoft Access Register of Incidents are assigned a person responsible. Each recorded incident is tracked through till resolution in the weekly factory management meetings

The Factory Manager is to review all available information on the Incident. In reviewing the incident, documents are to be reviewed to determine whether changes are required. The need for additional management controls is also to be identified and recommended to the Managing Director.

Where the incident has caused the potential for, or resulted in, actual environmental impact every effort is to be made to prevent or mitigate any environmental damage. The requirements of the Director General of the NSW Department of Planning and Environment to address the cause or impact of any incident, as it relates to the Project Approval, shall be met within such period as the Director General may agree.

All incidents are recorded in the Microsoft Access Incident Register and all outstanding incidents are reviewed at the weekly factory management meetings.

2.3 Reporting to Authorities

The EPA (NSW Office of Environment and Heritage) and the Director General shall be notified of any incident with actual or potential significant off-site impacts on people or the biophysical environment immediately after becoming aware of the incident. Written details of the incident shall be provided to the EPA and the Director General within seven days of the date on which the incident occurred.

All exceedances of the performance criteria set out in the Project Approval are to be notified to the Department of Planning and Environment (DP&E) compliance team upon receipt of verified laboratory analysis.

2.4 Complaints

2.4.1 General

There is the potential for impacts on the environment that may give rise to complaints. It is important that any complaints received are handled and addressed in an appropriate manner.

The Managing Director ensures that the following are available for community complaints:

- a telephone number on which complaints about operations on the site may be registered (02 4931 8400);
- a postal address to which written complaints may be sent; and
- an email address to which electronic complaints may be transmitted, should NCIA have email capabilities.

The telephone number, postal address and email address is displayed on a sign near the entrance to the site, in a position that is clearly visible to the public. These details are also provided on NCIA's internet site, www.nationalceramicindustries.com.au.

2.4.2 Recording Incidents

Any complaints are to be formally recorded into the Microsoft Access Complaints Register and include the following:

- the date and time, where relevant, of the complaint;
- the means by which the complaint was made (telephone, mail or email);
- any personal details of the complainant that were provided, or if no details were provided, a note to that effect;
- the nature of the complaint;
- any action(s) taken by NCIA in relation to the complaint, including any follow-up contact with the complainant; and
- if no action was taken by NCIA in relation to the complaint, the reason(s) why no action was undertaken.

The Microsoft Access Complaints Register shall be made available for inspection by the EPA (NSW Office of Environment and Heritage) or the Director General upon request.

The person responsible for recording the complaint is to notify the Factory Manager. The Factory Manager is responsible for determining, in consultation with the Managing Director, any further action that is required to rectify the problem and prevent recurrence.

The records must be legible and accessible to relevant regulatory authorities. The records must be maintained for a minimum of 7 years.

Where appropriate, the complainant is to be notified of the action taken.

3.0 Task Instruction 3: Documentation and Records

3.1 General

Effective management of documentation related to this OEMP is necessary to provide a consistent method for access, storage and maintenance.

The Factory Manager (or delegate) is to maintain the Environmental Management File (EMF). The EMF is to contain documentation related to environmental management for the facility or referred to in the OEMP. If all documentation is not contained in this file, references to the location of this documentation are to be provided.

The EMF is to be available to any persons auditing or reviewing environmental activities of the facility and as such, is to be stored in an easily accessible location.

All records must be:

- in a legible form or in a form that can be easily reduced to a legible form;
- kept for at least 7 years after the monitoring, or event to which they relate occurred; and
- produced in a legible form to any authorised person, including the EPA (NSW Office of Environment and Heritage), who requests to see them.

3.2 Amendments of Variations to the OEMP

It may be necessary to amend this OEMP. The need for variations to the OEMP may occur for example, as a result of issues raised due to a non-conformance, from circumstances varying from those envisaged during the environmental impact assessment stage of the project and from any unpredicted findings of the monitoring component of the OEMP.

A formal process is required for making any amendments to the OEMP to ensure that the environmental implications of any proposed amendments are acceptable to all stakeholders and are communicated to all relevant personnel. By following a prescribed procedure, the integrity of the OEMP is maintained and approval of amendments by the Managing Director is ensured. The procedure for proposed amendments or variations to the OEMP is as follows:

- The Managing Director must be notified immediately of any proposed amendments. The reasons for the amendment must be explained;
- Controlled copies of the OEMP are to be updated by the Managing Director and the OEMP Amendment Register cover sheet completed; and
- Superseded copies of the OEMP must be recovered.

4.0 Task Instruction 4: Assessment of Environmental Performance

4.1 General

This task instruction is designed to ensure that the environmental performance of NCIA personnel and contractors is assessed and in doing so the environmental performance of the NCIA facility is monitored and controlled.

The assessment of environmental performance is managed at NCIA through four mechanisms. These are:

1. Daily Site Meetings
2. Weekly Factory Meetings
3. Monthly Monitoring Reports
4. Annual Performance Monitoring

4.2 Daily Site Meetings

Attendees: all staff (Tilewrites, Process Controllers and Management Team).

When: daily meetings occur at shift change over time (7am).

Environmental topics covered (where appropriate by exception):

- air quality
- noise
- traffic
- sedimentation and erosion control
- health and hazards
- waste management
- water quality (noting no factory discharges are permitted or occur).

Comments on incidents, near-misses and any actual or potential non-compliance are reported at these daily meetings. Any remedial actions that may be required are discussed at these meetings.

Any incidents and actual or potential non-compliances raised at these daily site meetings are documented by exception in the Microsoft Access Register of Incidents.

4.3 Weekly Factory Management Meetings

Attendees: Management Team and Tilewrites

Topics covered (where appropriate by exception):

- air quality
- noise
- traffic impacts
- sedimentation and erosion control
- health and hazards
- waste
- water quality
- training.

All open incidents in the Microsoft Access Register of Incidents are discussed at the Weekly Factory Meetings. Any remedial actions that are required are discussed at these meetings. Any instances of actual or potential non-compliances are documented by exception. This includes follow up and implementation of identified and documented remedial measures.

Factory efficiency is discussed in relation to environmental performance and maintenance effectiveness with regard to the Downtime' Key Performance Driver' (see Standard Form 5). Any factory maintenance needs or requirements are discussed, investigated and implemented as necessary to efficiently meet the documented Downtime' Key Performance Driver', and hence environmental performance.

Environmental performance of the factory is closely related to efficient operation of the factory. The environmental impact as a result of the operation of the factory is considered to be minimised through effective maintenance of plant and machinery (leading to efficient operation) and subsequently each factory area meeting its Downtime KPD.

4.4 Monthly Monitoring Data

Monthly monitoring data is to be provided to the Managing Director by external environmental consultants engaged to operate and maintain the ambient air quality monitoring equipment (as required by NCIA's Environment Protection Licence). This information is to include:

- 7 day Fluoride (HF) - SE and NW monitoring locations
- 24 hour Fluoride (HF) - SE and NW monitoring locations
- 24 hour PM_{10} - SE and NW monitoring locations.

All anomalies are documented, where relevant investigated and if necessary mitigation implemented. Monthly monitoring data is saved in the Environmental Management File (EMF).

4.5 Annual Environmental Performance Monitoring

Annual environmental performance monitoring is undertaken and reported to the Department of Planning and Environment and the Office of Environment and Heritage in accordance with NCIA's Project Approval and Environment Protection Licence. Relevant monitoring data is published on the NCIA website in accordance with the requirements of the *Protection of the Environment Operations Act 1997*.

Appendix E

Standard Forms

Appendix E Standard Forms

CONTENTS

Standard Form 1: Register of Injury

Instructions:

Any incidents (environmental. safety, injury, work practices etc.) are to be recorded as part of the Daily Site Meetings. All reported incidents are recorded into the Microsoft Access Register of Incidents and actioned accordingly: Any injuries need to be recorded on the Register of Injury form.

REGISTER OF INJURY

Details of Injured Person:

Name: _____ **Sex (M/F):**_____

Address: _____ **Post Code:** _____

Contact Ph No: _____

Employer name: NATIONAL CERAMIC INDUSTRIES AUSTRALIA P/L
Address: 175 RACECOURSE ROAD, RUTHERFORD NSW 2320
Phone No: (02) 4931 8400

Accident/Incident Details:
Description of Events
Date of Injury: _____ **Time:** _____ **am/pm**

Task/operation Undertaken at the time of the injury:

_____

Physical location (area) where injury occurred:

_____

Type of injury: e.g. bruise, cut, fracture, grit in eye)

_____

Part of body injured: (e.g. arm, torso, head)

_____

Cause of injury: (what happened?)

_____

_____

_____

Treatment Given/Action Taken

_____

_____

Person completing this form:

Name: _____ **Signature**_____

Date: _____**Time:** _____ **am/pm**

Did the person cease work? Yes/No (Cross out whichever is no applicable)

Has a referral for further treatment been issued? Yes/No

Standard Form 2: Example Incident Management Plan

Instructions:

This form is provided as an example of the type of information that NCIA personnel/contractors should provide in relation to emergency response procedures.

Emergency	Contact	Guide to Recommended Action
Fire	Emergency Services (if necessary) Factory Manager	• Remove ignition source • Attempt to extinguish • Shut down plant and equipment • Contact Fire Brigade • Complete non-conformance procedure
Explosion	Emergency Services Factory Manager Supply Authority	• Leave premises • Do not re-enter the area • Do not smoke • Shut down plant and equipment • Contact Fire Brigade • Contact Supply Authority (if appropriate) • If safe, contain fire using appropriate equipment • Complete non-conformance procedure
Spill/Leak of solid or liquid materials (e.g. chemicals, fuel, oil)	Emergency Services (if necessary) Factory Manager NSW EPA (if serious harm)	• Identify material • If safe, stop source and contain spill • Ensure all wetland and estuarine environments, storm water and/or sewer drains are provided with appropriate protection (e.g. absorbent boom) • Consult MSDS (if supplied) for safety / cleanup information • If more than one material spilt, check MSDS for incompatibility and treat appropriately • Cleanup and remediate as appropriate • Complete non-conformance procedure
Emission of gases (eg rupture of gas line)	Emergency Services (if necessary) Supply Authority Factory Manager	• Leave premises and move upwind of leak • Some gases numb the sense of smell over time, check MSDS • Do not enter an area where person is unconscious where gas could be present • Do not smoke • Shut down plant and equipment • Contact Fire Brigade • Contact Supply Authority (if appropriate) • Complete non-conformance procedure
Emission of air (eg odour) / noise pollutants	Emergency Services (if necessary) Supply Authority (if necessary) Factory Manager NSW EPA (if serious harm)	• Identify material • Identify potential source and reason for emission • If safe, close off source • Shut down plant and equipment • Complete non-conformance procedure
Discovery of potential archaeological site	NSW NPWS NSW Heritage Division (OEH) Factory Manager	• Cease work • Inform NPWS or NSW Heritage Division, as appropriate, and NCIA • Implement any control instructions issued

Standard Form 3: Incident Contact List Instructions

Instructions

This form is for use by NCIA personnel/construction contractors in the event of an emergency situation. The Factory Manager (or delegate) is responsible for completing the form. This form may also be provided as an example of the type of information that contractors should provide in relation to incident contact details.

In an Emergency dial 000 or:

Police
Fire
Ambulance

Contacts are:

Contact	Name	Office	Phone
Managing Director	Chris Schneider	Rutherford	0447 800 028
Factory Manager	Craig Oliver	Rutherford	0438 797 697
Deputy Factory Manager	Peter Drinkwater	Rutherford	0417 277 810
Reception	-	Rutherford	02 4931 8400
Hunter Water Representative	Melanie Berry	Newcastle	02 4979 9899
Electricity Supplier	Nick Cook	Energy Australia	13 15 02
Gas Supplier	Stephen Young	AGL	02 9921 2157

Standard Form 3: Incident Contact List

Contact	Name	Office	Phone
Waste Contractor	Cleanaway	Newcastle	02 4920 1455
NSW Office of Environment and Heritage	Rebecca Scrivener (A/Head Regional Operations Unit) Mitchell Bennett (EPA Manager Hunter Region)	Newcastle	02 4908 6800
Department of Planning and Environment	Joel Curran (Senior Compliance Officer)	Newcastle	02 4904 2702
NSW National Parks & Wildlife Service	-	Hurstville	02 9995 5000
NSW Heritage Division (OEH)	-	Parramatta	02 9873 8500
Workcover	-	Newcastle	13 10 50 / 02 4921 2900
Roads and Maritime	-	Newcastle	13 22 13 / 13 17 82
Maitland City Council	Stephen Punch	Maitland	02 4934 9700
Mindaribba Local Aboriginal Land Council	Gordon Griffiths	Metford	02 4015 7000

Standard Form 4: Example Register of Hazardous Materials

Instructions:

This form is provided as an example of the type of information that NCIA personnel/contractors should provide in relation to hazardous materials stored and used at the NCIA sites. *(See Table 1 Chemical Register, Appendix F Emergency Plan, of this OEMP.)*

SITE:

Name of Chemical (and identification code)	Other Common Names	Maximum Quantity Stored	Storage Requirements	Purposes for which Chemical is used

Standard Form 5: Example of Work Method and Job Safety Analysis

Activity to be undertaken:_____

Identified Hazards and Risks: _____

Risk Level:1 2 3 4 Refer to consequence/likelihood matrix)

Work Method Statement Including Controls and Safety Precautions:

Likelihood \ Consequence	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	2	2	1	1	1
Likely	3	2	2	1	1
Moderate	4	3	2	1	1
Unlikely	4	4	3	2	1
Rare	4	4	3	2	2

Source: Appendix E AS/NZ 4360: 1999

Key	Consequence:	Likelihood:
1. Extreme risk; immediate action required. 2. High risk; senior management attention needed. 3. Moderate risk; management responsibility must be specified. 4. Low risk; manage by routine procedures.	Insignificant: No damage to person or environment, low level financial loss. Minor: First aid treatment required and/or low to medium financial loss. Moderate: Medical treatment required, high financial loss. Major: Serious injuries, loss of productivity, no long term medical implications, major financial cost. Catastrophic: Death, severe permanent disability, huge financial cost	Almost certain: Is expected to occur in most circumstances. Likely: Will probably occur in some circumstances. Moderate: Might occur at some time. Unlikely: Could occur at some time. Rare: May only occur in exceptional circumstances.

Standard Form 6: Maintenance Form

At NCIA maintenance effectiveness is measured by the 'Downtime' Key Performance Driver (KPD). The automated nature of the tile factory requires significant uptime as the chain of automation is broken by downtime in any one section.

Downtime is identified and discussed at weekly factory management meetings. Additionally, downtime by area for the previous 24 hours is discussed at the daily site meeting with the tilewrites present.

All work stoppages and causes for downtime are reported and thoroughly investigated through these meetings. Downtime is considered a result of incomplete maintenance (among other things).

Downtime is recorded for each of the discrete sections of the tile factory. Downtime Key Performance Drivers are provided in both minutes per month and the number of times a work stoppage occurs. As of 30 June 2011 the following Downtime Key Performance Drivers existed for the discrete areas of the factory.

Area	**(KPD) Minutes/month**	**(KPD) Minutes/year**
Clay Plant	0	0
Press	380	4560
Glaze Line 1&2	266	3192
Glaze Line 3&4	266	3192
Ink-Jets	183	2196
Kilns	152	1824
Selection 1	183	2196
Selection 2	183	2196
Change Over	114	1368
Size change	274	3288
Development	0	0
Other	0	0
TOTAL	2001	24012

Maintenance is carried out on an as needs basis. Individual areas of the factory cannot be shut down for regular maintenance schedules. Maintenance is ongoing with the aim of meeting the challenging Downtime KPD.

As a result of this structure, there is no functional need for a maintenance form. Maintenance requirements are investigated at the weekly KPD meetings and implemented as necessary to meet the Downtime KPD. Maintenance effectiveness can be invariably measured by making an assessment for actual Downtime against the Downtime KPD.

Environmental performance of the factory is closely related to efficient operation of the factory. Reduced environmental impact as a result of the operation of the factory is considered to be minimised through effective maintenance of plant and machinery and subsequently each factory area meeting its Downtime KPD.

Appendix F

Erosion and Sedimentation Control Management Plan

Appendix F Erosion and Sedimentation Control Management Plan

Erosion and Sedimentation Control Management Plan – Ceramic Tile Manufacturing Facility, Rutherford

May 2003

National Ceramic Industries Australia Pty Ltd

PARSONS BRINCKERHOFF

Parsons Brinckerhoff Australia Pty Limited ACN 078 004 798 and
Parsons Brinckerhoff International (Australia) Pty Limited ACN 006 475 056
trading as Parsons Brinckerhoff ABN 84 797 323 433

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PO Box 1162
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Email newcastle@pb.com.au

ABN 84 797 323 433
NCSI Certified Quality System ISO 9001

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Author: Leigh Tickle.....

Reviewer: Shane Scott.....

Approved by: Trevor Jensen .....

Signed: .....

Date: .....

Distribution: .....

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Appendices

1. Introduction

1.1 Purpose

National Ceramics Industries Australia Ply Ltd (NCIA) proposes to construct a ceramic tile manufacturing facility located off Racecourse Road, Rutherford. The Minister of Infrastructure and Planning has granted conditional consent for the facility under the *Environmental Planning and Assessment Act 1979*.

This Erosion and Sedimentation Control Management Plan (ESCMP) forms part of a Construction Environmental Management Plan (CEMP) for the facility. The CEMP outlines environmental management practices and procedures to be followed during construction of the facility. The CEMP contains a main volume and five appendices, which are listed below:

- Appendix A Fire Safety Study
- Appendix B Hazard and Operability Study
- Appendix C Construction Safety Study
- Appendix D Noise Management Plan
- Appendix E Erosion and Sedimentation Control Management Plan

1.2 Scope of this Plan

This ESCMP has been prepared in accordance with the Development Consent Conditions for the facility, issued by the NSW Department of Planning.

The aim of the ESCMP is to detail measures to minimise erosion and the discharge of sediment and other pollutants to land and/or water during construction of the facility. The plan is consistent with that outlined in the *Ceramic Tile Manufacturing Facility at Rutherford, NSW - Environmental Impact Statement* (Parsons Brinckerhoff, 2002) ("the EIS"). The plan includes:

- results of investigations into soils associated with the site, in particular the stability of the soil and its susceptibility to erosion;
- details of erosion, sediment and pollution control measures and practices to be implemented during construction of the facility;
- demonstration that erosion and sediment control measures will conform with, or exceed, the relevant requirements and guidelines provided in:
  - *Soil and Water Management for Urban Development* (Department of Housing, 1990);
  - *Managing Urban Stormwater – Soils and Construction* (Department of Housing, 3rd Edition, 1998), from hereon referred to as the "Blue Book";

- *Urban Erosion and Sedimentation Handbook* (Department of Land and Water Conservation, 1992); and
- *Pollution Control Manual for Urban Stormwater* (Environment Protection Authority, 1989).

- design specifications for diversionary works, banks and sediment detention basins;
- an erosion monitoring program during construction of the facility;
- description of procedures to ensure that the measures implemented to control sediment and erosion on site, are maintained at or above design capacity at all times; and
- measures to address erosion, should it occur, and to rehabilitate/stabilise disturbed areas of the site.

2. Site Description

2.1 Proposed Development

The proposed development is a ceramic tile manufacturing facility at Rutherford that at full capacity will produce 12.8 million square metres of ceramic tiles per annum. The facility will be housed within a building that is approximately 488 metres long and 80 metres wide.

Construction works for the facility include four major activities; civil works, building, building fitout and landscaping.

The building will be constructed in two stages and the plant installed in four stages. Initial building construction will accommodate one spray drier, a clay mill and two kilns. The second stage of the building will accommodate another spray drier, mill and two more kilns.

The facility is situated on a lot with an area of 16.8 hectares. The area affected by the development is 10.8 hectares comprising approximately 3.9 hectares of roof area, 1.9 hectares of road and hardstand area and 5 hectares of pervious area including landscaping.

2.2 Topography

The ground surface of the site generally has a slight fall of less than one percent to the south. Surface elevations range from RL 21 metres Australian Height Datum at the north of the site to RL 16 metres in the south east corner of the site. A shallow drainage line exists in the southwest corner of the site.

2.3 Rainfall and Runoff

Rainfall data was obtained from the Bureau of Meteorology's Campbells Hill meteorological station (Bureau of Meteorology, 2003) located at latitude –32.7 degrees S and longitude 151.5 degrees E. The average annual rainfall over 51 years of record has been 843.8 millimetres with an average of 72.8 rain days. The records show that on average December is the wettest month, with an average of 89 millimetres occurring on an average number of 6.8 days.

The majority of surface runoff from the site drains to an existing gully situated in the south-eastern corner of the site, which discharges to the Westside Golf Course located to the south of the site. Water from the gully presently flows across two golf course fairways before discharging into an existing wetland situated to the south of the golf course.

There is also an existing trapezoidal channel running along the western boundary of the site for a length of approximately 260 metres. It is estimated that this channel conveys runoff from several adjacent industrial developments and a 20 metre wide strip of land

that extends from the south-western corner of the site to Racecourse Road. This channel discharges into an unnamed tributary of Stony Creek upstream of the golf course boundary.

The existing site has a time of concentration of approximately 18.5 minutes for the gully outlet and 9.1 minutes for the existing channel outlet. These times were calculated using the Rational Method (AR&R, 1987) as part of the Water Management component of the EIS.

2.4 Soils

The soil landscape map for the area (Department of Land and Water Conservation, 1995, Soil Landscape Series Sheet 9232, scale 1:100,000) identifies the site as part of the Wallalong Transferral landscape. The map identifies this landscape as having a "high water erosion hazard".

The "Blue Book" indicates that the Wallalong soil landscape may be classified as *Type D* (dispersible) soil with a soil erodibility factor of 0.047 (for SC-CL).

The regional geological map of the area (Department of Mines, 1966, Newcastle Geological Series Sheet S1 56-2, 1:250,000 Scale) indicates Permian Deposits, consisting of sandstone, siltstone, mudstone, shale, conglomerate, tuff, basalt and erratics.

An investigation undertaken by Douglas Partners in August 2002 described the geology as generally being uniform across the site. Organic clay topsoil was encountered to depths of about 0.2m overlying alluvial clay, silty clay and sandy clay. Initially the clay was firm to stiff becoming stiff to very stiff or better below 1.85 to 2.5m depth. The clay continued to depths of greater than 12m where sand was encountered from 12.7m to 21.4 to the depth of the investigation (Douglas Partners, 2002).

2.5 Vegetation

The site is predominately cleared and is presently grassed with a mosaic of modified grasses. Two small patches (less than 0.3 hectares) of native vegetation exist at the southern end of the site.

2.6 Receiving Waters

Runoff from the site ultimately drains to an unnamed tributary of Stony Creek located to the south of the site. Stony Creek is a tributary of the Hunter River.

3. Erosion, Sediment and Pollution Control Measures

3.1 General

Site work practices to minimise erosion are provided in the "Blue Book". Specific management practices that will be employed during the construction works will comprise the following:

- diversion of clean upslope run-on water around areas of construction;
- stabilisation of denuded areas with vegetation after completion of construction and prior to the removal of erosion and sediment control measures;
- placement of sediment filters such as silt fences, hay bales, or turf strips downstream of disturbed areas;
- construction of temporary sediment traps and utilisation of wet detention basins for the removal of entrained sediment from runoff prior to discharge;
- construction of shaker humps at the construction exit to remove excess mud from truck tyres/underbodies;
- covering or enclosing vehicles entering or leaving the site that are carrying a load that may generate dust, at all times except during loading and unloading; and
- minimising the removal of trees and other vegetation from the site, and restricting any clearance to the areas occupied by buildings and paved surfaces, and those areas necessary for fire control.

All surface runoff will be treated by erosion and sediment control devices prior to discharging into the existing drainage systems.

The erosion and sediment control plan for the site is shown in Figure 3-1. Design specifications for erosion and sediment control measures are given in Figure 3-2.

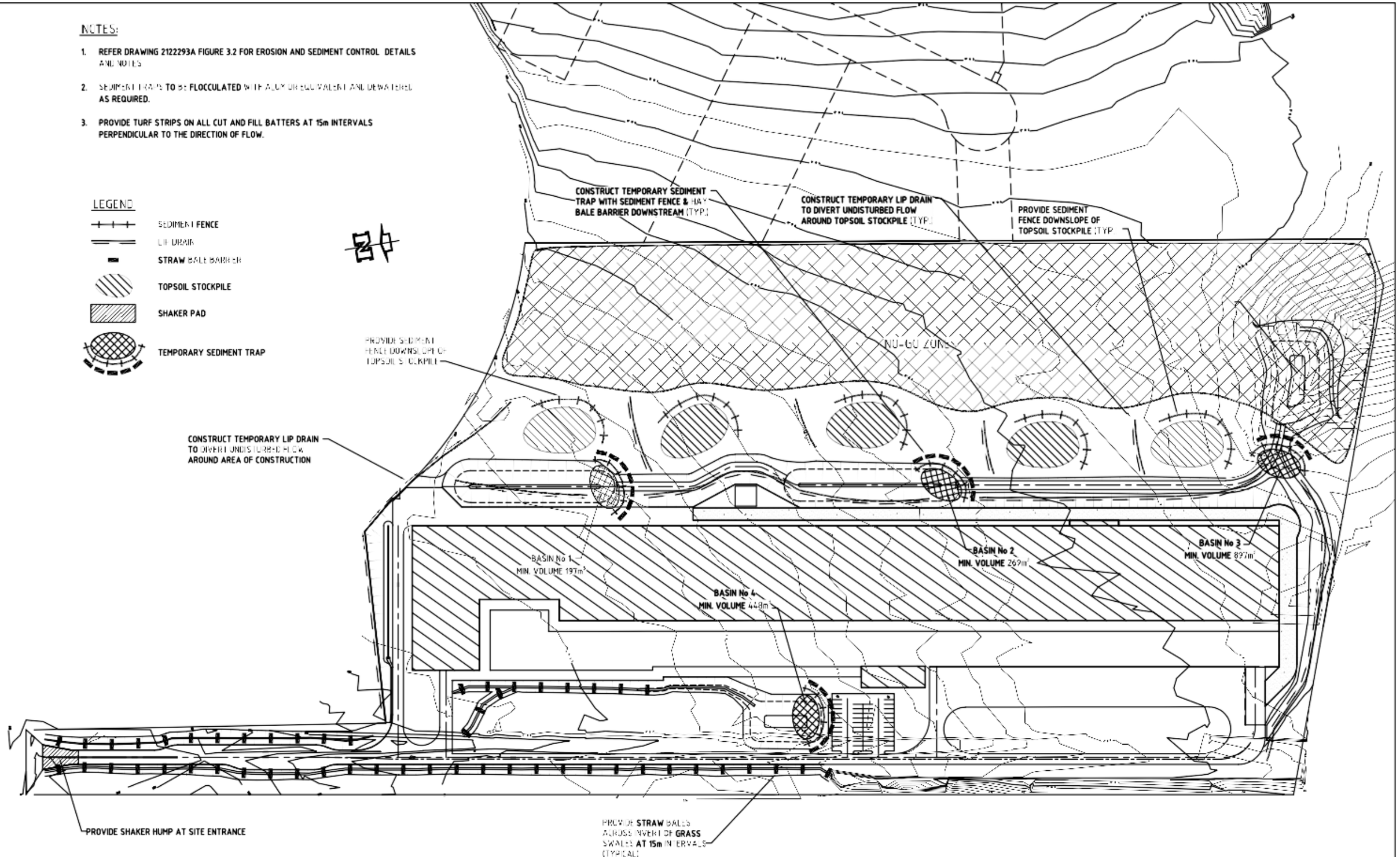
All erosion and sediment controls will be maintained at design capacity for the duration of the construction works, and until such time as ground disturbed by the construction works, has been stabilised and rehabilitated so that it no longer acts as a source of sediment.

NOTES:

1. REFER DRAWING 2122293A FIGURE 3.2 FOR EROSION AND SEDIMENT CONTROL DETAILS AND NOTES
2. SEDIMENT TRAPS TO BE FLOCCULATED WITH ALUM OR EQUIVALENT AND DEWATERED AS REQUIRED.
3. PROVIDE TURF STRIPS ON ALL CUT AND FILL BATTERS AT 15m INTERVALS PERPENDICULAR TO THE DIRECTION OF FLOW.

LEGEND

- SEDIMENT FENCE
- LIP DRAIN
- STRAW BALE BARRIER
- TOPSOIL STOCKPILE
- SHAKER PAD
- TEMPORARY SEDIMENT TRAP



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Scale: A1 ORIGINAL — 0 10 20 30 40 50 (1000) 100

Drawn	DCrew
Designed	L.TICKLE
Drawing Check	K.KELLSTAD
Design Check	S.SOUTAR
Project Approval	T.JENSEN
Date	

PARSONS BRINCKERHOFF

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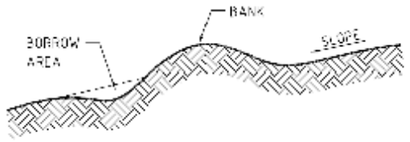
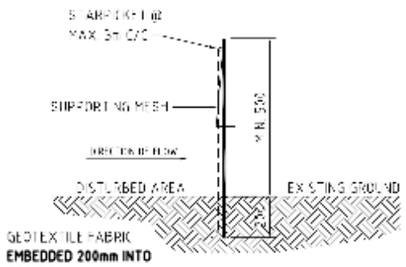
Email newcastle@pb.com.au

Client	NCIA
Project	CERAMIC TILE FACTORY EROSION & SEDIMENTATION CONTROL MANAGEMENT PLAN EROSION AND SEDIMENT CONTROL PLAN
PB ref	2122293A
Drawing No	FIGURE 3.1
Cad File	FIG 3.1
Rev	1

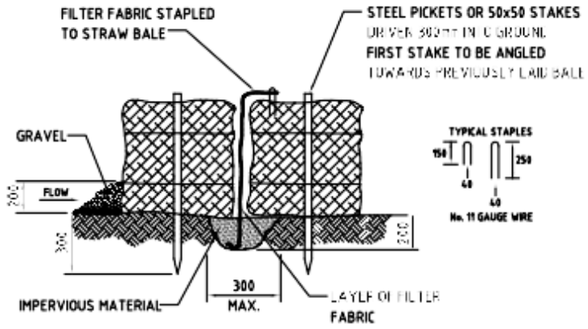


LEAVE LIP DRAIN 600mm WIDE x 500mm DEEP AT TOP OF BANK AT END OF EACH DAY'S WORK.

LIP DRAIN
N.T.S.

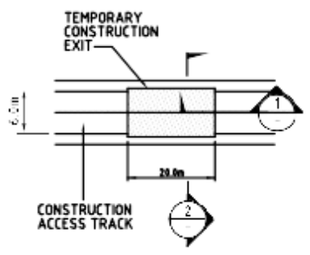


SEDIMENT FENCE
N.T.S.

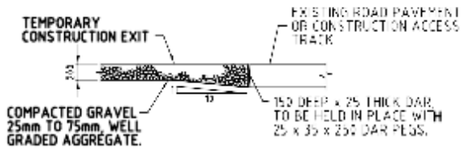


NOTE
- BOUND BALES TO BE PLACED ON CONTOUR.
- MIN. DISTURBANCE TO EXISTING GROUND COVER.

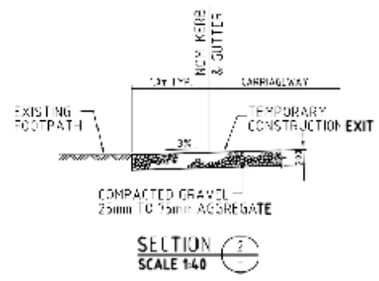
STRAW BALE DETAIL
N.T.S.



PLAN
N.T.S.



SECTION 1
SCALE 1:40



SECTION 2
SCALE 1:40

SHAKER HUMP DETAILS

TYPICAL CONSTRUCTION SCHEDULE FOR EACH STAGE

	WEEK							
	1	2	3	4	5	6	7	8
CONSTRUCT ALL TEMPORARY SEDIMENT BASINS								
PLACE SILT FENCE AS SHOWN								
PLACE SILT FENCE BELOW AREAS TO BE REGRADED								
CONSTRUCT ALL DIVERSION BANKS CATCHING CLEAN WATER								
ROAD CONSTRUCTION AND REGRADING								
PLACE SILT FENCE AROUND TOPSOIL STOCKPILES								
PLACE SEDIMENT BARRIERS AROUND STORMWATER PITS AT COMPLETION OF DRAINAGE								
PLACE STRIP TURF PARALLEL TO DESIGN CONTOURS ALONG ROAD AS SHOWN								

EROSION CONTROL

1. EROSION CONTROL DEVICES AND SILTATION TRAPS TO BE INSTALLED IN ACCORDANCE WITH N.S.W. DEPARTMENT OF LAND AND WATER CONSERVATION GUIDELINES AND APPROVED BY THE THIRD PARTY CERTIFIER BEFORE THE SITE IS DISTURBED.
2. ALL PERIMETER AND CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN EARTHWORKS AND/OR CLEARING.
3. SILT TO BE REMOVED FROM TEMPORARY SEDIMENT CONTROL BASINS AS DIRECTED BY THIRD PARTY CERTIFIER OR DISTRICT 'DLWC' REPRESENTATIVE TO MAINTAIN SILTATION STORAGE CAPACITY IN TEMPORARY BASINS.
4. FILTRATION BUFFER ZONES ARE TO BE FENCED OFF AND ACCESS TO ALL PLANT AND MACHINERY PROHIBITED.
5. HAY BALE BARRIERS AND GEOFABRIC FENCES ARE TO BE CONSTRUCTED TO TOE OF BATTER PRIOR TO COMMENCEMENT OF EARTHWORKS, IMMEDIATELY AFTER CLEARING OF VEGETATION AND BEFORE REMOVAL OF TOPSOIL.
6. ALL TEMPORARY EARTH BERMS DIVERSION AND SILT EMBANKMENTS ARE TO BE MACHINE COMPACTED, SEEDED AND MULCHED FOR TEMPORARY VEGETATION COVER AS SOON AS THEY HAVE BEEN FORMED.
7. CLEAN WATER IS TO BE DIVERTED AWAY FROM DISTURBED GROUND AND INTO DRAINAGE SYSTEM.
8. ALL SEDIMENT TRAPPING STRUCTURES AND DEVICES ARE TO BE INSPECTED FOR STRUCTURAL DAMAGE OR CLOGGING AFTER STORMS. TRAPPED MATERIAL IS TO BE REMOVED TO A SAFE APPROVED LOCATION.
9. ALL TOPSOIL IS TO BE STOCKPILED ON SITE FOR RE-USE (AWAY FROM TREES AND DRAINAGE LINES) MEASURES SHALL BE APPLIED TO PREVENT EROSION OF THE STOCKPILES.
10. ALL EARTHWORK AREAS SHALL BE ROLLED EACH EVENING TO SEAL THE EARTHWORKS.
11. ALL FILLS ARE TO BE LEFT WITH A LIP AT THE TOP OF THE SLOPE AT THE END OF EACH DAY'S EARTHWORKS. THE HEIGHT OF THE LIP SHALL BE A MINIMUM OF 200mm.
12. ALL CUT AND FILL SLOPES ARE TO BE SEEDED AND MULCHED WITHIN 10 DAYS OF COMPLETION OF FORMATION.
13. UNDERSCRUBBING OF VEGETATION TO BE RESTRICTED TO SLASHING SO AS TO MINIMISE SOIL DISTURBANCE.
14. UPON COMPLETION OF ALL EARTHWORKS OR AS DIRECTED BY THIRD PARTY CERTIFIER, SOIL CONSERVATION TREATMENTS SHALL BE APPLIED SO AS TO RENDER AREAS THAT HAVE BEEN DISTURBED EROSION PROOF WITHIN 14 DAYS.
15. DENUDED AREAS TO BE STRIP TURFED OR HYDROMULCH SEEDED WITH THE SEED MIX BELOW OR APPROVED BY DISTRICT 'DLWC' OFFICER OR HIS REPRESENTATIVE, WITHIN 14 DAYS OF PRACTICAL COMPLETION OF EARTHWORKS. STRIPS ARE TO BE PLACED ACROSS THE CONTOUR AT RIGHT ANGLES TO THE DIRECTION OF SLOPE.

HYDROMULCH SEEDMIXES

SUMMER MIX	APPLICATION RATE	SUMMER MIX	APPLICATION RATE
		OATS	20 kg/Ha
JAPANESE MILLET	30 kg/Ha	RYE GRASS	10 kg/Ha
COUCH	10 kg/Ha	RED CLOVER	5 kg/Ha
CARPET GRASS	10 kg/Ha	WHITE CLOVER	5 kg/Ha
HAIFA WHITE CLOVER	5 kg/Ha	COUCH	10 kg/Ha
BINDER	200 l/Ha	FERTILIZER BINDER	500 kg/Ha
PULP	1000 kg/Ha	OR	
FERTILIZER	300 kg/Ha	DYNAMIC LIFTER	1000 kg/Ha

16. THE AREA OVER ALL STORMWATER AND SEWER LINES NOT WITHIN ROAD RESERVES IS TO BE MULCHED AND SEEDED WITHIN 14 DAYS AFTER BACKFILL.
17. NO MORE THAN 150m OF TRENCH IS TO BE OPEN AT ANY ONE TIME.
18. AREAS OVER ELECTRICITY, TELEPHONE AND GAS SUPPLY TRENCHES ARE TO BE SEEDED AND MULCHED WITHIN 14 DAYS AFTER BACKFILL.
19. ALL BERMS, BATTERS AND SITE REGRADING AREAS ARE TO BE TOPSOILED WITH MINIMUM 75mm OF SELECTED SITE TOPSOIL AND GRASSED.
20. STRIPS OF TURF ARE TO BE PLACED IMMEDIATELY BEHIND THE EDGE PAVEMENT ON ALL ROADS AND AT LOCATIONS AS DETERMINED BY DLWC SUPERVISING OFFICER OR THIRD PARTY CERTIFIER.
21. ALL FINAL EROSION PREVENTION MEASURES INCLUDING THE ESTABLISHMENT OF GRASSING ARE TO BE COMPLETED PRIOR TO THE FINAL INSPECTION. ALL EROSION DEVICES ARE TO BE MAINTAINED UNTIL THE END OF THE MAINTENANCE PERIOD.

REV	DESCRIPTION	DATE	APPROVED
1	ORIGINAL ISSUE	6.5.10	

Scale: AT ORIGINAL

Drawn	Date
S. ZOLLO	
Designed	
L. TICKLE	
Drawing Check	
K. KELLSTAD	
Design Check	
S. SZE	
Project Approval	
T. JENSEN	

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Client: NCIA

Project: CERAMIC TILE FACTORY
EROSION & SEDIMENTATION CONTROL MANAGEMENT PLAN
EROSION & SEDIMENT CONTROL DETAILS

Office: 21222993A

Drawing No: FIGURE 3.2

Cad File: FIG 3.2

Rev: 1

3.2 Sediment Basins

Sediment basins discharging from the site without another site sediment basin downstream, shall be treated with gypsum or other flocculating agent, when they contain more than 50 milligrams per litre of suspended solids. Basins must not be discharged until the level of suspended solids is verified by testing to be less than 50 milligrams per litre. Basins should then be drained so that full storage capacity is regained.

Detention basins that will be utilised during operation of the facility will be utilised as sediment basins during construction.

Sediment Basin No. 1, 2, 3 and 4 were sized in accordance with the requirements given in the "Blue Book" for *Type D* soils. Sediment basin sizing calculations using the "Blue Book" are given in Appendix A. Sediment basin volumes required by the "Blue Book" and detention basin volumes for the site are summarised below in Table 3-1.

Table 3-1 Required and Proposed Sediment Basin Volumes

Sediment Basin No.	Disturbed Catchment Area	Total Sediment Basin Volume (m^3) Required by "Blue Book"	Detention Basin Dimensions		
			Permanent Water Depth (m)	Outlet Level (mAHD)	Total Detention Basin Volume (m^3)
1	1.1	197	2.0	19.0	1768
2	1.5	269	2.0	18.5	1906
3	5.0	897	2.0	16.0	1088
4	2.5	448	2.0	18.5	1382

From Table 3-1 it can be seen that the detention basin volumes are well in excess of the sediment basin volumes required by the "Blue Book".

Sediment basins are to be constructed in accordance with the "Blue Book" and consist of the following:

- internal and external batters no steeper than 1V:3H;
- five metre wide spillway outlet structure. Spillway and basin embankment is to be turfed to minimise erosion in the event of basin being discharged; and
- basin overflows from Basin No. 1 shall be directed to Basin No. 2. Basin overflows from Basin No. 2 shall be directed to Basin No. 3. Basin overflows from Basin No. 4 shall be directed to Basin No. 3.

4. Implementation of the Plan

4.1 General

The contractor(s) shall undertake all works in accordance with the requirements of:

- the contract documentation;
- this Erosion and Sedimentation Control Management Plan; and
- any specific directions of Council Inspectors or officers of the EPA relating to erosion and sedimentation management.

4.2 Monitoring and Maintenance

Monitoring and maintenance roles and responsibilities are outlined in Table 4-1 below.

Table 4-1 Monitoring and Maintenance Roles and Responsibilities

Action	Responsibility	Audit/ Evidence/ Signoff*
Prior to the commencement of construction, documentary evidence shall be provided to, and to the satisfaction of, the Director-General confirming that all erosion and sediment controls are in place.	Project Engineer	
A weekly informal site inspection shall be undertaken, including: ▪ recording the condition of all erosion and sediment control structures; ▪ recording maintenance requirements (if any) for each erosion and sediment control structure; ▪ recording volumes of sediment removed from sediment retention systems; and ▪ recording the site where sediment is deposited. This inspection shall also be undertaken following rainfall events in excess of 5 millimetres in any 24 hour period.	Project Engineer	Weekly Site Inspection Checklist (Form 5)
A detailed formal site inspection shall be undertaken on a monthly basis, including: ▪ recording the condition of all erosion and sediment control structures; ▪ recording maintenance requirements (if any) for each erosion and sediment control structure; ▪ recording volumes of sediment removed from sediment retention systems; and ▪ recording the site where sediment is deposited.	Project Engineer	Assessment of Contractors Environmental Performance (Form 2)

Action	Responsibility	Audit/ Evidence/ Signoff*
A post construction site inspection shall be undertaken, including: ▪ recording the condition of all erosion and sediment control structures; ▪ recording maintenance requirements (if any) for each erosion and sediment control structure; ▪ recording volumes of sediment removed from sediment retention systems; and ▪ recording the site where sediment is deposited.	Project Engineer	Post-Construction Checklist (Form 6)
Incidents shall be reported to the Construction Manager by the Contractor(s). The individual reporting any major non-conformance must complete an Incident Management Report.	Project Engineer	Incident Management Report (Form 3)
Incidents causing or threatening material harm to the environment are to be reported to the relevant regulatory authority and the Construction Manager as soon as practicable after the person becomes aware of the incident.	Project Engineer	Incident Management Report (Form 3)
Meet the requirements of the Director-General to address the cause or impact of any incident, as it relates to the Development Consent, within such period as the Director-General may agree.	Project Director	

*Standard Forms are given in the CEMP

5. References

Central Mapping Authority of New South Wales, 1981, Topographic Map series Maitland 9232-IV-S, 1st Edition.

Department of Housing, August 1998, *Managing Urban Stormwater – Soils and Construction,* 3rd Edition.

Department of Housing, 1990, *Soil and Water Management for Urban Development*.

Department of Land and Water Conservation, 1995, Soil Landscape Series Sheet 9232, 1:100,000 Scale.

Department of Land and Water Conservation, 1992, *Urban Erosion and Sedimentation Handbook*.

Department of Mines, 1966, Newcastle Geological Series Sheet S1 56-2, 1:250,000 Scale.

Douglas Partners, August 2002, *Geotechnical Investigation – Proposed Industrial Building, Lot 101 Burlington Place Rutherford*.

NSW Environment Protection Authority, 1989, *Pollution Control Manual for Urban Stormwater*.

Parsons Brinckerhoff Pty Ltd, 2002, *Ceramic Tile Manufacturing Facility at Rutherford, NSW - Environmental Impact Statement*.

