



ORICA KURRI KURRI

SAFETY MANAGEMENT SYSTEM

NOVEMBER 2011



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TABLE OF CONTENTS

1 INTRODUCTION..... 1

2 CORPORATE SH&E MANAGEMENT SYSTEM 2

2.1 VISION AND VALUES2

2.2 STRATEGY2

2.3 SH&E MANAGEMENT SYSTEM.....3

3 GOVERNANCE..... 5

3.1 ORICA GROUP EXECUTIVE5

3.2 ORICA MINING SERVICES MANAGEMENT TEAM5

3.3 SITE MANAGEMENT TEAM.....5

4 SH&E MANAGEMENT SYSTEM IMPLEMENTATION 7

4.1 SH&E SYSTEM IMPLEMENTATION7

4.1.1 SH&E MODEL PROCEDURE STEWARDSHIP8

4.1.2 SH&E MODEL PROCEDURE CATEGORIES8

4.1.3 CHANGES TO SH&E MODEL PROCEDURES9

4.1.4 EXEMPTIONS FROM SH&E MODEL PROCEDURES9

4.2 SITE SPECIFIC PROCEDURES9

4.3 OPERATING INSTRUCTIONS10

5 MANAGEMENT OF LEGAL REQUIREMENTS 10

5.1.1 LEGAL REQUIREMENTS10

5.1.2 STANDARDS AND CODES OF PRACTICE11

6 SAFETY OBJECTIVES, PLANS AND TARGETS..... 12

6.1 SAFETY OBJECTIVES12

6.2 SH&E PLAN DEVELOPMENT12

6.3 SH&E PERFORMANCE MONITORING12

7 TECHNICAL SAFETY MANAGEMENT 14

7.1 CORPORATE EXPERT PANELS.....14

7.2 RESPONSIBLE ENGINEERS14

8 PROCESS SAFETY MANAGEMENT..... 15

8.1 BASIS OF SAFETY (BOS).....15

8.2 EXAMPLES DEMONSTRATING HOW THE BOS HAS BEEN EFFECTIVELY INCORPORATED INTO THE KURRI ANE PLANT ARE SHOWN IN APPENDIX ?? PROCESS MATERIALS 15

9 HAZARD ANALYSIS AND RISK ASSESSMENT 16

9.1 HAZARD IDENTIFICATION AND RISK ANALYSIS16

9.2 NEW PLANTS OR MAJOR MODIFICATIONS17

9.2.1 HAZARD IDENTIFICATION.....17

9.2.2 HAZARDS STUDIES17

9.3 PERIODIC HAZARD STUDIES OF EXISTING OPERATIONS.....18

9.4 TASK BASED HAZARD ASSESSMENTS18

9.5 RISK ASSESSMENT.....19

9.6	INFORMATION RECORDING, STORAGE, AND REPORTING.....	19
9.7	RISK ASSESSMENT.....	19
10	EQUIPMENT INTEGRITY.....	20
11	SAFE WORKING PRACTICES.....	21
11.1	PERMIT TO WORK.....	21
11.2	ADDITIONAL WORK PRACTICES.....	21
12	MANAGEMENT OF CHANGE	22
12.1	MANAGEMENT OF CHANGE.....	22
12.2	COMMUNICATION OF CHANGE.....	22
12.3	CHANGE SYSTEM ACCESS.....	23
13	ACCIDENT AND NEAR MISS REPORTING	24
13.1	INCIDENT REPORTING AND INVESTIGATION	24
13.2	NEAR MISS FATALITY (NMF)	25
14	TRAINING AND COMPETENCY.....	26
14.1	RECRUITMENT	26
14.2	GENERAL SITE INDUCTION.....	26
14.3	TRAINING REQUIREMENTS	26
14.3.1	SPECIALIST SH&E TRAINING	27
14.3.2	PROCESS OPERATOR TRAINING.....	27
14.4	TRAINING RECORDS	27
14.5	CONTRACTOR /SUB CONTRACTOR SELECTION AND CONTROL	27
15	EMERGENCY PLANNING AND RESPONSE.....	29
16	SECURITY.....	30
17	PERFORMANCE MONITORING AND REPORTING	31
17.1	CORPORATE SH&E AUDITS	31
17.2	LETTER OF ASSURANCE	31
17.3	INTERNAL SH&E AUDITS	32
18	APPENDIX 1: KURRI ANE PLANT TRAINING	33
19	APPENDIX 2: SH&E POLICY.....	36
20	APPENDIX 3 – EMPLOYEE SHE CHARTER.....	37
21	APPENDIX 4 – CONTRACTOR SHE CHARTER.....	39
22	APPENDIX 5 – APPLICATION OF BASIS OF SAFETY	41