Appendix A

"Blue Book" Sediment Basin Sizing Calculations

Table A1 Sediment Basin Sizing Calculations Using "Blue Book"

		Settling Volume			Storage Volume			
Sediment Basin No.	Disturbed Catchment Area (Ha)	Cv	R (75th percentile) (mm)	Settling Volume (m^3)	RUSLE Storage Volume (m^3)	Storage Volume for 50% of Settling Volume (m^3)	Max Storage Volume (m^3)	Total Basin Volume (m^3)
1	1.1	0.5	23.9	131.5	3.5	65.7	65.7	197.2
2	1.5	0.5	23.9	179.3	4.8	89.6	89.6	268.9
3	5	0.5	23.9	597.5	16.0	298.8	298.8	896.3
4	2.5	0.5	23.9	298.8	8.0	149.4	149.4	448.1

RUSLE Factors

R	2000
K	0.047
LS	0.2
P	1.3
C	1

Appendix G

Emergency Plan

Appendix G Emergency Plan

Prepared for
National Ceramic Industries Australia Pty Ltd
ABN: 83100467267

Emergency Plan

06-Feb-2024

aecom.com

Delivering a better world

Emergency Plan

Client: National Ceramic Industries Australia Pty Ltd

ABN: 83100467267

Prepared by

,

06-Feb-2024

Job No.: 60305580

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 and ISO45001.

Quality Information

Document	Emergency Plan
Ref	60305580
Date	06-Feb-2024
Originator	Robert Mays
Checker/s	Graham Taylor and James McIntyre
Verifier/s	

Revision History

Rev	Revision Date	Details	Approved	
			Name/Position	Signature
0	02-Feb-2004	Original prepared by Robert Mays	Ken Ferguson, Manager Industrial Services	
1	27-Jan-2010	Accuracy Review by James McIntyre	Carly Ellis Team Leader IAP / Principal Scientist	
2	06-May-2011	Upgrading to new template	James McIntyre Team Leader - Singleton	
3	18-Sep-2014	Update of contact details	James McIntyre Team Leader - Singleton	
4	23-Feb-2018	Update as per audit recommendation	James McIntyre Team Leader - Singleton	
6	18-Aug-2023	Update as per audit recommendation	Cye Buckland Principal Technical Officer	
6	06-Feb-2024	Update of NCIA & neighbours contacts	Cye Buckland Principal Technical Officer	

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OCCUPATIONAL HEALTH & SAFETY MANUAL

175 Racecourse Road Rutherford NSW 2320

PO Box 765 Maitland NSW 2320

Telephone: (02) 49318400

Facsimile: (02) 49318499

EMERGENCY PLAN

DATE REVISED**: February 2024**

DATE LAST AUDITED**: February 2018**

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1.0 Introduction

The National Ceramic Industries Australia Emergency Response Plan (referred to herein as the “Plan”) is designed to ensure the safety of all personnel while minimising the consequences of an emergency on personnel, visitors and assets at the Rutherford Facility.

The information contained in this Plan is intended to identify the arrangements necessary for managers, staff and Emergency Organisations to deal with an emergency situation. Supporting information attached to the Plan includes:

- **Appendix A**: Chemical Register
- **Appendix B**: Emergency Situation Analysis;
- **Appendix C**: Site Maps;
- **Appendix D**: Emergency Equipment List;
- **Appendix E**: Emergency Procedures;
- **Appendix F**: Clean-Up Procedures; and
- **Appendix G**: Neighbours

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2.0 Objectives

The following objectives are an integral part of the Plan:

- The maintenance of equipment and adequately trained staff;
- The implementation of emergency response procedures; and
- The conduct of regular mock emergency evacuation exercises to familiarise personnel in emergency procedures.

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3.0 Scope

This Plan covers the facilities at Racecourse Rd, Rutherford for the emergency situations identified in Appendix B: Emergency Situation Analysis. The plan outlines:

- Emergency Resources;
- Responsibilities;
- Training;
- Maintenance;
- Notification of relevant authorities and neighbours; and
- Situation management.

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4.0 References

The following resources were utilised in the development of the Plan:

- NSW Occupational Health and Safety Act 2000 (since superseded by the *Work Health and Safety Act 2011*);
- NSW Occupational Health and Safety Regulation 2001 (since superseded by the *Work Health and Safety Regulation 2017*);
- Dangerous Goods Initial Emergency Response Guide SAA/SNZ HB76:1997 (since superseded by the 2010 version);
- National Occupational Health and Safety Commission, Standards and Guidance Notes (since replaced by Safe Work Australia, who develop model codes of practice and guidance material);
- The Australian Code for the Transport of Dangerous Goods (Australian Dangerous Goods Code);
- Australian Standard AS 3745 – 2002 Emergency control organisation and procedures for buildings, structures and workplaces (since superseded by 2010 version);
- Industry Emergency Planning Guidelines, Hazardous Industry Planning Advisory Paper No.1 Planning NSW 1993 (since superseded by 2011 version);
- Pollution Incident Response Management Plan, NCIA, Rutherford by AECOM Australia Pty Ltd, August 2012 (revised February 2018).
- Construction Environmental Management Plan for the Ceramic Tile Manufacturing Facility at Rutherford NSW by Parsons Brinckerhoff, July 2003;
- Environmental Impact Statement Ceramic Tile Manufacturing Facility at Rutherford NSW by Parsons Brinckerhoff, December 2002; and
- Operation Environmental Management Plan – National Ceramic industries Australia by HLA-Envirosciences, January 2004 (revised February 2018).

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5.0 Facility / Process Information

Business Name:	National Ceramic Industries Australia Pty Ltd
Address:	175 Racecourse Rd Rutherford NSW 2300
Business Phone:	02 4931 8400
Business Fax:	02 4931 8499
Site Plan:	Appendix C: Site Maps
Responsible Person / Decision Maker:	Managing Director (Chris Schneider)
Contact No:	0447 800 028
After Hours Contact No:	0447 800 028

The business involves:

- Production of ceramic tiles;
- Production 24 hours per day, seven days per week; and
- Maintenance and operation of the facility.

The site consists of:

- Main production building;
- Sales and business office;
- Reticulated Natural Gas supply;
- Raw materials receival, mixing, pressing, drying, glazing and firing facilities;
- Stacking, packing and storage facilities;
- Mobile plant; and
- Diesel storage.

The business consists of 61 personnel covering:

- Management and administration 6
- Sales and marketing 2
- Design and development 3
- Warehouse 6
- Area Managers 8
- Shift supervisors 4
- Process Controllers 32 (7 x 4 shifts)

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6.0 Emergency Resources

6.1 Emergency Procedures

An Emergency Situations Analysis was conducted to determine the possible scenarios to which the business may be exposed. Appendix B: Emergency Situation Analysis details the outcomes. The emergency procedures listed below were deemed necessary to cover the outcomes of the “Emergency Situation Analysis”. The procedures are detailed in Appendix E: Emergency Procedures. The procedures are:

- Emergency contacts;
- Site Evacuation;
- Site Fire;
- Fuel Spill / LPG gas leak;
- Natural Gas leak;
- Serious Injury and Medical Emergency;
- Bomb Threat;
- Robbery or Hostile Intruder; and
- Electric Shock of Person.

Copies of Appendix E: Emergency Procedures shall be kept at all phones in the facility.

Copies of this Plan and all appendices shall be kept at:

- The Emergency Evacuation Point; and
- The main office.

6.2 Technical Advice

The following organisations shall be contacted for emergency advice. Details for each product are listed in Appendix A: Chemical Register.

- Natural Gas – Jemena Gas Networks After hours No: 131 909

6.3 Clean-up Procedures

Clean-up procedures and contact details are detailed in Appendix F: Clean-up Procedures.

6.4 Emergency Response Equipment

The location of emergency equipment is shown on Figure 3 at Appendix C: Site Maps. The emergency equipment provided on site is listed in Appendix D: Emergency Equipment Lists.

The following emergency equipment is kept on site:

- Natural gas manual isolation valve;
- Fire hose reels;
- Break glass alarms;
- Fire extinguishers;
- Spill bin; and
- First aid kits.

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7.0 Responsibilities

7.1 Emergency Co-ordinator (and Deputy)

In the event of an emergency, the NCIA Factory Manager performs the role of Emergency Co-ordinator. In the absence of the Factory Manager, the Deputy Factory Manager will perform the responsibilities of the Emergency Co-ordinator. The Emergency Co-ordinator is responsible to:

- Liaise with emergency services;
- Liaise with technical advisors;
- Oversee management of the emergency (pending Emergency Services takeover);
- Coordinate persons at the Evacuation Point;
- Oversee clean-up operations;
- Attend the scene of an incident; and
- Be available on the afterhours contact number.

Note: When external emergency services arrive on site the Senior Emergency Services Officer (usually the Fire Brigade) takes on the role of Emergency Co-ordinator. Refer Figure 1: Emergency Organisation Flow Chart.

7.2 Operations Personnel (Technical and Process Controllers (Tilewrites))

The Operations Personnel have the responsibility to:

- Evacuate persons from the scene;
- Implement emergency actions as detailed in Appendix E: Emergency Procedures;
- Render first aid;
- Contact emergency services; and
- Advise the Emergency Coordinator.

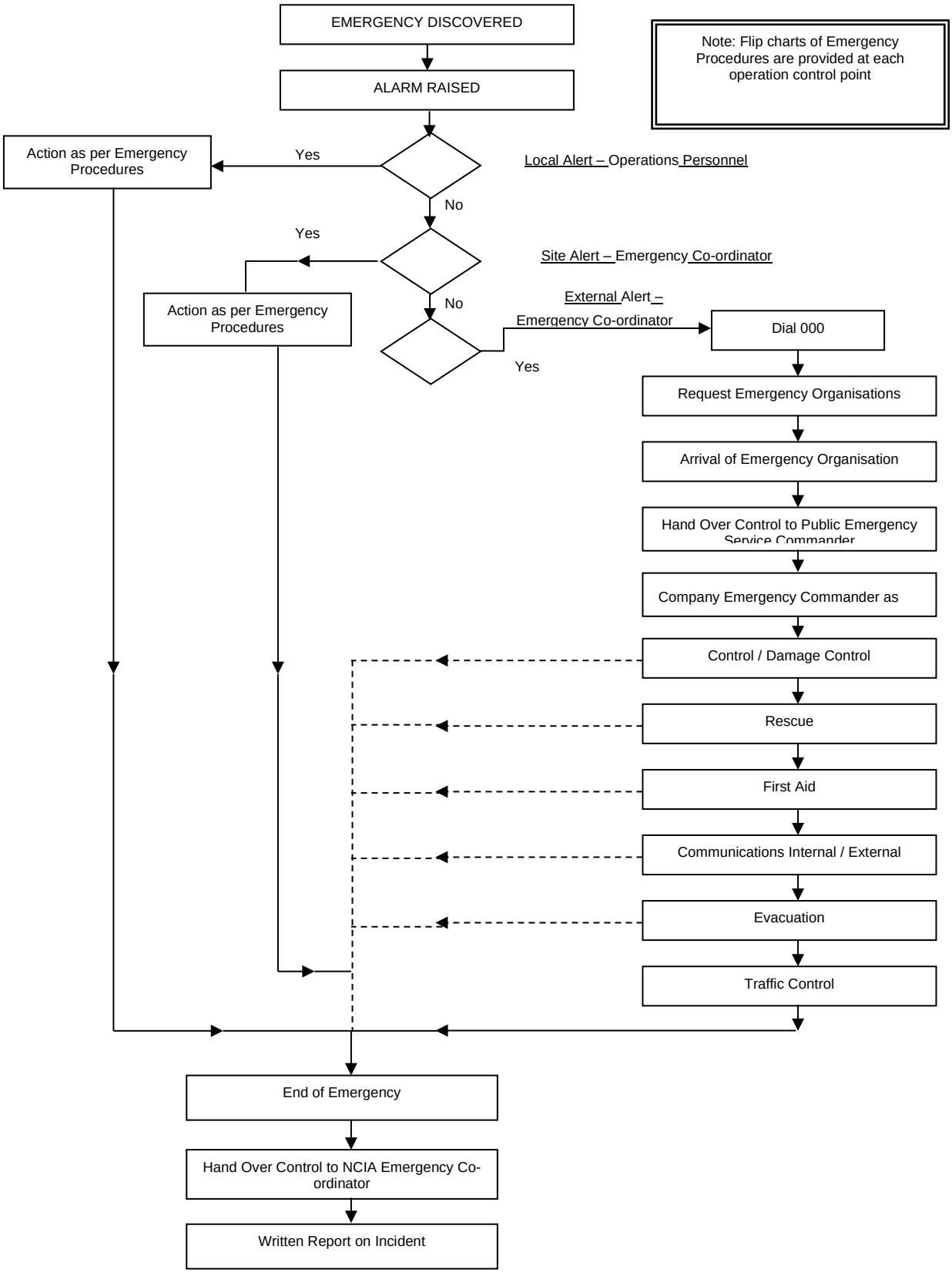

Figure 1 Emergency Organisation Flow chart

8.0 Training

8.1 Emergency Coordinator, Technical and Process Controllers (Tilewrites)

- First aid, 3 yearly
- Fire extinguisher and hose use, 12 monthly
- Vehicle spill management, 12 monthly
- Site spill kit, 12 monthly
- These procedures, 24 monthly
- Evacuation and response initiation, 6 monthly

8.2 Other Personnel

- Evacuation, 6 monthly

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9.0 Maintenance

All emergency equipment shall be checked on a monthly basis to ensure that all equipment is in place and operational. The lists detailed in Appendix D: Emergency Equipment Lists shall be checked off and a copy filed.

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10.0 Notification to Regulatory Authorities and Neighbours

Notification procedures for pollution incidents are set out in Section 3.0 of the Pollution Incident Response Management Plan (PIRMP) (which is attached as Appendix H of the OEMP). Under the *Protection of the Environment Operation Act 1997* (POEO Act) there is a duty to notify relevant authorities immediately after becoming aware of a pollution incident that causes or threatens material harm to the environment.

In the event of an immediate threat to human health or property, call 000 first to contact the emergency services. Fire and Rescue NSW, the NSW Police and the NSW Ambulance Service are the first responders.

If the event is determined to be a pollution incident (refer to Section 1.2 of the PIRMP) the Emergency Coordinator is responsible for immediately (that is, promptly and without delay) notifying all the authorities listed in Table 1.

Table 1 Notification to relevant authorities

Contact	Phone Number
1. The EPA Environment Line	131 555
2. The Ministry of Health via the Newcastle office of the Public Health Unit	02 4924 6477 (After hours calls divert to John Hunter Hospital – ask for the Public Health Officer on call)
3. SafeWork NSW	13 10 50
4. Maitland City Council	02 4934 9700 (Available 24 hours a day, 7 days a week)
5. Fire and rescue NSW	000 or 1300 729 579

Appendix G: ‘Neighbours’ contains the contact details of the site neighbours. If an emergency has the potential to affect them, such as fumes from a fire, they should be notified. Emergency services will determine if evacuation is necessary.

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Appendix A

Chemical Register

Appendix A Chemical Register

Table 2 Chemical Register

Product Name (Full)	Manufacturer & Supplier	Storage Locations	Quantity (maximum)	Dangerous Goods Class	Hazardous According to Worksafe	Notes (Technical advice contact details, alternate names etc)	MSDS Date
Natural Gas	Jemena Gas Networks	Pipeline capacity	160gJ/hr	2.1			
LPG			24kg	2.1			
Diesel	Mountain Industries	Outdoor storage tank	2400 ltr	C1			
Lubricating Oils			1600 ltr	C2			

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Appendix B

Emergency Situation Analysis

Appendix B Emergency Situation Analysis

Table 3 Emergency Situation Analysis

Facility	Possible Initiating Events	Possible Consequences	Prevention / Protection Measures	Emergency Procedures Identified
Diesel dispensing and Loading	Fuel leak / spill Vehicle collision with facilities Vandalism	Emission of toxic vapours or products Fire Property damage Injury	Control of ignition sources No combustibles stored in area Housekeeping No smoking signs Shear valves installed Bollards Bunded area Spill kit Extinguisher Emergency procedures First aiders Equipment designed to standards Equipment maintained to standards – integrity testing	Site Evacuation Fuel Spill Site Fire Serious Injury and Medical Emergency
Process Equipment	Gas leak / line rupture Electrical shock / Fault Grease ignition Vandalism Process heat Kiln / dryer confined space Fire	Explosion Fire Smoke, toxic products, hot gases released inside building effecting personnel Property damage Injury / burns Confined Space atmosphere Serious injury Fire fighting water on furnace resulting in kiln sudden temperature / pressure differential and potential explosion / steam	Gas line over / under pressure automatic cut-off Burner management system Modification control procedure Building ventilation Gas line physical protection and location markers Confined Space Procedures Extinguisher Emergency procedures First aiders Equipment designed to standards Equipment maintained to standards – integrity testing CO2 Fire extinguishers Housekeeping	Site evacuation Gas leak Site Fire Serious Injury and Medical Emergency Fuel Spill Electric Shock of Person

Facility	Possible Initiating Events	Possible Consequences	Prevention / Protection Measures	Emergency Procedures Identified
Delivery, raw materials and dispatch	Vehicle incident Fuel / Natural Gas leak Shrink wrap fire Pallet fire Guided forklift incident Electrical shock / Fault	Fire Injury Smoke, toxic products, hot gases released inside building effecting personnel Property damage Serious injury	Control of ignition sources Finished product segregated from empty pallet storage Flammables segregated from structural elements Roof ventilation Break glass alarms and automatic smoke detection alarmed to brigade No smoking signs Bollards Spill kit Extinguisher Emergency procedures First aiders Equipment designed to standards Equipment maintained to standards	Site evacuation Site fire Serious Injury and Medical Emergency Gas leak Electric Shock of Person
Store / office	Bomb threat Theft Armed hold-up Electric shock / fault Injury / heart attack	Personnel physical and mental trauma Loss of revenue Loss of property\Fire	Alarm system Emergency procedures Small float Backup personnel on site	Site Evacuation Site Fire Serious Injury and Medical Emergency Bomb Threat Robbery or Hostile Intruder Electric Shock of Person
Substation	Electrical fault Vandalism	Fire Explosion Injury Smoke, toxic products, hot gases released inside building effecting personnel Property damage	Electrical installation Safety Management Plan Smoke detection and alarm Training Electrical rescue kit First aiders Extinguishers	Site Evacuation Site Fire Serious Injury and Medical Emergency Electric Shock of Person.

Facility	Possible Initiating Events	Possible Consequences	Prevention / Protection Measures	Emergency Procedures Identified
		Electric shock	Equipment designed to standards Equipment maintained to standards	
Lubricating oil storage	Leak / spill Drum pieced and liquid discharge Vandalism Earthquake	Emission of toxic vapours or products. Fire Property damage Injury Spill	Bunding Spill kit Storage isolated from combustibles Extinguisher Emergency procedures First aiders	Site Evacuation Fuel Spill Site Fire Serious Injury and Medical Emergency

Appendix C

Site Maps

Appendix C Site Maps

Figure 2 Location Map – Site and Surrounds

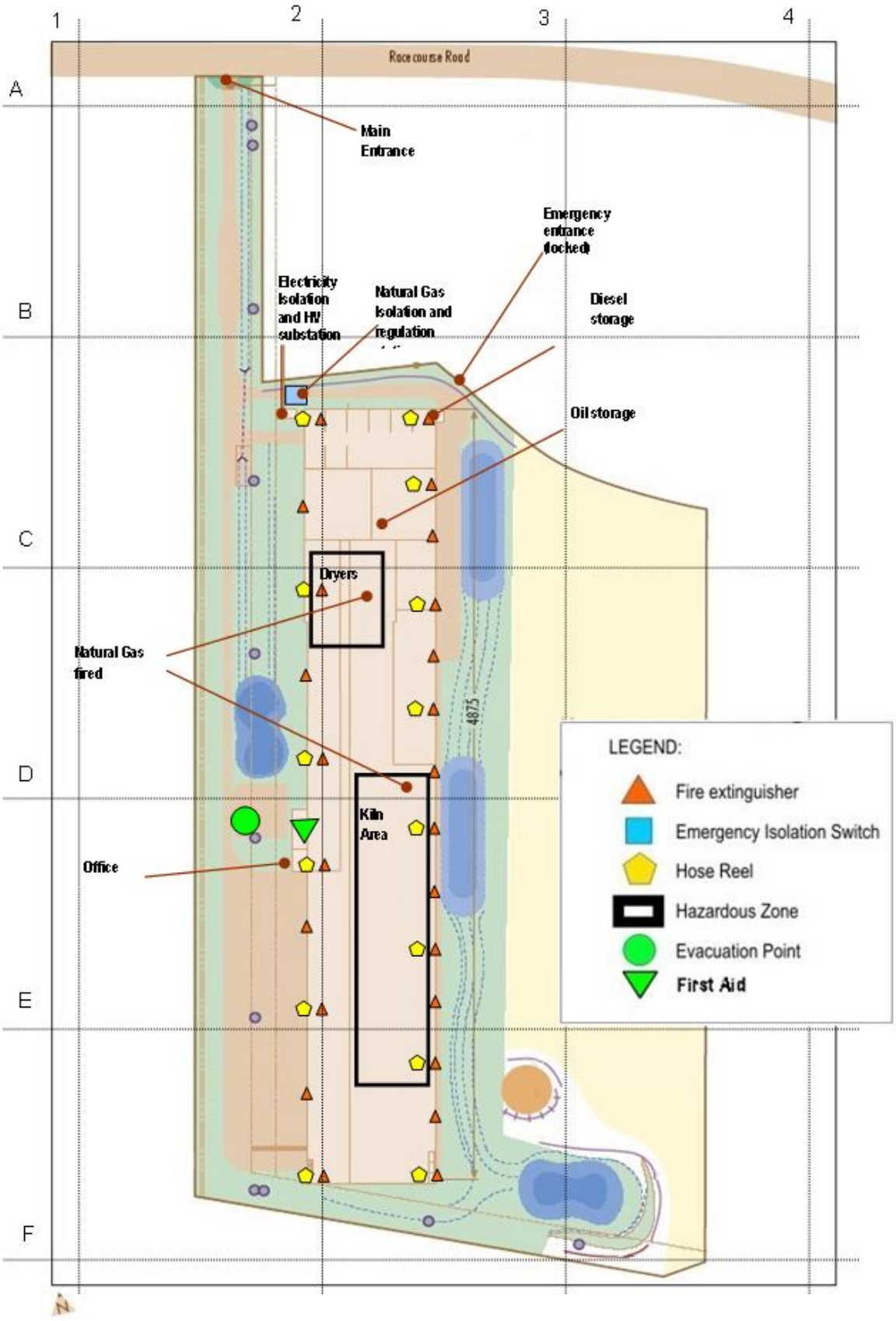

Figure 3 Location of Emergency Equipment

Appendix D

Emergency Equipment List

Appendix D Emergency Equipment List

Table 4 Emergency Equipment List

Emergency Equipment List Inspection Date: Name:			
No off	**Item**	**Serviceable Yes**	**No**
North Delivery Bay			
1	Spill kit		
South Dispatch Bay			
1	Spill Kit		
OFFICE			
1	First Aid Kit		
1	CPR MASK and gloves		
1	Burns kit		
1	AED		
Fire Extinguishers			
1	Fire Extinguisher		
2	Fire Extinguisher		
3	Fire Extinguisher		
4	Fire Extinguisher		
5	Fire Extinguisher		
6	Fire Extinguisher		
7	Fire Extinguisher		
8	Fire Extinguisher		
9	Fire Extinguisher		
10	Fire Extinguisher		
11	Fire Extinguisher		
12	Fire Extinguisher		
13	Fire Extinguisher		
14	Fire Extinguisher		
15	Fire Extinguisher		
16	Fire Extinguisher		
17	Fire Extinguisher		
18	Fire Extinguisher		
19	Fire Extinguisher		
20	Fire Extinguisher		
21	Fire Extinguisher		

Emergency Equipment List Inspection Date: Name:			
No off	**Item**	**Serviceable Yes**	**No**
22	Fire Extinguisher		
23	Fire Extinguisher		
24	Fire Extinguisher		
Hose Reels			
1	Fire Hose Reel		
2	Fire Hose Reel		
3	Fire Hose Reel		
4	Fire Hose Reel		
5	Fire Hose Reel		
6	Fire Hose Reel		
7	Fire Hose Reel		
8	Fire Hose Reel		
9	Fire Hose Reel		
10	Fire Hose Reel		
11	Fire Hose Reel		
12	Fire Hose Reel		
13	Fire Hose Reel		
14	Fire Hose Reel		
Electrical Switch room			
1	Live Rescue Set		
1	Emergency isolation points labelled – Gas		
1	Emergency isolation points labelled –water		
1	Emergency isolation points labelled –electricity		

Appendix E

Emergency Procedures

Appendix E Emergency Procedures

NCIA EMERGENCY CONTACTS

Item	Details / Contact
Site Location:	175 Racecourse Road Rutherford NSW 2320
	Nearest cross street - Gardiner Street
Ambulance:	000
Fire:	000
Police:	000
Hospital:	4939 2000 Maitland Hospital
Doctor:	Good Health Greenhills ph. 4939 4777
	6 Molly Morgan Drive, East Maitland NSW
Trauma Counselling:	1800 655 085 Mental Health Service (24 hour)
Water & Sewerage:	1300 657 000 – Hunter Water Corporation
Electricity:	13 34 66 Energy Australia
Poisons Information Centre:	13 11 26
Safety Authority:	13 10 50 – SafeWork NSW
Security Service:	Freeway Security 0418 865 657
Managing Director:	0447 800 028 – Chris Schneider
Factory Manager:	0438 797 697 – Craig Oliver
Deputy Factory Manager:	0417 277 810 – Peter Drinkwater
Emergency Co-ordinator:	Factory Manager – 0438 797 697
Deputy Emergency Co-ordinator:	Deputy Factory Manager – 0417 277 810
Natural Gas Emergency:	131 909 Jemena Gas Networks

SITE EVACUATION

In an emergency, for example, fire, bomb threat, explosion, earthquake, you may need to evacuate the site.

1. Give the warning to evacuate via the Mobile Phones.
2. Area Wardens (Tilewrites) to advise persons in area to evacuate
3. If safe to do so, plant and equipment should be turned off and made safe.
4. Leave your area by the nearest exit in an orderly manner.
5. Request any site visitor to come with you.
6. Assemble at the Evacuation Point and wait for further instruction. Do not leave the area unless told to by an Emergency Co-ordinator.
7. Obey the instructions of the Emergency Co-ordinator.
8. Emergency Co-ordinator to ensure everyone has assembled in the Evacuation area as per Visitors log and employee list.

Note: Evacuation of off site premises is to be actioned by the NSW Police based on advice from the Emergency Co-ordinator or other statutory authority.

Site Fire

1. Alert other people.
2. If small control using an extinguisher or Fire hose reel
3. Contact Fire Brigade, if not under immediate control
4. If safe move all vehicles and other items as appropriate to a safe area.
5. Attend to human life in immediate danger. If safe to do so, put the fire out using appropriate fire fighting equipment. For electrical fires turn off power before fighting. (Only if safe to do so).
6. For Kiln fires DO NOT USE WATER. Fire fighting water on furnace can result in kiln sudden temperature / pressure differential and potential explosion / steam.
7. Once out of building, stay out. Do not allow people to go back into a burning building to get valuables. While exiting the building close doors (but do not lock them) to slow the spread of fire.
8. Advise the Emergency Coordinator/Manager, who will take control of the situation. Obey all instructions.
9. Proceed to evacuation assembly area.

FUEL SPILL / LPG GAS LEAK

Large Fuel Spill (10L or more)

1. Shutoff engines and equipment if safe to do so.
2. Call the Fire Brigade “000”.
3. Eliminate all possible sources of ignition within 15 metres of the spill. Stop all activities.
4. Do not allow any equipment to be started.
5. If safe, stop leak by closing valves.
6. Evacuate all persons from the spill area. If possible stay up wind.
7. Place fire extinguishers advantageously.
8. Notify Manager.

Small Fuel Spill (10L or less)

1. Shutoff engines and equipment.
2. Advise persons in area of spill and request that no equipment is started until clean up completed.
3. Secure the spill area and ensure that there are no sources of ignition.
4. Clean up the spill using the absorbent material from the site spill kit.
5. When clean up is complete and the area safe, advise personnel. Notify Manager.
6. Dispose of contaminated material as per cleanup procedures.

NATURAL GAS LEAK

1. Shut off engines and any electrical equipment and leave ‘off’ until vapour hazard is removed.
2. Isolate equipment gas supply if safe to do so
3. No smoking or naked lights within 100 metres.
4. Inform the fire brigade, police and Gas Supplier.
5. Evacuate people from the area. Keep upwind.
6. Avoid breathing vapour.
7. Notify Manager.

SERIOUS INJURY AND MEDICAL EMERGENCY

1. Do not rush to the scene. Move quickly and calmly. Ensure there is no danger to you or the injured. If possible, do not leave the injured person and, if safe, do not move the injured person.
2. If injured person has been involved in a vehicle crash or roll over ensure the vehicle is stable before attending to injured person. Turn the engine off and, if possible, isolate the battery.
3. Contact a First Aider. Advise the type of injury, how bad it is, where you are and the number of people injured.
4. Have someone call an Ambulance, have them advise you when they expect to arrive.
5. Stay and wait for emergency team to arrive and direct them to the area.
6. Call Manager
7. Send someone to guide the emergency vehicles.

ELECTRIC SHOCK OF PERSON

1. If safe, turn off or disconnect the power supply. (Attempt to remove the live electric equipment with an insulated piece of material (for example dry wood, rubber or plastic) and if possible wearing rubber soled shoes. HIGH VOLTAGE – Do NOT attempt to rescue the victim until the current has been disconnected.)
2. If you cannot turn off the power, DO NOT grab the person.
3. Once clear of the power supply contact a First Aider and call an ambulance.
4. If required, send someone to the front gate (if possible, with a radio or mobile phone for communication) to guide the emergency vehicles and ensure that no unauthorised persons enter the site (for example the media or general public).

Bomb Threat

1. Remain Calm and do not hang up.
2. Ask the following questions:

Where did you put the bomb?
When is the bomb going to explode?
When did you put it there?
What does the bomb look like?
What kind of bomb is it?
What will make the bomb explode?

Did you place the bomb?
Why did you place the bomb?
What is your name?
Where are you now?
What is your address?

3. Try to record the exact wording of the threat.
4. Try to keep the caller talking and complete the following checklist (do not hang up because the call may be traced).

Voice:	Speech:		Telephone:	Background:
□ Man	□ Accent	□ Calm	□ Local	□ Music
□ Woman	□ Stutter	□ Angry	□ STD	□ Voices
□ Child	□ Fast	□ Slurred	□ Mobile	□ Traffic
□ Taped	□ Slow	□ Drunk	□ Unknown	□ Aircraft
□ Unknown	□ Loud	□ Other		□ Train
	□ Soft			□ Machinery

5. Notify the Manager.
6. If a suspected bomb is found:
   - Do not touch it.
   - Clear the area.
   - Notify the Manager
   - Prevent other people from entering the area near the bomb and, call the police.

ROBBERY OR HOSTILE INTRUDER

1. Stay calm and comply with the Robbers or Intruders demands.
2. Once the Robber or Intruder has left call the police.
3. Complete the Robber/Intruder description checklist.

Height:	Build:	Hair:	Eyes	Gender:	Age:
□ Short	□ Light	□ Brown	□ Blue	□ Male	□ Child
□ Medium	□ Medium	□ Blonde	□ Brown	□ Female	□ Youth
□ Tall	□ Heavy	□ Black	□ Green		□ Adult
□ Estimate	□ Estimate	□ Grey	□ Hazel		□ Estimate
……..	……..	□ Balding	□ Other		……..

4. Notify the Manager.

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Appendix F

Clean-Up Procedure

Appendix F Clean-Up Procedure

Clean Up Procedure

Spill kits are located at the North Delivery bay and South Dispatch bay.

For the cleanup of large spills, bunds or the disposal of materials from a cleanup the following companies shall be contacted:

- Coast and Valley Oil Distributors - Phone: 4388 5911 or 0419 977 268
- Veolia Environmental Services - Phone: 4956 5122 or 0411 700 566
- Environmental Waste Managers (Trans Pacific) - Phone: 4932 4466 or 0412 499 317

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Appendix G

Neighbours

Appendix G Neighbours

Table 5 Neighbours

	Company	Location	Phone	Address
1	Jurox – Veterinary pharmaceuticals manufacturer	West	4931 8200	85 Gardiner St Rutherford
2	Industrial Maintenance and Fabrications	West	4932 0321	73 Gardiner St Rutherford
3	SLS Group	West	4932 6304	71 Gardiner St Rutherford
4	Trius Constructions Pty Ltd	West	4932 9075	16 Gardiner St Rutherford
5	Nepean Longwall	West	4932 8944	64 Gardiner St Rutherford
6	Kings Engineering	West	4932 3766	57 Gardiner St Rutherford
7	Pipe Lining and Coating	West	4932 3889	53 Gardiner St Rutherford
8	Royal Equipment Pty Ltd	West	4932 4525	45 Gardiner St Rutherford
9	Formfab Metalwork	West	4932 9009	131 Gardiner St Rutherford
10	Level Electrical + Air Maitland	West	4932 1244	41 Gardiner St Rutherford
11	Fulton Hogan asphalting contractor	West	4931 8800	40 Gardiner St Rutherford
12	Harvest Pools	West	1300 926 150	25 Gardiner St Rutherford
13	100% Bottling Company	West	4939 1700	21 Gardiner St Rutherford
14	FCS	West	4932 4771	104 Kyle St Rutherford
15	AusGrid Substation	North	13 13 88	165 Racecourse Rd Rutherford
16	Gormo's Mechanical Services	North	4932 1510	137 Racecourse Rd Rutherford
17	RSPCA Hunter Shelter	North	4939 1555	6-10 Burlington Pl Rutherford
18	Goldsprings Heavy Haulage	North	4932 0622	107 Kyle St Rutherford
19	EMECO Mobile Plant	East	4931 8600	149 Racecourse Rd Rutherford

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Appendix H

Pollution Incident Response Management Plan

Appendix H Pollution Incident Response Management Plan

Prepared for
National Ceramic Industries Australia Pty Ltd
ABN: 83100467267

Pollution Incident Response Management Plan

NCIA, Rutherford

06-Feb-2024
NCIA PIRMP

aecom.com

Delivering a better world

Pollution Incident Response Management Plan

NCIA, Rutherford

Client: National Ceramic Industries Australia Pty Ltd

ABN: 83100467267

Prepared by

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06-Feb-2024

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AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 and ISO45001.

Quality Information

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			Name/Position	Signature
A	14-Aug-2012	Draft for NCIA Review	Graham Taylor Technical Director Environment	
0	23-Aug-2012	Final	Graham Taylor Technical Director Environment	
1	23-Feb-2018	Update for currency	James McIntyre Associate Director Environment	
2	06-Feb-2024	Update for currency	Cye Buckland Principal Technical Officer	

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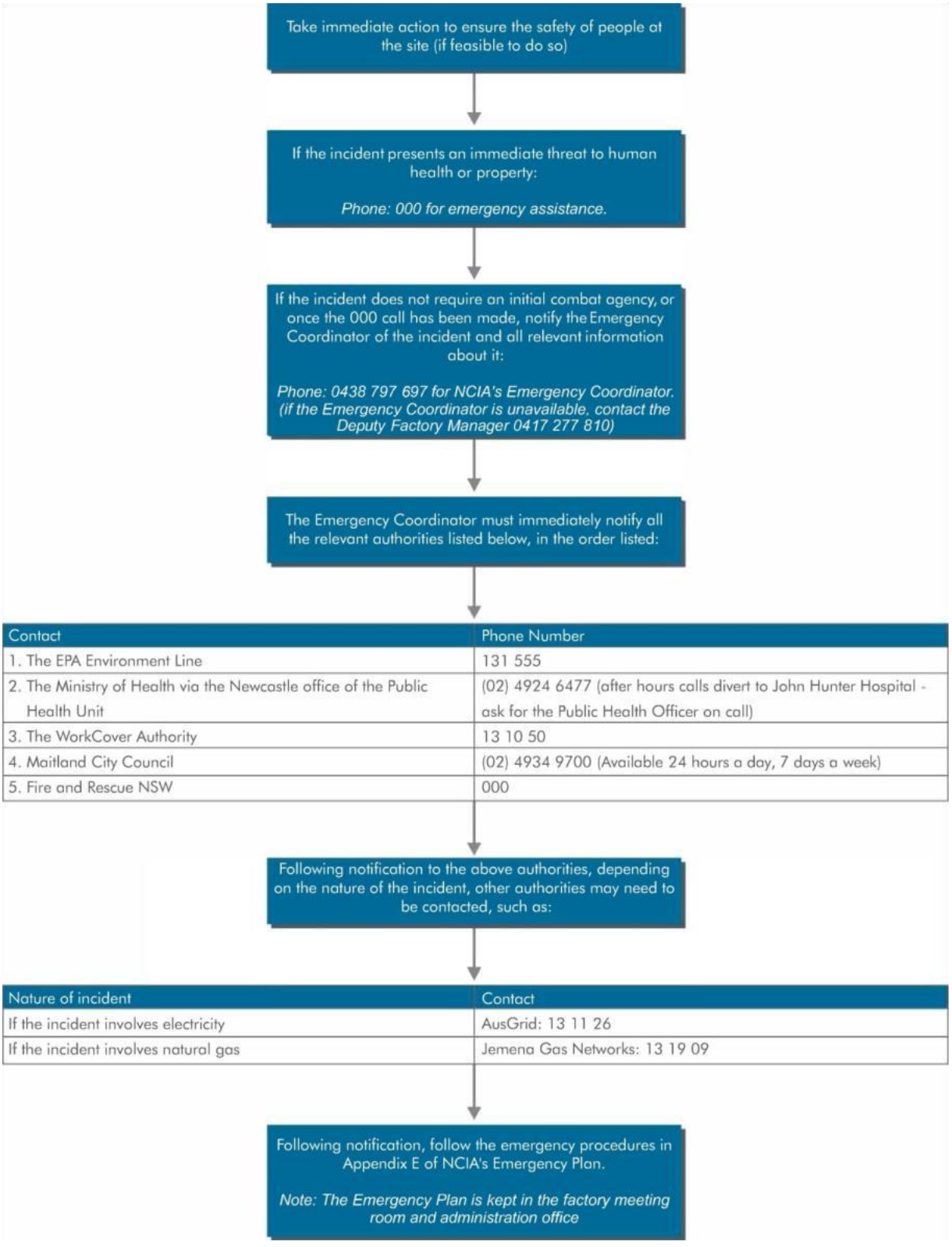
What to do if a Pollution Incident Occurs

A “Pollution Incident” is an incident that causes or threatens material harm to the environment (see Section 1.2).



Contact	Phone Number
1. The EPA Environment Line	131 555
2. The Ministry of Health via the Newcastle office of the Public Health Unit	(02) 4924 6477 (after hours calls divert to John Hunter Hospital - ask for the Public Health Officer on call)
3. The WorkCover Authority	13 10 50
4. Maitland City Council	(02) 4934 9700 (Available 24 hours a day, 7 days a week)
5. Fire and Rescue NSW	000

Nature of incident	Contact
If the incident involves electricity	AusGrid: 13 11 26
If the incident involves natural gas	Jemena Gas Networks: 13 19 09

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1.0 Introduction

This pollution incident response management plan (PIRMP) has been prepared for National Ceramic Industries Australia (NCIA) for the ceramic tile production facility, located within the Rutherford Industrial Estate, Rutherford, NSW.

The PIRMP sets out the procedure to be followed in the event of a pollution incident at the site. The objectives of the PIRMP are to:

- Ensure comprehensive and timely communication about a pollution incident to personnel at the site, the Environment Protection Authority (EPA), other relevant authorities, and people in the community who may be affected by the impacts of the pollution incident;
- Minimise and control the risk of a pollution incident at the site by requiring identification of risks and the development of planned actions to minimise and manage those risks; and
- Ensure that the PIRMP is properly implemented by trained staff, identifying persons responsible for implementing it, and ensuring that the plan is regularly tested for accuracy, currency and suitability.

1.1 Legislative requirement for the Plan

The ceramics facility operates under Environment Protection Licence (EPL) 11956. In accordance with

the *Protection of the Environment Operations Act 1997* (POEO Act), all EPL holders are required to prepare and implement a PIRMP for each licenced site. Part 5.7A, section 153A of the POEO Act states:

> *Duty of licence holder to prepare pollution incident response management plan.*
>
> *The holder of an environment protection licence must prepare a pollution incident response management plan that complies with this Part in relation to the activity to which the licence relates.*

The PIRMP must include the information detailed in the POEO Act and content specified in the POEO (General) Regulation. This PIRMP has been prepared in accordance with the POEO Act, the Regulation, and the EPA guidelines “Preparation of pollution incident response management plans”, 2012. A checklist of legislative requirements and where those requirements have been met in this PIRMP is provided in Appendix A.

Offences have been introduced under the legislation for not preparing a PIRMP. Offences are also in place for not keeping the PIRMP at the premises to which it relates, not testing the PIRMP in accordance with the Regulation, and not implementing the PIRMP when an incident occurs.

1.2 What is a Pollution Incident?

In accordance with the POEO Act (section 153F), if a pollution incident occurs in the course of an activity so that material harm to the environment is caused or threatened, the person carrying on the activity must immediately implement the PIRMP.

‘Pollution Incident ‘is defined in the dictionary of the POEO Act as:

> *A pollution incident means an incident or set of circumstances during or as a consequence of*
>
> *which there is, or is likely to be, a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.*

‘Material Harm’ is defined in section 147 of the POEO Act. Material harm includes on-site harm, as well as harm to the environment beyond the premises where the pollution incident occurred.

147 Meaning of material harm to the environment

(1) For the purposes of this Part:

(a) harm to the environment is material if:

(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or

(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations), and

(b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

(2) For the purposes of this Part, it does not matter that harm to the environment is caused only in the premises where the pollution incident occurs.

1.3 Immediate notification

EPL licensees, and anyone carrying on an activity or occupying a premises who becomes aware of a pollution incident, are required to report the pollution incident **immediately** (under section 148 of the POEO Act). (Formerly the requirement was 'as soon as practicable'.)

'Immediate' means licensees need to report pollution incidents promptly and without delay. There is a $2 million maximum penalty for failure to notify of a pollution incident in accordance with the requirements of the POEO Act.

The requirement to notify applies to:

- All holders of EPLs; and
- Persons that undertake activities resulting in a pollution incident.

Further information regarding notification and who to notify is specified in Section 3.0 of this PIRMP.

2.0 The Site

2.1 Location

The ceramic tile manufacturing facility is located at 175 Racecourse Road, Rutherford, in the Rutherford Industrial Estate. The facility produces ceramic wall and floor tiles for the domestic market.

The site is immediately surrounded by industrial neighbours. Close by the estate is rural land, future residential land, and a retail centre. A map showing the premises and the surrounding environment is provided at Appendix B, Figure 1.

2.2 Site Activities

The site operates 24 hours a day, seven days a week. The site consists of a main production building, sales and business office, laboratory facilities, raw materials receival, mixing, pressing, drying, glazing and firing facilities stacking, packing and storage facilities, and water detention ponds.

The manufacturing facility is housed within the main production building. All processes occur within the building including:

- Unloading and storage of raw materials;
- Milling and pressing;
- Glazing and printing;
- Tile firing (in kilns); and
- Product packaging and sorting.

Finished tiles are stored and loaded for distribution outside of the building in the south western corner of the site.

The raw materials are used in the production process includes: clay, white granite, rhyolite, and glazes. Operations require gas for the production process, and diesel for mobile plant used for loading and unloading.

All transport to and from the site is via road. Semi-trailers and B-double trucks transport the raw materials and finished product.

2.3 Environmental Site Documents

EPL 11956 allows ‘ceramics production’ at the site (up to 200,000 tonnes produced per annum). The EPL also requires monitoring at the site to ensure compliance with environmental limits specified in the EPL.

NCIA’s site documents provide environmental, health and safety controls for the site. These include NCIA’s:

- Emergency Plan;
- Safety Management System; and
- Operation Environmental Management Plan.

These documents are periodically reviewed and updated.

In addition, standard and site-specific procedures and management plans are in place to direct activities undertaken at the site. The procedures and plans outline the checks, testing, and safety requirements taken to promote a safe working environment for people, and to manage potential impacts to the environment.

Safety goals are achieved through performance of personnel and equipment to a defined standard listed in NCIA’s “Occupational Health and Safety Manual”.

Relevant Australian Standards are applicable to activities at the site. Various legislative requirements also apply to activities at the site and are complied with.

3.0 Pollution Incident Notification Protocol

3.1 When is notification required?

If a pollution incident occurs in the course of an activity that causes or threatens material harm to the environment there is a duty to notify. A definition of pollution incident and an explanation of material harm are provided at Section 1.2.

The duty to notify does not apply to a pollution incident involving only the emission of an odour and does not include an incident or set of circumstances involving only the emission of noise.

You are not required to notify if the incident is an ordinary result of action required to be taken to comply with the EPL at the site, an environment protection notice or other requirement of the POEO Act.