1 Introduction

In October 2010 Orica Australia Pty Ltd commenced construction of an Ammonium Nitrate Emulsion (ANE) manufacturing facility located at its Kurri Kurri Technology Centre, NSW. The facility will produce a maximum of 250,000tonnes of ANE per annum once commissioned (**Figure 1**). This plant has been developed to meet increasing demand for ANE product and projected growth in the mining and quarry sector in South Eastern Australia. Approval for this project was granted in July 2010 by the Minister for Planning.



Figure 1: Site Location

The site operates under Orica’s Safety Management System (SMS), which includes safety objectives, procedures and performance standards under which the hazards associated with the operations are managed and performance measured. This report summarises the key components of the SMS.

2 Corporate SH&E Management System

2.1 Vision and Values

Orica aims to be one of the best performers globally in Safety, Health and the Environment (SH&E). This is consistent with the core company values detailed in the “**Deliver the Promise**” initiatives, most specifically the “**SH&E – Ensuring our Future**” principle and the Vision of:

“No Injuries to Anyone, Ever”

And

“Value People and the Environment”

Orica is committed to eliminating all work related injuries, illnesses and environmental incidents, with a strong belief that all incidents are preventable. A copy of the policy is detailed in Appendix 1.

2.2 Strategy

Orica’s strategy for meeting it’s SH&E commitments and for achieving the Vision is to have in place:

- Equipment and materials that are designed and maintained fit for purpose;
- Well communicated principles and behaviours that promote continuous SH&E performance improvements through leadership and personal responsibility;
- A SH&E Management System with systems of work that ensure the people-based control measures are sustained.

The SHE strategy plan illustrates the Orica SH&E Management concept and its ultimate goals, as well as highlighting the interrelated nature of associated activities and the tools, techniques and activities that are available (Figure 2).

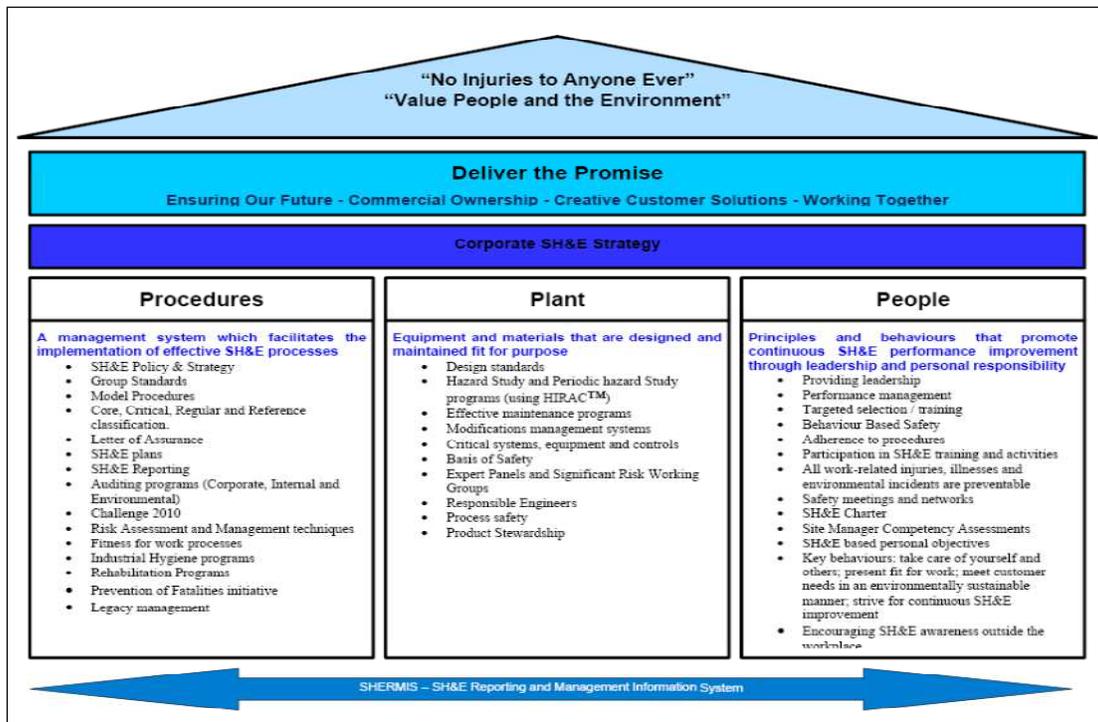


Figure 2: Orica Safety Strategy

Central to Orica’s strategy is that:

- SH&E is a line management responsibility. Ownership and accountability for SH&E performance is embedded in the line at all levels and Line Managers are responsible for providing SH&E leadership and for development and implementation of SH&E management plans for their areas of responsibility.
- There is a consistent risk based approach to SH&E management with appropriate emphasis on high severity, low probability events as well as low severity, higher probability events. Resources are allocated and activities prioritised on the basis of risk, and
- Appropriate training is in place to equip all personnel to carry out their tasks so as to take care of themselves, others and the environment.

2.3 SH&E Management System

The SH&E Management System utilises the Orica Group Standards, which are documents that provide a broad overview of the main SH&E activity areas. SH&E Model Procedures have been developed to provide further detail on the implementation of the SH&E Policy and the Group Standards. The hierarchy of key components within this system is summarised in Figure 3. Local SH&E Procedures and Operating Instructions describe at a site level how the SH&E Management System requirements are met.

These systems form the basis of the management of site operations to ensure compliance with Orica’s SH&E Management System.

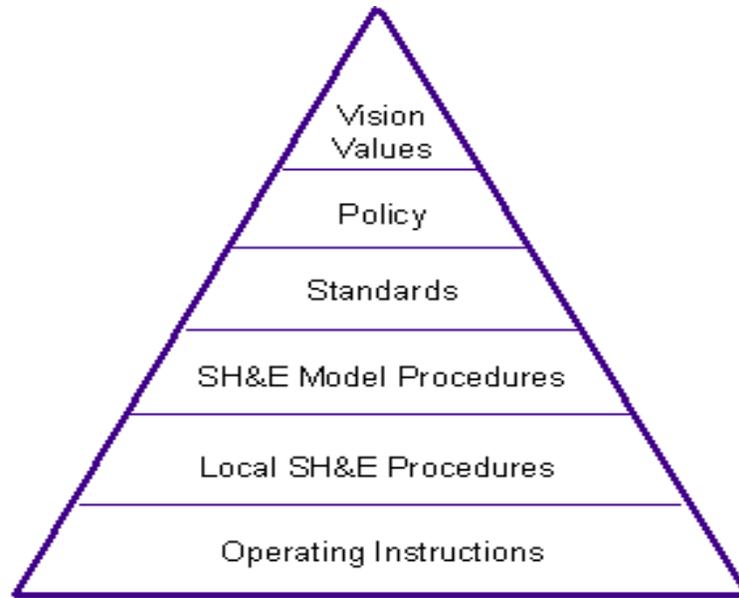


Figure 3: Summary of SH&E Management System Hierarchy

3 Governance

The SH&E leadership, guidance and direction of the company is provided at three levels:

- Level 1 Group Executive
- Level 2 Business Group General Management Team
- Level 3 Site/Business Management Team.