3.2 Who has a duty to notify?

Under the POEO Act, the following people have a duty to notify of the pollution incident:

- The person carrying on the activity (including casual or shift workers, or contractors);
- An employee or agent carrying on the activity;
- An employer carrying on the activity; and
- The occupier of the premises where the incident occurs.

Notification must be given immediately, i.e. promptly and without delay, after the person becomes aware of the incident (in accordance with section 148, POEO Act).

Penalties can apply if there is a failure to notify ($2,000,000 for a corporation and $500,000 for an individual). A person must notify even though the notification might incriminate the person.

3.3 Who do you notify?

Firstly, call 000 if the incident presents an immediate threat to human health or property. Fire and Rescue NSW, the NSW Police, and the NSW Ambulance Service are the first responders, as they are responsible for controlling and containing incidents.

If the incident does not require an initial combat agency, or once the 000 call has been made, you must immediately notify the Emergency Coordinator of the incident and all relevant information about it. The Emergency Coordinator will contact the Managing Director. Contact details for the Emergency Coordinator and Managing Director are provided in Table 1. (In the absence of the Emergency Coordinator, the Deputy Factory Manager will fulfil the responsibilities of the Emergency Coordinator.)

Table 1 Notification to NCIA

Contact	Phone Number
Emergency Coordinator (Factory Manager)	0438 797 697
Deputy Factory Manager	0417 277 810
Managing Director	0447 800 028

The Emergency Coordinator is:

i. Responsible for activating the PIRMP;

ii. Authorised to notify relevant authorities as advised below; and

iii. Responsible for managing the response to a pollution incident.

Upon receiving notification, the Emergency Coordinator must determine if the event is a pollution incident (refer to section 1.2). If it is a pollution incident, the Emergency Coordinator must then immediately (that is, promptly and without delay), provide notification of the pollution incident to all the authorities identified in Table 2, in the order as listed.

Table 2 Notification to Relevant Authorities

Contact	Phone Number
1. The EPA Environment Line	131 555
2. The Ministry of Health via the Newcastle office of the Public Health Unit	02 4924 6477 (After hours calls divert to John Hunter Hospital - ask for the Public Health Officer on call)
3. The WorkCover Authority	13 10 50
4. Maitland City Council	02 4934 9700 (Available 24 hours a day, 7 days a week)
5. Fire and Rescue NSW	000

Whenever an incident notification is made, **all five** relevant authorities must be contacted. For example

- If you initially rang Fire and Rescue on 000 due to an immediate threat to life and property, you must still contact the other four authorities; or
- If the incident did not require an initial combat agency, you must still notify all of the response authorities (including Fire and Rescue) in the order listed in Table 2.

You do not have to notify if you know that all relevant authorities are already aware of the incident (section 151 POEO Act).
If, at the time of making the notification, you believe that some of these authorities do not need to attend the incident, you may provide that advice. However, you must still provide all the information you have regarding the incident to each authority. It is the responsibility of each authority to decide whether they need to attend the incident.

Where authorities decide not to attend, the incident notification enables each authority to respond to enquiries about the incident and provides them with initial information in the event that the incident escalates or their involvement in managing the incident is required at some later stage.

NCIA may also need to make the following notifications depending on the nature of the incident:

- If the incident involves Natural Gas, contact Jemena Gas Networks: 13 19 09; and
- If the incident involves electricity, contact AusGrid: 13 11 26.

3.4 What information must you provide?

Sufficient detail of the incident must be reported to the EPA to enable appropriate follow-up action. The relevant information required includes:

a. The time, date, nature, duration and location of the incident;

b. The location of the place where pollution is occurring or is likely to occur;

c. The nature, the estimated quantity or volume and the concentration of any pollutants involved, if known;

d. The circumstances in which the incident occurred (including the cause of the incident, if known); and

e. The action taken or proposed to be taken to deal with the incident and any resulting pollution or threatened pollution, if known.

Any information that is not known when the incident is notified must be provided immediately once it becomes known.

3.5 Coordination with authorities

In the event of an immediate threat to life and property, the incident will be coordinated by emergency services. In such a case, when external emergency services arrive on site their Senior Emergency Services Officer (usually from the Fire Brigade) will take on the role of Emergency Coordinator. NCIA will act under instruction from emergency services and take any action as directed to combat pollution caused by the incident.

The NCIA person through whom all communications are to be made to coordinate with authorities in such a case is the NCIA Emergency Coordinator.

3.6 Incident reporting under the Project Approval

The NCIA facility operates under Project Approval MP 09_0006, which includes the following requirements with regard to incident reporting:

> ***Schedule 4 Condition 58***
>
> *Within 24 hours of the occurrence of an incident that causes (or may cause) harm to the environment, the Proponent shall notify the Department and any other relevant agencies of the incident.*
>
> ***Schedule 4 Condition 59***
>
> *Within 7 days of the detection of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.*

The Project Approval defines an incident to be

> '*An incident causing or threatening material harm to the environment or human health, and/or an exceedance of the limits or performance criteria in this approval'.*

Therefore in addition to the reporting of incidents that cause or may cause material harm to the environment, all exceedances of the performance criteria set out in the Project Approval are to be notified to the Department of Planning and Environment (DP&E) compliance team upon receipt of verified laboratory analysis.

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4.0 Community Engagement Protocol

4.1 Wider notification

The EPA can formally direct NCIA to notify others. This direction will require NCIA to contact commercial, industrial and residential neighbours to inform them of the circumstances of the incident and what action is being taken in response to it. It will be an offence not to comply with such a direction.

The EPA may advise NCIA of the extent of notification required. If not, NCIA would determine the extent of who to contact based on the nature of the pollution incident and the conditions at the time (for example, the type of pollutant, prevailing winds, magnitude of incident, and possible impacts).

4.2 Communication mechanisms

In the event that the pollution incident is being coordinated by emergency services, communications would be under the control of emergency services. Emergency services are able to send out SMS messages to defined catchment areas to alert and advise the community if required. NCIA would work with emergency services to provide communications assistance and support, including direct doorknocks if they were required.

If communication is not coordinated by emergency services, notification to the owners or occupiers of premises in the vicinity of the NCIA ceramics facility would be coordinated by NCIA's Emergency Coordinator.

A list of neighbours within the vicinity (located on Gardener Road, Kyle Street, Racecourse Road and Burlington Place) and their telephone numbers is provided in the Emergency Plan.

NCIA has a variety of mechanisms available for providing early warnings and regular updates to neighbours and the community. The mechanisms to be employed would depend on the nature of the incident and include:

- Telephone calls and SMS messages to immediate neighbours;
- Media releases to the broader community (radio and television);
- Incident notification on the NCIA website;
- Emails to community representatives; and
- Doorknocking of affected neighbours and community members.

The communication response to be used in the event of a pollution incident would depend on the circumstances of the event, and any direction that may be provided by the EPA.

4.3 Information to be provided

In the event of a pollution incident, communication to the community would include specific information to minimise the risk of harm. For example, this may include instructions to close windows and doors and remain inside for incidents involving emission of air pollutants.

The information to be provided would be dependent on the nature and circumstances of the event.

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5.0 Site Response

This section of the PIRMP provides a description of the action that would be taken immediately after a pollution incident has been notified.

5.1 Minimise risk to persons on premises

The first response is always to ensure that risk to people at the site is minimised.

NCIA has 61 personnel who are involved in management and administration, sales and marketing, laboratory and technical work, and process control. At any given time, the site could potentially also accommodate truck drivers, specialist contractors in maintenance or equipment operation.

Any emergency incident at the site shall be dealt with according to:

- **NCIA's Emergency Plan.**

This procedure specifies the arrangements for minimising the risk of harm to any persons at the ceramics facility should an emergency occur. The action to be taken would depend on the type of emergency and may include:

- Activating the warning alarm/s;
- Evacuating personnel to evacuation assembly points; and
- Emergency shutdown.

The Emergency Plan provides specific strategies for:

- Emergency communication;
- Emergency response and control; and
- Clean-up following an emergency.

If medical advice is required, NCIA has an ongoing relationship with health providers. Contact phone numbers for medical assistance are provided in the Emergency Plan (refer to Appendix E of the Emergency Plan).

5.2 Reduce or Control Pollution Incident

Only if it is safe to do so should action be taken to reduce or control the pollution incident.

The actions to be taken to ensure that NCIA manages a response to environmental emergencies (including fuel spill and gas leaks) have been identified in:

- **NCIA's Emergency Plan.**

The Emergency Plan is kept in the factory meeting room and administration office and refers to specific workplace procedures depending on the incident that has occurred. Which procedure to be followed will depend on the nature of the incident and will be determined by the supervisors and managers on site at the time of the incident. Procedures relevant to pollution incidents are provided in the Emergency Plan including procedures for:

- Site evacuation;
- Response in the instance of a site fire;
- Fuel spill or LPG gas leak; and
- Natural Gas leak.

These procedures are provided in the Emergency Plan (refer to Appendix E of NCIA's Emergency Plan). The procedures include arrangements for stopping-work, deployment of spill containment equipment, and clean up action.

These procedures are provided in the Emergency Plan (refer to Appendix E of NCIA's Emergency Plan). The procedures include arrangements for stopping-work, deployment of spill containment equipment, and clean up action.

NCIA's Emergency Coordinator shall ensure those persons responsible for the pollution incident take the appropriate clean up steps following the incident. Waste handling and disposal procedures are specified in the Emergency Plan (refer to Appendix F of the Emergency Plan), and include contact details for waste disposal contractors.

NCIA is responsible for disposing waste hazardous substances through a licensed contractor. Under no circumstances should any oily waste, hazardous substances or garbage materials be discharged into any stormwater drains.

6.0 Hazards

This section of the PIRMP identifies the main potential hazards to human health or the environment associated with activities at the ceramics facility. Table 3 identifies:

- The main potential hazards;
- The likelihood of these hazards occurring;
- The conditions or events that could, or would, increase the likelihood of hazards occurring; and
- Pre-emptive actions.

The likelihood of hazards occurring has been reduced through the implementation of pre-emptive actions. Pre-emptive actions are undertaken to minimise or prevent any risk of harm to human health or the environment arising out of site activities. Pre-emptive actions listed in Table 3 are not exhaustive of all pre-emptive measures taken at the site.

Table 3 Main Hazards and Pre-Emptive Actions

Main Hazards	Likelihood Occurring	Conditions or events that likelihood of the hazard	Pre-emptive Actions
Emission of toxic vapors	Low	• Fire • Explosion • Spillage of product	• Finished product segregated from empty pallet storage • Flammables segregated from structural elements • Equipment designed and maintained to standards • Building ventilation • Regular testing and maintenance of site equipment • Training of personnel operating machinery • Monitoring discharges to air as Specified in EPL 11956 • Dust extractor installed • Air quality controls installed
Fire	Low	• Fuel or oil leak from vehicle or equipment damage • Vandalism • Gas leak or natural gas • release at the furnace, dryer or shrink wrap unit • Equipment/process failure • (shrink wrap fire, pallet fire) • Substation electrical fault	• Control of ignition sources • Finished product segregated from empty pallet storage • Flammables segregated from structural elements • No combustibles stored in area • Good housekeeping. Keeping site clean • No smoking policy inside the factory • Regular maintenance of site equipment • Electrical installation follows Safety Management Plan • Natural gas system has been designed and installed in accordance with Australian Standards, AGL requirements and HAZOP study outcomes

Main Hazards	Likelihood Occurring	Conditions or events that likelihood of the hazard	Pre-emptive Actions
Oil/Fuel Spill	Low	• Poor maintenance of mobile equipment/transport leading to line breakage, drips, and spills • Vehicle accident • Poor oil storage • Leak from transformers at substation • Rupturing of • transformers • Fire	• Regular testing and maintenance of site equipment • Pre-start checks on machinery • Bunding of oil storage drums • Oil storage isolated from combustibles • Substation transformers located in a contained area • Regular inspection of substation transformers • Vehicles are required to comply with the site speed limit (20 kph) to prevent incidents • Automatic guided vehicles have a laser guidance system • To ensure safety of personnel. The system is continuously monitored for correct operation and routinely maintained
Gas leak/explosion	Low	• Natural Gas pipeline over or under pressure • Pipeline rupture • LPG tank rupture • Gas release into the furnace • Vandalism • Fire	• Finished product segregated from empty pallet storage • Flammables segregated from structural elements • Equipment designed and maintained to standards • Building ventilation • Regular testing and maintenance of site equipment • Training of personnel operating machinery • Monitoring discharges to air as Specified in EPL 11956 • Dust extractor installed • Air quality controls installed
Gas jet fire from natural gas release prior to the metering station	Low	• Poor equipment maintenance and installation • Damage to equipment	• A Natural gas system has been designed and installed in accordance with Australian Standards, AGL requirements and HAZOP study outcomes • The system pressure is reduced at the metering station adjacent to the site entry. • The system has automatic over pressure protection, pressure relief and a burner management system • Equipment operation and alarms will be regularly tested as part of the factory testing and inspection system. In particular the “gas shutoff on flame failure” and “no gas flow until furnace area is purged” safeguards have defined and rigorous testing frequencies and procedures

Main Hazards	Likelihood Occurring	Conditions or events that likelihood of the hazard	Pre-emptive Actions
Kiln explosion	Low	• Equipment failure • Fire fighting water on furnace resulting in sudden temperature / pressure differential	• Burner management system • Equipment designed to standards • Equipment maintained to standards integrity testing • Dry powder extinguishers have been installed throughout the ceramics facility to provide effective fire fighting as required
Dust from Product	Moderate	• Spillage of raw material • Dust release from failed bags in the dust extraction unit • Loading/unloading in adverse weather conditions • Poor loading/unloading practices • Vehicle accident	• The site is maintained in a condition which minimises or prevents the emission of dust from the premises • Dust extraction system installed. This system collects dust from distributed collection points throughout the process, and passes the dust/air stream through a bag house. Differential pressure alarms and opacity meters are installed on the bag units to indicate bag failure • Air quality controls installed • Loading and unloading occurs within the main building • No outside loading/unloading • Loose product is stockpiled inside the main building. No stockpiling outside • Yard is watered to reduce dust potential. • All equipment used during the loading/unloading operation is thoroughly cleaned prior to its removal from site

Other general pre-emptive measures include:

- Site security: the site has perimeter security fencing and 24 hours security arrangements to reduce risk of damage as a result of break-ins;
- Training: site inductions and training are undertaken so people understand appropriate work practices and appropriate actions to prevent hazards occurring. Exercises are periodically conducted to test emergency processes and to understand procedures; and
- Maintenance: effective systems of planned maintenance, inspection, testing and minor modifications are in place at NCIA to reduce associated risks to ‘as low as reasonably practicable’.

  Regular plant and equipment maintenance activities ensure that the plant and equipment retain their standards. Safety critical equipment and procedures identified are maintained, inspected and tested rigorously. The regular plant and equipment maintenance activities are carried out according to the Maintenance Procedures.

Hard copies of the MSDSs for chemicals or fuels used or stored at the ceramics facility (including safety equipment) are located onsite.

Controls for the use, handling and storage of all hazardous substances at the site are specified in NCIA’s Safety Management System. The Safety Management System specifies safety related procedures along with details of mechanisms for ensuring adherence to procedures. As such the Safety Management System is the controlling document for all operations on-site involving potentially hazardous activities.

7.0 Potential Pollutants

This section of the PIRMP provides an inventory of potential pollutants kept at the NCIA ceramics facility or used in carrying out activities at the site.

The list of potential pollutants likely to be stored or held; the maximum quantity likely to be stored or held; and the storage location is provided in Table 4.

Table 4 Inventory of Potential Pollutants

Potential Pollutant	Maximum Quantity	Storage Location
Natural Gas	160gJ/hr pipeline capacity)	Natural Gas is supplied to the site via a pipeline to dryers, kiln and packaging areas. The Natural Gas pipeline, and Natural Gas isolation and regulation area is located as shown in Appendix B, Figure 1
Diesel	2400 Litres	Bunded internal diesel storage tank. Located as shown in Appendix B, Figure 1
Lubricating Oils	1600 Litres	Located as shown in Appendix B, Figure 1

Figure 1 showing the storage locations of potential pollutants is provided at Appendix B.

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8.0 Safety Equipment

This section of the PIRMP provides a description of the safety equipment or other devices that are used to minimise the risks to human health or the environment and to contain or control a pollution incident.

A list of the safety equipment and the location where this equipment is stored is provided in Table 5. Additional product or activity-specific safety equipment may be required and is detailed in the site procedures.

Table 5 Safety Equipment

Description	Storage Location
PPE (as required and listed within the site procedures)	Each person maintains and stores own PPE
CPR mask and gloves	Office
Burns Kit	Office
Fire hose reels and extinguishers NOTE: Due to the hazard of water/furnace contact (resulting in kiln sudden temperature / pressure differential and potential explosion / steam) it is not advisable to use water for fire fighting in the kiln area. Dry powder extinguishers have been installed throughout the ceramics facility to provide effective fire fighting as required.	Located as shown in Appendix B, Figure 1
Spill kits/bins	North Delivery Bay South Delivery Bay
Site first aid kit	Office Factory Clay preparation area
Automatic smoke detection (alarmed to brigade)	Control Centre
Natural Gas isolation point	Located as shown in Appendix B, Figure 1
Electricity Isolation point	Located as shown in Appendix B, Figure 1

All emergency equipment is checked periodically in accordance with the Emergency Plan to ensure it is in place and operational.

Safety Critical Systems are checked in accordance with the Safety Management System. The maintenance programme includes the testing of all instrument's trips and alarms.

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9.0 Staff Training

Training on the PIRMP will be provided to all personnel working at the ceramics facility (employees and contractors). The objective of the training is to inform all workers of the process to be followed in the event of a pollution incident, the notification protocol, and actions to be taken.

PIRMP training would initially occur as part of a toolbox talk.

All new employees and contractors working at the site would be briefed on the PIRMP as part of their induction and briefing on emergency procedures.

Ongoing training would be provided annually at formal training sessions. At the annual training sessions desktop scenarios would be discussed based on the likely risks and potential incidents that could occur at the site. Competency of trainees will be checked via a short-answer questionnaire to be completed at the end of training.

If a change is made to the PIRMP that impacts on the procedures to be followed in the event of a pollution incident, the update would initially be communicated as part of a toolbox talk.

Training records will be kept in the NCIA document control.

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10.0 Testing the Plan

To check that the PIRMP works effectively the PIRMP must be tested:

a. Routinely at least once every 12 months; and

b. Within one month of any pollution incident occurring.

The objective of testing is to assess whether the information included in the PIRMP is accurate and up to date and the PIRMP is capable of being implemented in a workable and effective manner.

The routine testing will be a desktop assessment. During the desktop assessment the PIRMP will be reviewed and all components of the plan will be checked:

- Contact details will be checked to ensure they are up-to-date;
- Procedures in the PIRMP will be checked to ensure they are workable, and
- Training competency and feedback will be considered to assess the effectiveness of PIRMP training.

Annual PIRMP testing would be recorded in NCIA's document control, including:

- The dates on which the plan has been tested; and
- The name of the person who carried out the test.

Following testing, if the PIRMP is updated, the dates on which the plan is updated will be recorded in NCIA document control.

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11.0 Plan Availability

11.1 Onsite PIRMP availability

A copy of this PIRMP must be kept at the site and is to be readily available to any person who is responsible for implementing the plan.

In accordance with the POEO Regulation, a copy of the PIRMP is to be made readily available to an authorised EPA officer on request.

11.2 Public availability

The PIRMP is to be made publicly available in a prominent position on the NCIA publicly accessible website within 14 days after it is prepared. The parts of the PIRMP that must be made publicly available are specified in 98D(3) of the POEO Regulation (which refers to parts of the POEO Act and the POEO Regulation). The parts of the PIRMP that must be made publicly available are listed in Table 6.

Table 6 PIRMP information to be publicly available

Information required	Section of this PIRMP which contains the information
POEO Act, section 153C(a)	
The procedures to be followed by the holder of the relevant environment protection licence, or the occupier of the relevant premises, in notifying a pollution incident to: (i) the owners or occupiers of premises in the vicinity of the premises to which the environment protection licence or the direction under section 153B relates, and	Section 4.0
(ii) the local authority for the area in which the premises to which the environment protection licence or the direction under section 153B relates are located and any area affected, or potentially affected, by the pollution, *[the local authority is Maitland City Council. The area in which the site is located is described in Section 2.1],* and	Section 3.0 and 4.0
(iii) Any persons or authorities required to be notified by Part 5.7 *[that is: the regulatory authorities; and commercial, industrial, and residential neighbours as directed by the EPA].*	Section 3.0 and 4.0
POEO Regulation, clause 98C(1)	
(h) The contact details of each relevant authority referred to in section 148 of the Act: - the appropriate regulatory authority [at the ceramics facility the EPA is the appropriate regulatory authority], - if the EPA is not the appropriate regulatory authority - the EPA, - if the EPA is the appropriate regulatory authority - the local authority for the area in which the pollution incident occurs [the local authority is Maitland City Council], - the Ministry of Health, - the WorkCover Authority, and - Fire and Rescue NSW	Section 3.3
(i) details of the mechanisms for providing early warnings and regular updates to the owners and occupiers of premises in the vicinity of the premises to which the licence relates or where the scheduled activity is carried on	Section 4.2

Any personal information within the meaning of the *Privacy and Personal Information Protection Act 1998* is not required to be included in the PIRMP that is made publicly available.

Appendix A

PIRMP Legislative Checklist

Appendix A PIRMP Legislative Checklist

The legislative requirements of the PIRMP and where these requirements have been met in this document are shown in Table 7.

Table 7 Legislative Requirements of the PIRMP

Legislation	Requirement	Section in this PIRMP where requirement met
POEO Act: Part 5.7A Duty to prepare and implement pollution incident response management plans		
153A Duty of licence holder to prepare pollution incident response management plan	The holder of an environment protection licence must prepare a pollution incident response management plan that complies with this Part in relation to the activity to which the licence relates.	This PIRMP
153C Information to be included in plan	A pollution incident response management plan must be in the form required by the regulations and must include the following: a. The procedures to be followed by the holder of the relevant environment protection licence,or the occupier of the relevant premises, in notifying a pollution incident to: i. the owners or occupiers of premises in the vicinity of the premises to which the environment protection licence or the direction under section 153B relates, and ii. the local authority for the area in which the premises to which the environment protection licence or the direction under section 153B relates are located and any area affected, or potentially affected, by the pollution, and iii. any persons or authorities required to be notified by Part 5.7	Section 3.0 and 4.0
	b. A detailed description of the action to be taken, immediately after a pollution incident, by the holder of the relevant environment protection licence, or the occupier of the relevant premises, to reduce or control any pollution.	Section 5.0
	c. The procedures to be followed for coordinating, with the authorities or persons that have been notified, any action taken in combating the pollution caused by the incident and, in particular, the persons through whom all communications are to be made.	Section 3.5, 4.2 and Table 1
153D Keeping of plan	A person who is required to prepare a pollution incident response management plan under this Part must ensure that it is kept at the premises to which the relevant environment protection licence relates, or where the relevant activity takes place, and is made available in accordance with the regulations.	Section 11.1
153E Testing of plan	A person who is required to prepare a pollution incident response management plan under this Part must ensure that it is tested in accordance with the regulations.	Section 10.0

Legislation	Requirement	Section in this PIRMP where requirement met
153F Implementation of plan	If a pollution incident occurs in the course of an activity so that material harm to the environment (within the meaning of section 147) is caused or threatened, the person carrying on the activity must immediately implement any pollution incident response management plan in relation to the activity required by this Part.	Section 1.2
Protection of the Environment Operations (General) Regulation 2009: Part 3A Pollution incident response management plans		
98B Form of plan	1. A plan is to be in written form.	This PIRMP
	2. A plan may form part of another document that is required to be prepared under or in accordance with any other law so long as the information required to be included in the plan is readily identifiable as such in that other document.	This PIRMP in conjunction with the Emergency Plan
98C Additional matters to be included in plan	1. General The matters required under section 153C(d) of the Act to be included in a plan are as follows: a. a description of the hazards to human health or the environment associated with the activity to which the licence relates (the relevant activity),	Section 3.0
	b. the likelihood of any such hazards occurring, including details of any conditions or events that could, or would, increase that likelihood	Table 3
	c. details of the pre-emptive action to be taken to minimise or prevent any risk of harm to human health or the environment arising out of the relevant activity	Table 3
	d. an inventory of potential pollutants on the premises or used in carrying out the relevant activity	Table 4
	e. the maximum quantity of any pollutant that is likely to be stored or held at particular locations (including underground tanks) at or on the premises to which the licence relates	Table 4
	f. a description of the safety equipment or other devices that are used to minimise the risks to human health or the environment and to contain or control a pollution incident	Table 5
	g. the names, positions and 24-hour contact details of those key individuals who: i. are responsible for activating the plan, and ii. are authorised to notify relevant authorities under section 148 of the Act, and iii. are responsible for managing the response to a pollution incident	Table 1
	h. the contact details of each relevant authority referred to in section 148 of the Act	Section 3.3

Legislation	Requirement	Section in this PIRMP where requirement met
	k. A person who is required to prepare a pollution incident response management plan under this Part must ensure that it is tested in accordance with the regulations.	Appendix B, Figure 1
	i. details of the mechanisms for providing early warnings and regular updates to the owners and occupiers of premises in the vicinity of the premises to which the licence relates or where the scheduled activity is carried on	Section 4.2
	j. the arrangements for minimising the risk of harm to any persons who are on the premises or who are present where the scheduled activity is being carried on	Section 5.1
	k. A person who is required to prepare a pollution incident response management plan under this Part must ensure that it is tested in accordance with the regulations.	Appendix B, Figure 1
	l a detailed description of how any identified risk of harm to human health will be reduced, including (as a minimum) by means of early warnings, updates and the action to be taken during or immediately after a pollution incident to reduce that risk	Section 5.2
	m. the nature and objectives of any staff training program in relation to the plan	Section 9.0
	n. the dates on which the plan has been tested and the name of the person who carried out the test	Section 10.0
	o. the dates on which the plan is updated	Section 10.0
	p the manner in which the plan is to be tested and maintained.	Section 10.0
	2. Trackable waste transporters	Not applicable. NCIA holds a Specific Waste Immobilisation Approval. A contractor holds the licence to transport the trackable waste
98D Availability of Plan	1. A plan is to be made readily available: a. to an authorised officer on request, and b. at the premises to which the relevant licence relates, or where the relevant activity takes place, to any person who is responsible for implementing the plan	Section 11.1
	2 A plan is also to be made publicly available in the following manner within 14 days after it is prepared:	Section 11.2

Legislation	Requirement	Section in this PIRMP where requirement met
	a. In a prominent position on a publicly accessible website of the person who is required to prepare the plan, b. If the person does not have such a website by providing a copy of the plan, without charge, to any person who makes a written request for a copy.	
	3. Subclause (2) applies only in relation to that part of a plan that includes the information required under: a. section 153C (a) of the Act, and b. clause 98C (1)(h) and (i) or (2)(b) and (c) (as the case requires).	Table 6
	4. Any personal information within the meaning of the *Privacy and Personal Information Protection Act 1998* is not required to be included in a plan that is made available to any person other than a person referred to in subclause (1).	Section 11.2
98E Testing of plan	1. The testing of a plan is to be carried out in such a manner as to ensure that the information included in the plan is accurate and up to date and the plan is capable of being implemented in a workable and effective manner.	Section 10.0
	2. Any such test is to be carried out: a. Routinely at least once every 12 months, and b. Within 1 month of any pollution incident occurring in the course of an activity to which the licence relates so as to assess, in the light of that incident, whether the information included in the plan is accurate and up to date and the plan is still capable of being implemented in a workable and effective manner.	Section 10.0

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AECOM

SITE, SURROUNDS AND LOCATION OF POLLUTANTS

National Ceramic Industries Australia Facility Expansion

FIGURE 1

Appendix I

Safety Management System

Appendix I Safety Management System

Prepared for
National Ceramic Industries Australia Pty Ltd
ABN: 83100467267

Safety Management System

06-Feb-2024

aecom.com

Delivering a better world

Safety Management System

Client: National Ceramic Industries Australia Pty Ltd

ABN: 83100467267

Prepared by

,

06-Feb-2024

Job No.: 60613063

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 and ISO45001.

Quality Information

Document	Safety Management System
Ref	60613063
Date	06-Feb-2024
Originator	Robert Mays
Reviewed by	Ken Ferguson
Verifier/s	

Revision History

Rev	Revision Date	Details	Approved	
			Name/Position	Signature
A	11-02-2004	HLA QC	Robert Mays	
1	01-03-2004	Issue	Robert Mays	
2	15-04-2004	DIPNAR feedback added	Robert Mays	
3	15-01-2010	Accuracy Review by James McIntyre	Carly Ellis, Workgroup Leader IAP / Principal Scientist	
4	06-May-2011	Updated templates	James McIntyre Team Leader - Singleton	
5	18-Sep-2014	Update to contact details	James McIntyre EP&M Team Leader	
6	23-Feb-2018	Update for currency	James McIntyre Associate Director - Environment	
8	18-Aug-2023	Update for currency	Cye Buckland Principal Technical Officer	
8	06-Feb-2024	Update to induction checklist	Cye Buckland Principal Technical Officer	

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Table of Contents

Abbreviations

ALARP	As Low As Reasonably Practicable
DIPNR	Department of Infrastructure Planning and Natural Resources
HIPAP	Hazardous Industry Planning Advisory Paper
LTI	Lost Time Injury
MSDS	Material Safety data Sheet
PPE	Personal Protective Equipment
SMP	Safety Management Plan
SMS	Safety Management System

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1.0 Introduction

This document describes the National Ceramic Industries Australia (NCIA) Safety Management System (SMS) for the operation of the Ceramic Tile Manufacturing Facility located at Racecourse Road, Rutherford, NSW.

1.1 Structure of the Safety Management System

This SMS has the following three main components:

1. Policy and Objectives;
2. Safety Management Core System; and
3. Procedures.

The Safety Management core system comprises the following:

- Scope;
- Summary of operations, hazards and safety;
- Management structure;
- Accountabilities and responsibilities;
- Performance standards;
- Safety assurance process;
- Training philosophy;
- SMS documentation integrity;
- SMS review and basis for continuing SMS improvement;
- Relationship to safety system and environmental system;
- Management of change and control of facility modifications; and
- A list of supporting procedures.

1.2 Reference Documents

This Safety Management System was developed in accordance with the Hazardous Industry Planning Advisory Paper (HIPAP) No. 9 "Safety Management", issued by the NSW Department of Urban Affairs and Planning (DUAP) (1998) (Ref.1) (since superseded by the 2011 version). This and other relevant documents are referenced throughout this SMS description and are listed in Section 14.0.

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2.0 Policy and Objectives

The NCIA safety policy and objectives are described in National Ceramic Industries Australia's Safety Policy.

A copy of the policy is provided in Appendix A.

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3.0 Scope and Purpose

This SMS covers the ceramic tile manufacturing facility located at Rutherford, Maitland, NSW and operated by National Ceramic Industries Australia Pty Ltd.

The SMS provides a management framework for:

- Safely undertaking potentially hazardous activities;
- Minimising the likelihood of incidents;
- Managing occupational health and safety; and
- Assisting in protecting people, property and the biophysical environment from normal operations as well as abnormal deviations.

The SMS references or specifies all safety related procedures, responsibilities and policies at NCIA, along with details of mechanisms for ensuring adherence to procedures. As such, the SMS is the controlling document for all operations on-site involving potentially hazardous activities.

The policies and supporting procedures that form part of this SMS are listed in Section 13.0. Representative procedures are given in the Appendices.

The SMS is an integral part of the overall management system at NCIA and complements other management systems controlling such aspects as production processes, environmental management, marketing and finance, and human resources.

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4.0 Summary of Operations, Hazards and Safety

4.1 Summary of Site and Plant Facilities

The NCIA ceramic tile manufacturing facility will be used for the:

- Raw materials receival and storage;
- Preparation of clays and glazes;
- Pressing and drying of the tile base;
- Glazing of the tile base;
- Firing of the finished tile; and
- Selection, packaging, warehousing and dispatch.

The site consists of the following facilities:

- Clay preparation:
  - Raw material unloading and storage in covered bunkers;
  - Continuous weigh feeding proportioning the raw material components;
  - Wet milling;
  - Spray drying; and
  - Spray dried material storage.
- Pressing and drying:
  - Screening of spray dried material;
  - Press feeding;
  - Pressing;
  - Dryer feeding; and
  - Drying.
- Glaze preparation:
  - Glaze and printing paste raw material storage;
  - Glaze milling;
  - Printing paste milling; and
  - Glaze storage.
- Glazing:
  - Drier exit; and
  - Glaze application.
- Firing:
  - Kiln in feed;
  - Firing; and
  - Kiln exit.
- Selection, packaging and warehousing:
  - Selection;
  - Boxing;

  - Palletising;
  - Shrink wrapping; and
  - Warehousing.
- Dispatch:
  - Picking; and
  - Loading.
- Detention ponds; and
- Administration block consisting of offices for plant management, business administration and laboratory facilities.

4.2 Summary of Stored Hazardous Materials

NCIA stores only four materials that are potentially hazardous. Details of these materials are listed in Table Table 1.

Table 1 Potentially Hazardous Materials Stored On Site

Description	Location	Class (ADGC)	Inventory
Natural Gas	Pipeline to dryers, kiln and packaging	2.1	37 Gj/hr
LPG	Outdoor storage area	2.1	144 kg
Diesel	Bunded internal storage tank	C1	2400 ltr
Lubricating Oils	Stage area	C2	1600 ltr

4.3 Summary of Hazards

The stored materials are inherently hazardous by the nature of their composition. The materials listed in Table 1 are classified by the Australian Dangerous Goods Code. The findings of studies conducted as part of the preliminary work to identify hazards related to the stored materials are summarised below:

- Gas jet fire from natural gas release prior to the metering station;
- Defuse fire from a natural gas release at the furnace, dryer or shrink wrap unit;
- Explosion from a gas release into the furnace;
- Spill or fire from combustible liquids;
- Fire in combustible materials around the factory;
- Dust release from failed bags in the dust extraction unit;
- Vehicle collisions on site; and
- Personal injuries from occupational hazards on site.

4.4 Summary of Safeguards

4.4.1 Natural Gas Release

The natural gas system has been designed and installed in accordance with Australian Standards, AGL requirements and HAZOP study outcomes as defined in the Construction Environmental Management Plan. The system pressure is reduced at the metering station adjacent to the site entry. The system has automatic over pressure protection, pressure relief and a burner management system. Equipment operation and alarms will be regularly tested as part of the factory testing and inspection system. In particular the “gas shutoff on flame failure” and “no gas flow until furnace area is purged” safeguards will have defined and rigorous testing frequencies and procedures.

4.4.2 Fires

A fire fighting system is designed and installed in the facility consisting of above ground fire water storage, fire water main, hose network and first aid fire fighting equipment.

Due to the hazard of water/furnace contact (resulting in kiln sudden temperature / pressure differential and potential explosion / steam) it is not advisable to use water for fire fighting in the kiln area. Dry powder extinguishers have been installed throughout the factory to provide effective fire fighting as required. All staff will be trained in the use of fire extinguishers and hose reels.

4.4.3 Dust Releases

Dust is controlled on the plant by a dust extraction system in the factory. This system collects dust from distributed collection points throughout the process, and passes the dust/air stream through a bag house. Differential pressure alarms and opacity meters are installed on the bag units to indicate bag failure.

4.4.4 Collision of Vehicles on Site

Vehicles will be required to comply with the site speed limit (20 kph). This will prevent any major incidents. Drivers who exceed the site speed limit will be warned on their first offence and then refused entry to site should they continue to offend. Automatic guided vehicles have a laser guidance system to ensure safety of personnel. The system is continuously monitored for correct operation and routinely maintained.

4.4.5 Personnel Injuries

Site personnel are exposed to a range of hazards. Systems and procedures will be put in place to ensure their safety. These include for example: Confined Spaces, Work Permits, Modification Control, Hot Work, Lock out, Electrical Safety and Safe Work Procedures.

4.4.6 Personnel Hygiene

Site personnel have the potential to be exposed to hazardous substances such as silica, which is an element of the raw clay and glazing supplies. These are controlled in accordance with the MSDS’s and. The clay silica’s are controlled through dust extraction and wet processes while the glazes are supplied in a fused form and processed through dust extraction and wet process. Appropriate wet cleaning and PPE is used during maintenance tasks.

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5.0 Management Structure

NCIA will be managed and controlled by a hierarchical management structure as shown in Figure 1. The structure has been developed with accountabilities and responsibilities in mind. The final responsibility for all management functions rests with the Managing Director who delegates authority for management functions to the Factory Manager, who in turn, delegates specific responsibilities to his/her various reports.

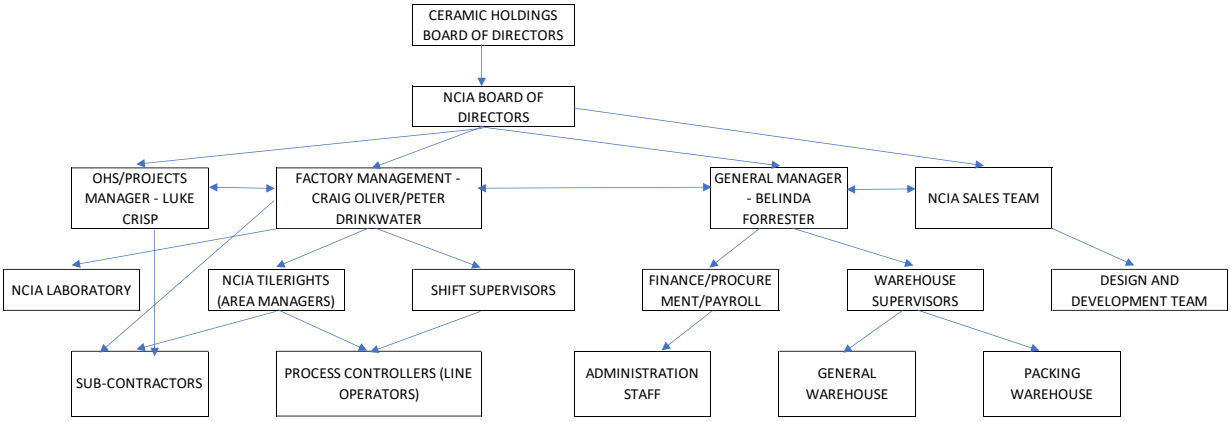

Figure 1 NCIA Management Structure

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6.0 Accountabilities and Responsibilities

As indicated in Section 5.0, the Managing Director has authority to delegate certain responsibilities and has therefore allocated the responsibility for various SMS policies and procedures to the positions indicated in Table 2. All policies and procedures not indicated in this table are the responsibility of the Managing Director (by default).

Table 2 Safety Management Responsibilities

Subject	Responsibility Carried By
Safety Policy	Managing Director
Maintenance of the SMS	Safety Officer
Safety Documentation	Safety Officer
Operational Procedures	Factory Manager

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7.0 Safety Goals and Performance Standards

7.1 Safety Goals

The safety goals for the operations at NCIA are as follows:

Goal 1: To eliminate or minimise hazards on site.

Goal 2: To prevent the realisation of a hazard.

Goal 3: To prevent escalation of an accident event on site and off site.

Goal 4: To minimise exposure of personnel to hazards.

Goal 5: To ensure personnel can reach a place of safety in any credible accident event.

7.2 Performance Standards

At NCIA the safety goals are achieved through performance of personnel and equipment to a set of defined standards. These are listed in the NCIA “Occupational Health and Safety Manual”. In addition to this, NCIA has set a number of safety performance targets.

The performance targets are:

- Incidents - Zero
- Work Related Injury or Illness - Zero

7.3 Performance Standards for NCIA Personnel

For their work at the Rutherford Plant, all NCIA personnel and contractors follow relevant Operational and Maintenance Procedures.

7.4 Performance Standards for Plant and Equipment

Effective systems of planned maintenance, inspection, testing and minor modifications are in place at NCIA to reduce associated risks to as low as reasonably practicable (ALARP) throughout the life of the facility. Regular plant and equipment maintenance activities ensure that the plant and equipment retain their standards in the terms of:

- Functionality;
- Reliability;
- Availability
- Survivability;
- Maintainability; and
- Interaction between the various systems comprising the plant.

Safety critical equipment and procedures identified are maintained, inspected and tested rigorously.

The regular plant and equipment maintenance activities are carried out according to the Maintenance Procedures.

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8.0 Safety Assurance

The following programme ensures that the NCIA Safety Plan effectiveness is tested and updated regularly.

8.1 Compliance Assurance Audits including Unsafe Act Auditing

These internal audits are conducted on a six monthly basis. The scheduled audit months are February and August.

The audits are conducted in accordance with the Safety Assurance Programme at the site. A site audit will be conducted and each point on the checklist audited (checklists are provided as part of the audit programme). A report will be formulated with actions and follow up points listed. An action completion date will also be included on the checklist.

8.2 Safety Committee Meetings

The Site Safety Committee meets monthly.

The Safety Committee has been constituted in accordance with Occupational Health and Safety Act 2000 (Ref. 3) (since superseded by the *Work Health and Safety Act 2011* (WHS Act)), and the Committee meetings are held in accordance with the requirements of the WHS Act.

8.3 Fire Drill and Evacuation Procedure

The drill is conducted annually, in the month of April.

All staff members are involved in a review of the contents of the Emergency Plan (Appendix H), their location and responsibility. Practical exercises in fire extinguisher (dry powder) and fire hose reel handling are carried out. Alarm location, activation and evacuation exercises are performed.

8.4 Contractor Audits

Those contractors who regularly work at the NCIA site will undergo regular audit of their SMS and Safety Management Plans (SMPs). They will also be required to submit results of annual safety records to indicate their effectiveness in reducing and maintaining adequate workplace safety.

New contractors will have to submit an SMP and SMS to NCIA before they are contracted to work at the site. Their safety record at other facilities will also be reviewed prior to commencement of work at the facility.

Contractors will be required to work under the conditions stipulated in the Site Conditions of Contract. This will be issued to all contractors prior to letting of contracts and NCIA will seek an undertaking that all contractors and their employees will abide by the regulations stated, prior to start of work. A copy of the Site Conditions of Contract is shown at Appendix B.

8.5 Inspection and Testing of Safety Critical Systems

8.5.1 Inspection and Testing

Safety related equipment requires regular inspection and testing. This includes such equipment as alarms, trips, instruments, etc. The maintenance programme established at NCIA includes the testing of all instruments, trips and alarms, etc., as part of the scheduled maintenance programme. Safety related equipment is highlighted in the maintenance program to ensure the maintenance routine is preserved. In particular the “gas shutoff on flame failure” and “no gas flow until furnace area is purged” safeguards will have defined and rigorous testing frequencies and procedures.

Each individual maintenance manual contains the relevant details for recommended testing of alarms, trips and instruments, etc. An example of the inspection and testing requirements is shown in the Kiln Operations and Maintenance Instructions (Appendix C).

The Safety Officer will hold the master test schedule for all alarms, trips and instruments, etc. on site. The site emergency alarm will be tested weekly to ensure operational integrity.

8.5.2 Keeping of Records

All inspection and testing of alarms, trips and instruments, etc. will be recorded on the master test schedule. Recording will be established such that trend analysis will aid in the easy identification of equipment that is indicating problems. Alarming trends will be brought to the attention of the Factory Manager for address.

The change management procedure includes the process for establishing new instrumentation on the master schedule (refer Appendix E).

9.0 Training

The objective of training is that all employees are competent to meet the safety and risk exposures of their duties.

Educational, trade or professional qualifications along with personal attributes and appropriate work experience are the criteria for all work positions within NCIA. Qualifications, experience and aptitude are the key factors in the selection of staff at NCIA. The requirements are defined in the Training Matrix (Appendix I).

Contractors are responsible for the selection of their employees under their own Safety Management Systems.

There are four different categories of safety training which apply to NCIA:

- Visitor Induction;
- Site Safety Induction (Contractors);
- General induction and safety management (Employees); and
- Emergency response (Employees and permanent contractors).

The general induction training explains the NCIA organisation, safety policy and objectives and NCIA Safety Management System. The requirements are defined in the Training Matrix (Appendix I).

The Safety Induction Checklist is used for the Site Safety Induction training. A copy of the induction checklist is given at Appendix D.

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10.0 SMS Documentation Integrity

To ensure the SMS remains current, retains its integrity and to facilitate continuous improvement, this SMS in its entirety will be audited and reviewed every three years.

This will be performed by the Factory Manager, who will conduct audits of selected components of each section of the SMS to identify the effectiveness of the SMS application.

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11.0 Relationship of SMS to Other Systems and Plans

This SMS maintains close links to other systems in operation at the NCIA site. These are:

- Health and Safety Management System; and
- Operation Environmental Management Plan.