The Corporate SH&E Manager, in association with the Orica Mining Services General Manager – Sustainability and associated SH&E specialists, provide technical policy and strategy support and advice to the Group Executive. The Corporate SH&E Manager provides the formal reporting of the company's performance.

3.1 Orica Group Executive

The Orica Group Executive, in association with the Corporate SH&E Manager, is the forum for strategy development and for SH&E and sustainability governance of the company. The Group Executive drives SH&E and sustainability performance improvement throughout Orica.

In particular the group executive;

- Recommends SH&E and Sustainability Policy to the Board;
- Approves the strategy and sets the performance targets;
- Monitors SH&E compliance and governance through audit review and SH&E Letters of Assurance;
- Endorses actions to address company wide improvement opportunities; and
- Endorses company positions on significant external SH&E and sustainability issues at governmental and industry associations.

3.2 Orica Mining Services Management Team

The Orica Mining Services (OMS) Management Team, and its General Manager Sustainability, is accountable for the implementation of the SH&E and Sustainability Policy within the Orica Mining Services business.

3.3 Site Management Team

Orica believes that all personnel in the organisation are personally accountable for their own SH&E performance and the performance of those whom they manage or supervise. Managers of personnel, including the Site Manager and Shift Team Leaders are responsible for providing SH&E leadership, utilising the organisation's SH&E Management System, providing training to personnel to ensure people and the environment are protected and for the development and implementation of SH&E Management Plans in their areas of responsibility.

A SH&E Charter details the commitments Orica makes to employees and the responsibilities of all personnel in relation to SH&E. A copy of the charter is provided in Appendix 3 – Employee SHE Charter. Contractors are also required to confirm their commitment to ensuring environmental performance through the Contractor SH&E Charter which is provided in Appendix 4 – Contractor SHE Charter.

As noted above, all personnel are accountable for ensuring that the requirements of the SH&E Management System are implemented. The roles and expectations of line managers and employees for SH&E management are formally expressed and periodically reviewed and reinforced through formal discussions between line managers and their subordinates during yearly performance reviews.

4 SH&E Management System Implementation

4.1 SH&E System Implementation

The SH&E Vision and Strategy is implemented through the guidance provided in the 19 Group Standards and the SH&E Model Procedures. The 19 Group Standards describe the key aspects of the SH&E Management System, which includes Safety, Health, Environment, Fire, Engineering and Distribution requirements. The implementation and updating of the management system is undertaken in accordance with the key processes detailed in Figure 4 .