The above systems are part of the NCIA Assurance System which applies the principles of AS 14000 (Ref. 3) and AS 4800 (Ref 4).

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12.0 Management of Change

Proposed changes which may affect the safety of employees, or safety performance of the facility, are thoroughly assessed prior to implementation and all necessary modifications to safety systems (and related documentation) are incorporated in the implementation process.

All modifications to plant and equipment, including additions and deletions, but excluding "replacement in kind" are considered to be "changes". Changes also include modifications to procedures, to systems and to the organisation that may affect operational safety.

Small and apparently insignificant changes (such as change of gasket material) can contribute to an accident. Similarly, organisational or procedural changes (to emergency procedures, for example) can negate an arrangement that is in place to minimise escalation of an incident.

It is fundamental that the implication of change on the NCIA facility or equipment, technical and functional integrity is always considered. It is also important that the changes are recorded in engineering documents in a mutually consistent manner.

Control and management of changes to hardware and procedures are carried out using a "Change Management Assessment". A copy of the change management procedure and forms are provided at Appendix E.

The Factory Manager is responsible for ensuring that changes are appropriately considered and rejected or approved and recorded before they are implemented.

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13.0 List of Supporting Procedures and Documents

NCIA have developed a set of procedures and other documents that form the core elements of the SMS. These are listed below:

- Policy for Safety;
- Safety & General Conditions for Employees and Contractors Procedures, including:
  - Risk Management;
  - Permit to Work;
  - Hot work;
  - Emergencies;
  - Suitable persons;
  - Equipment;
  - Chemicals and wastes;
  - Amenities;
  - Protection of persons;
  - Isolation and lockout;
  - Environmental;
  - Failure to comply;
  - Smoking Policy;
  - Drugs and Alcohol Policy;
  - First Aid Services;
  - Protective Equipment to be Worn on Site; and
  - Housekeeping.
- Operations, including:
  - Storage and Handling of Raw Materials;
  - Operation of equipment (extracts given at Appendix C);
  - Inspection Procedures for Operational and Safety Equipment (extracts given at Appendix C); and
  - Reporting Schedules.
- Permit to Work (copy of procedure given at Appendix D);
- Change Management Procedure (copy of procedure given at Appendix E);
- Accident and Incident Reporting (copy of procedure given at Appendix F);
- Emergency Response Plan (copy of index given at Appendix G of this SMS with full plan available at Appendix G of the OEMP);
- Control of Chemical Substances coming on site by use of a Chemical Substance Register; and
- Training matrix (copy of matrix given at Appendix I).

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14.0 References

Hazardous Industry Planning Advisory Paper No. 9, Safety Management System, NSW Department of Urban Affairs and Planning, July 1998 (since superseded by the 2011 version).

Occupational Health & Safety Act – 2000 (since superseded by the *Work Health and Safety Act 2011*).

AS 14000 Series -1996, Environmental Management Systems, Standards Association of Australia/ New Zealand, Homebush, Sydney (since superseded by the 2004 version).

AS 4800 Series -2001, OH & S Management Systems, Standards Association of Australia/ New Zealand, Homebush, Sydney.

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Appendix A

NCIA Safety Policy

Appendix A NCIA Safety Policy

OCCUPATIONAL HEALTH & SAFETY MANUAL

175 Racecourse Road Rutherford NSW 2320
PO Box 765 Maitland NSW 2320
Telephone: (02) 49318400
Facsimile: (02) 49318499

OH & S Policy

DATE REVISED**: February 2004**

DATE LAST AUDITED**:**

DOCUMENT REVISION RECORD

Rev.	Date	Description	Prepared	Checked	Approved
Draft	5/2/2004	HLA QC	R Mays	K Ferguson	R Mays
A	1/3/2004	Issued for Client Comment	R Mays	K Ferguson	R Mays

OCCUPATIONAL HEALTH AND SAFETY POLICY

NCIA Pty Ltd is committed to providing a healthy and safe workplace for all employees, contractors, clients and visitors. In making this commitment, the Company ensures that sufficient resources are available to achieve this objective.

Management shall be responsible for ensuring that the intentions of this policy are achieved by providing the necessary policies, procedures, supervision, training and instruction

Management and employees alike, shall place all reasonable effort in areas of risk management, accident prevention, health promotion, health preservation and promotion. The company will endeavour to execute a proactive approach toward the prevention of injury and illness.

NCIA Pty Ltd will endeavour to ensure persons are not exposed to risk through;

- The development, implementation and maintenance of Safety Systems, Policies and Programs
- Ensuring compliance with the relevant Acts, Regulations, Codes of Practice and Standards.
- Facilitating modes of communication on safety issues between management and employees

Employees also have the responsibility to ensure the safety of themselves and their fellow colleagues by:-

- Co-operating with, supporting and promoting the Company OHS initiatives
- Reporting and rectifying unsafe work conditions
- Encouraging others to work in a safe and healthy manner

NCIA Pty Ltd is committed toward this policy and the objectives stated in it and places OHS and employee welfare as a top priority function, essential in achieving our **zero accident workplace**.

Len Pereira - Managing Director

Date

Appendix B

NCIA Site Conditions for Contractors

Appendix B NCIA Site Conditions for Contractors

OCCUPATIONAL HEALTH & SAFETY MANUAL

175 Racecourse Road Rutherford NSW 2320
PO Box 765 Maitland NSW 2320
Telephone: (02) 49318400
Facsimile: (02) 49318499

CONTRACTOR MANAGEMENT PROCEDURE

DATE REVISED: **February 2004**

DATE LAST AUDITED:

DOCUMENT REVISION RECORD

Rev.	Date	Description	Prepared	Checked	Approved
Draft	5/2/2004	HLA QC	R Mays	K Ferguson	R Mays
A	1/3/2004	Issued for Client Comment	R Mays	K Ferguson	R Mays

CONTENTS

PURPOSE

The purpose of this standard procedure is:

1. To define the safety requirements to manage Contractors on site.

2. Define the site-specific safety conditions of contract.

SCOPE

This procedure covers all Contractors engaged to conduct work on site.

REFERENCES

- NSW Occupational Health and Safety Act 2000;
- NSW Occupational Health and Safety Regulation 2001;
- AS 4000 – 1997 General Conditions of Contract.

GENERAL

Detailed are the procedures to be followed when work on site has been identified as requiring a Contractor.

The purpose is to ensure all work by Contractors is carried out in a manner that does not present a safety, health or environmental risk.

COMPETENCY ASSESSMENT

Training and assessment will be in accordance with this procedure.

DEFINITIONS

National Ceramic Industries Australia Representative (NCIA Rep.): A person appointed by the Factory Manager or their nominee to oversee and be responsible for all matters pertaining to a particular contract.

Contractor: A person or company engaged to carry out work on site. This includes sub-contractors.

Risk Assessment: Is a formal process of reviewing the hazards, assessing the risks and implementing control measures using the **Work Permit** form. This form is to be used to assess the site risks to which a Contractor may be exposed or contract works generates.

PROCEDURE

When it is proposed to use Contractors to provide services to the organisation, the NCIA Rep. must determine the health and safety requirements that are to be incorporated into the works. Consultation with end users, internal consultative structures and those with specialist expertise may be required to help define these requirements for each contract. The following table summarises the requirements.

Table 1: Contract Requirements

Type of Contract	CONTRACT REQUIREMENTS				
	Site Specific Conditions of Contract	**Contractor OH&S Management System Review**	**Work Permit**	**Site Establishment Checklist**	**AS4000**
Competitive Tender – Major	✓	✓		✓	✓
Competitive Tender – Minor	✓		✓	✓	
Approved Contractor Selection	✓	✓		✓	✓
Approved Contractor – On Call			✓		
Approved Contractor – Routine Work			✓ (12 monthly)		
Un-Approved Contractor	✓		✓	✓	

For major, long term or high risk works a contract conforming to AS 4000 shall be used. **Site Specific Conditions of Contract** shall be included. As part of the selection process, the NCIA Rep. shall complete a review of the potential Contractors' health and safety management system (Refer **Contractor OH&S Management System Review**) to ensure that the Contractor is capable of performing the work safely and meeting the requirements specified.

When tenders are called the potential Contractors will be required to submit details of their health and safety management system with their tender. The details required shall be as per **Contractor OH&S Management System Review**. It is recommended that the contractor be required to fill out the questionnaire and provide supporting evidence. This should then be crosschecked as part of the tender evaluation

For minor works that are considered low risk and where the contractor is not on the preferred list, a purchase order and the relevant items from **Site Specific Conditions of Contract** and a **Work Permit** shall be included.

The NCIA. Rep. shall conduct regular checks to confirm that the Contractor is conforming to the health and safety requirements of the contract. **Contractor on the Job Checklist** will assist with this.

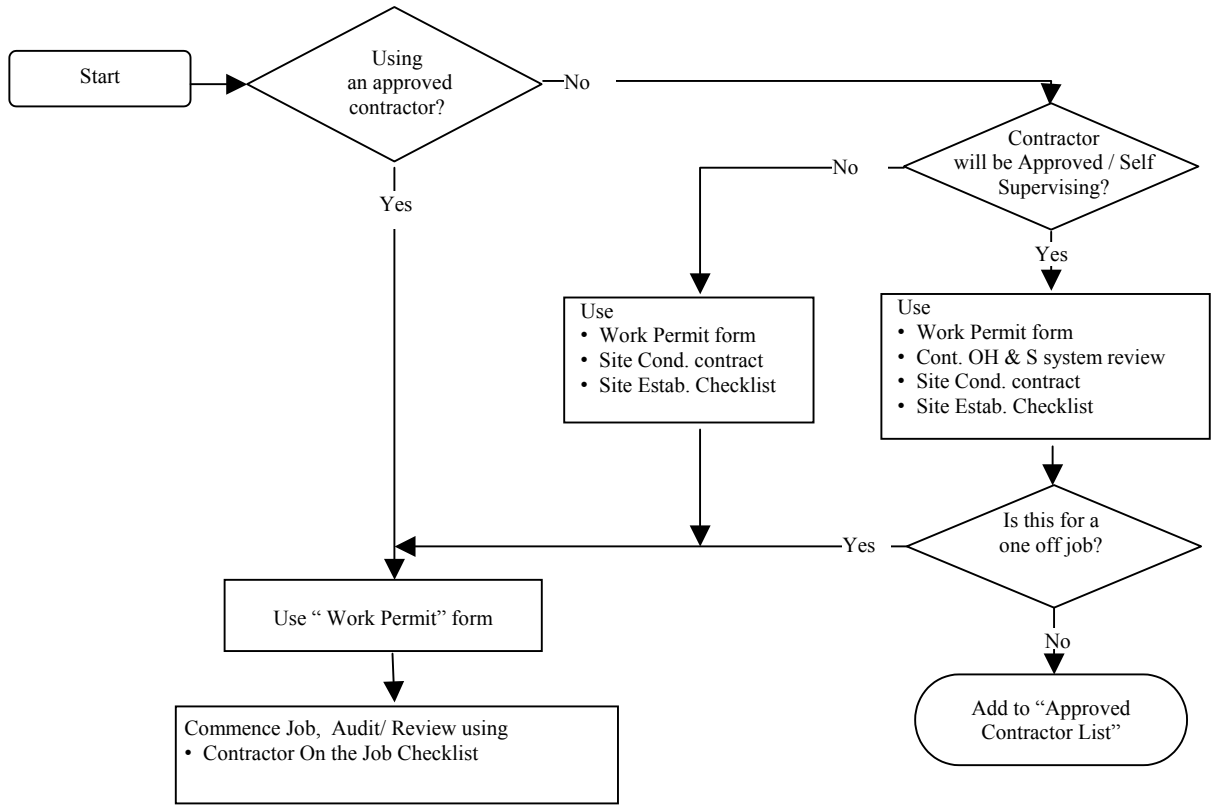
The Factory Manager may develop a list of approved/preferred Contractors. Prior to initial engagement potential Approved Contractors shall be assessed against the **Contractor OH&S Management System Review** and **Site Establishment Checklist**. If satisfactory the contractor can be added to the Approved List with each order only requiring a **Work Permit** .

Where a job is of a repetitive nature, such as fire system inspections a long term **Work Permit** may be issued covering a period of up to 12 months.

Contractors on the approved/preferred list shall be subject to periodic reviews of their Health and Safety Systems and actual performance using **Contractor OH&S Management System Review** and **Contractor on the Job Checklist**

In all cases, the NCIA Rep. and the Contractor shall have a site establishment meeting to confirm the requirements for working on site prior to commencement. **Site Establishment Checklist** shall be used as a guide.

Contract Form Flow



Work Permit shall be filled out and provided to the contractor with each job. The NCIA Rep. will fill out the form identifying hazards, ranking the risk, nominating the control measure and the responsibility for implementing the control measure.

For risks ranked High and Medium and those listed below, the contractor shall prepare a Safe Work Method Statement (SWMS), Job Safety Analysis (JSA) or equivalent detailing each job step, identifying the hazards, assessing the risk and determining controls and responsibilities covering the NCIA identified risks and contractor job related risks. The contractor is to provide copies of their risk assessment and associated SWMS for review. The NCIA Rep. shall review the contractor documentation and tick the "Done" box on the **Work Permit** when the action has been adequately addressed. The NCIA Rep. and contractor shall sign the **Work Permit** prior to commencing work. The contractor shall train all persons involved in the task in the SWMS and a record kept of this training.

As a minimum SWMS are required for:

- Construction work involving structural alterations that require temporary support;
- Construction work at a height above 3 metres;
- Construction work involving excavation to a depth greater than 1.5 metres;
- Demolition work for which a licence is not required;
- Construction work in tunnels;
- Construction work involving the use of explosives;
- Construction work near traffic or mobile plant;
- Construction work in or around gas or electrical installations;
- Construction work over or adjacent to water where there is a risk of drowning; and
- All High and Medium ranked risks.

Where a task changes, the SWMS must be reviewed to ensure any new hazards are covered. Any changes must be communicated to personnel affected by the changes.

Generic SWMS are acceptable for routine tasks on site. Acceptability of generic or job specific SWMS will be determined between the Supt. Rep. and the contractor.

Additional permits may be required for Hot Work and Confined Spaces.

RESPONSIBILITIES

Factory Manager

- Will provide adequate resources to make available, enable, implement and maintain this procedure;
- Ensure all proposed contracts contain the requisite requirements;
- Randomly participate in site and system audits;
- Ensure contractors are evaluated;
- Ensure that all employees (including contractors and visitors) working under their direct control are aware of and abide by this procedure.
- Will ensure contract personnel (NCIA Rep) are appropriately trained and competent to provide full and ongoing implementation of this procedure; and

- Approve contractors to be entered, removed or suspended from the Approved Contractor List

NCIA Rep.

- Ensure the requirements under this procedure are adhered to;
- Conduct risk assessments / Work Permits as outlined by this procedure, ensure their implementation and monitor changes to ensure they are adequately covered. Act as the prime contact point with the contractor on matters during the administration of the contract and management of the contractors;
- Ensure that contractor orientation, safety, health and environmental training is conducted as required;
- Ensure that any variations to the specified Scope of Work for the Contract are approved and documented in accordance with controls in this and other applicable management systems; and
- Conduct site audits.

Contractors Nominated Supervisor

- Shall notify the NCIA Rep. before commencing work;
- Will manage all aspects of the contract works such as to comply with the requirements of the Conditions of Contract and attached documentation;
- Will ask for clarification where they are confused or unsure of the requirements of this standard;
- Will follow the directions given in conjunction with this procedure; and
- Will report any non-compliance with the procedure or systems.

Contractor's Management System Review

Contract Name:.....

Contract Description:.....

Job Coordinator:..... Date.....

Contractor:.....

Contractor to fill out and NCIA Rep to cross check by sighting information.

Note: Subby Pack is the accepted MINIMUM Standard for a system M = Mandatory O = Optional

	Indicate in the following manner: ✓ = Evidence attached / Acceptable **X** = No evidence / Not Acceptable **N/A** = Not Applicable	Contracto	Numbe
	1. OHS Policy and Management		
M	**Company Health and Safety Policy** The policy provided by the Contractor should: • be signed by the CEO or equivalent • outline clear statement of objectives • show commitment to improve performance • be relevant to company operations • be reviewed on a regular basis		
M	**Health and Safety Responsibilities** Health and safety responsibilities in the company should be documented and may comprise: • OHS responsibility statements • part of employee's job description • part of formal and informal performance appraisal Line managers and supervisors should be formally held accountable for health and safety performance of their employees.		
	2. Risk Management	Contracto	Numbe
M	**Risk Management** The company shall have defined: • Process • Risk Ranking system • Actions to take based on risk • Utilise the hierarchy of controls		
M	**Safe Work Procedures** The Contractor should be able to demonstrate safe work procedures which: • are relevant to company operations • contain a description of the tasks and associated hazards • outline control measures & methods to minimise health and safety risks • make reference to any relevant Legislation, Codes of Practice or Australian Standards • Covers PPE		

Authorised by: _____

Contractor's Management System Review

	2. Safe Work Practices and Procedures (cont.)	Contracto	Numbe
O	**Safe Work Permits** Where relevant, the Contractor should be able to demonstrate safe work permits for the following types of work: • Work in Confined Spaces (Confined Space Entry Permits) • Hot Work (Hot Work Permit) • Lockout permits (plant, electrical systems, steam)		
M	**Plant Safety** The Contractor should have mechanisms in place for the identification of hazards, assessment of risks and the implementation of control measures associated with plant. This may include: • documented risk assessments for relevant plant or risk assessment procedure • copy of plant operator licences, permits • register of plant requiring registration • list of persons responsible for undertaking plant risk assessments • plant maintenance and inspection forms • pre-start daily safety inspection forms for plant • plant fault reporting system and forms		
M	**Hazardous Substances** Contractor should provide evidence demonstrating safe handling and storage of hazardous substances: • manifest or register of chemicals used by the company • Material Safety Data Sheets for chemicals used • safe handling procedures, including personal protective equipment • relevant training documentation		
M	**Manual Handling** The Contractor should be able to demonstrate evidence of: • documented risk assessments for manual handling hazards • systems used to control manual handling risks (eg: lifting aids, work procedures)		
O	**Subcontracting and Purchasing** The contractor should have mechanisms for sub-contractor and purchasing OH & s management. This should include: • Policies and Procedures for purchasing that include OH & S • Standards for the selection of sub-contractors		
	3. Health and Safety Training	Contracto	Numbe
M	The Contractor should be able to demonstrate evidence of: • records of training and competencies of employees (licences, permits, certificates) • records of 'on the job' training • tool box meetings conducted • induction training program and records		

Authorised by: _____

Contractor's Management System Review

	4. Health and Safety Workplace Inspection	Contracto	Numbe
M	**Regular Inspections** The Contractor should provide evidence of: • workplace inspection schedules • completed inspection reports • types of inspections undertaken		
M	**Standard Inspection Checklists** Copies of the types of inspection checklists used by the Contractor.		
M	**Hazard Reporting from Contractor** Evidence may include: • documented hazard reporting procedure and forms • completed hazard reports		
M	**Incident Reporting and Investigation** Contractors should be able to provide evidence of the following: • incident report and investigation form • incident investigation procedure • evidence of completed investigation forms • first aid arrangements and personnel		
M	**Workers Compensation and Rehabilitation** Contractor can demonstrate evidence of: • Policy • Procedure • Responsibilities • Insurers requirements		
	5. Health and Safety Consultation	Contracto	Numbe
M	Contractor should provide evidence of: • Consultation arrangements and list of nominated persons • documented procedures for consultation and dissemination of information • employee involvement in inspections, accident investigations • meeting schedule • minutes of meetings		
	6. OHS Performance Monitoring	Contracto	Numbe
O	**Safety Performance Statistics** Evidence may include: • reports on company health and safety injury trend data • performance targets established (eg: lost time injuries, person days lost)		
M	• Referees (Company, contact and Ph No) Referee comments:		
O	**Health and Safety Performance Information** Evidence of information provided to employees: • records of who receives reports		

Authorised by: _____

Contractor's Management System Review

	• types of reports produced		
M	**Conviction of Health and Safety Offence** If conviction reported, detail: • nature and circumstances of incident • corrective actions undertaken		

Comments

…….

…….

…….

…….

…….

NCIA Rep. Acceptance/ Denial (Circle one):

Name:…….

Signed:……**Date**: ……

Authorised by: _____

Site Establishment Checklist

NCIA Representative:

Task Description:

Task Commences: ***Expected task Completion:***

Contractor: ***Contractor Representative:***

Persons involved:

Name	Company

CHECK LIST:

Check Item	Response
Items for the first time contractor on site	
All workers have had General Construction Industry Induction or approved equivalent. Evidence?	
All workers have had Employer Work Activity Induction. Evidence?	
Sign on / off procedure understood.	
Items to be checked 12 monthly	
Approved Contractors have demonstrated they have a safety management system in place.	
Proof of public liability Insurance received. (Principle and Sub – Contractors) (Min $10M)	
All workers have had Induction. Evidence?	

Authorised by: _____

Site Establishment Checklist

Check Item	Response
Items to be checked 3 monthly	
Proof of Workers Compensation Insurance received.	
Items for each project	
Complies to relevant legislation, regulations and Codes of Practice	
List equipment to be used.	
Equipment maintained? List.	
Relevant safety related training and certification in place. List.	
If sub-contractor involved name them.	
Contractor visited site and understands the risks. Safety, operational, delays, environmental, assets. List.	
Inspection and Test Plans submitted and accepted.	
JSA covers all site Hazards. List.	
JSA reviewed.	
Procedures relevant to this project read and implemented.	
Number of employees, number involved in this job, classification types.	

Authorised by: _____

Site Establishment Checklist

Check Item	Response
Items for each project	
Work pattern, hours of work.	
Method of time keeping / billing and approval.	
Location barricaded and lay down areas nominated, requirements for amenities.	
MSDS's received for all chemicals and risk assessment conducted. List	
NCIA responsibilities to the Contractor identified and actioned. List.	
Environmental issues identified and action plan in place. List.	
Checks on equipment as per site requirements.	

Signed by NCIA Representative……..date:……

Signed by Contractor Representative……..date:…….

Authorised by: _____

Contractor On The Job Checklist

Contractor Name:.....

Contract Description:.....

Nominated Person:..... Date.....

Persons on the job:.....

Indicate in the following manner: ✓ Acceptable X Not Acceptable N/A Not Applicable		✓	X	N/A
1.	Work Permit on the job			
2.	NCIA representative has given approval for work			
3.	All signoffs have occurred			
4.	Control measures implemented			
5.	Hot work permit completed and available			
6.	Hot work control measures implemented			
7.	Locks/tags fitted to all isolation points for each person			
8.	All electrical tools tagged and current			
9.	Contractors SWMS approved by NCIA Representative.			
10.	Contractors SWMS is being followed			
11.	House keeping acceptable			

Immediate Actions: These must be fixed before the job continues

……

……

……

Follow-up Actions: the NCIA Representative must receive a response on what action is being taken within 3 days

……

……

……

Comments ……

……

……

NCIA Representative: ……

Signed: ……

Date: ……

Authorised by: _____

OCCUPATIONAL HEALTH & SAFETY MANUAL

175 Racecourse Road Rutherford NSW 2320
PO Box 765 Maitland NSW 2320
Telephone: (02) 49318400
Facsimile: (02) 49318499

SITE CONDITIONS OF CONTRACT

DATE REVISED**: February 2004**

DATE LAST AUDITED**:**

DOCUMENT REVISION RECORD

Rev.	Date	Description	Prepared	Checked	Approved
Draft	5/2/2004	HLA QC	R Mays	K Ferguson	R Mays
A	1/3/2004	Issued for Client Comment	R Mays	K Ferguson	R Mays

Induction

Prior to commencing work on site all Contractor personnel shall attend:

- A General Construction Industry Induction (WorkCover accredited);
- An Employer Work Activity Induction; and
- An NCIA specific Safety Induction.

Each person must successfully complete the assessment at the end of the induction to be allowed to work on site. The induction runs for one hour and must be renewed every 12 months. Following the induction the Contractor must fill out the Security Induction form and will be issued with photo ID card that must be displayed by the person at all times while on site.

Risk Management

The Contractor shall apply a risk management approach to all tasks. The NCIA Representative will provide the contractor with a Work Permit detailing the NCIA risks associated with a particular job and may, prior to the commencement of Work on the site, jointly inspect the area of the Job in order to establish the areas of risk for the Work. The Risk Assessment will nominate the site risks the contractor has responsibility to manage. In addition the contractor is to manage the entire job induced risks.

The contractor shall prepare a Safe Work Method Statement (SWMS), Job Safety Analysis (JSA) or equivalent detailing each job step, identifying the hazards, assessing the risk and determining controls and responsibilities covering the NCIA identified risks and contractor job related risks. Draft copies are to be supplied to, and acknowledged as being reviewed by the NCIA Representative prior to commencing work. All persons involved in the task shall be trained in the SWMS and a record kept of this training.

Where a task changes, the SWMS must be reviewed to ensure any new hazards are covered. Any changes must be communicated to personnel effected by the changes.

Generic SWMS are acceptable for routine tasks on site. Acceptability of generic or job specific SWMS will be determined between the NCIA Representatives and the contractor.

As a minimum SWMS are required for:

- Construction work involving structural alterations that require temporary support;
- Construction work at a height above 3 metres;
- Construction work involving excavation to a depth greater than 1.5 metres;
- Demolition work for which a licence is not required;
- Construction work in tunnels;
- Construction work involving the use of explosives;
- Construction work near traffic or mobile plant;
- Construction work in or around gas or electrical installations;
- Construction work over or adjacent to water where there is a risk of drowning; and
- All High and Medium ranked risks.

On Site Clearance

A reviewed and Authorised Work Permit is required prior to any work commencing on site. A completed Work permit with nominated additional information (e.g. SWMS) must be received by the NCIA Rep. a minimum of 48 hours prior to commencing planned work.

On the day of the work the permit will be authorised. At the completion of the job the Permit shall be returned to NCIA Rep.

Additional permits may be required for Hot Work or Confined Spaces.

Inspection and Test Plans

All tasks that have had critical processes identified by the NCIA Rep. shall have an Inspection and Test Plan (ITP) prepared.

The ITP shall identify the:

- Critical process step;
- Critical parameter;
- If the step is a hold, inspection point; and
- Person responsible to check the step.

The ITP shall be submitted to the NCIA Rep. prior to commencing work for approval.

Insurance

Principal Contractors must produce a copy of the relevant insurance cover to NCIA prior to commencing on site. Such as:

- Public Liability;
- Workers Compensation;
- Professional Indemnity; and
- Contract Works.

The Principal Contractor will ensure copies of sub contractors insurances are also forwarded.

First Aid Facilities and Incident Reporting

First aid facilities and personnel are provided on site. All injuries, incidents and dangerous occurrences must be reported to site First Aid personnel or your NCIA Rep. immediately they are identified. NCIA reporting and investigation procedures shall then be followed.

Emergency

In the event of an emergency contact NCIA staff immediately. Environmental Bins on either end of the complex containing items such as protective clothing, sponges and paper towels to aid in mopping up operations after a spill. Fire extinguishers and hose reels are provided through out the complex and first aid facilities are provided in the office.

Smoking

The NCIA building is a non-smoking area at all times. Any persons not obeying this regulation will be removed from the site.

Housekeeping

All rubbish shall be removed at the contractors expense and the work areas kept tidy at all times. Contractors are not to place any building rubble or material in the general waste bin.

Intoxicating Substances

Persons are not to work on the site whilst under the influence of illegal drugs or alcohol and shall not bring these onto site.

Suitable Persons

The Contractor shall ensure persons are fit to carry out the intended scope of work and are not under the influence of medication that may adversely affect their ability to work on site safely.

If non-English speaking persons are to be utilised on site the Contractor shall ensure supervision is bi-lingual and that all safety requirements, including inductions, are translated for these persons.

Safety Equipment

The Contractor shall provide as a minimum the following equipment:

- Safety helmet;
- Safety eye protection with side shields;
- Cotton drill long sleeve shirt and trousers;
- Safety footwear with steel toe caps;
- Hearing Protection; and
- All other safety equipment required for a task unless advised otherwise by the NCIA Rep.

Equipment

All portable electrical equipment must be fitted with a current electrical inspection tag (3 monthly or monthly for construction work) and be protected by a Residual Current Device (RCD). This includes 415V and welding equipment.

Oxy-acetylene equipment shall be inspected and tagged by a competent person prior to use on site.

Scaffolds shall be inspected and tagged prior to initial use and each month following.

Contractors are not allowed to use NCIA plant, mobile equipment or tools without the prior approval of the NCIA Rep.

Only persons with current licences and certificates are permitted to operate plant and equipment on site. Drivers must posses a current NSW driver's licence. All road vehicles must be registered. Copies of certificates of competence are to be made available to the NCIA Rep. prior to commencing work.

All equipment shall be maintained to manufacturers requirements by competent persons, shall be fit for duty and safe. Copies of records of maintenance shall be made available on request.

Chemicals and Wastes

Prior to chemicals being brought on site a copy of the MSDS and an assessment of the risks and controls (Safe Work Method Statement (SWMS)) shall be provided to the NCIA Rep. for review 48 hours prior to use on site.

Wastes, oils and substances are to be disposed of by appropriately licensed Contractors and are the responsibility of the Contractor unless directed otherwise by the NCIA Rep. The NCIA Rep. shall be consulted as to the disposal arrangements prior to waste being disposed.

Amenities

The Contractor shall use those amenities nominated by the NCIA Rep.

Protection of Persons and Plant

The Contractor shall be responsible for the protection of the work and for the proper fencing, guarding, access and egress, lighting, flagging, safety signage, and watching of all work to ensure the safety of persons and protection of property.

Plastic tape is not an acceptable means of barricading a hazard.

Accesses shall be kept clear of obstructions at all times or appropriate barricading and alternate access shall be provided.

Isolation and Lockout

All sources of damaging energy shall be isolated, secured and tested before work commences. Where there is a risk of injury from electricity, mechanical movement, pneumatics, hydraulics, gravity, fluids or gases or other forms of energy the following process shall be followed:

- The items to be isolated and the isolation point shall be listed on the WORK PERMIT;
- Each isolation point shall be secured with a lock or tag, and if necessary multi lock jaws, valve covers and the like;
- Each person on the job shall fit their own lock to each isolation point;
- The energy source shall then be tested to ensure the isolation was effective;
- Only when the isolation is proven effective shall the job commence;
- Each individual shall fit their own lock / tag and keep the key on them. Only that individual can remove their own lock / tag;
- Locks and securing hardware are available from NCIA Rep. and must be signed for. Contractors may use there own lockout equipment if prior approval is gained from the NCIA Rep.; and
- The process for removing a lock / tag when somebody has left site is as follows:
    - Contact the persons and have them return to site, no matter what the time;
    - Contact the person and ascertain they have left site and it is safe to remove the lock / tag;
    - Obtain approval from the facilities manager to remove the lock;
    - Cut off the lock / tag; and
    - Fill out an incident report.

Environmental

The Contractor is responsible to ensure that their activities do not impact on the environment and complies with all Acts and Codes and as such shall provide the necessary means to manage potential controlled or uncontrolled releases into the environment. Where the Contractor's works or materials brought onto site may impact on the environment an Environmental Management Plan (EMP) shall be developed. This may form part of the SWMS.

Examples where an EMP may be required are potential controlled or uncontrolled:

- Emission to the atmosphere;
- Discharged in drains and water ways;
- Disposal of liquid trade waste;
- Disposal of solid wastes; and

- Contamination of the land.

Consult with the NCIA Superintendent Representative to determine detailed site requirements.

No chemicals shall be disposed of into or onto any site areas including drains.

OH & S Management system Review

If nominated below the Contractor shall fill out the OH & S Management System Review form and provide evidence to substantiate their claims. Due to the nature of work to be undertaken, this will assess the suitability of the contractors systems.

☐ Required ☐ Not required

Failure to Comply

If failure to comply with the requirements listed, the induction or nominated NCIA procedures and legislative safety requirements is detected, NCIA personnel reserve the right to suspend operations until compliance is achieved or remove the offending persons from site.

Appendix C

NCIA Selected Operational Procedures

Appendix C NCIA Selected Operational Procedures

T E C H N I C A L
D O C U M E N T A T I O N

INSTRUCTION MANUAL

Single-layer roller kiln

FUEL: METHANE GAS/L.P.G.

Tipo FMS 285 / 136,5

K1S.01.G01

Serial No	109412	Construction Year	2003

SACMI

SACMI FORNI S.p.A. - via dell'Artigianato, 10 - 42010 Salvaterra di Casalgrande (RE) - tel. 0522/997011 - Telex 532311 SAC.FOR. - Fax 0522/840875

Type of kiln . . . . . **Serial No** . . . . . **Construction Year** . . . . . .

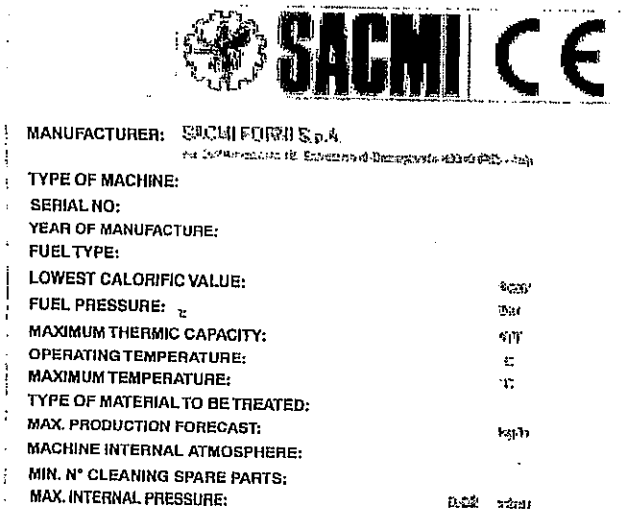
The kiln has been constructed in reference to the indications reported in Directive 392/89 and successive amendments 91/368 - 93/44 - 93/68.

The sole function of the plant is to carry out the continuous firing of ceramic tiles.

Any different use, such as the use of different products from those defined upon purchasing, releases SACMI from all responsibility regarding the consequences of wrong usage.

SACMI reserves the right to carry out modifications to improve the machine without warning.

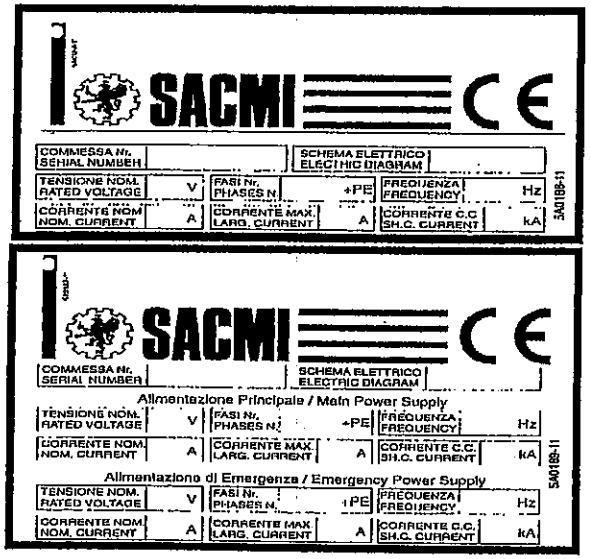
Ensure that all previous changes to the machine are contained in the text. Pass on the Manual to any successive users or owners of the plant.



Kiln plate rating

N.B.

The maximum production forecast indicates the theoretical potential of the machine from a thermodynamic profile, not its real operational potential. This, in fact depends on the physical chemical properties of the product and a suitable firing cycle, determined by specific experiments and tests.



Electric board plate rating

BURNER PLATE RATING

Burner type: . . . . . .

Number: . . . . . .

Fuel type: . . . . . .

Maximum thermic capacity of each burner: . . . . . (KW)

Maximum gas supply pressure to burner: . . . . . (mbar)

Maximum air supply pressure to burner:(mbar)

Burner plate rating

Three good reasons for always using this manual

This manual illustrates all the necessary procedures to make a SACMI kiln work properly and should be considered an integral part of the kiln itself.

*Installation, service, and any subsequent repair work should only be carried out **exclusively by SACMI Technicians**.

*General maintenance and usage are however the **total responsability of the customer.**

The manufacturer requests that management at all levels of any firm aquiring this kiln ***follow the instructions*** in this manual scrupulously and ***always abide by the given recommendations.***

Only by complying with this will you achieve the three conditions necessary for getting the best results from the kiln, from the person using it and for ensuring the quality of the final products. These conditions are:

1 safety 2 professionality 3 efficiency

1 Prioritize Safety

The system has been designed and built with the latest safety features: protective structures, alarms and automatic safety stops which are activated when any safety procedures are overlooked

Despite these measures workers operating the machinery or standing nearby whilst it is in use are exposed to certain risks. To minimise these risks the **precautions highlighted in the following pages** must be taken and **the legal requirements for signposting dangerous areas must be respected.**

2 Promoting professionality

The kiln's performance, be it measured in terms of input and output or in the duration of parts, is dependant upon the **correct usage** of the system in accordance with the instructions provided and upon the **strict observance of the maintenance procedures using only original spare parts.**

Instructions and procedures have been carefully explained to ascertain that the operator can work to a high professional standard thus achieving the best possible results without the risk of damage to the machine or its parts.

3 Ensuring efficiency

The performance of the kiln will be assured by the manufacturer and the terms of the guarantee as outlined in the contract will be valid **if and only if the client observes the regulations illustrated in this manual.** The manufacturer will accept no responsibility if this is not the case.

SACMI will be available to clear any doubt in regard to the application of these rules and to resolve any problems caused by misuse.

A guide to this manual
Table of contents

Safety

Professionality

Efficiency

Safety

Who does what

Competance and responsibility

After having distributed the Manual it is opportune to ensure that the various users have read it with attention, that every part is clearly understood or if there remain doubts regarding the regulations.

The operator

- *Understands ceramic technology and has specific experience conducting a kiln.*
- *Has basic understanding in the mechanical, thermotechnical and electrical field, sufficient to carry out minimal interventions or to spot problems which require the intervention of a specialised technician*
- *Understands the accident prevention regulations*
  - ❑ General

    (hygiene, safety and accident prevention at work)
  - ❑ Specific

    (for ceramics and for kilns) in force in the country

What to do

- Assume responsibility for the surveillance and conduction of the kiln
- Memorise all that is contained in section 1^A (Safety) and know the contents of 3^A (Maintenance)
- Carry out in safety all of the operations described in section 2^A of the Manual (Professionality)

What not to do

- In general anything which does not fall within his field of responsbility (described in section 2^A of the Manual) but that of maintance person (section 3^A).
  In particular:

  - must not carry out any interventions on the gas apparatus system

  - must not carry out any interventions on the kiln or electric panel other than those strictly limited to the controls or to instrumentation.

The maintenance person

Mechanical maintenance person
A technician specialised in mechanics and motorisation in general

Thermotechnical maintenance person
A technician specialised in thermic systems and in combustion apparatus

Electrothecnical maintenance person
A technician specialised in electric systems; has the keys to enter the electric equipment
It is possible that a person has more than one duty

What to do

- Carry out ordinary repairs and maintenance operations on mechanical parts temporarily removing and replacing the protection
- Carry out ordinary repairs and maintenance operations on thermic system temporarily removing and replacing the protections
- Carry out repairs, restoration and replacement of: fuses, magnetothermics, signals (lamps, pilot lights) broken down components; must undertake the calibration of new components with the same field as those removed

What not to do

- In general must carry out work which falls within their field of responsibility (described in section 3[A] of the Manual) but not that of the operator (section 2[A]). In particular **must not modify the wiring and the connections of the electric system**
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- In general must carry out work which falls within their field of responsibility (described in section 3[A] of the Manual) but not that of the operator (section 2[A]). In particular **must not modify the wiring and the connections of the electric system**

Sacmi technicians

- Supervise and coordinate the assembly of the kiln in all its phases
- Set the kiln to work and follow the functioning final test
- Follow extraordinary maintenance interventions of a particular demanding nature and responsilbility

What to do

- provide the Client with all the delivery phases of the plant: unpacking, assembly, final test
- check that the Clients technicians have acquired a complete understanding of the plant
- resolve urgent problematic situations
- provide the plant structure with reparation and interventions of an exceptional character
- carry out eventual structural, mechanical and electrical modifications to the original plant handing documentation detailing the modifications performed

What not to do

- create an isolated group not interacting with the Clients technicians who have the responsibility of conduction
- fail to explain the reason for eventual breakdowns or inconveniences to the Clients technicians, describing the correct diagnostic procedure and solution

Fig. 1-1

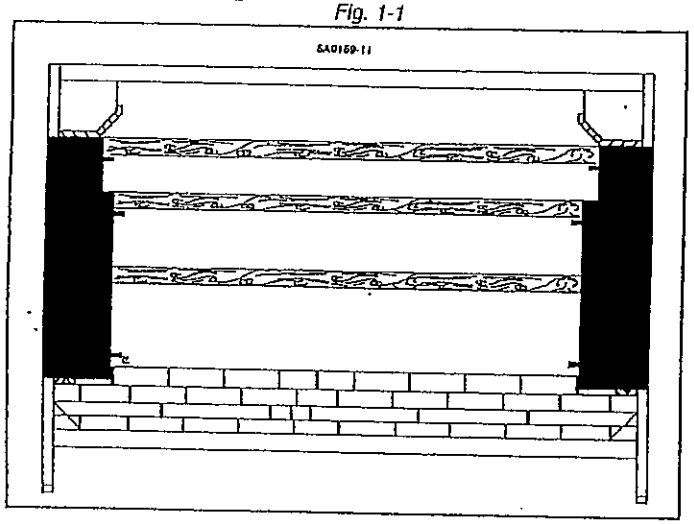
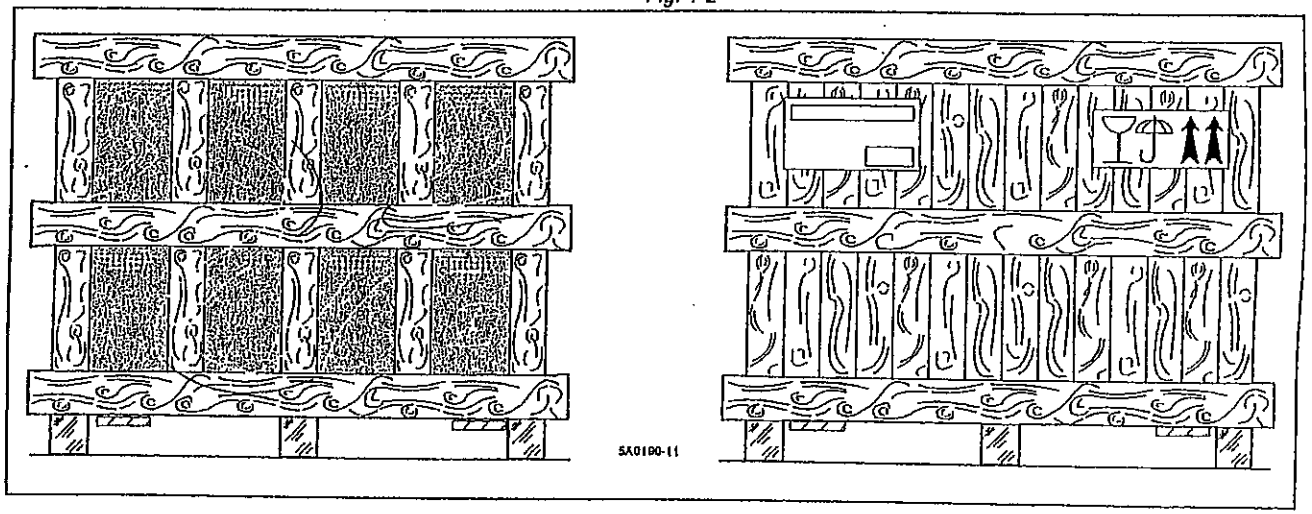


Fig. 1-2



Transport

The kiln will be transported:

- subdivided in its modules, suitably supported with iron or wooden brackets (Fig. 1-1), in cases or crates which contain the delivered equipment (Fig. 1-2)

What SACMI does

- transport
- unpacking
- handling
- installation
- final test

What the client does

- ascertain that the packages are not damaged or tampered with
- if damages or missing parts are discovered communicate this information to the Client Assistance Service and to the carrier presenting photographic documentation
- after completing the installation provide the disposal of the packing material (wood, card, nylon, iron) in accordance with the regulations in force
- control that the handling is carried out correctly (see following pages) always ensuring that there is nobody exposed in the dangerous areas prior to all operations.

Fig. 1-3

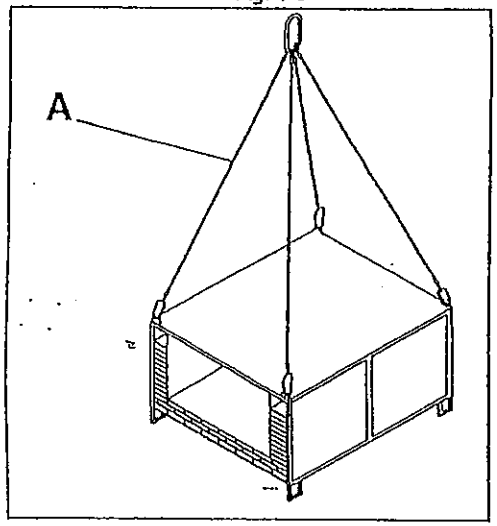
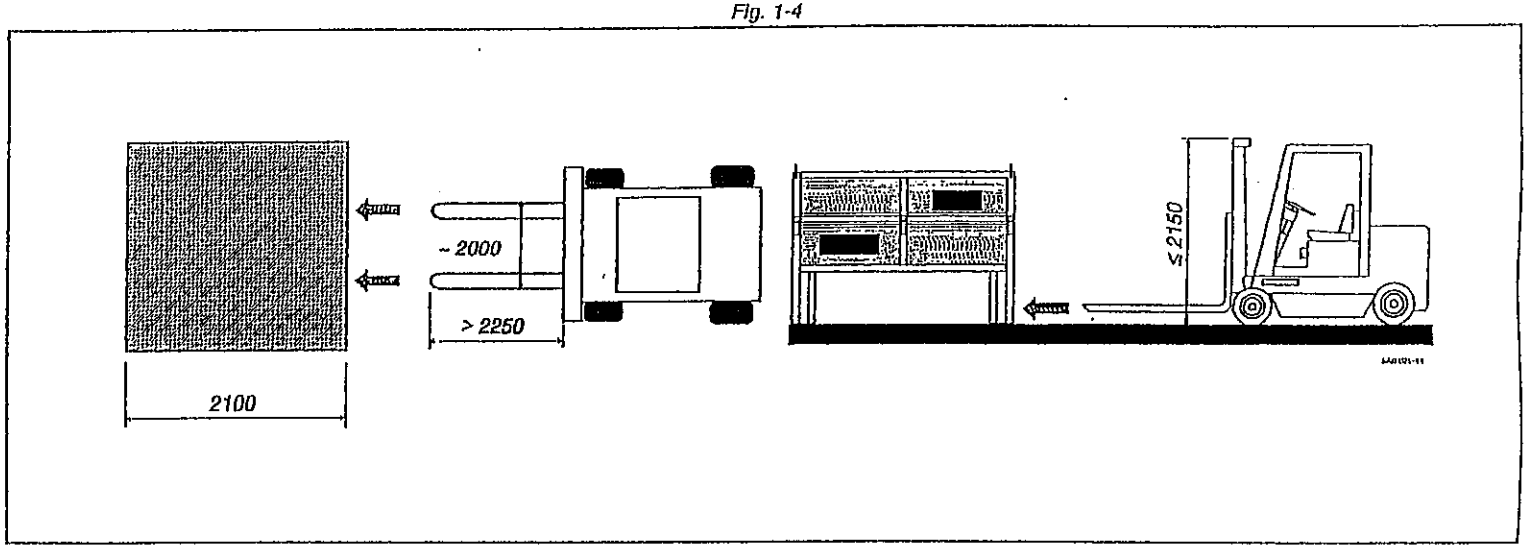


Fig. 1-4



Handling

Cables with following characteristics must be employed when lifting the modules (Fig. 1-3):

- carrying capacity ≥ 2.500 kg (each)
- length ≥ 3.000 mm

If a crane or bridge crane are not available a lift truck with the following characteristics may be used:

- carrying capacity ≥ 6.000 kg
- forks length ≥ 2.250 mm
- max. height 2.150 mm

Storage

If there is to be a prolonged period of inactivity the Client must ascertain that the environment has the following conditions:

- temperature: 0÷35 °C
- relative humidity < 70%
- low dust level and weak ventilation

If the conditions in the warehouse are different from those indicated and it is a marine atmosphere it will be necessary to adopt particular measures to protect the metal and electric parts.

LIFTING MUST BE CARRIED OUT AT LOW SPEED WITH A CONTINUOUS MOVEMENT WITHOUT TEARING OR IMPULSES.
VERIFY THE CORRECT BALANCE OF THE MODULE OR CRATE UNTIL IT IS NOT SUSPENDED ENTIRELY.
ALWAYS ENSURE THAT THERE ARE NO PEOPLE EXPOSED IN THE DANGEROUS AREAS PRIOR TO CARRYING OUT ANY OPERATIONS.

The kiln cannot be distracted, people however can be
Safety

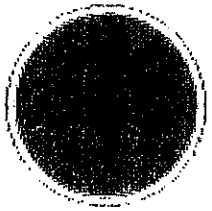
The plant has everything to guarantee safety; risks usually arise from human error. There is only one method for people to be forewarned: ***information***, or that is to say ***accurate signals*** for the dangerous situations and ***constant attention*** to the signals.

Norms and Signals

These are reproduced on standardised sheet signposts to be placed in specific areas of the factory. In the Manual they are also used on diverse pages for highlighting a point.

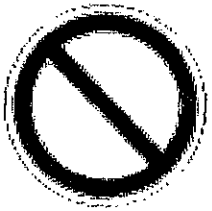
DANGER

ndicate areas in the factory and/or parts of the machine /here there is the potential of damage



OBLIGATION

Indicates the precautions which persons must adopt to prevent accidents or to limit damages



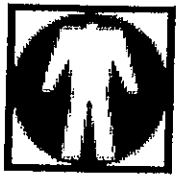
PROHIBITION

Indicates, with images or text, an action which is categorically prohibited

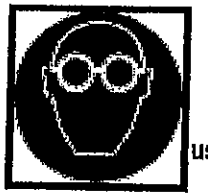
Symbol	What it means	What it comprises
	generic dangerous situations for the concurrence of more than one reason	attention on all fronts and in particular when other people are exposed or distracted in the area
	risk of collision with projecting or moving parts	attention!! and >>>> wear the protective helmet
	risk of burning due to contact with hot or scorching surfaces	constant attention and >>>> use gloves, eyeglasses, mask

Symbol	What it means	What it comprises
	risk of electrocution in areas or near to a live electric system	caution and >>>>wear gloves and insulated shoes
	risk of becoming entangled in moving parts, especially the gears	keep away from moving parts; keep overalls done up; avoid wearing chains, bracelets, ties
	risk of falling in elevated areas, on walk areas with projecting parts, on reduced and slippery surfaces	calmly move around keeping hold of bannisters and supports, wear anti-slip shoes

use gloves

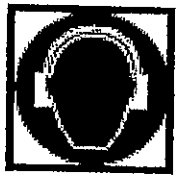


wear an overall

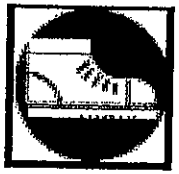


use protective glasses

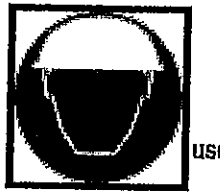
use protective masks



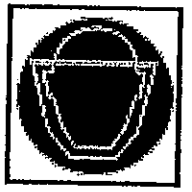
use ear protection



wear protective shoes



use protective helmet



obligatory protection for face

Prohibition signs

It is forbidden to lubricate apparatus and intervene on moving parts

It is forbidden to remove fixed protection (guards) or use the kiln without the protections

Institutional prohibitions

(the most frequent prohibition signs)

It is forbidden to:

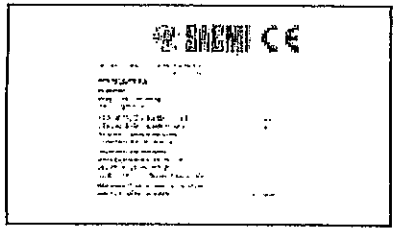
introduce explosive or flammable material

use knobs instead of screws to fix the protection in place

ascend to the crown of the kiln

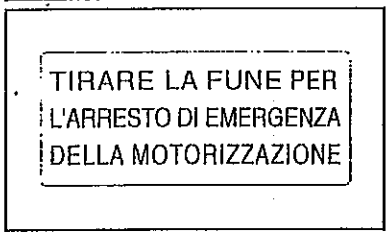
Composed cards and their location

inlet and outlet of kiln + 2
on the flue gas shelter + 2
on the final shelter



inlet and outlet of kiln

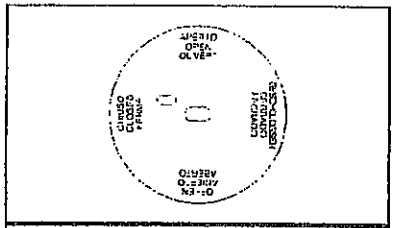
1 for motorvariator to be installed above the roller level, motorization side



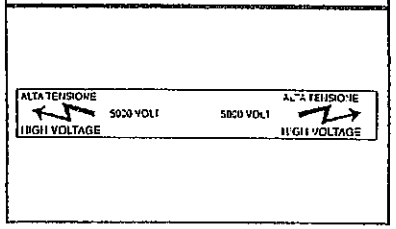
1 for every motorvariator above the roller level, motorization side

1 for every access ladder to the service level of the shelters

In highly visible position on every shelter and in the rapid cooling, slow cooling and flue gas chimney areas

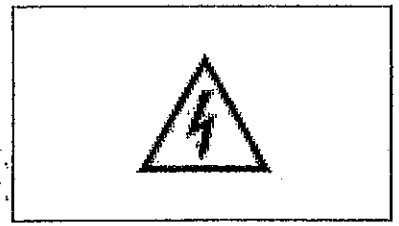


on every entry tap of the main gas unit



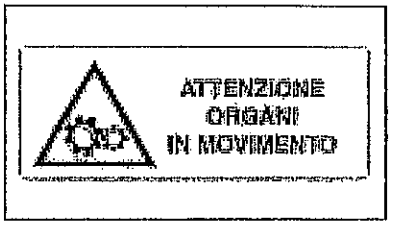
1 for every high voltage cable (one per burner)

2 for every motorvariator above the roller level, one on the motorization side and one on the idle side



on the front and back of the panel

on the front and back of the panel

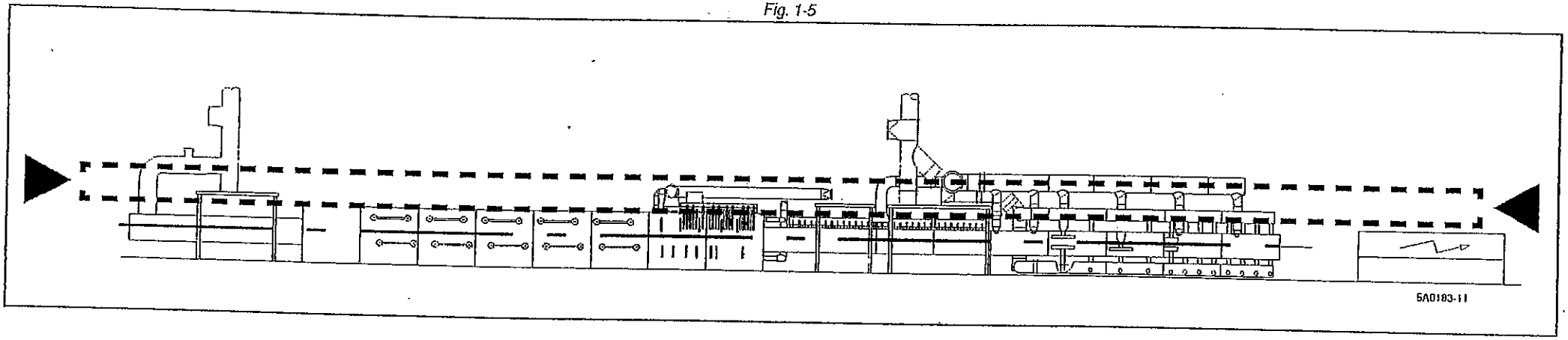


1 for every motorvariator above the roller level on the idle side

Critical areas: A (overhead)

(section of the area)

Fig. 1-5



Critical overhead area

This area overlooks the kiln with the ventilators and the tubes for the circulation of forced hot and cold air. One can have accesse with ladders and can move along the gallery.

THE CROWN OF THE KILN IS NOT LOAD BEARING; WHOEVER ASCENDS AND WALKS RISKS FALLING.
THIS IS A LIFE THREATENING DANGER!

Only personnel authorised by the plant manager may use the preset access path.

It is possible to .....

stumble, slip, fall

remain entangled in the ventilator mechanism

collide with projecting parts

..... so what must therefore be done?

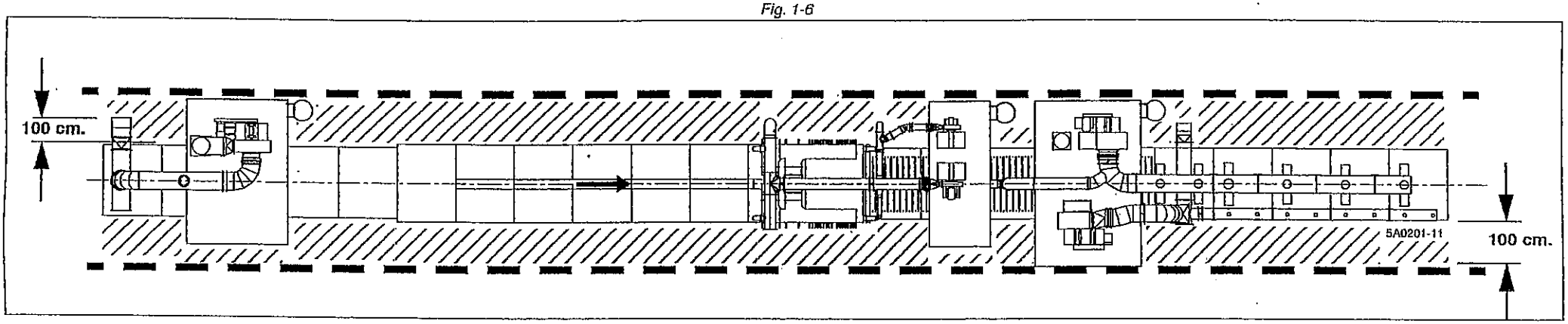
- remain attentive
- wear anti-slip shoes and helmet

- **always** respect the prohibitions
- properly replace the protections after having, if necessary, removed them
- always be cautious
- do not run and do not move in an agitated manner

Critical areas: B (low)

(plan of the area)

Fig. 1-6



Critical lower area

This is the area around the kiln: up to 1 metre from the walls of the motorization side and 1 metre from the walls of the extraction side of the rollers.

After the plant has been installed this area will be closed off by barriers or highlighted by colouring it yellow.

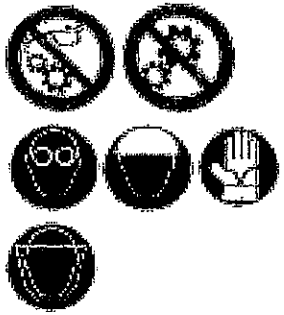
It is possible to .....

to remain entangled with hands and clothing if the rollers are approached without care

be burnt if hot surfaces are touched or to feel the affects of a burst of heat should the doors open

collide or stumble if moving around in a disorderly manner in an area left in disorder

..... so what must therefore be done?



* always respect the prohibitions
* properly replace the protections after having, if necessary, removed them (see following instructions)
* always be cautious
* protect eyes, face and hands
* keep distance from the aluminium coloured tubes (RAL 9006) in which hot air is circulated (cold air is in the blue coloured tubes (RAL 50157)

keep the environment:
- free of apparatus, containers, rollers, scraps
- dry, clean (above all from oil spots)
- well lit (300-500 LUX)

Fig. 1-7

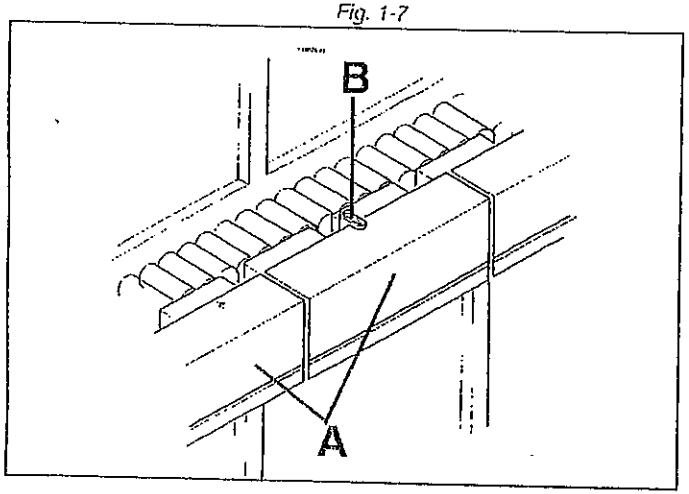
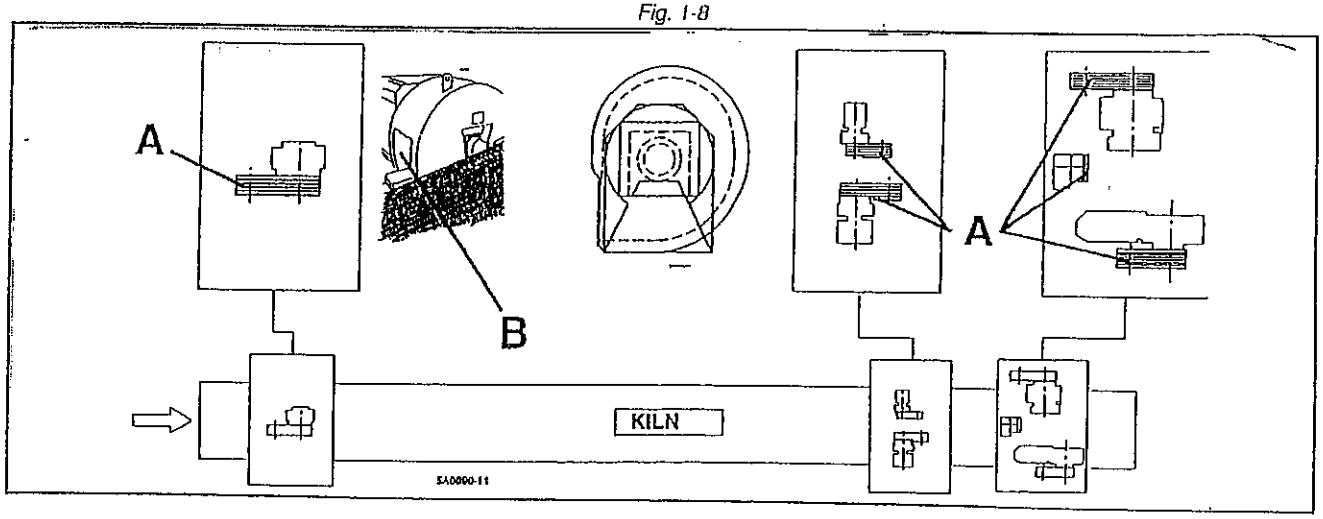


Fig. 1-8



Drive

All of the moving parts of the machine (gears and rollers) are installed along the side of the kiln and are adequately protected by covers (A - Fig. 1-7).

The protections are only to be removed when the mechanism is at a standstill and are to be replaced when an intervention has been completed tightly fixing the screws (B - Fig. 1-7).

It is absolutely forbidden to lubricate and intervene on parts of the machine in motion.

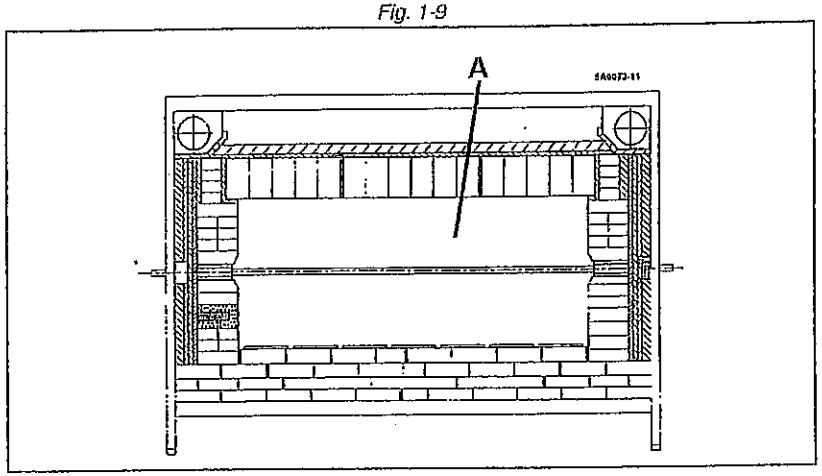
Ventilators

The ventilators are equipped with covers to protect the transmissions (A - Fig. 1-8) and the inspection door of the scroll (B- Fig. 1-8).

Aside from the risks of entrapment, collision and squashing, there are also the risks of eddy, the projection of objects, and the unexpected blasts of hot or cold air.

Critical areas: internal

Fig. 1-9



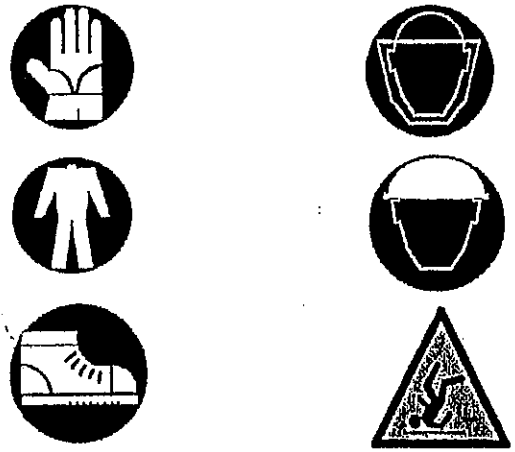
The rule ...

It is impossible to enter the laboratory (A-Fig. 1-9) at the internal of the kiln when the plant is working: temperatures are up to 1300 °C.

At every intervention, ordinary or extraordinary, it is necessary to ensure that:

- the kiln is cold
- the doors are open to air the room
- appropriate maintenance pocedure is followed

and with the necessary caution ...



... the exceptions

These constitute some rare and occasional events:

- U bolt
- breakage of one or more rollers

The door, therefore, may be opened
using caution and all the protection available for an emergency intervention scrupulously observing the appropriate procedure (see following instructions)

Fig. 1-10

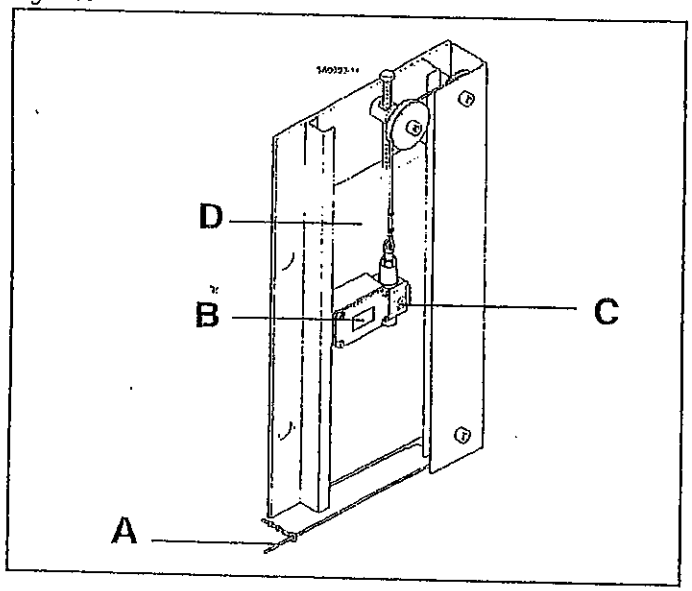


Fig. 1-11

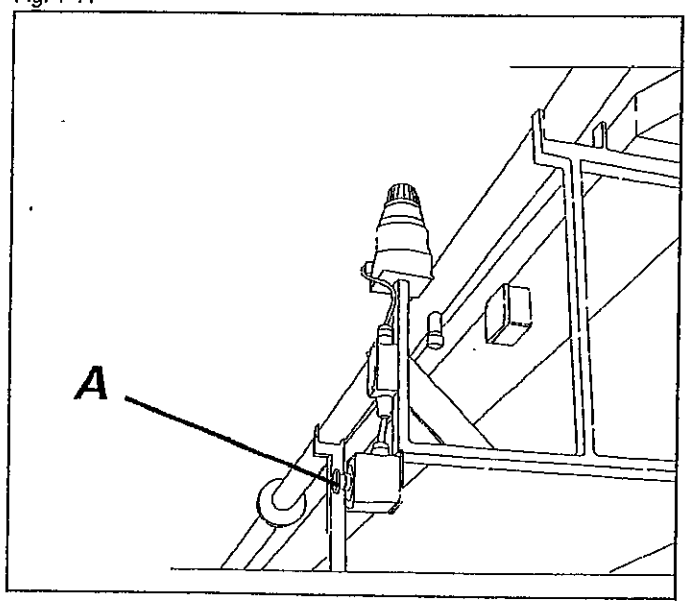
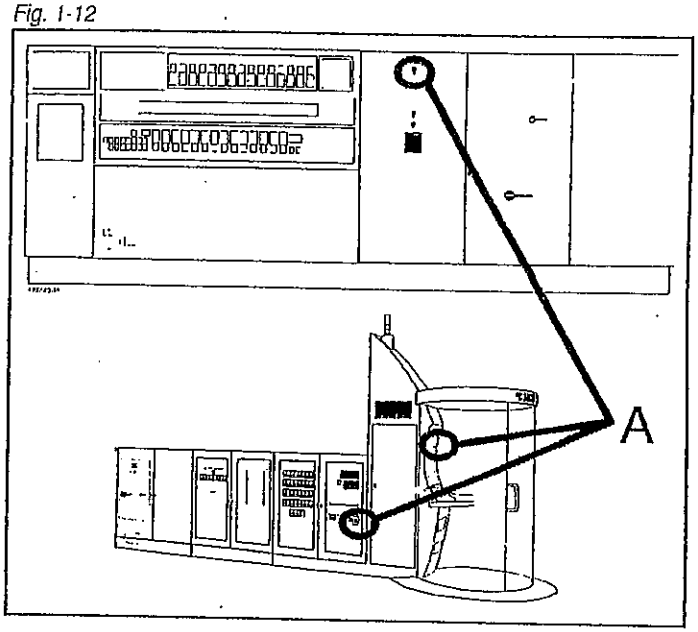


Fig. 1-12



AUTOMATISMS

The risks which can arise from a lack of fuel, combustion air, electric power and the lack of fume exhaust are neutralised by automatic devices which interrupt the activity of the plant.

Moreover, all the unusual situations are signaled by:

- acoustic alarms
- visual alarms with warning lights on the control panel
- messages on the computer monitor

Finally there are 3 systems with which to order the application of the emergency stop.

EMERGENCY STOP OF THE MOTORIZATION: RED CABLE

Pulling the cable at any point where it runs along the side of the kiln motorization will stop the drive motors and the burners will blow out.

The cables (A - Fig. 1-10) have a safety microswitch (B- Fig. 1-10), tripped even when the cables are broken, placed on a counterweighted slide (D- Fig. 1-10) normally found near the outlet of the kiln.

To unblock, use the button (C- Fig. 1-10), lifting the slide a little so as to rearm the tripping device.

N.B. AFTER THE RESTORATION, PUSH RESET ON THE ELECTRIC PANEL

EMERGENCY STOP: MUSHROOM-HEAD PUSH BUTTON ON EDGE OF KILN

There are two buttons, at the beginning and end of the burner area on both sides (A - Fig. 1-11). Pushing either button will result in the power switching off in the plant, closing the gas solenoid valve and stopping all of the motors.
The plant can be returned to work by turning the mushroom-head button and reactivating the power with the 'Reset' button on the control panel.

EMERGENCY STOP: MUSHROOM-HEAD PUSH BUTTON ON THE ELECTRIC PANEL

Pushing the button (A - Fig. 1-12) will result in the power switching off in the plant, closing the gas solenoid valve and stopping all of the motors.
The plant can be returned to work by turning the mushroom-head button and reactivating the power with the 'Reset' button on the control panel.

Using ceramic fibres

It is recommended that caution be used when in contact with ceramic fibres. These are sources of fibrous dust and may prove to be harmful if inhaled and may cause irritation on contact with skin, eyes, throat and nose. It is, therefore, necessary to use adequate precautions such as suction devices and, ultimately, anti-dust masks so as to reduce to an absolute minimum individual exposure to the dust.

In particular :

1. Work in such a way as to emit the minimum amount of dust
2. Evaluate potential exposure to the dust (measuring, if necessary, the atmospheric concentration).
3. Where it is necessary and possible supply a dust suction apparatus at the source of the dust.
4. If it exceeds the Exposure Limits supply Breathing Protection Apparatus.
5. Keep the work place clean preferably using a vaccum cleaner with an extraction filter.
6. Collect waste material close to their source in suitable containers or in strong sacks getting rid of them at regular intervals.
7. Where it is pertinent isolate the work areas with separation devices, protective screens or curtains.
8. Encourage the workers to uphold good work habits especially as regards cleaning.
9. Make it obligatory for the workers to use clothing with long sleeves which leave the neck and wrists sufficiently free, head covers, glasses and gloves.
10. Set-up a system for the removal and storage of garments and work equipment.
11. Wash the work garments seperately from garments not used for this purpose.
12. Recommend to the workers that they wash all the cutaneous areas exposed after the handling of ceramic fibres, first rinsing with water and then carefully washing with soap (not with detersive solutions).
13. Organise regular inspections and maintenance of all of the technical control apparatus and the other protective apparatus.

These precautions must be observed at the moment of production, elaboration, transformation and installation of ceramic fibres and are also applicable in many cases where the removal of the ceramic fibre at the termination of its use is being contemplated.

Finally, aside from the protection devices, some summarised indications of first aid.

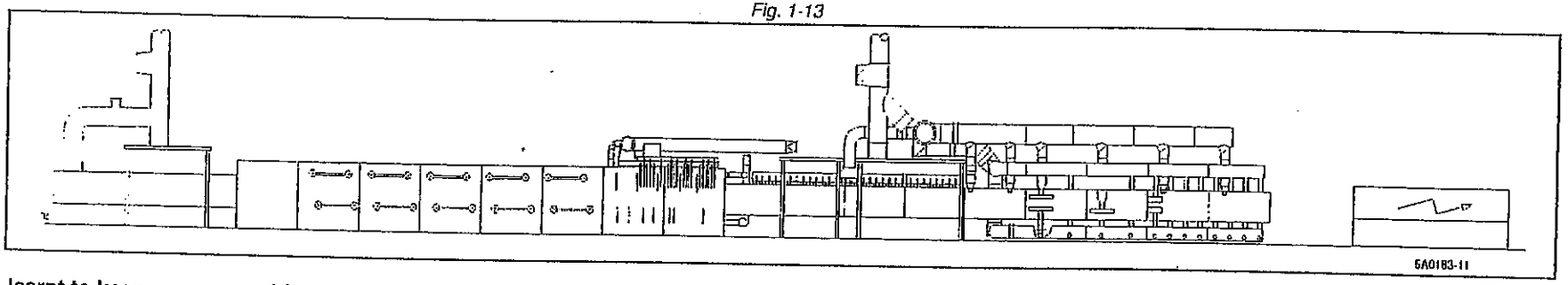
Personal protection devices	
overalls	in heat resistant material
gloves	cut-abrasion-burn resistant
glasses	made of glareproof material
mask	heat resistant-transparent-antidust (in particular cases)

Possible injuries	First aid
irritation or inflammation of nose and throat	go to open air; rinse throat with water; clear the nose of dust
cutaneous irritation or eruption	rinse the affected area with water and wash with neutral soap; do not use other detergents
irritation or inflammation of eyes	rinse the eyes with lots of water; have eyewash available
ingestion symptoms (nausea etc.)	drink lots of water or milk

The expert sees also in the dark

Knowledge of the plant

Fig. 1-13



After having learnt to keep your eyes wide open you must now learn how to operate the kiln ..... with your eyes shut.

Complete understanding of the plant, above all its reactions to all of the variables which may occur during the ceramic production, comes with experience.

Experience, however, is built only on a clear idea of the structure and functions of all of the apparatus.

Learning path

The kiln is composed of numerous modules of 2,1 m, in variable numbers according to the production and the needs of the client.
The product to bè fired goes from one end to the other of the firing laboratory gradually passing from about 100 through temperatures of up to 1.200 °C, before being returned to the ambient temperature.
The details of the functioning, the structure and the apparatus can be learnt in **two ways** :

1°

The sequence of the firing process phases which produce the principal chemistry/physics events with which the ceramic product is transformed

2°

the singular functional units:

- electric system
- drive
- aeration
- combustion

General map

Fig. 1-14

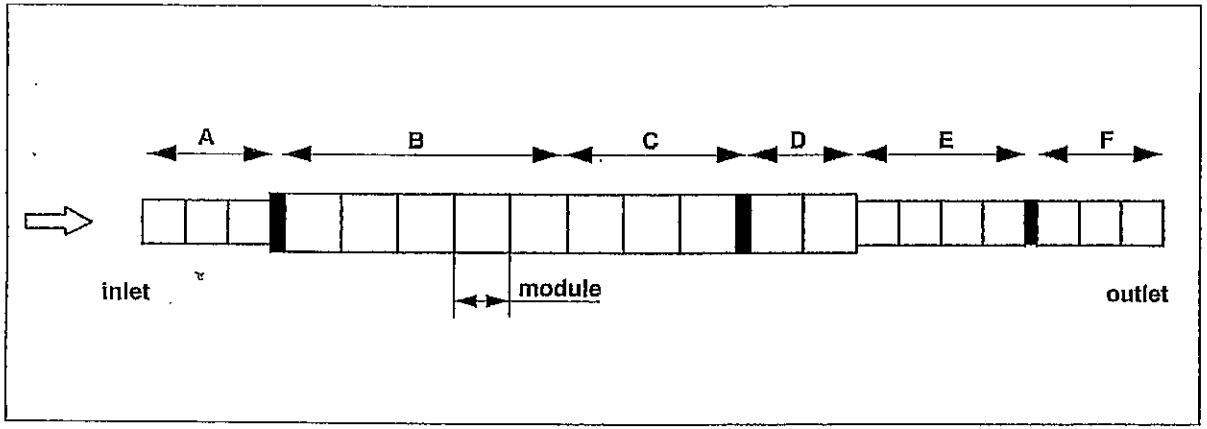
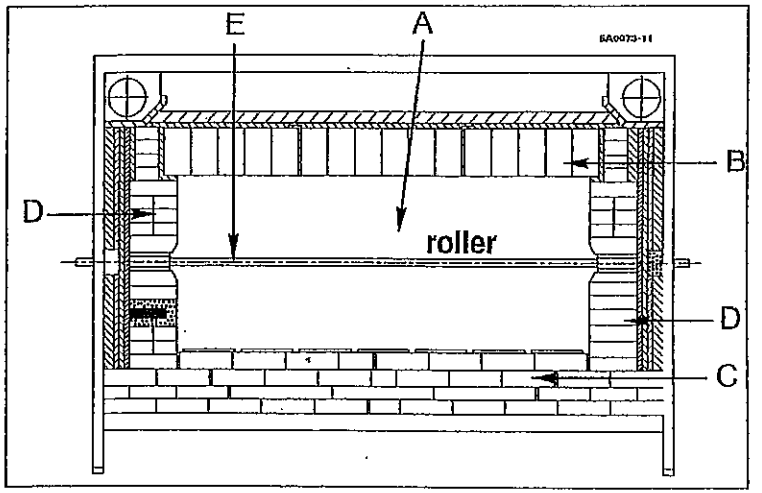


Fig. 1-15



Kiln Areas (Fig. 1-14)

A PREKILN

B PREHEATING

C FIRING

D RAPID COOLING

E SLOW COOLING

F FINAL COOLING

Nomenclature (Fig. 1-15)

A laboratory: internal part where the product is transited

B crown: insulation of the covering level of the kiln

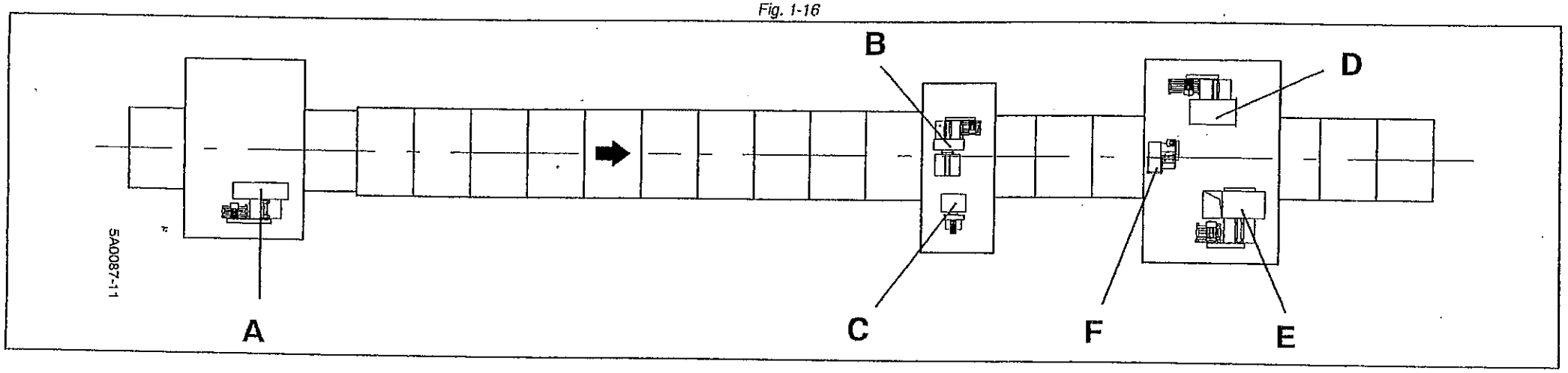
C kiln floor: insulation of the floor level of the kiln

D walls: lateral insulation of the kiln

E roller level: through rollers which support and transport the product

The loading and unloading of the tiles is carried out by means of machines with transport roller units connected to the plant: these are not described in this manual.

Fig. 1-16



VENTILATORS AND SHELTERS (Fig. 1-16)

The kiln has centrifugal ventilators housed on metal shelters rested on the floor. Every shelter has an access ladder and safety banisters.

A ventilator for suction of flue gas in prekiln

B ventilator for combustion air to burners; this is equipped with a silencing filter on the suction inlet

C ventilator for blowing the air in the rapid cooling area; this is equipped with a silencing filter on the suction inlet

D ventilator for blowing the air in the final cooling area

E ventilator for hot air suction in the final cooling area

F ventilator (if required) for suction through heat exchanger tubes in the slow cooling area

Fig. 1-17

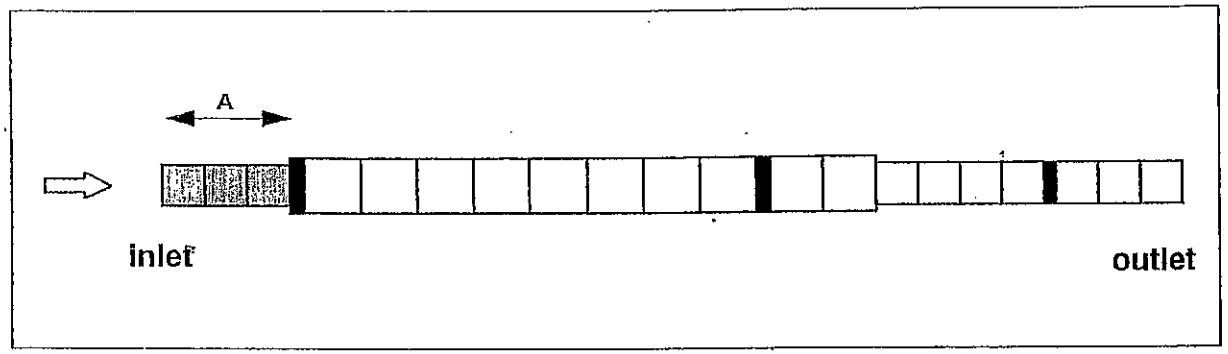
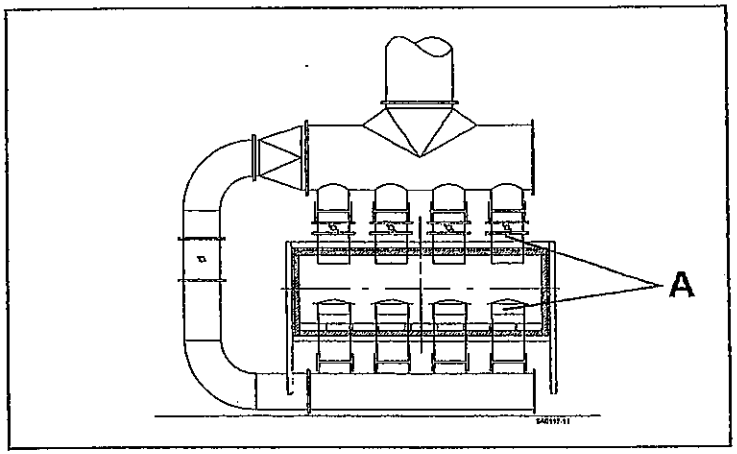


Fig. 1-18



The tiles must lose the residual hydroscopic water in this prekiln area. At the kiln inlet humidity must not exceed 1% in weight.

This section of the laboratory does not have any burners and is heated by the flue gas coming from the firing, sucked by the ventilator through intake ports above (A-Fig. 1-18) and below the roller level at the beginning of the prekiln.

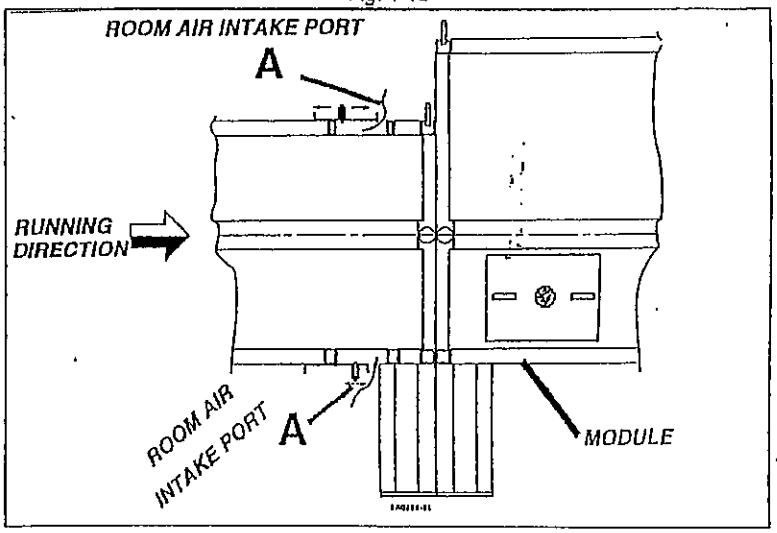
The temperature is taken by a single thermocouple, in the crown, and varies from 150 to 200 °C. For the rapidity of the cycle and the endothermia of the evaporation the material has a temperature of between 50 and 200 °C.

The temperature can be regulated with two room air intake ports, in the crown and kiln floor, using a system of slide valves (A - Fig. 1-19)

The laboratory is lower in this area so as to accelerate the sliding of the flue gas and, consequently, the heating of the tiles.

The walls and crown are insulated with plates firmly anchored to the metal structure of the modules; for the kiln floor insulating bricks are used which best resist the mechanical stress when removing deposits which may have accumulated on the floor.