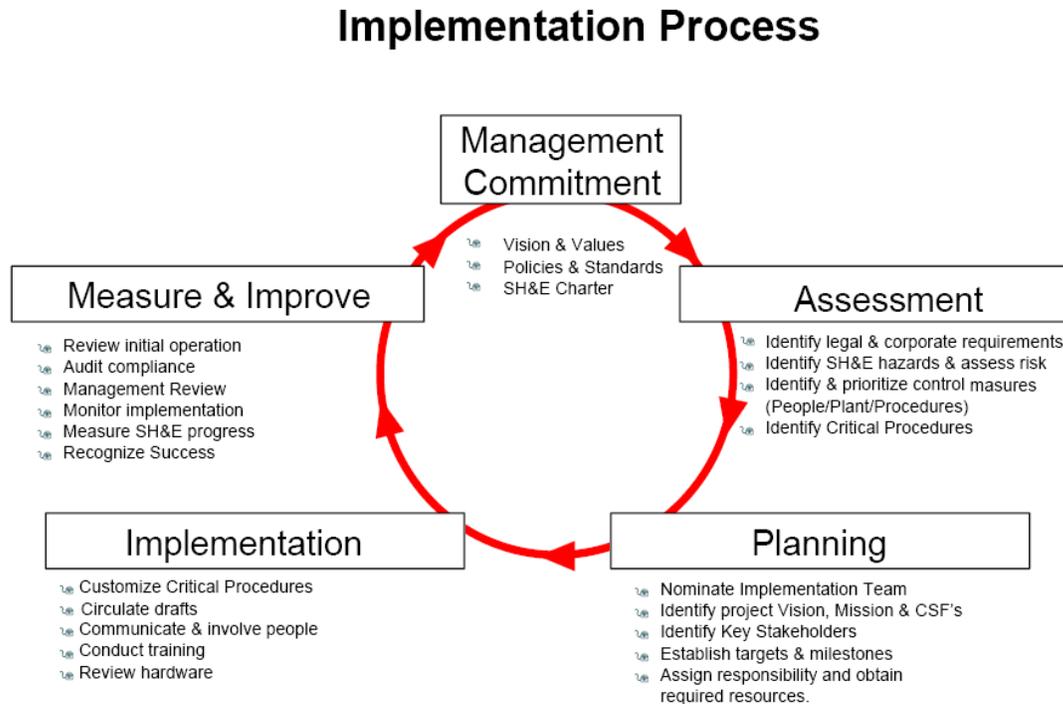


Figure 4: SH&E Management System Implementation

The SH&E Model Procedures are used to facilitate compliance with the Group Standards and capture best practice. They cover the full range of SH&E activities and have been developed by experts in the field and are maintained by designated procedure stewards.

The SH&E Model Procedures provide the processes for:

- Identification, assessment and minimisation of risks from Company operations and products;
- Compliance with legislative requirements;
- Specification and implementation of safe systems of work;
- Job cycle checks (JCC) and job safety and environment risk analysis (JSERA);
- Establishing health and hygiene programs;
- Provision of information and training;
- Conservation of energy and other resources;

- Protection of the environment;
- Safe storage, transport and use of the Company's products;
- Investigation and follow up of incidents and improvement opportunities;
- Establishing SH&E plans and objectives;
- Setting targets and monitoring SH&E performance;
- Internal auditing and Company auditing;
- Preparation of the SH&E Letter of Assurance;
- Demonstration of due diligence; and
- Communicating to stakeholders the company's SH&E activities and performance.

4.1.1 SH&E Model Procedure Stewardship

Model Procedure owners are assigned at a business level to oversee the implementation and maintenance of compliance with each procedure. Owners are selected for their technical knowledge and skills.

Targets for Model Procedure implementation are established and agreed with the procedure owners. Implementation targets reflect the assigned priority and business needs. Resources required to meet the targets are identified and detailed through the SH&E Management Plan process.

4.1.2 SH&E Model Procedure Categories

A process to identify and prioritise the implementation of the Model Procedures is undertaken at the site. The identification of Model Procedures is based on a risk profile of the site activities and hence logically addresses the most serious hazards first. It is a long-term goal to achieve and sustain compliance with the key requirements of all the applicable Model Procedures.

The Model Procedures are classified into four risk profiles, which provide guidance on the level of management that is required to ensure their implementation at the site,

- Core

Core procedures are implemented to prevent high severity-low probability events and hence the site is required to fully implement the requirements of the Model Procedure. Orica has defined eight Core Model Procedures which represent the basic tools to manage the common SH&E risks and hazards

- Critical

Critical Procedures are those that control significant risks and involve a number of people, work groups with significant staff turnover or otherwise require higher levels of management attention to assure the required level of compliance.

- Regular

Procedures for which a lower level of management attention is needed to achieve the required level of assurance.

- Reference

Reference procedures are model procedures that are applicable to site activities on a rare basis.

Core and Critical Model Procedures are allocated to the Site Manager who is responsible for ensuring that the systems are in place to implement the procedure at the site. Details on the classifications of the model procedures and the relevant site representatives responsible for them are detailed in the DMS.

4.1.3 Changes to SH&E Model Procedures

The Model procedures are updated to reflect changes in reference documents, lessons learned from incidents, benchmarking studies and the results of employee feedback and management reviews. The inputs required for model procedures and any changes are as detailed in Figure 5.

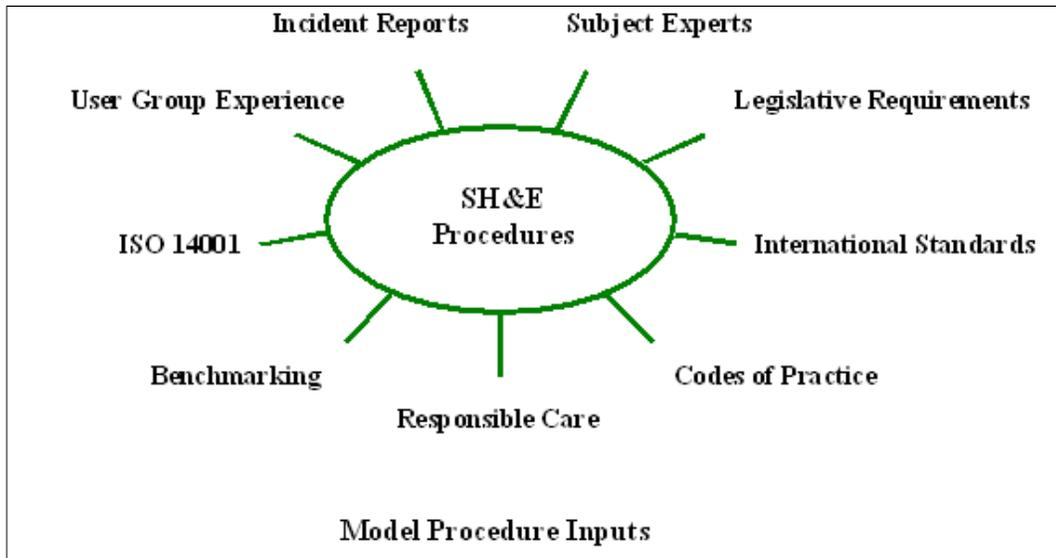


Figure 5: Influences on SH&E Model Procedure Reviews

4.1.4 Exemptions from SH&E Model Procedures

Businesses and Facilities may apply for exemptions from the Model Procedure Key Requirements by applying to the Exemption Committee, which is convened by the Corporate SH&E Manager.

4.2 Site Specific Procedures

Where local site circumstances require more detailed allocation of responsibilities than that provided by the generic Model Procedure, or there are specific local SH&E requirements (i.e. Core & Critical Procedures), a customised local procedure or supplementary work instruction is produced to:

- define local responsibilities,
- reflect/reference existing local procedures,
- add required local "how to" details,
- identify the records of activities required for the desired level of auditability (traceability).

Customised local procedures must, as a minimum, meet the Model Procedure Key Requirements, be consistent with the complexity of the activity, the level of risk involved and the skills and training of the people performing the activity.

Site specific procedures are developed to address areas including Plant Induction, Emergency Management, Plant Operation including Plant Start up and Shutdown, Maintenance Registers and Procedures, Waste Management, Traffic Management, Plant Security and Pressure Vessel Management. These site procedures are developed in conjunction with site personnel and are authorised by the Plant Manager.

Additionally, a comprehensive set of Commissioning Procedures have been written by a dedicated Commissioning Manager. These Procedures have been developed over several months and written in accordance with the Melbourne-based Orica Corporate Engineering Group Project Process. The focus of the Commissioning Manager and his Team is to ensure that the initial Plant start-up is completed without negative impact to the environment nor to the safety and health of workers on site and our site neighbours.

Site specific procedures are maintained on the site's Document Management System (DMS).

4.3 Operating Instructions

Operating instructions, or procedures, are used to provide detailed information on how to undertake particular work related task. Operating instructions include requirements for start-up, normal operation and normal shutdown, emergency shutdown, critical operating parameters, SH&E requirements and safety systems.

The operating instructions are prepared by the Engineering Information Officer, in consultation with the Process Operations and are included in training requirements where applicable. The instructions include responsibilities and reporting requirements.