Fig. 1-19



Professionality

Fig. 2-1

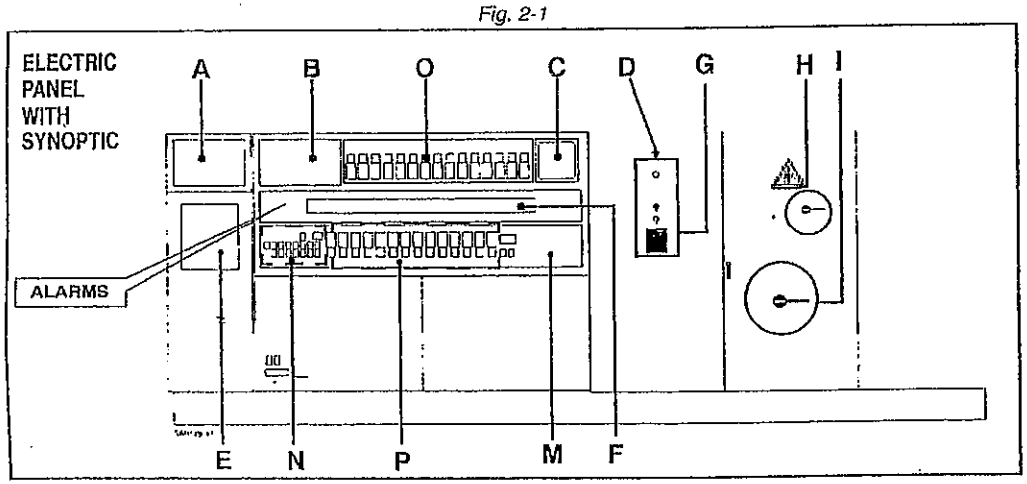
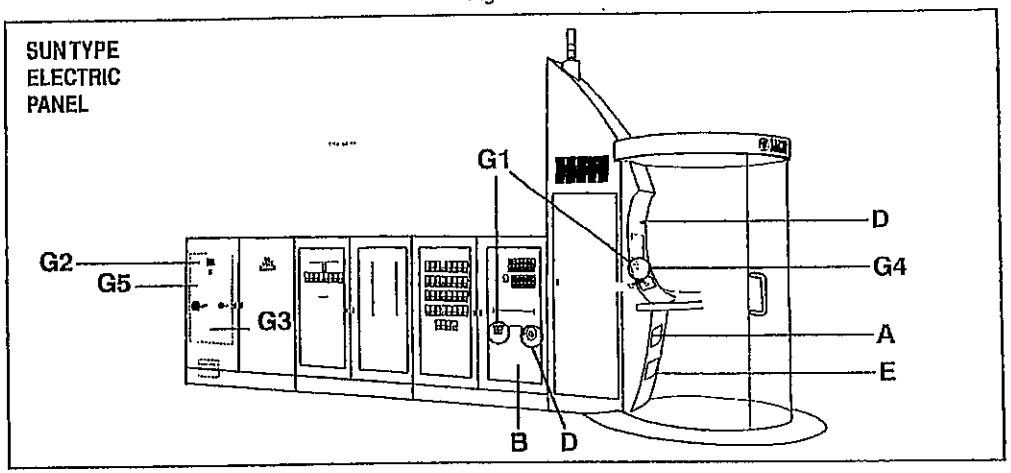


Fig. 2-2



Command bridge
Remote control

The kiln is equipped with automatisms, devices, apparatus and connections which permit it to be guided and controlled at distance with the control panel.
For the proper use of these resources it is absolutely indispensible to acquire a perfect understanding of:

1. the instruments centralized on the panel
2. their correspondence to the diverse functions activated during the preparation sequence

PANEL

THE LAYOUT OF THE SINGLE COMMANDS AND INSTRUMENTS ON THE PANEL MAY VARY ACCORDING TO THE PERSONALISTION OF THE PRODUCTION ORDER. IT IS, THEREFORE, NOT POSSIBLE TO SUPPLY A STANDARD ILLUSTRATION FOR ALL OF THE KILNS. COMMANDS AND INSTRUMENTS ARE INDIVIDUATED ON THE PANEL BY THE CODE ASSIGNED TO THEM ON THE PLATE NEAR TO EVERY COMMAND.

To make memorisation easier it is possible to examine the commands and the instruments by following the the organisation of the panel as illustrated

ORGANISATION OF PANEL

Devices and apparatus of:

general management A, B, C, D, E, F

electric system G, H, I, L

handling M

ventilators N

combustion O, P

ALARMS

Every alarm is signaled by a siren and a pilot light which will appear on the specific electric panel

Some of the serious alarms will cause the gas safety solenoid valve to stop and will remove the voltage of the local ignition units.

If an alarm is triggered the cmputer will provide all of the instructions as to the reasons and the resolutions.

The alarms are analysed in detail on the following pages.

A - COMPUTER

The running of the kiln is assisted by a PC through a system which manages the adjustment activity and control as well as supplying information regarding production activity (consumption, quantity, etc...).
The instructions are to found in the relative PC Instruction Manual

B - RECORDER

This is an autonomous apparatus which is optional. The recorder collects, memorises and transcribes, on continuous forms, the traces of temperature taken by the thermocouple.
In the version with the SUN type electric panel the recorder is optional because the computer installed is capable of visualising and registering all of the thermocouples.

C - MONITOR

Receives the signals given by the telecamera which pans the entrance (or exit) of the kiln.
In the version with the Sun type electric panel, the monitor functions also as the PC's video.

D - EMERGENCY STOP

This is a red mushroom-head button which, when pushed, instantly stops all of the kiln's actuators. After it has been used it is reset by turning the command roughly 30°clockwise; to refeed all of the devices it is necessary to press the "Reset" button on the panel or the "Insert commands" button on the SUN type electric panel.
The same result is obtained by pressing any of the emergency buttons found on both sides of the kiln for every busway unit which feeds the burner groups.

E - PRINTER

The printer is activated by the computer; it is nevertheless provided with the autonomous demands described in the relative Instruction Manual.

F - SYNOPTIC

The users placed on the machine are shown on this panel, with the relative screenprinting indicating the functions and the initials inserted onto the electric diagram.
In the version with the SUN type electric panel the synoptic is realised using PC software making it possible to follow the flow of production on video.

Devices and commands of the electric system

G - CONTROL INSTRUMENTATION

This instrumentation consists of :

- G1 pilot lamp for presence of voltage
- G2 visualisor for feeding voltage-current
- G3 voltmetric commutator
- G4 electric panel light insertion selector
- G5 differential relay to measure dispersion towards ground (optional)

H - GENERATOR SET

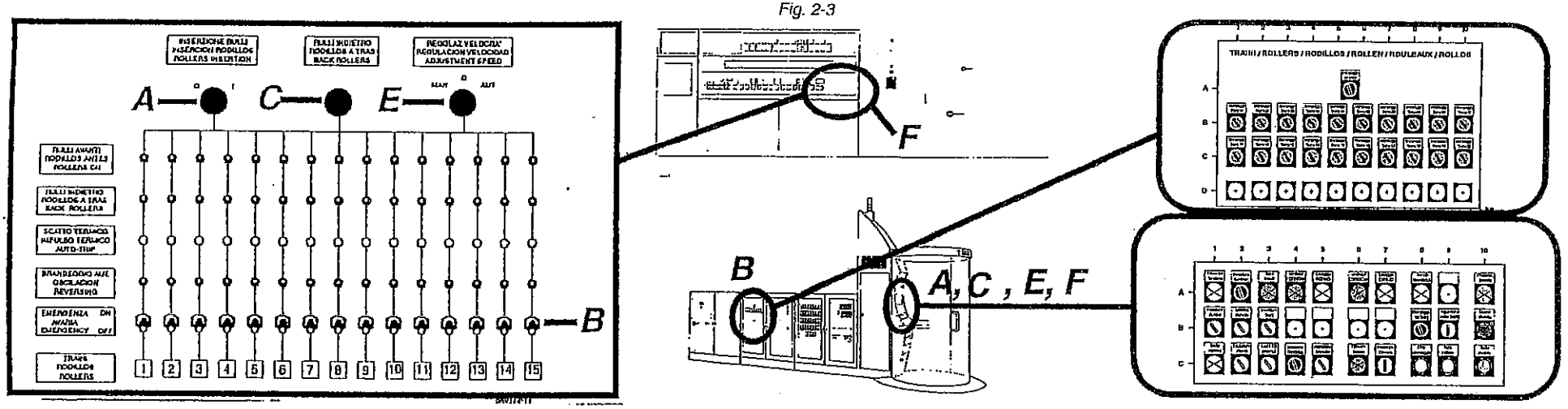
In case of a black-out the circuit breaker inserts the feeding of the drive motors using a generator set.
The feeding is inserted by turning the lever in a clockwise direction.

I - GENERAL CURCUIT BREAKER

Rotated in a clockwise direction this will feed the electric panel and the electromechanical users located in the plant.

Roller drive command

Fig. 2-3



A - INSERTION SELECTOR

"0"
- removes current from all drive motorsi
- disactivates the automatic speed adjustment
- removes a fundamental consensus from the opening of the gas output solenoid valve to the burners.

"I"
- abilitates the functionality of the drive motors in diverse ways: advance, backwards-forwards, reverse.

In the version with the SUN type electric panel the drive insertion selector key is positioned on the control panel.

B - TO AND FRO MOVEMENT SELECTOR

Here the rollers alternatively roll forwards and backwards: the advancement of the load is halted without stopping the rollers. In this way deformation of the rollers is avoided

The rotation times and the pauses between the two motors are determined by two seperate timers :
- the rotation time, identical both ways, must be the same to enable the roller to make at least a complete cycle
- the pause is between 2-4 seconds

On the panel there is a selector for every roller drive unit; every one makes the drive to which it refers shift quickly to and fro along with all those which preceded it (e.g. No.1, No.2 and No.3 when operating No.4; all when operating the last one).

The status of to and fro stepping movement:
- excludes the functioning consensus of the kiln loading machine
- suspends the self-adjusting speed of the rollers for a predetermined amount of time, configurable with computer, sufficient for a sample which will allow the speed to be taken with precision
- a timer with adjustable time is activated, which, when the time runs out, will cause all of the gas valves to close, avoiding in this way that the product, halted for too long a time in the hottest area, will be overfused.

The to and fro movement is activated automatically if the magnetothermic relay of one of the drive motors is released or if the inverter is blocked; in this case the to and fro movement is activated for all of the motors which proceed the one with the magnetothermic released.

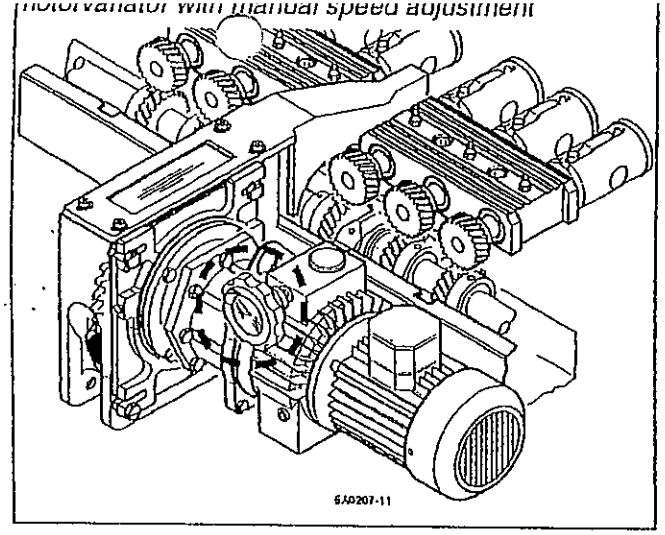
In the version with the SUN type electric panel the insertion selectors of the to and fro drive are luminous.

C - "REVERSE DRIVE" BUTTON

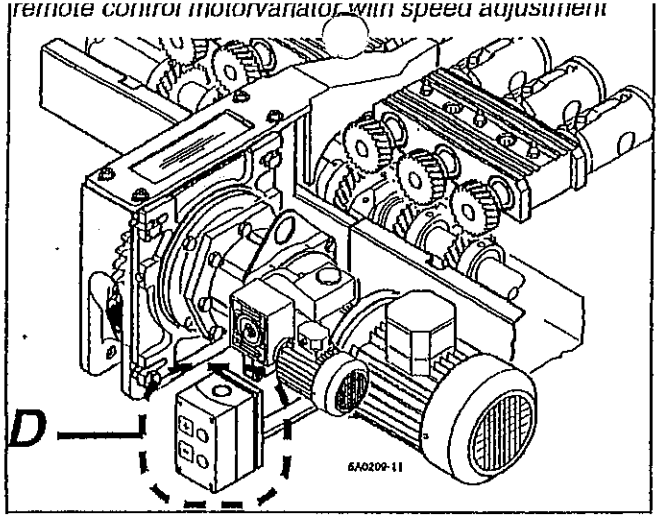
This is activated only during the to and fro stepping procedure: keeping the button pressed down the rollers turn in reverse direction and start the to and fro process when the button is no longer being pressed.
This is a very useful function for unblocking a tile pile-up.

In the version with the SUN type electric panel the "reverse drive" button is positioned on the control panel.

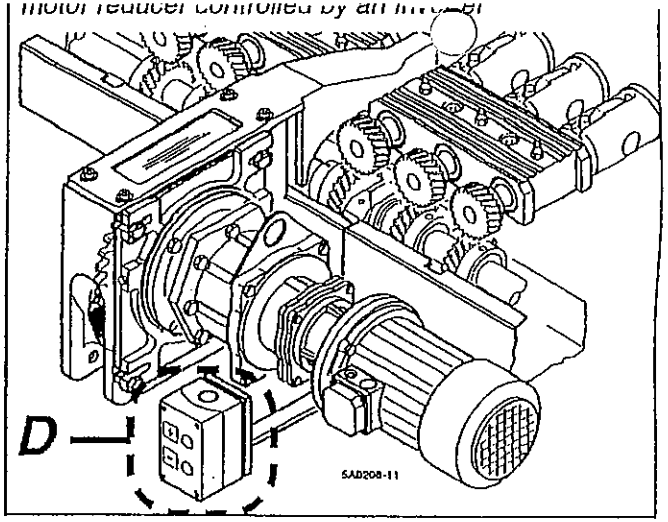
motorvariator with manual speed adjustment



remote control motorvariator with speed adjustment



motor reducer controlled by an inverter



D - SPEED ADJUSTMENT

If the kiln is not equipped with automatic management the speed of the rollers is manually adjusted with a fly wheel (Fig. 2-4) which works on a motorvariator; automatically with a servomotor (Fig. 2-5) or an inverter (Fig. 2-6) which works on the motorvariator/ motoreducer of every drive motors

The computer takes the speed from the impulses transmitted by an inductive sensor positioned in corrispondence to the teeth of a wheel fixed to the motor shaft of every drive.

The speed of every drive can be modified manually using the "increase/decrease" command placed near the motorreducer/motorvariator in the firing and rapid cooling zones (D - Fig. 2-5 / Fig. 2-6).
These commands are useful in some circumstances which call for the rapid distancing of the advancing load rows, controlling the results by sight.

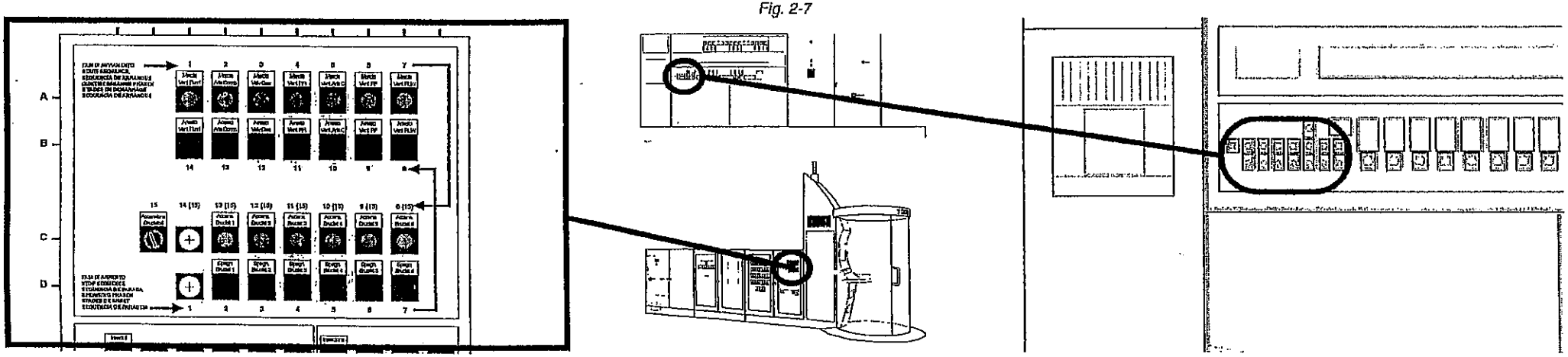
The speed variation impulses are limited to the duration and frequency of the timers housed inside the electric panel.
E - *THE FUNCTIONING OF THESE INCREASE/DECREASE MANUAL COMMANDS IS ONLY POSSIBLE WITH THE "SPEED ADJUSTMENT" SELECTOR POSITIONED IN "MANUAL".*
F - *It is, however, possible, even manually, to vary the speed of all of the drives contemporaneously using the Increase/Decrease button positioned on the Electric panel.'*

This selector has the following 3 positions :

MANUAL	AUTOMATIC	"0"
disables the computer commands and enables the manual commands close to every motorvariator	enables the adjustment through the computer and disables those which are manual	excludes all commands to modify speed: this is a safety device added to guard against errors in information through the computer or manual commands

Aeration

Fig. 2-7



Start-up/stop ventilators command

These are luminous monostable buttons which activate the functions just pressed and confirm by turning on the relative pilot lamp.

Flue gas ventilator

Combustion air ventilator

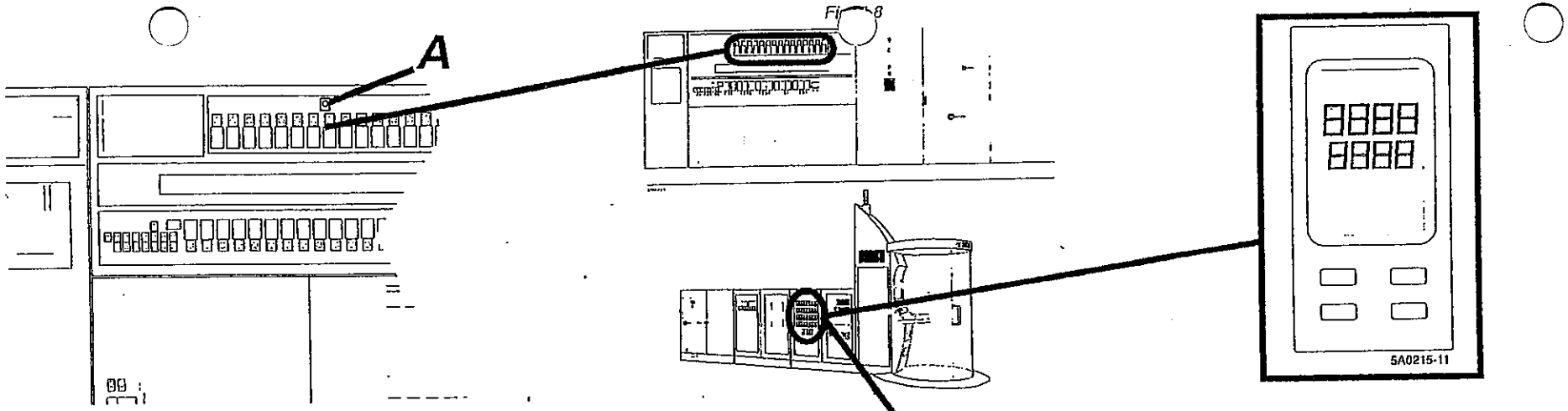
Main gas valve

Rapid cooling ventilator

Hot air suction ventilator

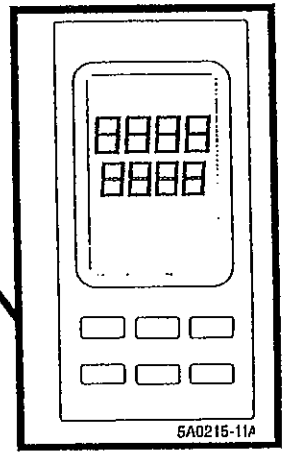
Final cooling ventilator

R.L.W. ventilator.



Temperature and pressure regulators

These pilot the gas units to the burner groups and the valves which modulate the air flow rate in the rapid cooling and slow cooling areas.
Regulatory accessories are able to manage the kiln pressure and the combustion air in the pipeline.
These communicate in serial line with the computer, to which they transmit information regarding the temperature taken in the kiln and/or the position of the actuators. They receive the work set-point from the computer.
These use technology with microprocessors and function with the PID system.



A - "Regulator replacement" selector.
This selector must be inserted for the duration of the eventual replacement of one or more regulators in that it disables the "Safety temperature" alarm which will be triggered by the extraction of the instrument.
The insertion of the selector will activate an alarm siren.

For the use of the regulators please refer to the specific apparatus manual.

Alarms

FUNCTIONS WITH ALARMS	
WHEN AND HOW	*WHY*
NOTE	

The alarm with this sign will shut down the feeding of the gas: this will cause the immediate closure of the general gas safety solenoid valve and remove voltage from the local unit

GENERAL MANAGEMENT

1 photoelectric cell
2 emergengy cable
3 computer shutdown

ELECTRIC SYSTEM

4 PLC voltage

HANDLING

5 roller drive thermic cutout
6 drives standstill

AERATION

7 ventilators thermic cutout
8 combustion air ventilator filter
9 kiln depression
10 hot-air suction depression
11 high pressure combustion air
12 low pressure combustion air
13 low pressure in rapid cooling
14 low pressure in final cooling
15 flue gas depression switch test
16 combustion air pressure switch test

FUEL

17 high pressure gas
18 low pressure gas
19 high temperature of safety regulators
20 high temperature of regulators
21 gas valve drop
22 solenoid valve hold
23 modulating valve feed
24 burners

1 PHOTOELECTRIC CELL (ABOVE AND BELOW ROLLER LEVEL)

WHEN AND HOW	WHY
When the photoelectric cell receiver is obscured it activates a timer which, when it reaches the end of the scale, generates an acoustic-visual alarm	• there is a tile piling-up • the projector is not aligned with the receiver

2 EMERGENCY CABLE

WHEN AND HOW	WHY
When the drive safety cable limit switch is triggered	• cable pulled • cable broken • calibration of limit switch is imprecise • limit switch breakdown • connection between limit switch-panel interrupted • panel interface relay has defect

HALTS THE ROLLERS AND THE GENERAL GAS SAFETY SOLENOID VALVE

3 COMPUTER SHUTDOWN

WHEN AND HOW	WHY
When the computer no longer responds to the commands of the operato	• computer card breakdown or defect (1) • keyboard defect or breakdown (2)

(1) switch off and restart the computer
(2) check the connection to the PC and,if necessary, replace

4 FEED LACK TO PLC

WHEN AND HOW	WHY
.... *The alarm is visualised on the electric panel and activates the siren*	• the breakdown of a component inside the panel has caused a feed overload • a fuse on the feeder has burnt out • photoelectric cell/sensor short curcuit

CLOSES THE GENERAL GAS SAFETY SOENOID VALVE AND SWITCHES OFF THE SIGNAL ON THE ELECTRIC PANEL

5 THERMIC DRIVE CUTOUT OR INVERTER SHUTDOWN

WHEN AND HOW	WHY
• Thermic release on any of the drives • The inverter is blocked *The alarm is visualised on the electric panel and activates the siren*	• motor overload • motor breakdown • the motor-panel connection is interrupted or short circuited • inverter breakdown

UPSTREAM DRIVE STEPPING GAS DROPS IF STEPPING PERSISTS FOR THE MAX. TIME SET

6 DRIVES STANDSTILL

WHEN AND HOW	WHY
All of the movement is at a standstill *The alarm is visualised on the electric panel and activates the siren*	• the stop has been ordered by the panel • the safety cable has been activated • the stop movement selector has been activated by the push-button panel on the kiln

THE ROLLERS AND THE GENERAL GAS SAFETY SOLENOID VALVE STOP IMMEDIATELY WHEN THE CABLES ARE ACTIVATED AND AFTER 45 SECONDS IN OTHER CASES

7 THERMIC VENTILATORS INTERVENTION

WHEN AND HOW	*WHY*
there is a thermic cutout in all of the ventilators *The alarm is visualised on the electric panel and activates the siren*	• the motor is overloaded (1) • there is a phase lack (2)

(1) check the thermic relay calibration and ,if is correct, the ventilator
(2) check the protection fuses/magnetothermic switch

NOT VALID FOR BLOW-BY RR-RF-AAC-RLW

8 COMBUSTION AIR VENTILATOR FILTER

WHEN AND HOW	*WHY*
The alarm is visualised on the electric panel and activates the siren	• the ventilator filter is dirty (1)

(1) clean and/or repalce the filter

9 KILN DEPRESSION (FLUE GAS SUCTION)

WHEN AND HOW	*WHY*
The depression has a value lower than that set on the flue gas depression switch *The alarm is visualised on the electric panel and activates the siren*	• the calibration on the pressure switch is not correct • pressure switch breakdown • the pressure switch impulse port is clogged • the gate adjustment does not guarantee a sufficient depression • the motor-ventilator transmission is damaged • electric panel-pressure switch connection cable is interrupted • the interface relay in the control panel is

CLOSE THE GENERAL GAS SAFETY SOLENOID VALVE AND SWITCH OFF THE SIGNAL ON THE ELECTRIC PANEL

10 HOT-AIR SUCTION DEPRESSION

WHEN AND HOW	*WHY*
The pressure in the hot-air suction ventilator pipeline has a lower value than that set *The alarm is visualised on the electric panel and activates the siren*	• calibration of the pressure switch is not correct • pressure switch breakdown • electric panel-pressure switch connection cable is interrupted • electric panel interface relay has defect • motor-ventilator transmission damaged

11 HIGH PRESSURE COMBUSTION AIR

WHEN AND HOW	WHY
The pressure value is higher than that of the pressure switch on the combustion air collection unit *The alarm is visualised on the electric panel and activates the siren*	• the calibration on the pressure switch is incorrect • pressure switch breakdown • electric panel-pressure switch connection cable is interrupted • electric panel interface relay defect

this alarm shuts down the gas feed and is not present with the combustion air ventilator at a standstill

12 LOW PRESSURE COMBUSTION AIR

WHEN AND HOW	WHY
The value of the pressure is less than that of the pressure switch on the combustion air collection unit *The alarm is visualised on the electric panel and activates the siren*	• calibration of the pressure switch is incorrect • pressure switch breakdown • electric panel- pressure switch connection cable is interrupted • electric panel interface relay defect • motor-ventilator transmission damaged • gate adjustment on the ventilator delivery is inadequate

this alarm shuts down the gas feed

13 LOW PRESSURE IN RAPID COOLING

WHEN AND HOW	WHY
The pressure in the rapid cooling ventilator pipeline has descended below that of the value set *the alarm is visualised on the electric panel and activates the siren*	• the calibration on the pressure switch is incorrect • pressure switch breakdown • electric panel- pressure switch connection cable is interrupted • electric panel interface relay defect • motor-ventilator transmission damaged

14 LOW PRESSURE IN FINAL COOLING

WHEN AND HOW	WHY
The pressure in the final cooling ventilator pipeline has descended below the value set *With the ventilator not set-up the alarm is not visualised on the electric panel.*	• the calibration on the pressure switch is incorrect • pressure switch breakdown • electric panel- pressure switch connection cable is interrupted • electric panel interface relay defect • motor-ventilator transmission damaged

15 FLUE GAS DEPRESSION SWITCH TEST

WHEN AND HOW	WHY
The alarm is visualised on the electric panel and activates the siren	• depression pressure switch has defect or has been tampered with • a depression condition generated by a flue gas purification plant creates a persistant depression condition in the flue gas pipeline • calibration of the pressure switch is too high • ventilator was started up before the rotor was completely at a standstill • Ventilator breakdown

This alarm does not permit the activation of the general gas safety solenoid valve

16 AIR COMBUSTION DEPRESSION SWITCH TEST

WHEN AND HOW	WHY
The alarm is visualised on the electric panel and activates the siren	• depression pressure switch has defect or has been tampered with • calibration of the pressure switch is too low • ventilator was started up before the rotor was completely at a standstill

This alarm does not permit the activation of the general gas safety solenoid valve

17 HIGH PRESSURE GAS

WHEN AND HOW	WHY
The downstream pressure exceeds the value set *The alarm is visualised on the electric panel and activates the siren*	• calibration of pressure switch incorrect • overpressure of vent valve calibration is incorrect • pressure switch breakdown • electric panel-pressure switch connection cable is interrupted • electric panel interface relay defect • calibration of pressure reducer is incorrect

this alarm shuts down the gas feed and does not permit the activation of the general safety gas solenoid valve

18 LOW PRESSURE GAS

WHEN AND HOW	WHY
The downstream pressure of the pressure reducer has descended below the value set *The alarm is visualised on the electric panel and activates the siren*	• calibration of pressure switch is incorrect • pressure switch breakdown • electric panel-pressure switch connection cable is interrupted • electric panel interface relay defect • calibration of pressure reducer incorrect • pressure at main gas unit entrance is insufffient • the overpressure safety valve has intervened

This alarm shuts down the gas feed and does not permit the activation of the general safety gas solenoid valve

19 HIGH TEMPERATURE OF SAFETY REGULATORS

WHEN AND HOW	WHY
The kiln temperature limit set on the regulator has been exceeded *The alarm is visualised on the electric panel and activates the siren*	

The regulator recognises if the alarm is generated by the breakage of a thermocouple or of the compensated cable: produces alarm but will not intercept the gas

20 REGULATOR HIGH TEMPERATURE

WHEN AND HOW	WHY
In all of the areas controlled by regulators the temperature exceeds that of the value of the alarm set *The alarm is visualised on the electric panel and activates the siren*	

21 GAS VALVE DROP

WHEN AND HOW	WHY
The general gas safety solenid valves stop while the flue gas and combustion ventilators are working *The alarm is visualised on the electric panel and activates the siren*	• there is an energy microswitch in the supply mains (1) • one or more consensus' for the feeding of the general gas gearbox are missing • breakdown of SQ1 microcontact of YV1 main gas unit valve

(1) in this case it is sufficient to repeat the machine start-up procedure

22 GAS SOLENOID VALVE SEAL

WHEN AND HOW	WHY
The interception valve of the main gas unit has a seal defect *The alarm is visualised on the electric panel and activates the siren*	• breakdown of control device (TC3) • seal defect in the connectors of the impulse port for the TC3 device

This alarm does not permit the general gas safety solenoid valve to be activated

23 MODULATING VALVE FEED

WHEN AND HOW	WHY
No electric supply to the modulating valves *The alarm is visualised on the electric panel and activates the siren*	• modulating valve defect or short circuit • electric panel-modulator connection cable is interrupted • card fuse which feeds the modulating valve has burnt out • relay defect

This alarm shuts down the feeding of the gas

24 BURNERS

WHEN AND HOW	WHY
Alarm is signalled on the electric panel both acoustically and visually	• electronic unit breakdown • AIR/GAS adjustment at burners is inadequate • measuring electrode is damaged • gas does not arrive at burners

25 BURNERS LACK FEED

WHEN AND HOW	WHY
Parts of the burners are extinguished *The alarm is visualised on the electric panel and activates the siren*	• protection fuses burnt • feeding relay breakdown

Prior to .....

Preparation for usage

Prior to starting up the kiln it is necessary to perform a series of checks, calibration and adjustments.
This is a general test of the efficiency of every part of the plant as well as of the knowledge of the operator.

COMPETENCE

The initial setting up operations are to be carried out exclusively by technicians of the manufacturer assigned for the start-up.

Nonetheless, those technicians with the responsibility of running the kiln and carrying out maintenance must assist in these operations so as to fundamentally understand the functioning of the plant, the adjustments and the verification tests.

The manufacturer's technician will conduct a cold start-up and then a hot start-up. For both a report signed by both the manufacturer and purchaser must be compiled.

METHOD

So as to be able to coordinate this part of the manual with those preceding and facilitate the aquisition of all information, the sequence of the setting up operations are carried out maintaining, as far as is possible, the grouping of the functioning units:

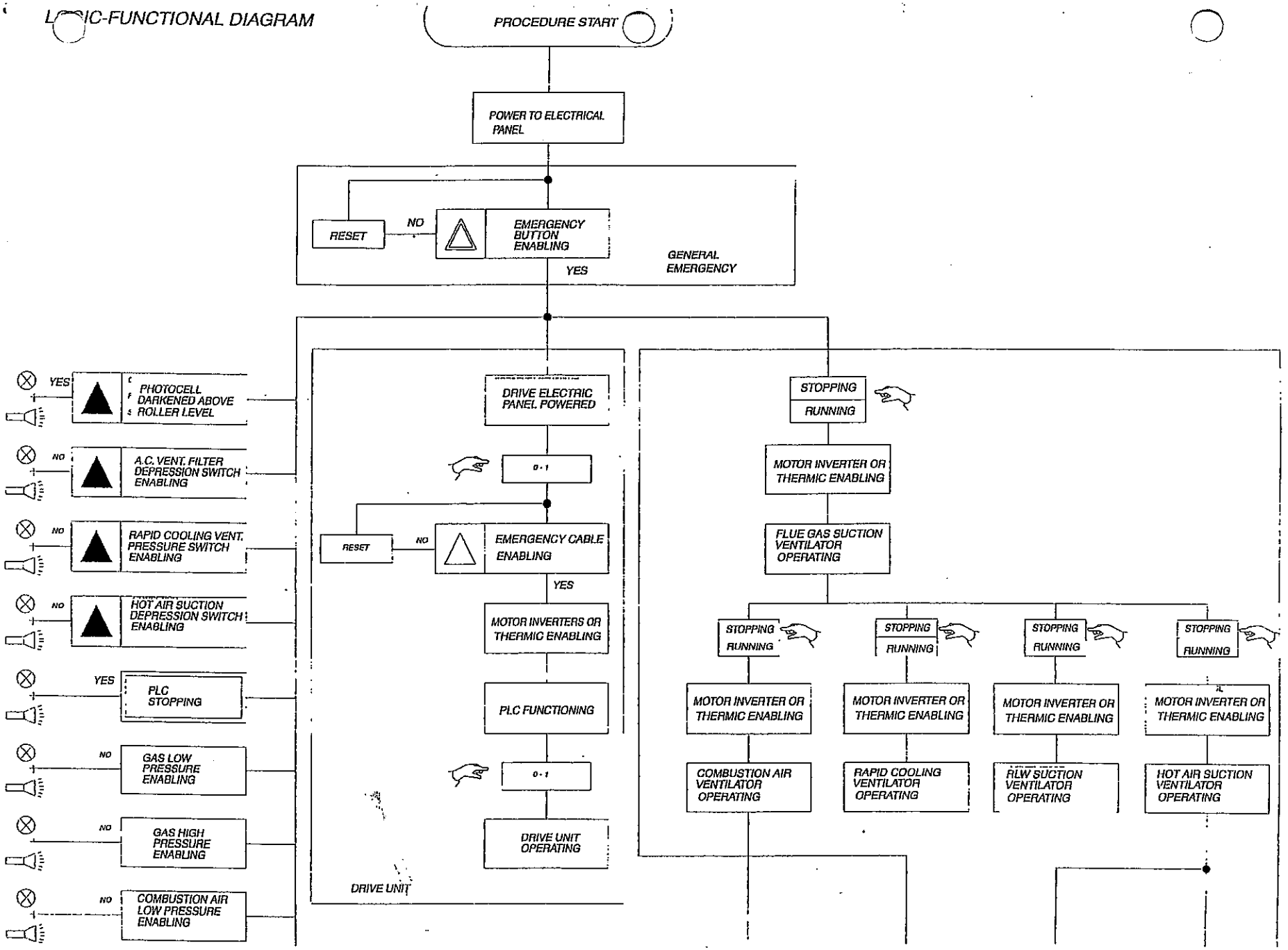
- general management
- electric system
- handling
- aeration
- fuel

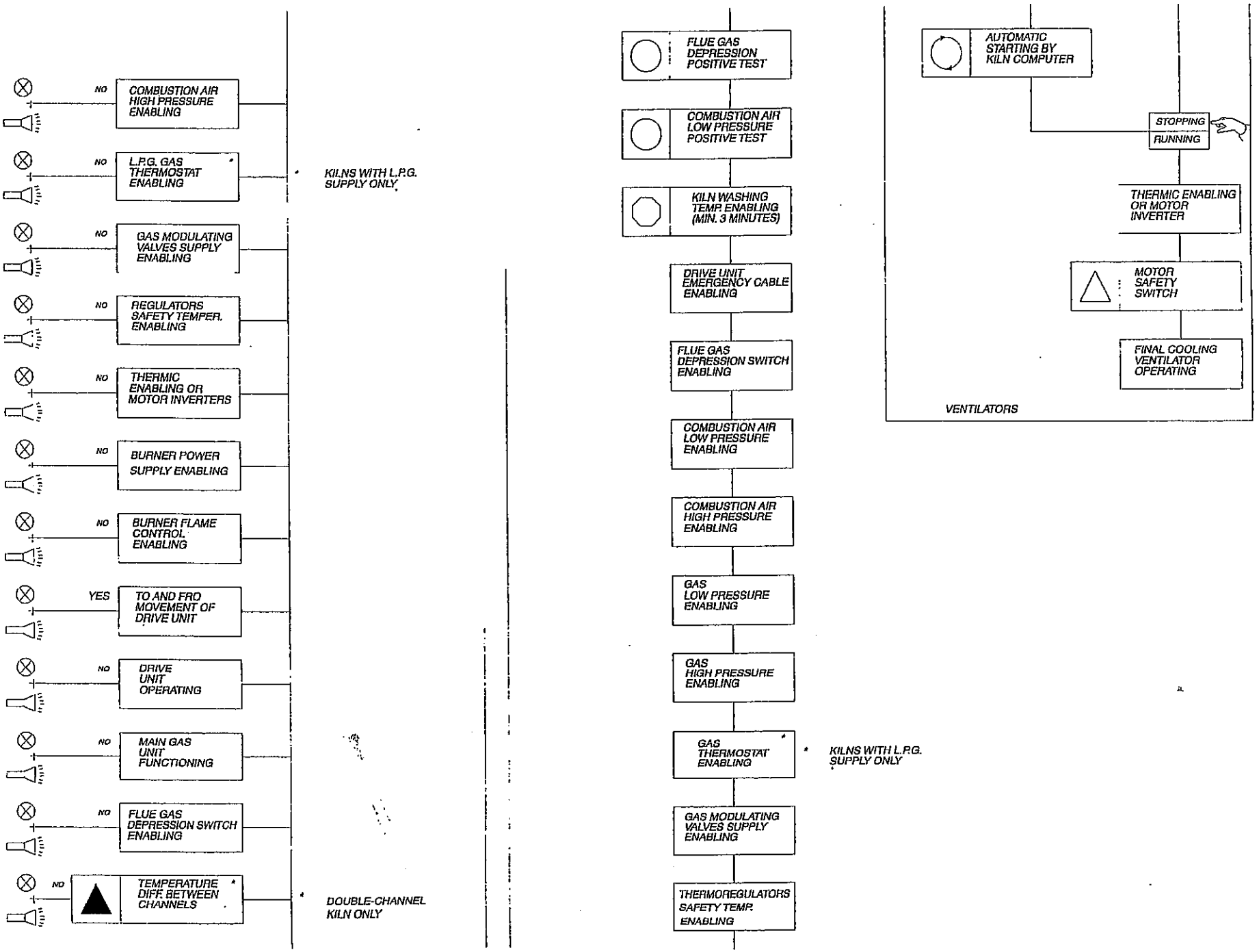
PATH

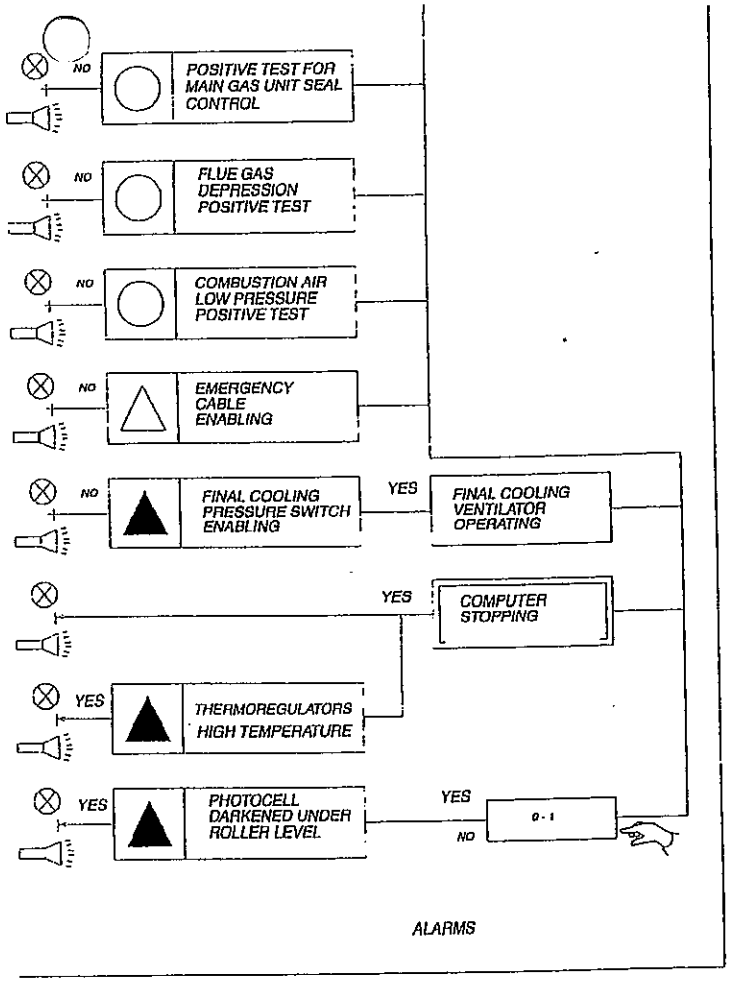
The flow chart found on the following pages constitutes the obligatory sequence of the start-up phases.

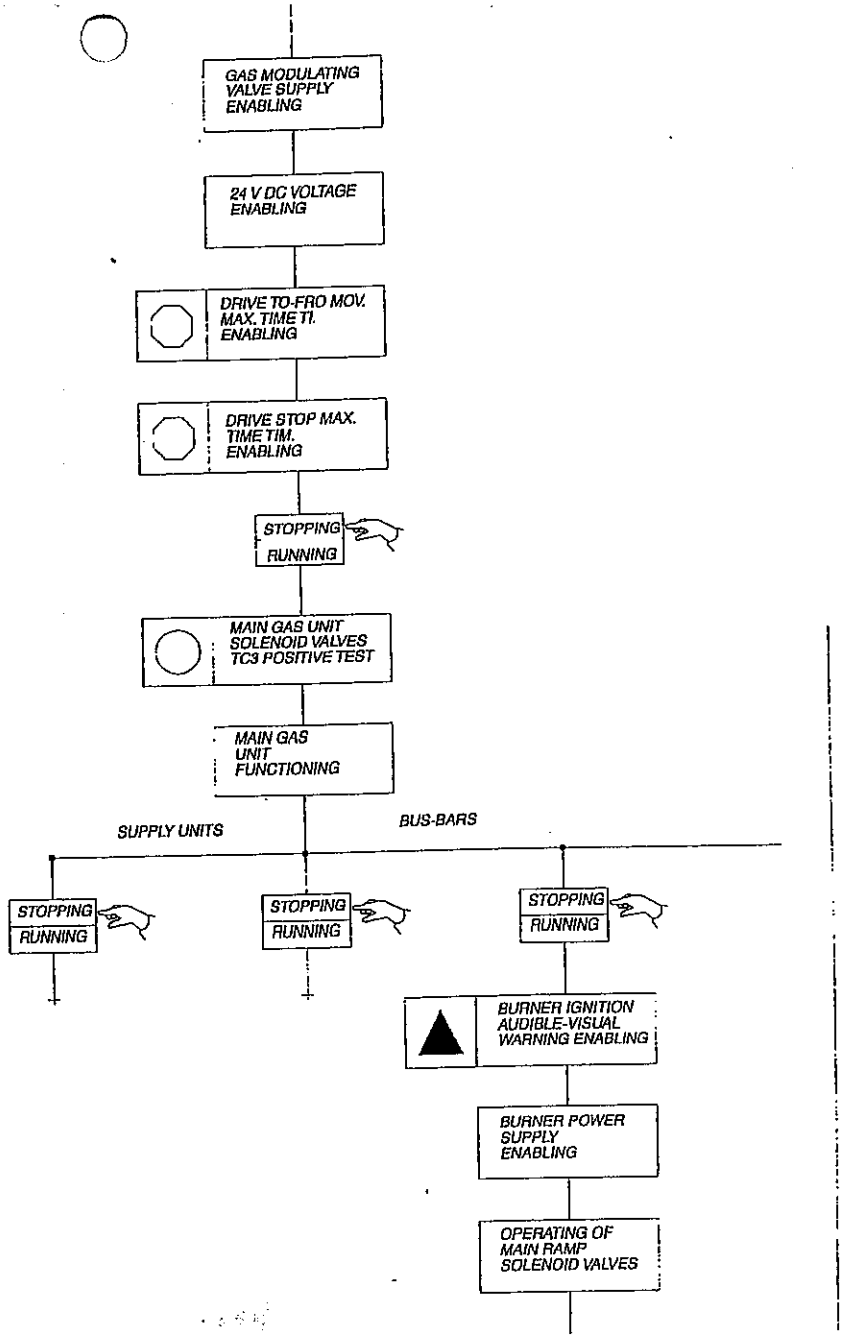
It represents the last of the preliminary operations in which, aborting one consensus at a time, it is checked that the alarms correspond correctly.

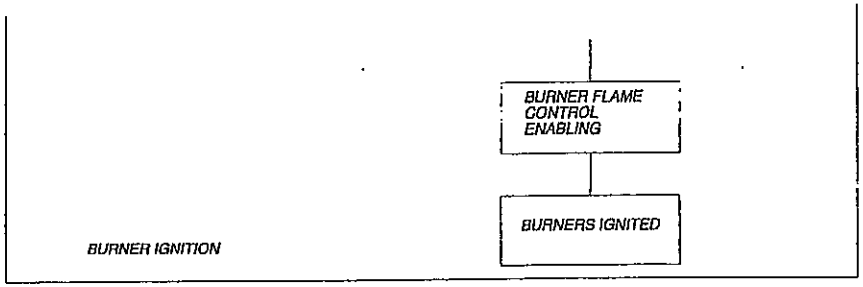
The same diagram may be consulted, until the end of the first operations, as if it were a sort of map or guide to all of the series of intervention with which the kiln is prepared for use.


PROCEDURE START
POWER TO ELECTRICAL PANEL
RESET
NO
EMERGENCY BUTTON ENABLING
YES
GENERAL EMERGENCY
YES
PHOTOCELL DARKENED ABOVE ROLLER LEVEL
NO
A.C. VENT. FILTER DEPRESSION SWITCH ENABLING
NO
RAPID COOLING VENT. PRESSURE SWITCH ENABLING
NO
HOT AIR SUCTION DEPRESSION SWITCH ENABLING
YES
PLC STOPPING
NO
GAS LOW PRESSURE ENABLING
NO
GAS HIGH PRESSURE ENABLING
NO
COMBUSTION AIR LOW PRESSURE ENABLING
DRIVE ELECTRIC PANEL POWERED
0 - 1
RESET
NO
EMERGENCY CABLE ENABLING
YES
MOTOR INVERTERS OR THERMIC ENABLING
PLC FUNCTIONING
0 - 1
DRIVE UNIT OPERATING
DRIVE UNIT
STOPPING
RUNNING
MOTOR INVERTER OR THERMIC ENABLING
FLUE GAS SUCTION VENTILATOR OPERATING
STOPPING
RUNNING
STOPPING
RUNNING
STOPPING
RUNNING
STOPPING
RUNNING
MOTOR INVERTER OR THERMIC ENABLING
MOTOR INVERTER OR THERMIC ENABLING
MOTOR INVERTER OR THERMIC ENABLING
MOTOR INVERTER OR THERMIC ENABLING
COMBUSTION AIR VENTILATOR OPERATING
RAPID COOLING VENTILATOR OPERATING
RLW SUCTION VENTILATOR OPERATING
HOT AIR SUCTION VENTILATOR OPERATING


NO
COMBUSTION AIR HIGH PRESSURE ENABLING
NO
L.P.G. GAS THERMOSTAT ENABLING
KILNS WITH L.P.G. SUPPLY ONLY
NO
GAS MODULATING VALVES SUPPLY ENABLING
NO
REGULATORS SAFETY TEMPER. ENABLING
NO
THERMIC ENABLING OR MOTOR INVERTERS
NO
BURNER POWER SUPPLY ENABLING
NO
BURNER FLAME CONTROL ENABLING
YES
TO AND FRO MOVEMENT OF DRIVE UNIT
NO
DRIVE UNIT OPERATING
NO
MAIN GAS UNIT FUNCTIONING
NO
FLUE GAS DEPRESSION SWITCH ENABLING
NO
TEMPERATURE DIFF. BETWEEN CHANNELS
DOUBLE-CHANNEL KILN ONLY
FLUE GAS DEPRESSION POSITIVE TEST
COMBUSTION AIR LOW PRESSURE POSITIVE TEST
KILN WASHING TEMP. ENABLING (MIN. 3 MINUTES)
DRIVE UNIT EMERGENCY CABLE ENABLING
FLUE GAS DEPRESSION SWITCH ENABLING
COMBUSTION AIR LOW PRESSURE ENABLING
COMBUSTION AIR HIGH PRESSURE ENABLING
GAS LOW PRESSURE ENABLING
GAS HIGH PRESSURE ENABLING
GAS THERMOSTAT ENABLING
KILNS WITH L.P.G. SUPPLY ONLY
GAS MODULATING VALVES SUPPLY ENABLING
THERMOREGULATORS SAFETY TEMP. ENABLING
AUTOMATIC STARTING BY KILN COMPUTER
STOPPING
RUNNING
THERMIC ENABLING OR MOTOR INVERTER
MOTOR SAFETY SWITCH
FINAL COOLING VENTILATOR OPERATING
VENTILATORS


NO
POSITIVE TEST FOR MAIN GAS UNIT SEAL CONTROL
NO
FLUE GAS DEPRESSION POSITIVE TEST
NO
COMBUSTION AIR LOW PRESSURE POSITIVE TEST
NO
EMERGENCY CABLE ENABLING
NO
FINAL COOLING PRESSURE SWITCH ENABLING
YES
FINAL COOLING VENTILATOR OPERATING
YES
COMPUTER STOPPING
YES
THERMOREGULATORS HIGH TEMPERATURE
YES
PHOTOCELL DARKENED UNDER ROLLER LEVEL
YES
NO
0 - 1
ALARMS


GAS MODULATING VALVE SUPPLY ENABLING
24 V DC VOLTAGE ENABLING
DRIVE TO-FRO MOV. MAX. TIME TI. ENABLING
DRIVE STOP MAX. TIME TIM. ENABLING
STOPPING
RUNNING
MAIN GAS UNIT SOLENOID VALVES TC3 POSITIVE TEST
MAIN GAS UNIT FUNCTIONING
SUPPLY UNITS
BUS-BARS
STOPPING
RUNNING
STOPPING
RUNNING
STOPPING
RUNNING
BURNER IGNITION AUDIBLE-VISUAL WARNING ENABLING
BURNER POWER SUPPLY ENABLING
OPERATING OF MAIN RAMP SOLENOID VALVES

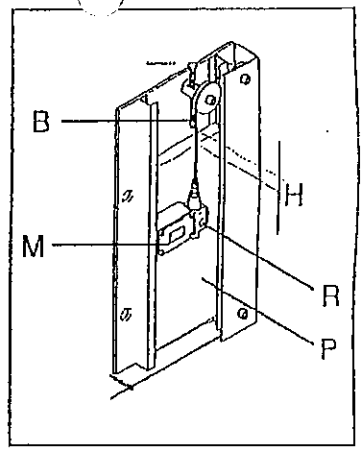


SYMBOL	SYMBOL NAME	FUNCTION
	EMERGENCY DEVICE	PLANT TOTAL STOPPING
	EMERGENCY DEVICE	PLANT PARTIAL STOPPING
	DEVICE THAT CAUSES ALARMS ONLY	IT OPERATES AUDIBLE AND VISUAL ALARMS
		NORMAL FUNCTIONING OF A DEVICE
	DEVICE THAT ENABLES THE SEQUENCE PROGRESS	IT ENABLES THE SEQUENCE PROGRESS IT OPERATES AUDIBLE AND VISUAL ALARMS TESTED IN CONTINUOUS MODE
	DEVICE THAT ENABLES THE SEQUENCE PROGRESS	IT ENABLES THE SEQUENCE PROGRESS TESTED IN CONTINUOUS MODE
	AUTOMATIC DEVICE	AUTOMATIC START
	TIME CHECKS AT STARTING	DEVICE TEST AT STARTING TESTED AT STARTING ONLY
	FAILURE OF AN APPARATUS	IT CAUSES AUDIBLE AND VISUAL ALARMS IT ENABLES THE SEQUENCES TESTED IN CONTINUOUS MODE
STOPPING / RUNNING	MANUAL CONTROL PUSH-BUTTONS	STOP AND START THE SEQUENCES TO BE RE-ACTIVATED AFTER A POWER FAILURE ONLY
0 - 1	MANUAL SWITCH	IT ACTS TO STOP OR START A SEQUENCE
RESET	MANUAL PUSH-BUTTON	IT RESTORES THE STARTING CONDITIONS AFTER AN EMERGENGY STOP

GENERAL PRELIMINARY CHEKS

- Line voltage within ±5% of the voltage indicated on the running plate
- Visual control of electric panels components / apparatus
- Tightening covers on plug fuses
- Mechanical release of temperature recorder (when present)
- Switches on panel all in OFF position
- Check efficiency of earth network
- Connection of the plant and all metal structures to the earth network.
- As the ventilators are sustained by rubber antivibrantors, not only the base must be laid on the ground but also the worm screw and the seat of the motor
- Control the exact polarity of the connection of the tile piling-up photocells (positive and negative)
- Ensure that the cable has been correctly assembled and that it slides well
- Open the external safety cover and calibrate the stroke restriction screw **(B)** leaving a distance **(H)** of 40-50 mm
- Check that the counterweight **(P)** keeps closed the contacts of the limit switch which must remain de-energised during both the pull and breakage of the cables
- Control the limit switch reset **(M)** by using the button **(R)**

Fig. 2-9



TEST AND CONTROL OF EMERGENCY GENERATOR

Control the voltage and frequency of the emergency generator:

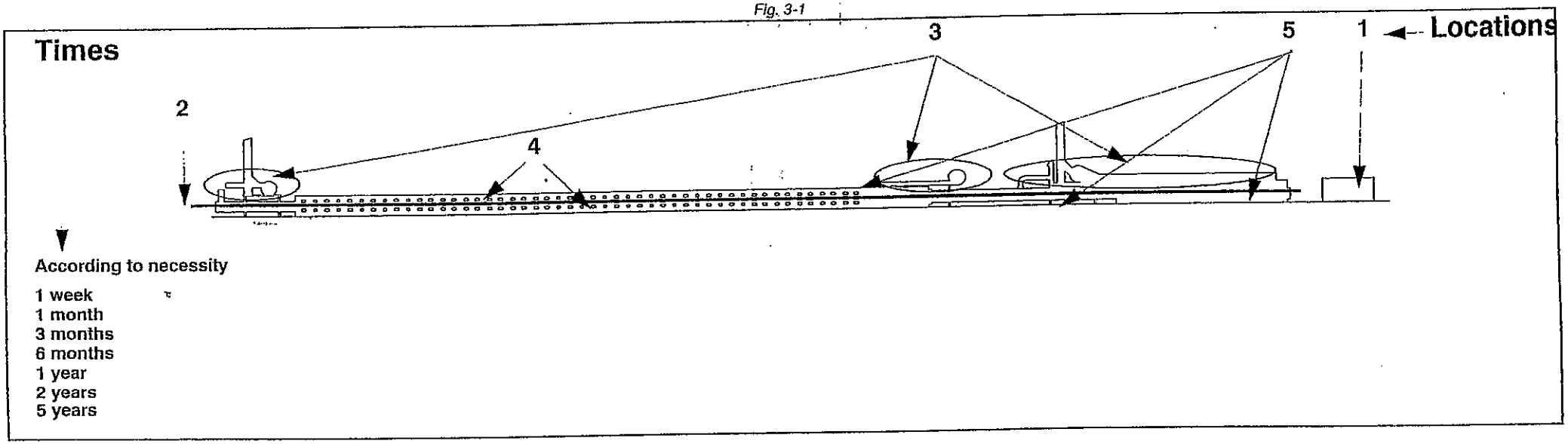
- Switch which selects the mode of intervention : MANUAL
- Start-up the generator (ON)
- Check that the voltage an frequency are correct on the generator panel instruments
- Stop the generator (STOP)

CHECK THE AUTOMATIC ACTIVATION OF THE GENERATOR

- Cut-off switch which selects the mode of intervention: AUTOMATIC
- Remove energy from the kiln panel activating in this way the power mains switch for power
- Check that the generator starts up when the power has just been cut
- With the generator on, check that the motorvariators are turning in the correct direction
- Put all of the motorvariators in to-fro MOVEMENT and check that the generator puts out enough energy so as allow functions to continue under this condition
- On the generator panel check that the voltage and frequency are correct
- Remove the to-fro MOVEMENT
- Restore the kiln panels energy by activating the power mains switch
- Check if the generator stops when energy has just been restored

Efficiency

Fig. 3-1



Efficiency

Efficiency is the end result of an accurate maintenance plan.

The maintenance plan is developed in two directions:

- **programmed maintenance**
- **corrective maintenance**

The plan is only valid if the two directions of the development are followed in a regular manner, integrating each other: it is never the case that one can replace the other even for a short period of time

Programmed maintenance

This is a strict program of periodic control and cleaning interventions with setting of the diverse apparatus in the plant.
If this is strictly abided by, aside from maintaining the kiln in perfect efficiency, the programmed maintenance can help avoid possible inconveniences and damage.

So as to guarantee an indispensible regularity and completion the program has subdivided the plant apparatus into five separate groups:

1 ELECTRIC SYSTEM
2 DRIVE
3 AERATION
4 COMBUSTION
5 STRUCTURE

The interventions are planned group by group according to determined expiry periods (1 week, 1 month, 3 months, 6 months, 1 year, 2 years)

Corrective maintenance

This is a very flexible method of control for irregular situations which :may occur even if the maintenance plan has been stricly followed.
The irregular situations depend on the specific conditions of certain work. For example, tiles with a elevated weight/surface relationship or with mixtures which release alkaline flue gases can cause damage to the rollers; chemical attacks from enamel with a high lead content, boron and alkaline can lower the refractory materials melting point and cause internal surface fusion to initiate.
Corrective maintenance prevents these inconveniences noting their first appearance and activating all of the interventions useful for solving the situation or, if necessary, replacing the parts in critical condition.
In the maintenance plan these interventions are countersigned with the initials "A.N" (according to necessity) indicating the place where they are especially useful and trusting the frequency with which they are to be performed to the experience of the maintenance man (even every day, if necessary).

General schedule of maintenance.

Electric System	According to necessity	Every week	Every month	Every 2 months	Every 3 months	Every 6 months	Every year	Every 2 years	Every 5 years
1 fuses,terminals and lamps	S	C							
2 electric panel			C-P						
3 cooling fan filter	S		P						
4 heat exchanger									
5 counters and relay	S		C				P		
6 current absorption						C			
7									

Drive	According to necessity	Every week	Every month	Every 2 months	Every 3 months	Every 6 months	Every year	Every 2 years	Every 5 years
1 motovariators/motoreducers	RV		C					C	
2 chain			C		R		S		
3 supports with bearing	R		C			L			
4 roller bearing support	R		C			L			
5 gears	L	C				S*			
6 bearings on idle side	P-L	P-L							
7 rollers	C-P	C					RV		

Aeration	According to necessity	Every week	Every month	Every 2 months	Every 3 months	Every 6 months	Every year	Every 2 years	Every 5 years
1 vent. support bearings		L*		L			RV	S	
2 ventilator belts	R	C			C		S		
3 ventilator rotors	P				C		C-P		
4 ventilator filters	P	C							
5 blowers					C-P				
6 aeration devices	C-P		C				RV		
7 chimneys	P					C			

Combustion	According to necessity	Every week	Every month	Every 2 months	Every 3 months	Every 6 months	Every year	Every 2 years	Every 5 years
1 burners	C-P	C			P	C			
2 gas filters	S					C			
3 valves/ gas press. switches					C				S
4 p.lines and flex gas tubes	S-P		C		C	C			
5 thermocouples S	C					C			
6 thermocouples K							C		
7									

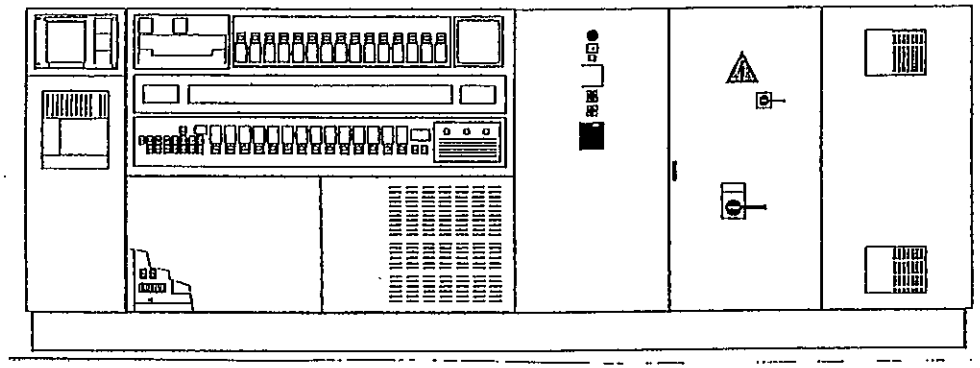
Structure	According to necessity	Every week	Every month	Every 2 months	Every 3 months	Every 6 months	Every year	Every 2 years	Every 5 years
1 roller transition area		C					P		
2 suola	C-P		C				P		
3 laboratory			C				P		
4 crown and walls	C-P								
5 chicanes	C-P								
6 tile piling ups	C-P								
7									

S* = replace oil (See table 3)
L* = only in the first 3 months

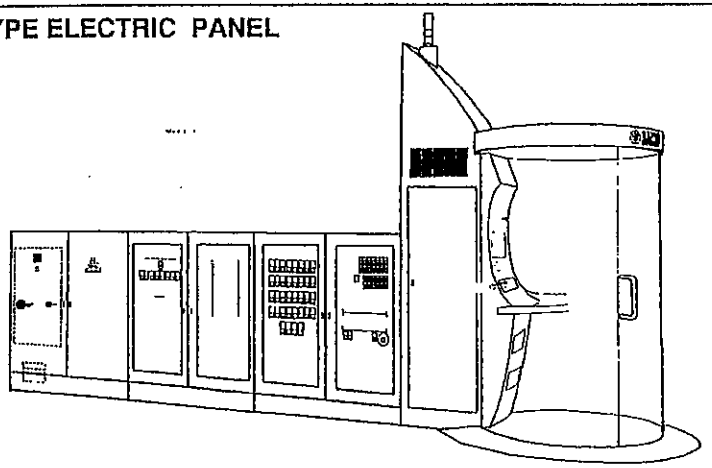
C = control and verify L = lubricate P = clean or wash R = adjust S = replace RV = revision

Fig. 3-2

ELECTRIC PANEL WITH SYNOPTIC



SUN TYPE ELECTRIC PANEL



FUSES, TERMINALS AND LAMPS

every week	control the fuses and the terminals
according to necessity	replace the panels fuses and signal lamps

ELECTRIC PANEL

every month	remove dust from panel and apparatus check the correct tightening of the auxilary relay and timers clean/replace the cooling fan filter (in the version with electric panel with synoptic)
every year	clean inside the air/air exchanger (in the version with SUN type electric panel)

CONTACTORS AND RELAY

every month	check the wear on the remote control switch and the auxilary relays: if necessary completely replace the worn apparatus

ABSORPTION

every 6 months	check the current absorption of the drive motors and the ventilators

Fig. 3-3

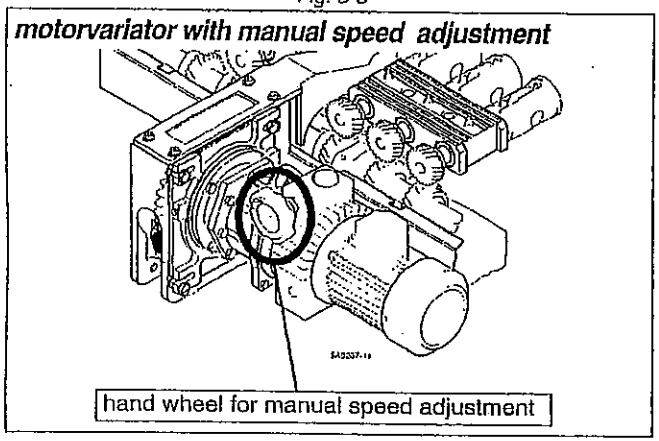


Fig. 3-4

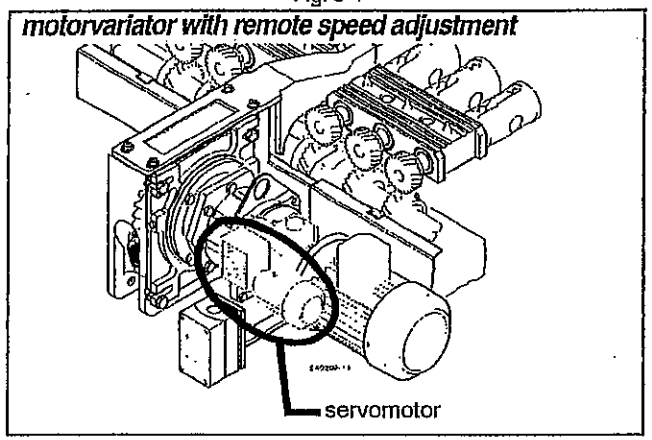
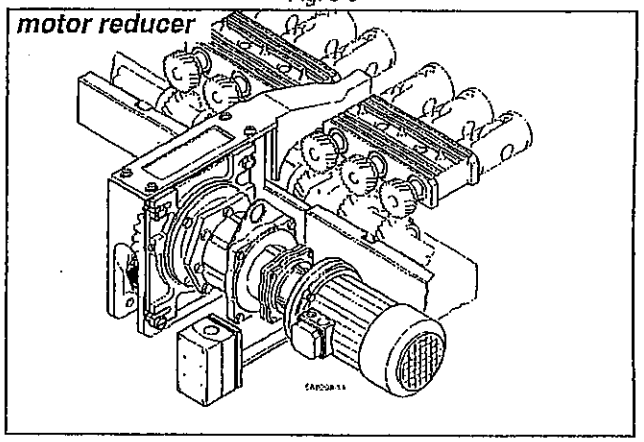


Fig. 3-5



MOTORVARIATORS / MOTOR REDUCER

every month	check the external cleanliness of groups, particularly the motors cooling ventilator grill; check for any lubricant loss; check the tightness of the nuts and bolts
every 2 years	check the wear on the motorvariators / motoreducers; carry out a complete revision if necessary

THESE DEVICES ARE SUPPLIED COMPLETE WITH SYNTHETIC LUBRICANTS: THEY ARE LUBRICATED FOR LIFE AND THERE IS NO NEED FOR ANY ADDITIONAL LUBRICATION.

CHAIN

evry week	check that the tension is correct
every 3 months	adjust correct tension
every year	replace

IF THE TRANSMISSION IS OF THE TYPE SHOWN IN Fig. 3-3-Fig. 3-4-Fig. 3-5, THE CHAIN USES THE SAME TYPE OF LUBRICATION AS THAT USED BY THE GEARS. Tabella 3
IN CASE OF DIFFERENT POSITION AND OF NECESSITY OF SPECIAL LUBRICATION, USE THE OIL INDICATED IN Tabella 1

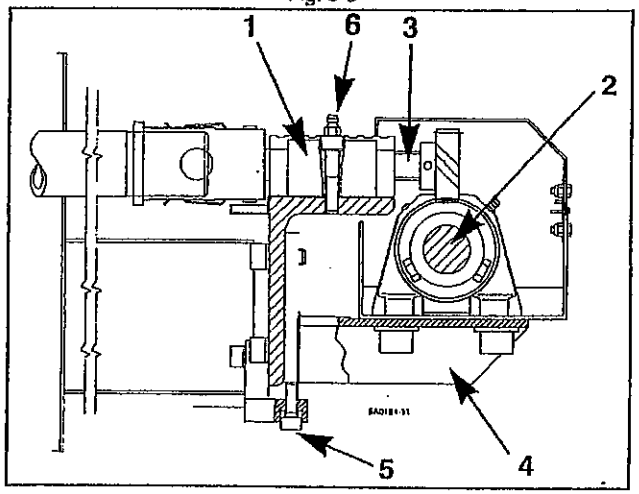
Tab. 1

Types of oil recommended	
IP	PONTIAX 80W/90
AGIP	ROTRA HY 80W/90
ESSO	GEAR OIL GO 80W/90
MOBIL	MOBILUBE GX 80W/90
FINA	PONTONIC N 80W/90
SHELL	SPIRAX EP 80W/90

Main characteristics of the oil	
SAE grading	80W/90
Specific weight 15/4° C	0,89
Viscosity cSt at 100°C	14
Viscosity index	100
Flash point VA °C	215
Yield value °C	-22

Quantity of oil for a chain transmission = about = 0,04 Kg

Fig. 3-6



SUPPORTS WITH BEARING (7-FIG. 3-6)

every month — check the tightness of the threaded dowels which fix the inside ring of the bearing to the transmission shaft; intervene if necessary

every 6 months — lubricate with grease every 4.000 working hours (about 6 months)

SUPPORTS WITH ROLLER BEARING PIN

Sostengono e fissano i rulli e trasmettono loro il movimento di rotazione (1 -Fig. 3-6)

every month — check the play between the integral gear at the shaft (2 -Fig. 3-6) and the roller bearing pin gear (3 - Fig. 3-6): they must be barely perceptible to touch. Intervene if necessary; to correct the clearance it is necessary to heighten or lower the shaft support bracket (4 - Fig. 3-6) using the appropriate register (5 - Fig. 3-6)

every 6 months every 4000 working hours (6 - Fig. 3-6) lubricate through grease nipple (about 6 months): it is important that the grease is absolutely clean

Tab. 2

Types of grease recommended	
VISCOL	MOLY SM2
AGIP	ROCOL MTS 1000
ESSO	UNIREX N3
MOBIL	TEMP 78
KLUBER	STABURAGS N12 MF
SHELL	DARINA GREASE R2

Main characteristics of the grease	
NLGI grading	2
Machined penetration at 25°C (ASTM-D-217)mm/10	255/265
Drop point (ASTM-D-566)	none

Quantity of grease per linear meter = about 0,2 Kg

GEARS

The lubrification of the helicoidal gears is ensured by the lubricant contained in a tank (Fig. 3-3-Fig. 3-4-Fig. 3-5)

If:

a ferrous dust is noted
b accentuated wear is noted on the helicoidal teeth of the wheels drive
c it is found that one or more gears have moved from their original positions
d all of a drive begins to vibrate

then there is an elevated level of friction stemming from either the lack of clearance between the wheels or an unusual roller rotating resistance: probably the gears are coupling too tightly; adjust the clearance by acting on the supports.

every week control the level of the lubricant and its level of pollution. Top up if necessary
every 6/9/12 months replace the oil draining it through the appropriate opening at the base of the tank taking care to clean the bottom of the tank of sediments or dirt

Keep in mind this table for the frequency of replacement:

Environmental dust	Frequency of oil change and tank cleaning
HIGH	6 MONTHS
MEDIUM	9 MONTHS
LOW	12 MONTHS

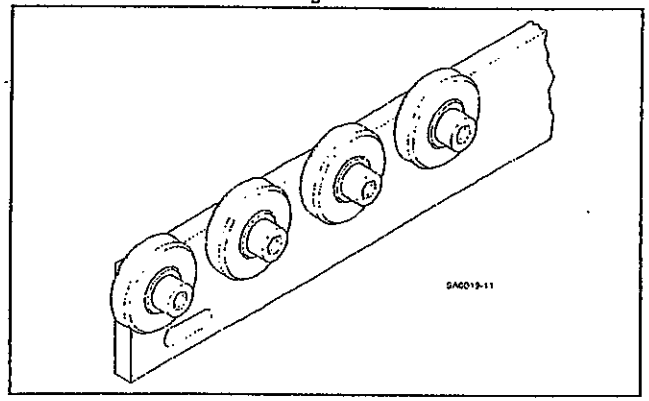
Tab. 3

Types of oil recommended	
IP	DEXRON FLUID
AGIP	A.T.F. DEXRON
ESSO	A.T.F. DEXRON
CHEVRON	A.T.F. DEXRON
MOBIL	A.T.F. 220
FINA	A.T.F. DEXRON
BP	BP AUTRAN DX
SHELL	A.T.F. DEXRON

Main characteristics of the oil	
Specific weight 14/4° C-Kg/dm^3	0,880
Colour	Red
Engler viscosity at 50° C	3,6
Viscosity index	160
Flash point VA °C	180
Yield point °C	-55

Optimum level of oil in the tank = 14 mm
Quantity of oil per linear meter = about 1,35 Kg

Fig. 3-7



IDLE SIDE BEARINGS

These must be frequently checked and replaced if they are blocked or rotate with difficulty.

every week — use an industrial type vacuum to suck the dust from the bearings; wash and lubricate with a mixture composed in weight of 2/3 diesel fuel and 1/3 SAE 80W90 oil. It is recommended that the diesel fuel and oil used are absolutely clean. The approximate quantity of the mixed lubricant necessary for every linear metre of the kiln ~ 0,03 Kg.

This operation must be carried out with increased frequency if the kiln has an elevated internal pressure or if there is a lot of dust.

ROLLERS

The maintenance of the rollers is a typical case of corrective maintenance, that is to say, a method which has two objectives present:

a) control of the kiln operational conditions and the wear of the rollers

b) timely cleaning and replacing interventions.

These two operations are closely bound: the first serves to delay the second for as long as possible.

Even too frequent cleaning can, in fact, reduce the lifespan of the piece and the operational conditions which necessitate cleaning are avoided through proper measures.
At the same time, however, cleaning is carried out before the aggressive chemicals can accumulate on the rolers irredeamably damaging them with consequent replacement necessity.

Consequently, corrective maintenance is a continuous control of the operational conditions, with particular regard to the rollers most wearing factors.

In general a weekly control is adviseable but, according to necessity, the interventions can be more frequent

Diverse types of rollers are used depending on the temperature in which they must function and the particular problems attached to firing

Optimal use conditions are summarized on tables.

First factor to pay attention to: that the singular rollers are not used in temperature ranges exceeding those recommended

Second factor to pay attention to: that the rollers installed, above all after the cleaning operation, conform to the machining tollerance and straightness specified by SACMI

Fig. 3-8

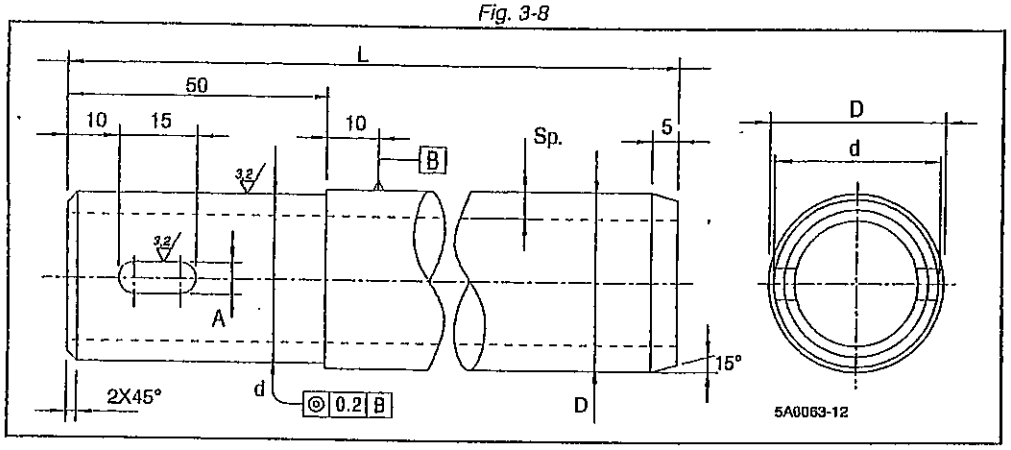
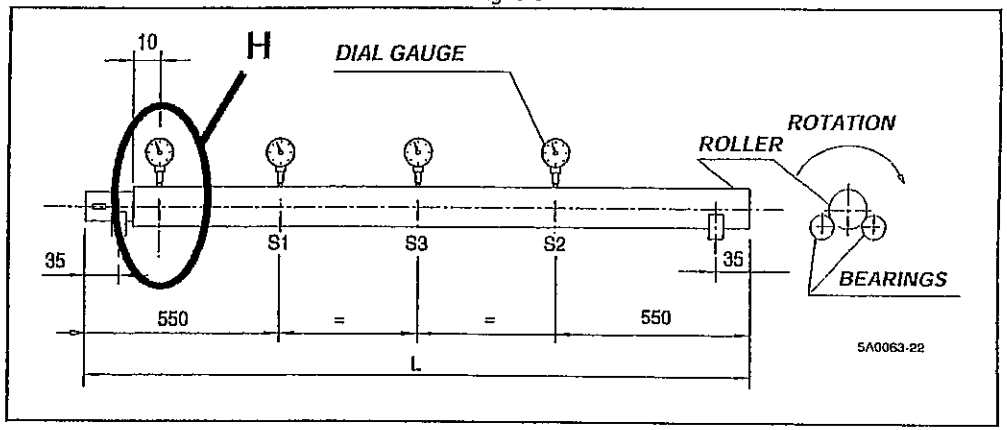


Fig. 3-9



MACHINING TOLLERANCE AND STRAIGHTNESS OF THE ROLLERS

Tab. 4

length (mm)		thickness	diameter D			diameter d			A	max. amplitude		
da	a	mm	mm	max-	max+	mm	max-	max+		S1	S3	S2
3330		7	50	0	+0.3	49	-0,1	0	7	1	2	1
3330	3500	5	45	0	+0.3	44	-0,1	0	7	1	2	1
3000	3240	5	45	0	+0.3	44	-0,1	0	7	0,75	1,5	0,75
3000		6	42	-0,2	+0.1	41	-0,1	0	7	0,75	1,5	0,75
2325	3300	5	42	-0,2	+0.1	41	-0,1	0	7	0,75	1,5	0,75
2250	3230	5	40	-0,2	+0.1	39	-0,1	0	7	0,75	1,5	0,75
2020	2840	5	33,7	0	+0.3	33,4	-0,1	0	7	0,75	1,5	0,75
2020	2840	5	31	-0,2	+0.1	30	-0,1	0	7	0,75	1,5	0,75
2020	2840	5	27	0	+0.2	24,7	-0,1	0	6	0,6	1	0,6
2200	2480	5	25	0	+0.2	24,7	-0,1	0	6	0,6	1	0,6

Machined end

The machined end must not be constantly on the rollers maximum or minimum diameter, given their prevalently truncated cone shape, but must be associated with the end in an alternate and casual manner to compensate and statistically distribute the errors

Final testing of eccentricity

The amplitude range of the roller rotation at the point indicated (H-Fig. 3-9) must not exceed 0,2 mm.

Final testing of straightness

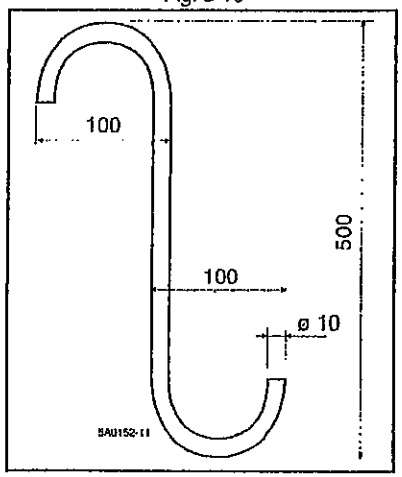
The maximum amplitude ranges "S" to be taken by the dial gauge positioned in the points indicated during the roller rotation (Tabella 4) are indicated.

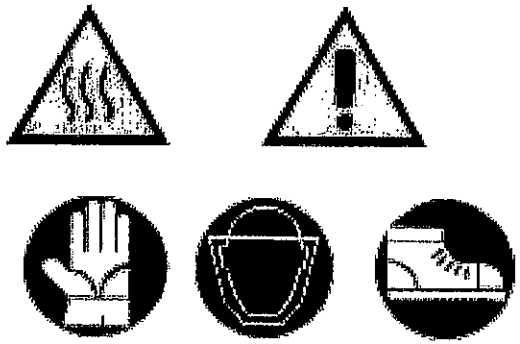
INTERVENTIONS ON THE ROLLERS

Aside from the specific tools for extraction and insertion it is indispensable to manipulate them with a hook (Fig. 3-10) .

The wearing of anti-heat gloves, mask and protective shoes is obligatory.

Fig. 3-10





CLEANING OF THE ROLLERS

If one or more of the following is seen, cleaning is necessary:

- unusual disorder of the tiles in the kiln and when exiting
- traces of fused mixture fragments stuck to the tiles trademark
- traces of rubbing of the tiles and those more external against the walls of the laboratory
- more or less marked flatness defect
- piling ups which involve few tiles and which increase in intensity and frequency

It is, nonetheless, recommended that the rollers be cleaned at programmed intervals.

THE ROLLERS WILL DIRTY LESS IF:E:

* on the glazing line the tiles can be cleaned with an automatic brushing machine or with fettling devices

* the transport belts are constantly cleaned before entering the kiln

* the tiles back side (side with the trademark) is engobed;

an engobing recipe which gave satisfactory results (% in weigth):

MAGNESITE	79 %
ALLUMINIUM	20 %
CMC	1 % (carbossimetilcellulose adhesive)
WATER	enough at a density of 1,5 - 1,6 kg/l

WITH PRODUCTION STANDSTILL: TIME

about 4 hours to lower the kiln temperature to 300 °C
about 4 hours to return the kiln to firing temperature
8 hours total production loss time for cleaning cycle.

This is a hasty cleaning; method that works if the production plans foresee a weekly suspension of firing.

WITH KILN IN PRODUCTION

Extract the rollers alternatively extracting one and leaving the other etc..
Let the rollers cool down to the ambient temperature and then reinsert.
If necessary, complete the removal of the incrustations by knocking the rollers on the floor.
Take care to not cause tile piling up when extracting or reinserting the rollers.

ROLLER CLEANING MACHINE

The rollers must be extracted and cooled. This method is recommended only if the incrustations do not come off during cooling.
Adjust the machine so as to reduce stress to the rollers to a minimum.

CLEANING THE CERAMIC ROLLERS

EXTRACTION

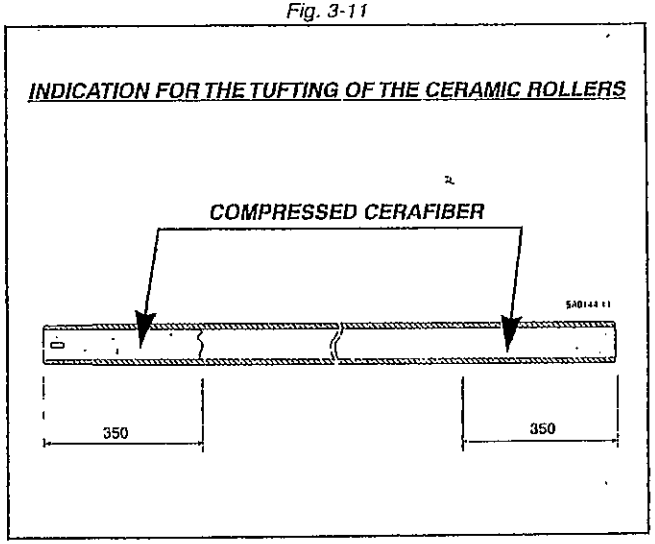
Lower the temperature in the firing area to 800-900 °C.
After having extracted the dirty rollers it is important that they do not come into direct contact with the floor or with any elements capable of causing them to rapidly lose their temperature: thermic shock will cause the rollers to break.
If, on the other hand, the rollers are rested on a matress of ceramic fibres or on strips of matress both of which have a low conductability, the resulting shock will be minimal.
The rollers can be rested against a rack thereby avoiding direct contact between the structure and the hottest parts.

REINSERTION

The clean rollers, ready for reinsertion in the kiln, must be complete with spring for the bearings rest on the idle side plugged with tufted ceramic fibres compressed at both ends up to a depth of about 350 mm. (Fig. 3-11) .Prior to using new or cleaned rollers it is useful to engobe them with successive drying near the kiln .

Engobing recipe which reduces dirt
CALCINED ALUMINIUM 41 % in weight
ZIRCONIUM SILICATE 42 % "
KAOLIN 16 % "
BENTONITE 1 % "
WATER enough for an optimal drawing up of the engobe, preferably sprayed

Fig. 3-11



THE METAL ROLLERS BREAK WHEN ...

- they are used in temperature ranges exceeding those recommended
- they produce tiles with an elevated weight/surface relationship
- the firing releases a mixture composed of sulphur, chlorine and fluorine in elevated concentrations: this chemical attack is particularly aggressive between 600 and 1.000 °C due to the nickel present in the metallic alloy
- a frequent cleaning cycle must be adopted
- the cleaning machines are used and adjusted in an improper manner placing the rollers under mechanical stress: notably when the length of the rollers is altered or a spiral impression is printed on the surface
- they are worn by long service
- accidents happen such as tile piling ups or analogous mechanical stress

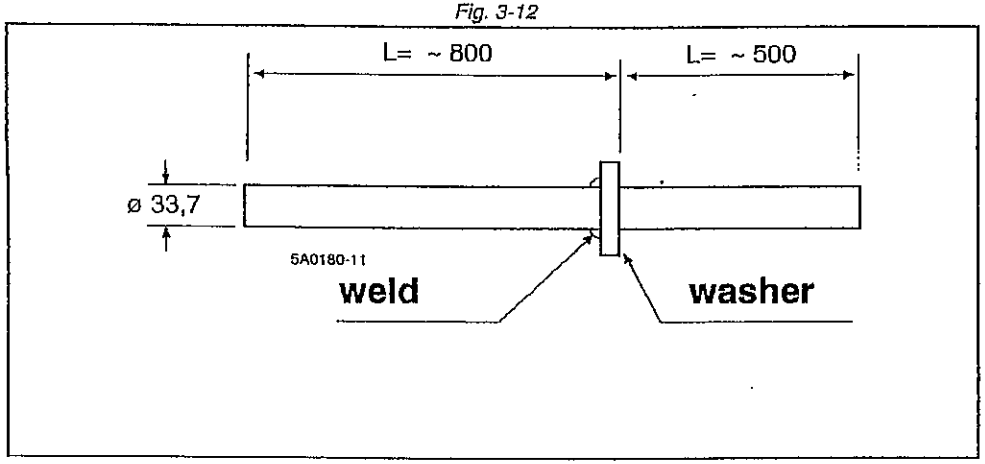
Carrying out an accurate maintenance program and /or preventive replacements reduces the probability of breakage during the operation to a minimum.

THE CERAMIC ROLLERS BREAK WHEN ...

- the firing releases a mixture composed of sulphur, chloride, fluoride and alkali
- their porosity causes them to become impregnated with the substances released by the flue gases altering them for a depth of 1-2 mm; breakage is prevalent in the cooling phase between 300 and 400 °C because the coefficient of expansion of the new formations is not compatible with that of the parts intact. There is no way to avoid this breakage even with slower cooling gradients
- a more frequent cleaning cycle is adopted
- they are worn from long service
- accidents happen such as tile piling up and analogous mechanical stress

REPLACING THE ROLLERS

Fig. 3-12



EXTRACTION OF THE ROLLER SEGMENTS

Work must be carried out with care wearing anti-heat gloves, mask and protective shoes is OBLIGATORY. It is easy to identify the broken roller by observing from the idle side of the kiln as it will be at a standstill and is often lifted from the rest bearings.
Carry out the following operations:

a) extract the standstill section from the idle side
b) if it is necessary to intervene on another segment on the motorised side *THE MOTORIZATION MUST ALWAYS BE STOPPED* in accordance with the relative signalization

INSERTION OF A NEW ROLLER

The new roller must be inserted at the right moment using the appropriate tool (Fig. 3-12)

a) insert the roller through the opening in the wall keeping it slightly inclined towards the bottom, avoiding moving the load parts in transit.
b) insert immediately: as soon as the roller is perceived to be touching the opposite wall, retract a little bit and lift it on the tool using one hand as a lever and as fulcrum the other; do not use as fulcrum the bearings of the idle side: it is possible to break the roller
c) as soon as the hole is centered in the roller housing rotate the roller pressing the pin home: lock and rotate until the coupling of the spring into the rollers slot is perceived.
d) Finish the tufting around the roller on both sides of the kiln

If the roller to be replaced works in a temperature range above 1100 °C it is best to use a dryed roller or one which has been moderately preheated: it is, therefore, always useful to have some rollers parked on the kiln.