Operating procedures are prepared in conjunction with plant personnel post Hazard Study 3 and are subject to a review process and verification to ensure they are updated to reflect the operation of the plant as built. Operating procedures are authorised by the Plant Supervisor.

Operating instructions are maintained on the site's Document Management System (DMS) and records of training included in HR Connect (Central SAP based Database used by HR for personnel records)

5 Management of Legal Requirements

Orica is committed to ensuring that its operations comply with the legal requirements of the countries in which it operates. Model Procedure SG-04: Legal Requirements details the systems used to ensure compliance.

Orica's Corporate SH&E Team and SH&E Counsel assist the site in identifying legal requirements and standards that are applicable to the operations. In addition, Orica subscribes to services that advise of changes to safety and environmental legislation and changes to standards and codes of practice to assist in ensuring that the requirements

5.1.1 Legal Requirements

At the Kurri Kurri site technical specialists have been nominated to be responsible for maintaining the systems that ensure compliance with legal requirements. The Statutory Liaison Team maintains registers of compliance requirements with regulatory requirements and licences. Performance against the requirements is regularly reviewed.

Access to legal requirements is maintained electronically, either by external websites or the site's Document Management System (DMS), where copies of licences are maintained.

5.1.2 Standards and Codes of Practice

Where relevant, Orica Model Procedures relating to safety, environment and engineering require adherence to relevant Australian or International standards, or local codes of practice.

The requirements of these standards and codes of practice are incorporated into site specific procedures where appropriate.

6 Safety Objectives, Plans and Targets

6.1 Safety Objectives

Orica develops safety objectives on a regular basis as we drive towards achieving our SH&E Vision and Policy through continuous improvement in our SH&E performance. Every five years a series of medium term SH&E objectives are developed, which are incorporated into the “Challenge” targets. These targets are milestones to ensure that we continue to move Orica along the path towards business sustainability. The objectives cover three key focus areas:

- All Worker Safety and Health
- Community Safety
- Resource and Operational Sustainability

The Corporate Sustainability Manager facilitates the development of these Orica wide objectives.

On an annual basis SH&E targets are developed within each business unit and cascaded to each site. The OMS General Manager – Sustainability is responsible for the development of these annual objectives, in conjunction with the senior management team.

Annual SH&E targets are incorporated into the Kurri Kurri ANE and SH&E Plan and into individual performance objectives.

6.2 SH&E Plan Development

The Model Procedure SH&E Improvement Plan (MP-SG-002) describes requirements for the development and implementation of SH&E improvement plans to describe the means and timeframes by which the company’s SH&E objectives and targets will be achieved for the site.

The SH&E Improvement Plans include;

- SH&E programs and action plans required to achieve the SH&E objectives and targets.
- Responsibilities and the timeframes for completion of the identified SH&E objectives and targets.

Requirements for establishment of the SH&E objectives and targets for each relevant function and level within the company are detailed in MP-SG-001 (SH&E Policies, Standards, & Objectives).

A SH&E Plan is prepared each year for the Kurri Kurri ANE site. The plan includes information on key SH&E related activities that are to be undertaken during the year, the responsibility for the completion of the actions and timeframes for completion.

The actions are incorporated into the site Action Management Database to enable tracking of the resolution of these actions.

6.3 SH&E Performance Monitoring

SH&E performance is reviewed on a bi-monthly basis by the Kurri Kurri ANE Management Team. Performance metrics reviewed include:

- SH&E performance (All Worker Recordable Case Rate, Environmental Non-compliance, minor injuries, number of incidents reported)
- Number of justifiable community complaints
- Health assessments and occupational hygiene monitoring completed
- Internal audits completed
- Timeliness of resolution of incident investigations and actions
- Process safety incident reviews
- Key parameters associated with the Plant Modification system

7 Technical Safety Management

7.1 Corporate Expert Panels

Whilst the Model Procedures provide some guidance to the management requirements of hazardous processes, it is recognised that they may not provide comprehensive coverage. As such, Expert Panels have been established to develop and set out the detailed requirements that must be incorporated into the design and control of specified major hazard processes.