Appendix D

Safety Induction Checklist

Appendix D Safety Induction Checklist

AUSTRALIA'S TILE MANUFACTURER

CONTRACTOR

INDUCTION CHECKLIST

	FORM	*ACTION REQUIRED*
1	*SITE INDUCTION*	Attend & view
2	*SITE TOUR*	Participate
3	*INTRODUCTION TO SUPERVISOR*	Participate
4	*TRAFFIC MANAGEMENT PLAN*	View/Familiarisation/Copy
5	*DRUG & ALCOHOL POLICY*	View/Familiarisation/Copy
6	*EMERGENCY EVACUATION PLAN*	View/Familiarisation/Copy
7	*INCIDENT NOTIFICATION PROCESS*	View/Familiarisation/Copy
8	*ISOLATION PROCEDURE*	View/Familiarisation/Copy

ACKNOWLEDGEMENT OF INDUCTION DOCUMENTS

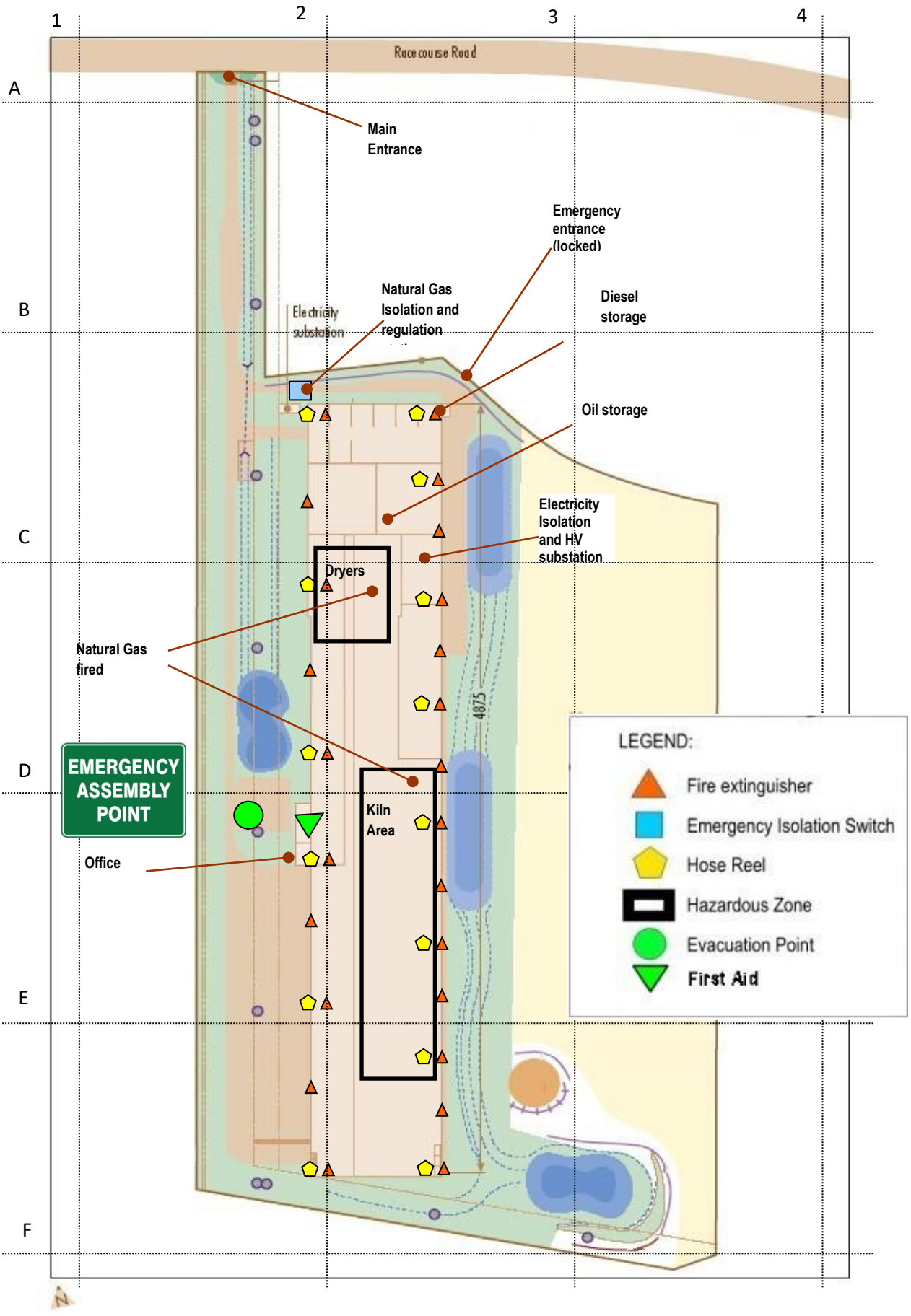
- THE ABOVE FORMS HAVE BEEN MADE AVAILABLE TO ME.
- I HAVE RECEIVED AND REVIEWED THE ABOVE FORMS.
- I UNDERSTAND THE CONTENT & MEANING OF THE DOCUMENTS AND AGREE TO BY EMPLOYED UNDER THESE CONDITIONS, POLICIES AND PROCEDURES.

SIGNED:

NAME:

DATE:

EMERGENCY PLAN



NCIA EMERGENCY CONTACT NUMBERS

Site Location:	175 Racecourse Road Rutherford NSW 2320
	Nearest cross street - Gardiner Road
Ambulance:	000
Fire:	000
Police:	000
Hospital:	4939 2000 Maitland Hospital
Doctor:	Dr S De Lyall 02 49347247
	Site 5/23 Mitchell Drive East Maitland
Trauma Counselling:	1800 655 085 Mental Health Service (24 hour)
Water & Sewerage:	1300 657 000 – Hunter Water Corporation
Electricity:	13 34 66 – EnergyAustralia
Poisons Information Centre:	13 11 26
Safety Authority:	13 10 50 – SafeWork NSW
Director:	0447 800 028 Chris Schneider
Emergency Co-ordinator:	0438 797 697 Craig Oliver
Deputy Emergency Co-ordinator:	0417 277 810 Pete Drinkwater
Fuel Emergency:	4964 9303 Ditton Bulk Haulage
Natural Gas Emergency:	131 909 Jemena Gas Networks

Site Working Hours

Office/Admin:

Monday--Friday 9.00am to 5.00pm

Factory

24 hrs, 7 days

Site Location

175 Racecourse Road, RUTHERFORD. 2320 New South Wales, Australia.

Site Specific

All personnel must receive a site induction prior to commencing work on site. No induction, no work.

All site contractors must sign in and out of site. This should be done individually and never on the behalf of other persons.

Appropriate personal protective equipment (PPE) is to be worn by all persons on site at all times.

Drugs and alcohol will not be tolerated on his site. Anyone found under the influence will be disciplined and removed from site immediately.

Inform site management immediately should you discover any hazardous materials or activity.

This is a no smoking factory. There are designated areas for smoking outside the factory. The main office/admin building is smoke-free

Do not interfere with or remove any signage, fencing or dust screens without express permission.

Do not interfere with existing gas, water or electric services.

Only suitable trained employees are permitted to use the plant and equipment on the site. Sub-contractors are to provide their own plant and equipment or insure you are fully licenced & qualified to use the plant & equipment.

Employees are expected to promote safety, report unsafe conditions, and ask a supervisor if unfamiliar with a chemical, tool, or machine.

Remember - the wearing of suitable PPE is compulsory at all times

General safety rules

- Observe all safety warning signs.
- Maintain housekeeping.
- Keep emergency equipment accessible.
- No Horseplay
- Don't wear loose clothing.
- Don't wear jewelry.
- Tie back long hair

Site Housekeeping

Always ensure that your work area is tidy and free from any rubbish. Waste bins/skips are provided on-site for disposal of waste materials. A site recycling skip is also provided for waste paper & cardboard -- please make full use of this facility.

First Aid

The appointed first aiders on this site are listed in each area.

Each of these people are suitably trained and possess a current first aid certificate

This site has first aid boxes located in the main/admin office and throughout the factory.

Accident Reporting

All accidents are to be reported.

Contractors who possess their own accident book must also enter all accidents into the NCIA accident book.

Any accidents or incidents that are reportable to SafeWork Must also be reported immediately to NCIA management.

Declaration: I, _____ (Contractor Representative), on behalf of _____ (Contractor) acknowledge that I have read and understand this Contractor Induction.

_____ (Contractor Signature) (dd) (mm) (year)

Appendix E

Change Management Procedure

Appendix E Change Management Procedure

OCCUPATIONAL HEALTH & SAFETY MANUAL

175 Racecourse Road Rutherford NSW 2320
PO Box 765 Maitland NSW 2320
Telephone: (02) 49318400
Facsimile: (02) 49318499

CHANGE MANAGEMENT PROCEDURE

DATE REVISED**: February 2004**

DATE LAST AUDITED**:**

DOCUMENT REVISION RECORD

Rev.	Date	Description	Prepared	Checked	Approved
Draft	23/2/2004	HLA QC	R Mays	K Ferguson	R Mays
A	1/3/2004	Issued for Client Comment	R Mays	K Ferguson	R Mays

CONTENTS

PURPOSE

The purpose of this procedure is:

To define the methods and responsibilities to manage change, so as to ensure that all changes are implemented in a manner that minimises the risk to safety, health, environment and production.

SCOPE

This procedure applies to the introduction of new, changes to or substitution of:

- Plant (fixed and mobile);
- Plant control software;
- Operating and maintenance procedures;
- Operating and maintenance conditions, chemicals or processes;
- Competencies, skills or responsibilities; including
- Temporary changes.

REFERENCES

- NSW Occupational Health and Safety Act 2000;
- NSW Occupational Health and Safety Regulation 2001;

COMPETENCY ASSESSMENT

Training and assessment will be in this procedure.

CHANGE MANAGEMENT PROCESS

The need to invoke the Change Management Process will be based on risk. If a preliminary risk assessment identifies a risk rating of **medium to high,** a Change Management Approval form shall be completed and submitted to the Plant Manager for Authorisation before proceeding with the change.
The initiation and ongoing tracking of changes will be through the Change Management Register.

INITIATION AND ASSESSMENT

When the preliminary assessment of risk determines that the Change management process must be followed, the Change shall be registered on the Change Management Register.

The Change proposal must then be submitted on the Change Management Approval Form.

This will be supported by:

- The Change Management Assessment form;
- Any relevant drawings, sketches, data sheets and calculations necessary for the proposal to be assessed; and
- A Risk Assessment form detailing how the identified issues are to be managed.

The assessment will be carried out by the initiator, or by resources appointed that are competent to do so.

The assessment generally covers the following areas:

a) All hazards associated with the proposed change;
b) Control mechanisms to eliminate or minimise the risks;
c) Standards to be used;
d) Controls required;
e) Further studies to be carried out, eg: hazard studies;
f) Regulatory requirements which must be met; and
g) If a change is subject to trial, the duration and measures for the trial.

REVIEW AND AUTHORISATION

Where deemed necessary by the Plant manager, an assessor who is competent and familiar with the process and change processes will independently assess the proposal.

The Plant manager shall approve the proposal. Unless the Change is rejected, the review shall decide and note on the Approval form if an Acceptance check is to be conducted prior to commissioning or trial is required.

If the review concludes that a Hazard Study is required, the Change shall not be approved. The Change Management Approval form shall be re-submitted once the outcomes of the Hazard Study are available.

HAZARD STUDIES

If indicated on the approval form, a Hazard Study shall be conducted. The Plant Manager shall arrange the Hazard Study sand the appointment of suitable personnel, including:

- Study leader;
- Facilitator;
- Process representative;
- The initiator;

- Other operations; maintenance or technical personnel as applicable.

The extent of the Hazard Study shall be determined by the study Leader, with consideration to the potential implications of the change.

Once the Hazard Study actions have been incorporated, the Change Approval shall be resubmitted.

IMPLEMENTATION OF CHANGE

Only persons competent to effect the required change may carry out the implementation of approved changes.

Prior to handing over a physical change for normal use, an acceptance check shall be carried out to check:

a) The changes have been carried out in accordance with the authorised change proposal;

b) All actions from the review process, including any studies called for have been satisfactorily completed and all outcomes included; and

c) The physical change has not introduced any unforeseen risks.

The revision of drawings, operating procedures, maintenance requirements and emergency procedures shall be carried out.

A formal review will be carried out within 3 months of completion of all changes to:

- Ensure all actions are completed
- Assess the actual impact of the change against the intended impact; and
- The reason for any deviation.

Appropriate information about the change will be communicated to all those likely to be affected by the change.

Specific training requirements must be stipulated on the Change Management Approval form.

RECORDS

A record shall be maintained of all change management approvals for a period of seven years, or until such time as the change has been superseded or otherwise ceases to have an effect.

Approved Change Management Forms, supporting risk assessments and action plans shall be filed in the Change Management folder.

RESPONSIBILITIES

Plant Manager

- Will provide adequate resources to make available, enable, implement and maintain this procedure;
- Determine which changes in this area of responsibility will follow the process.
- Audit projects at their completion to ensure all actions are implemented.
- Educate site personnel of the requirements of this standard.

Safety Coordinator

- Manage the "Change Management Register" and system.

Employees

- Advise the Plant Manager of changes that may need to follow the process.

Change Management Assessment No:

I= Initiator A = Assessor	I	A	Place a Y in the box if items is effected	I	A	Develop an Risk Assessment item for all items impacted.	I	A
Process Conditions			**Engineering Hardware & Design**					
Temperature			Line diagram			Access for:		
Pressure			Wiring diagram			Operation		
Flow			Plant layout			Maintenance		
Level			Design pressure			Vehicles		
Composition			Design temperature			Plant		
Toxicity			Materials of construction			Fire fighting		
Flash point			Loads on, or strength of:			Underground / overhead:		
Reaction			Foundations			Services		
New chemicals			Structures			Equipment		
Services			Vessels:			Access for:		
			Pipe work/s support/bellows			Operation		
Operating Methods			Temporary or permanent:			Maintenance		
Start-up			Pipe work/support/bellows			Vehicles		
Routine operation			Valves			Plant		
Shutdown			Slip-plates			Fire fighting		
Preparation for maintenance			Restriction plates			Underground overhead:		
Abnormal operation			Filter			Services		
Layout and position of controls and instruments			Instrument and control systems			Equipment		
			Trips and alarms					
Engineering Methods			Static electricity					
			Lightning protection					
Trip & alarm testing			Radioactivity					
Maintenance procedures			Rate of corrosion			**Environment & Occupational Hygiene conditions**		
Inspection			Rate of erosion			Liquid effluent		
Portable equipment			Isolation for maintenance - mechanical/electrical			Solid effluent		
						Gaseous effluent		
Safety Equipment			Fire protection of Cables			Noise		
File protection			Handrails			Light		
Fire fighting & detection systems			Ladders			Odour		
Means of escape, safety equipment for personnel			Platforms			Dust & fumes		
			Walkways			Ground water		
Site utilities			Tripping Hazards					
Emergency procedures								

Relief and Blow down			**Operating and design**		
Introduce or alter any potential cause of over or under pressuring the system or part of it?			Introduce new or, alter existing hardware or control software ?		
Introduce a risk of creating a vacuum in the system or part of it?			Require consideration of the relevant Codes of Practise		
Introduce or alter any potential causes of raising or lowering the temperature beyond the design limits?			Affect the process or equipment upstream or downstream of the change?		
In any my affect equipment already installed for the purpose of preventing or minimising over or under pressure			Affect safe access for personnel and equipment, safe places of work and safe layout?		
Area Classification			Require revision of equipment Inspection frequencies?		
Introduce or alter the location of potential leaks of flammable material			Affect any existing trip or alarm system or require additional trip or alarm protection?		
Alter the chemical composition or the physical properties of the process material?			Affect existing operating or maintenance procedures or require new procedures?		
Introduce new or alter existing electrical equipment?			Alter the composition of, or means, of disposal of affluent?		
Safety equipment			Alter noise levels?		
Require the provision of additional safety equipment?			Require connection to, alteration of, or disconnection from, any site utilities?		
Affect existing safety equipment?					

What engineering and statutory regulations have been considered in preparing this modification proposal? What regulatory authorities should be notified?

Considering the changed factors above what is the worst incident that may result from the medication?

Authorised by: _____

Change Management Approval No:

Modification: Describe the modification (attach marked-up P & ID, sketches, calculations or data sheets, as applicable).

Plant or Equipment:	☐	_____
Procedure or Standard:	☐	_____
Operating Process:	☐	_____
Substance:	☐	_____
Person or Competence:	☐	_____

Reason for the change: _____

_____

_____

_____

Alternatives considered: _____

_____

_____

_____

Estimated cost: _____

Estimated completion date: _____

Initiator: ..... Signed: ..... Date: .....

Assessor: ..... Signed: ..... Date: .....

Approval

Modification accepted as proposed ..... YES / NO

Hazard Study required ..... YES / NO

Trial required ..... YES / NO

Review comments. .....

.....

Plant manager .....signed: ..... Date: .....

Acceptance All actions as detailed on the Workplace Risk Assessment and Control Form (WRAC) are implemented and appropriate.

Plant manager .....signed: ..... Date: .....

Closure All drawings have been updated and filed in the appropriate system and change impact is satisfactory.

Plant manager .....signed: ..... Date: .....

Rev:A 1/3/2004

Authorised by: _____

Appendix F

Permit to Work Procedure

Appendix F Permit to Work Procedure

OCCUPATIONAL HEALTH & SAFETY MANUAL

175 Racecourse Road Rutherford NSW 2320
PO Box 765 Maitland NSW 2320
Telephone: (02) 49318400
Facsimile: (02) 49318499

WORK PERMIT PROCEDURE

DATE REVISED: **February 2004**

DATE LAST AUDITED:

DOCUMENT REVISION RECORD

Rev.	Date	Description	Prepared	Checked	Approved
Draft	23/2/2004	HLA QC	R Mays	K Ferguson	R Mays
A	1/3/2004	Issued for Client Comment	R Mays	K Ferguson	R Mays

CONTENTS

PURPOSE

The purpose of this standard procedure is:

To ensure all work not covered by a Safe Work Procedures or Specific Training are managed to ensure risks to people, property, the environment and production are minimised.

SCOPE

This shall apply to:

- All contractor tasks;
- Non routine operations tasks; and
- All Maintenance tasks.

REFERENCES

- NSW Occupational Health and Safety Act 2000;
- NSW Occupational Health and Safety Regulation 2001;

GENERAL

Detailed are the procedures to be followed when work on site has been identified as requiring a Contractor.

The purpose is to ensure all work by Contractors is carried out in a manner that does not present a safety, health or environmental risk.

COMPETENCIES

Personnel performing the duties of NCIA Representative shall be :

- Deemed by the manager to have sufficient experience to determine work methods, hazards and controls for the jobs and production processes experienced on site;
- Authorised in writing to issue Permits; and
- Authorised to issue Specialty permits only in there area of expertise.

PROCEDURE

All tasks are to be assessed for the risks prior to commencing the task.

For all contractor tasks a **Work Permit** is required.

For NCIA tasks of high and medium risk that:

- Have no Safe Work Procedure (SWP) available;
- Requires a specialty permit; or
- The task varies from the SWP resulting in a medium to high risk;

a **Work Permit** is the minimum requirement with the support of:

- A Job Safety Analysis (JSA);
- Hot Work and Confined Space Permit; or
- Change Management Assessment Form.

JSA's are required for all:

- Construction work involving structural alterations that require temporary support;
- Construction work at a height above 3 metres;
- Construction work involving excavation to a depth greater than 1.5 metres;
- Demolition work for which a license is not required;
- Construction work in tunnels;
- Construction work involving the use of explosives;
- Construction work near traffic or mobile plant;
- Construction work in or around gas or electrical installations;
- Construction work over or adjacent to water where there is a risk of drowning; and
- All High and Medium ranked risks.

The work permit system is designed to assist in ensuring that:

- An appropriate assessment of potential high and medium hazards occurs;
- All high and medium hazards are recorded and controls to manage them are identified, defined and communicated to those involved in the job;
- Handover between NCIA the working group occurs safely;
- Work is carried out in a manner that does not impact on safety, production, property and environment on the job and in the surrounding area;
- Where necessary, work is carried out to written procedures; and
- Completed work is checked, and in an appropriate condition for operation.

LONG TERM PERMITS

Where a job is of a repetitive nature and the risks are LOW, such as fire system inspections, a long term permit may be issued for a period up to 12 months. The Management shall approve these permits.

The requirements of long term permits shall include as a minimum:

- The permit holder to contact the Shift Leader prior to starting on site each time to determine if site conditions have changed and gain the signature of the Shift Leader; and
- The Contractor to make their own assessment if the risks have changed and manage them.

A register of long term permits shall be kept.

Additional permits may be required for Hot Work and Confined Spaces.

PROCESS - PERMIT

The process to be followed when preparing the documentation is as follows:

Define the job: Ascertain the precise details of the work to be done.

Assess the work: Detail the work plan by describing the task step-by-step (Consider safer alternatives, in terms of timing and/or method for doing the job).

Determine the hazards: By using your knowledge, workers knowledge, ranking the prompts on the permit or other means, assess the work and workplace hazards, including process hazards. Consider the nature of the work and materials being handled as well as the conditions at the work site. Consider possible impact on surrounding areas, other operations and the effect of these on the work.

Risk rank: The hazards based on the current controls.

Define control measures: If a risk rank of medium to high, list controls to reduce the risk. Such as isolations, siting of mobile equipment and any non-standard safety equipment. Note: the detailed isolation plan covering all items to be isolated is to be provided.

Attach supporting documentation: Hot Work permit, Confined Space permit, drawings, sketches, JSA's/SWMS etc shall be attached to the permit. JSA / SWMS are required if the tasks are complex or the method to reduce the risks is procedural based or the job falls into one of these categories of construction work:

- Involving structural alterations that require temporary support;
- At a height above 3 metres;
- Involving excavation to a depth greater than 1.5 metres,
- Demolition for which a licence is not required;
- In tunnels;
- Involving the use of explosives;
- Near traffic or mobile plant;
- In or around gas or electrical installations;
- Over or adjacent to water where there is a risk of drowning.

PROCESS – ON THE JOB

1. **Prior to Handover**: The NCIA Rep. shall ensure that the Work Permit documentation has been properly prepared and procedures, specialist permits and clearances are appropriately authorised. The NCIA Rep. shall check that the proposed work procedures and timing are still appropriate for the current condition of the plant and add any restrictions or additional procedures to the permit.

2. **Task Induction**: The NCIA Rep. will then induct the Contractor into the job using the permit, attachments and prior experience in the job as a guide for the induction. The induction may include a walkover of the area.

3. **Handover**: When the NCIA Rep. is satisfied that the Contractor understands the procedures and necessary safety precautions the contractor shall sign on and date the permit.

4. **Acceptance**: Once the Contractor is satisfied that they understand the procedures and necessary safety precautions, the Contractor Provider shall sign on and date the permit. At this point the Work Permit is valid and is issued to the Contractor who will retain the permit until the job is complete. All persons working on the job must sign on / off the permit.

5. **Amendments**: If minor changes in hazards on the job occur while the permit is valid, they should be noted on the permit by the Contractor and acknowledged by the NCIA Rep. All relevant personnel are then to be notified of those changes. If major changes occur a new permit should be issued.

6. **Hand back**: This occurs when:

    - The job is finished;
    - The period of validity has expired; or
    - The site is required for operational reasons.

When the Contractor notifies the NCIA Rep. that the job is complete, the NCIA Rep. shall ensure the job is complete, all documents are signed off, the area is clean and equipment ready for re-commissioning.

7. **Incomplete jobs**: Either party may request that a job finish early. If the situation is acceptable the NCIA Rep. ensures that the plant has been made safe (by the placing of Out of Service Tags). The permit is then signed off.

8. **Repeat Work**: Where a job involves repeat visits to site (e.g. air conditioning maintenance) the Work Permit may cover a period of up to one year, providing that the hazards of the described jobs are constant and that this is agreed to with the NCIA Rep. and noted as part of the permit. The Register is to be utilised each time the Contractor commences work on site.

9. **Expiry of Validity period**: If the period of validity expires and the job is incomplete the existing permit must be amended involving all parties and an additional entry made in the Permit Register or a new permit shall be issued.

10. **Document Control**: The permit shall remain with the Contractor until the job is complete, or the validity expires. The permit shall remain on site and easily at hand to allow additional persons to sign on. Following hand back of the permit, it shall be returned to the Safety Co-ordinator for filing.

Copies of Work Permits shall be kept for a minimum of twelve months.

RESPONSIBILITIES

Factory Manager

- Will provide adequate resources to make available, enable, implement and maintain this procedure;
- Randomly participate in site and system audits;
- Ensure that all employees (including contractors and visitors) working under their direct control are aware of and abide by this procedure.
- Will ensure contract personnel (NCIA Rep) are appropriately trained, competent and authorised ; and
- Approve long term permits.

NCIA Representative.

- Ensure the requirements under this procedure are adhered to;
- Conduct risk assessments / Work Permits as outlined by this procedure, ensure their implementation and monitor changes to ensure they are adequately covered. Act as the prime contact point;
- When a permit extends over a shift change, pass responsibility and communicate status over to the next shift.
- Ensure that any variations to the specified Scope of Work are approved and documented in accordance with controls in this and other applicable management systems; and
- Conduct site audits.

Contractor (Permit receiver)

- Shall notify the NCIA Rep. before commencing work;
- Will ask for clarification where they are confused or unsure of the requirements of this standard;
- Ensure that all work under their control has a valid work permit based on the assessment of risks;
- Ensure all hazards have been assessed, controls put in place and the requirements of this standard followed;
- Inducting the Persons Working Under the Permit into the requirements of the permit;
- At the change of shift handover to the relief Work Supervisor;
- Will follow the directions given in conjunction with this procedure; and
- Will report any non-compliance with the procedure or systems.

Persons Working under a Permit

- Follow the requirements of the permit;
- DO NOT move any valve, operate any production machinery test or adjust and any plant without authority of the Work Supervisor, unless specifically specified in the permit.

Work Permit

Location:	Date: NCIA Rep.:
Description of Work:	
Contractor:	

Hazard Type: ☠ = High risk of fatality	Risk: H - High M - Med L - Low	Control Measures:	Action: • NCIA • Contractor • Determine on site	Done
Energy Sources:				☐
Mechanical				☐
Electrical				☐
Hydraulic				☐
Pneumatic				☐
Natural Gas				☐
Thermal				☐
Other (specify)				☐
Physical:				☐
Extremes of temp (hot or cold)				☐
Noise (above 85dB(A))				☐
Engulfment / Flooding				☐
Lighting				☐
Excavation				☐
Structural alterations / temporary supports / collapse				☐
Risk of falling ☠ - opening				☐
- roof				☐
- scaffold				☐
- structure				☐
Caught in / struck by				☐
Falling objects				☐
Foreign objects in eyes				☐
Manual Handling				☐
Other (specify)				☐
Mobile Plant/vehicles: ☠				☐
Shared plant / pedestrians				☐
Traffic				☐
Unqualified operator				☐
Unauthorised access				☐
Other (specify)				☐
Chemical/ Flammable:				☐
Fluids				☐
Gases				☐
Vapours				☐
Dust				☐
Ignition sources				
Other (specify)				☐

Authorised by: _____

Work Permit

Hazard Type: ☠ = High risk of fatality	Risk: H - High M - Med L - Low	Control Measures:	Action: • NCIA • Contractor • Determine on site	Done
Confined Space/Atmospheric:				☐
Reduced / enriched Oxygen				☐
Contaminated atmosphere				☐
Engulfment				☐
Partially enclosed, not a place of work, restricted access				☐
Other (specify)				☐
Hot Work:				☐
Grinding or disc cutting				☐
Flame cutting, heating or welding				☐
Arc cutting or welding				☐
Other (specify)				☐
Environment:				☐
Waterways				☐
Drains				☐
Atmosphere				☐
Contamination				☐
Other (specify)				☐
Other Risk Factors:				☐
Work on or near live electrics ☠				☐
Concealed power / communicator				☐
Working Alone				☐
Multiple work parties				☐
Work effecting other work party				☐
Multiple entry points				☐
Unauthorised access				☐
Aptitude and competence of staff				☐
Emergency / rescue				☐
Other (specify)				☐

Authorised by: _____

Work Permit

Contractor

I _____ have read and understand the NCIA Contractor
Contractor Site Representative
Procedures and Work Permit.

I will ensure that any sub contractors and employees are aware of and abide by the NCIA's Contractor

Procedures and _____ Procedures and SWMS.
Contractor Firm

_____ _____
Signature Date

NCIA Representative

I the NCIA Representative has reviewed the Contractor controls and approve work to commence:

_____ _____ _____
Name Signature Date

This permit is valid from _____ to _____
Date Date

No of locks / tags to be issued: _____

Locks issued to: _____ _____
_____ _____
_____ _____
_____ _____
_____ _____

Authorised by: _____

Hot Work Permit

Date: _____

Permission is granted to _____

to use _____ in the _____ (exact location)

between _____ a.m/p.m. and _____ a.m./p.m..

Item	Required	In place
• Welding machine earthed as close to the work as possible	☐	☐
• Gas cylinders / welding machines located outside of the space	☐	☐
• Standby personnel appointed to keep the welder under constant supervision & trained in resuscitation techniques	☐	☐
• Combustible liquids, vapors, gases or dusts to be removed. Area cleared within 15 metres or ☐ metres	☐	☐
• All combustible material has either been removed or suitably protected against heat and sparks.	☐	☐
• Extinguisher / hose reel (charged)	☐	☐
• Person and operatives have had the nearest fire alarm / telephone pointed out to them and told what to do in the event of a fire.	☐	☐
• Adequate fresh air provided, fumes extracted	☐	☐
• Exhaust fan and respirator	☐	☐
• The output circuit to welder should be de-energized: a) until the welder is in position & ready to start work b) while electrodes are being changed c) if the welder or stand-by person is required to leave the job, for any reason	☐	☐
• Welder cut out switch readily available to standby person.	☐	☐
• Welding screens in place	☐	☐

Signature of person issuing permit and position held _____

Work area and all adjacent areas to which sparks and heat might have spread were thoroughly inspected on completion of the operation, and sixty minutes later no smoldering fires were discovered.

Signature of person responsible for the work _____
(After signing return permit to the NCIA Rep.who issued it.)

* Applicable to all operations involving flame, hot air or arc welding and cutting equipment, brazing and soldering equipment, blowlamps, bitumen boilers and other equipment producing heat or having naked flames.

Authorised by: _____

Appendix G

Incident Notification and Investigation

Appendix G Incident Notification and Investigation

OCCUPATIONAL HEALTH & SAFETY MANUAL

175 Racecourse Road Rutherford NSW 2320
PO Box 765 Maitland NSW 2320
Telephone: (02) 49318400
Facsimile: (02) 49318499

INCIDENT NOTIFICATION / INVESTIGATION PROCEDURE

DATE REVISED: **February 2004**

DATE LAST AUDITED:

DOCUMENT REVISION RECORD

Rev.	Date	Description	Prepared	Checked	Approved
Draft	27/2/2004	HLA QC	R Mays	K Ferguson	R Mays
A	1/3/2004	Issued for Client Comment	R Mays	K Ferguson	R Mays

OH & S 2.31 INCIDENT FORM REVISION RECORD

Rev.	Date	Description	Prepared	Checked	Approved
Draft	27/2/2004	HLA QC	R Mays	K Ferguson	R Mays
A	1/3/2004	Issued for Client Comment	R Mays	K Ferguson	R Mays

CONTENTS

PURPOSE

To define the processes involved in managing Incidents so that risks are minimised through the early identification, evaluation and control of hazards, near misses, incidents or non-conformances effecting the health, safety, environment, production and reputation of the organisation through a reporting and investigation process.

SCOPE

All incidents on site including those involving contractors and visitors.

The treatment of injuries and incidents are covered by the Emergency Plan.

COMPETENCIES

All persons shall be trained in this procedure.

The Safety Coordinator shall attend a WorkCover accredited consultation course.

For serious incidents appropriate external advise shall be sort.

REFERENCES

- AS/NZS 4360:1999 Risk Management
- Occupational Health and Safety Act, No. 40, 2000, and its associated Regulation, 2001.

REQUIREMENTS

NCIA places a great deal of importance on the investigation of such an occurrence, as it enables us to address any inadequacies in the management systems.

Every employee will be inducted in the incident notification and investigation and will become actively involved in the execution of such a procedure.

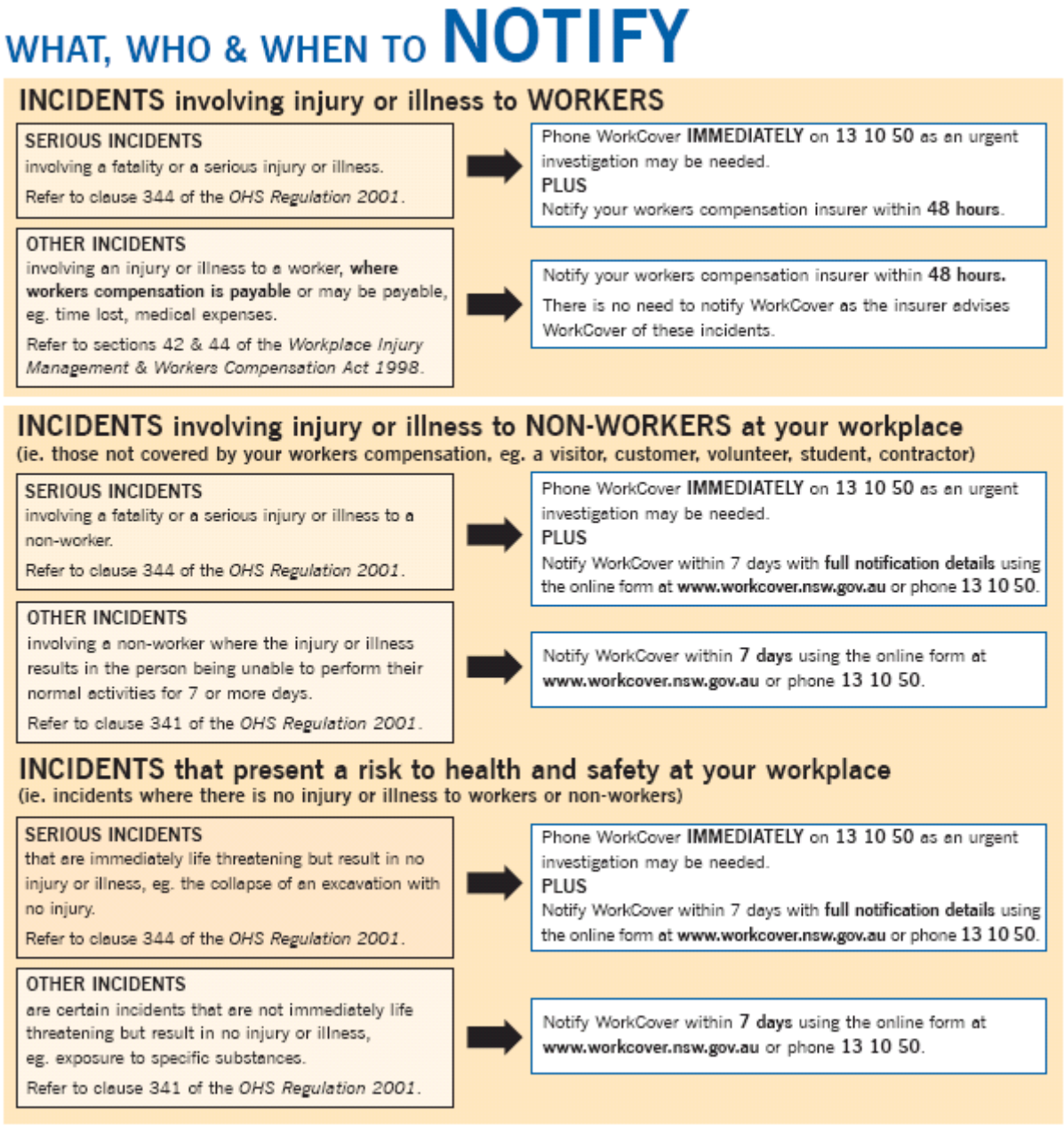
Each employee shall be directed to report any near miss situation in order to actively prevent the likelihood of further and potentially more severe events from occurring.

NCIA Pty Ltd requires all employees to report any unusual condition that may be identified immediately to the Supervisor. Should it be required, all action and work should cease until the situation is rectified.

Every incident shall be documented / and investigated further until all obvious and underlying variables are identified to explain the occurrence.

Documentation of an occurrence will be submitted on the form OH & S 2.31 Incident Form.

NOTIFICATIONS - WORKCOVER



Clause 344 of the OH & S Regulation states a ***serious incident*** is:

(a) an injury to a person that results in the amputation of a limb,
(b) the placing of a person on a life support system,
(c) any incident listed below that presents an immediate threat to life:
  (i) the loss of consciousness of a person caused by impact of physical force, exposure to hazardous substances, electric shock or lack of oxygen,
  (ii) major damage to any plant, equipment, building or structure,
  (iii) an uncontrolled explosion or fire,
  (iv) an uncontrolled escape of gas, dangerous goods or steam,
  (v) imminent risk of explosion or fire,
  (vi) imminent risk of an escape of gas, dangerous goods or steam,
  (vii) a spill or incident resulting in exposure or potential exposure of a person to a notifiable or prohibited carcinogenic substance (viii) entrapment of a person in a confined space,
  (ix) collapse of an excavation,

(x) entrapment of a person in machinery,
(xi) serious burns to a person.

NON DISTURBANCE EVENTS - WORKCOVER

It must be ensured that plant is not used, moved or interfered with after it has been involved in a serious incident, and the area at that place that is within 4 metres of the location of a serious incident is not disturbed for 36 hours from the time of notification to WorkCover.

This does not prevent any action:

(a) to help or remove a trapped or injured person or to remove a body, or
(b) to avoid injury to a person or damage to property, or
(c) for the purposes of any police investigation, or
(d) in accordance with a direction or permission of an inspector.

NOTIFICATIONS - EPA

The EPA must be notified of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident.

Notifications must be made by telephoning the EPA's Pollution Line service on 131 555.

The EPA must be provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

Harm to the environment is material if:

(i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or

(ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000

STRUCTURE OF INVESTIGATION

- Cordon off area and stop all work tasks
- Secure area to prevent any unauthorised work to continue
- Obtain information from any witnesses and if permitting the injured employee/s
- Establish an investigation team
- Gather physical (photographs) evidence
- Establish both short term and long term solutions
- Establish a cause and effect situation
- Address areas contributing to incident/near miss or accident
- Instigate remedial measures to ensure no reoccurrence
- Review processes, equipment or educational processes periodically to ensure the implemented controls are effective and correct if inadequate.

A copy of the Incident Notification / Investigation Report must be kept for at least 5 years.

ACCOUNTABILITY

Factory Manager

- Will provide adequate resources to make available, enable, implement and maintain this procedure;
- Investigations are reviewed for thoroughness;
- Educate site personnel of the requirements of this procedure.
- OHS Committee is involved in investigations and reviews

Safety Coordinator

- Manage the filing of forms
- Track implementation of recommendations.

Tile Writes/Supervision

- Taking action upon finding or being notified of an Incident;
- Organise protection of hazardous or non-disturbance situations; and

Employees / Contractors

- Work in a safe manner, report all hazards, incidents/accidents immediately and ensure follow up remedial work is carried out in relation to their report.

Incident Notification / Investigation Form No:

Administration

Location of Incident:……..……...

Incident Date:…….. Time: …….. am☐ pm ☐

Reported To:…… Reported by: ……..

Injured Person (if applicable): ……..

Surname Christian Name

Employee ☐

Contractor ☐

Classification

Incident Description	Personal Injury ☐	Environmental ☐	Property Damage ☐	Near Miss/Hit ☐
Incident Category	Minor ☐	Significant ☐	Serious ☐	Severe ☐
Injury Type	First Aid ☐	Medical Treatment ☐	Restricted Work ☐	Lost Time ☐
Recurrence Probability	Certain ☐	Possible ☐	Conceivable ☐	Remote ☐

What injury occurred and what treatment was? (e.g. deep cut to left index finger – cleaned & dressed)……...…...

……...

……...

What is the current welfare of the injured and expected prognosis? (e.g. stable condition expected 5 days lost time)……...……

……...

……...

What happened? What work was being performed? ……...…

……...

……...

……...

What initial action has been/are being taken to prevent recurrence? ……...

……...

……...

……...

Within 24 hours of the incident -

Have you notified the Factory Manager Yes/No Who? ……..

Have you notified the Safety Co-ordinator? Yes/No Who? ……..

Co-ordinator notified the Insurer? Yes/No Who? ……..

If applicable, Factory Manager notified WorkCover/EPA Yes/No/NA Who? ……..

Authorised by: _____

Incident Notification / Investigation Form No:

Leader:	Date:
Witness:	Injured Person:

The following information is to be completed **only after** the investigation is completed. Add additional sheets / photographs as necessary.

Investigation Findings – Root Causes

What **UNSAFE WORK PRACTICES** contributed to this incident? (*What people do, when & why)*

_____

_____

_____

What **UNSAFE PLANT & EQUIPMENT** contributed to this incident? (*Physical – guards, signs, etc)*

_____

_____

_____

What **UNSAFE PROCEDURES** contributed to this incident? (*Including Induction, Training, JSA's, etc)*

_____

_____

_____

Action Plan (Attach page with details if not enough space)

Actions to Prevent Recurrence	by Who	when

Circulation			
Position	**Comments**	**Sign**	**Date**
Factory Manager			
Safety Co-ordinator			
OH&S Committee			

Factory Manager Close-out	Sign	Date
All comments reviewed by OH&S Committee, actions completed and reviewed for effectiveness		

Authorised by: _____

Appendix H

Emergency Plan (Index Only)

Appendix H Emergency Plan (Index Only)

Table of Contents

Appendix I

Training Matrix

Appendix I Training Matrix

TRAINING MATRIX

X = Required
? = Selected persons

X = Required
Date = Date Completed

Element	Description	Priority	Refresher (Freq months)	Outcomes defined (Y/N)	Duration (hours)	Refresher (hours)	Procedure Reference	Provider / type	Comment	Plant Manager	Shift Operators	Tile Writes	Office Staff	Contractors	Visitors	Safety Coordinator	Individual Persons
1	**Inductions**																
1.1	Visitor induction	1			0.1			Security/discussion							X		
1.2	Site Induction	1	12		1			Class room	All persons to attend, includes chemicals, emergencies, isolation, incident reporting, evacuation, work permits	X	X	X	X	X		X	
2	**Employee induction**	2	24		4			Supervisor / discussion	Presentation package required	X	X	X	X	X	X	X	
2.1	Performance management																
2.2	Time keeping																
2.3	Filing																
2.4	IT policy																
2.5	OH & S policy																
2.6	Consultation - OH & S																
2.7	Safety committee																
2.8	Hazard / Incident reporting																
2.9	Rehabilitation and Workers Compensation																
2.10	Safety Management System																
2.11	Environment Policy																
2.12	Environment Management System																
2.13	House keeping inspections																
2.14	Employment contract																
2.15	Document Control																
2.16	Team meetings																
2.17	Standard operating procedures management																
3	**HR / IT Procedures**																
3.1	Purchasing procedure									X		X	X			X	
3.2																	
3.3																	
4	**Maintenance**																
4.1																	
4.2																	
4.3																	
5	**Operating procedures**																
5.1	Single Layer Roller Kiln	2						Internal/class room		X	?	?					
5.2	Selection, packaging and warehou	2						Internal/class room		X	?	?					
5.3	Dispatch	2						Internal/class room		X	?	?					
5.4	Clay preparation	2						Internal/class room		X	?	?					
5.5	Pressing and drying	2						Internal/class room		X	?	?					
5.6	Glaze preparation	2						Internal/class room		X	?	?					
5.7	Glazing	2						Internal/class room		X	?	?					
5.8	Selection, packaging and warehou	2						Internal/class room		X	?	?					
6	**Safety Procedures**																
6.1	Contracor Management	4	24		1	1		Internal/procedure									
6.2	Work Permits	1	24		1	1		Internal/procedure		X	X	X				X	
6.3	Change Management	4	24		1	1		Internal/procedure									
6.4	Incident Notification / Investigation	1	12		1	1		Internal/procedure									
7	**Emergency**																
7.1	Senior First Aid	3	36		24	8		External / class room	Sufficient to ensure a person on all shifts		?						
7.2	Emergency equipment	3	12		1	1		Internal / practical		X	X	X	X	?		X	
7.3	Fire fighting	3	12		1	1		External / practical		X	X	X	X			X	
7.4	Emergency Response plan	3	12		1	1		Internal / class room		X	?	X				X	
8	**Equipment / Skills**																
8.1	Workshop Tools	2	24					External / TAFE			X	X					
8.2	Hot Work	4	24					External / TAFE			?	?					
8.3	Scaffolding - Basic	4	24					External / log book			?	?					
8.4	Dogging	4	24					External / log book			?	?					
8.5	Forklift	4	24					External / log book				X					
	Electrical / Fitter	1															
9	**Generic Course**																
9.1	OH & S for managers	3			8			External / class room		X							
9.2	OH & S for front line Supervisors	3			16			External / class room			?	X				X	
9.3	OH & S for employees	3			8			External / class room			X						
9.4	Safety committee	4	24		40	8		External / class room	As required							X	
9.5	Incident investigation	4			8			External / class room		X		X				X	
9.6	Chemicals and MSDS's	2			4			External / class room		X	X	X	X	?		X	
9.7	Manual Handling	2			4			External / class room		X	X	X	X			X	

Authorised by: _____