The responsibilities of the Expert Panels are:

- To detail the “Basis of Safety” on which the processes should be designed and operated.
- To define the Critical Model Procedures which must be fully implemented for a particular technology (Technology Critical).
- To authorise any major process changes.
- To audit compliance with Functional Expertise Panel mandated standards.
- To develop the technology specific engineering standards that must be applied.
- To review the process safety sustenance capital requirements and sign off that these are adequate to maintain integrity.
- Approval of major projects from a process safety perspective.

The technology-based Expert Panels relevant to the Kurri ANE site are:

- Explosives Expert Team.
- Ammonium Nitrate Expert Team.

The accountability for the overall operation of the technology-based Expert Panels rests with the relevant Group SH&E Manager.

7.2 Responsible Engineers

Transfer of functional knowledge and maintenance of functional expertise is another significant element to ensure process integrity. Responsible Engineers are established to:

- Identify best practice standards in their discipline to ensure optimum asset integrity.
- Work with the technology based Responsible Engineers to keep them abreast of functional technical developments.
- Provide the conduit for implementing external best practice

Responsible Engineers have been established to cover the following areas:

- Instrument, electrical and control engineering.
- Mechanical engineering.
- Critical pump systems

8 Process Safety Management

8.1 Basis of Safety (BoS)

The Expert Panels, described in Section 7 have developed Basis of Safety documents for all major hazard manufacturing processes in accordance with Model Procedure SO-01 Basis of Safety. A Basis of Safety program relates to the prevention of major incidents such as fires, explosions, toxic gas releases and fatal incidents.

The key elements of it are:

- Identification of the major hazards (including knowledge gained from incidents and industry experience - the corporate memory of the operation); and
- Incorporation of Basis of Safety knowledge into safety-related processes and communications and training modules so that it becomes living knowledge.

The BoS is reviewed and updated to incorporate learning's from incidents that occur at both internal and external manufacturing facilities globally, with training mandatory for plant and maintenance technicians and plant engineers/technologists.

The BoS's available at Kurri Kurri ANE are:

- Manufacture and Storage of ANE
- Ammonium Nitrate Solutions

The requirements of these BoS documents are incorporated into both the engineering design basis for the plant equipment and the safety management system. The BoS is incorporated into the nominated controls when preparing the risk assessment (HIRAC's) for the plant process.

8.2 Examples demonstrating how the BoS has been effectively incorporated into the Kurri ANE plant are shown in Appendix ?? Process Materials

The model procedure MP-SG-007 Material Safety Data Sheets describes the requirements for the development, distribution and maintenance of Material Safety Data Sheets (MSDS). MSDS are required for all products, intermediates, raw materials, consumable chemicals, aids to manufacture, catalysts, laboratory chemicals and hazardous chemical wastes. The MSDS are available on the Company Intranet and are accessible by all employees.

Model procedure MP-SG-019 Workplace Hazardous Substances describes the requirements for the assessment and control of risks from the use of hazardous substances. The workplace hazardous substances risk assessments are managed in the SHERMIS Audit Management database.

Model procedure MP-SF-025 Storage and Handling of Dangerous and Non-Dangerous Goods describes the requirement when using chemicals, including risk assessments, storage in accordance with regulations and standards and appropriate handling.

9 Hazard Analysis and Risk Assessment

9.1 Hazard Identification and Risk Analysis

The systematic identification, assessment and management of safety, health and environmental risk is essential to the successful undertaking of Orica's activities. A risk assessment methodology is applied to all aspects of the operations, including new projects, modification of existing plant, periodic reviews of existing operations and the assessment of risk in undertaking activities such as maintenance tasks. Safety, health and environmental risks associated with the activity are considered in all of these reviews. This approach is documented in the Orica Model Procedure for Risk Management (MP-SG-030).

The relationship between the various Hazard and Risk Assessment tools utilised by Orica in the management of both new plant and equipment and the review of existing plants is detailed in Figure 7.

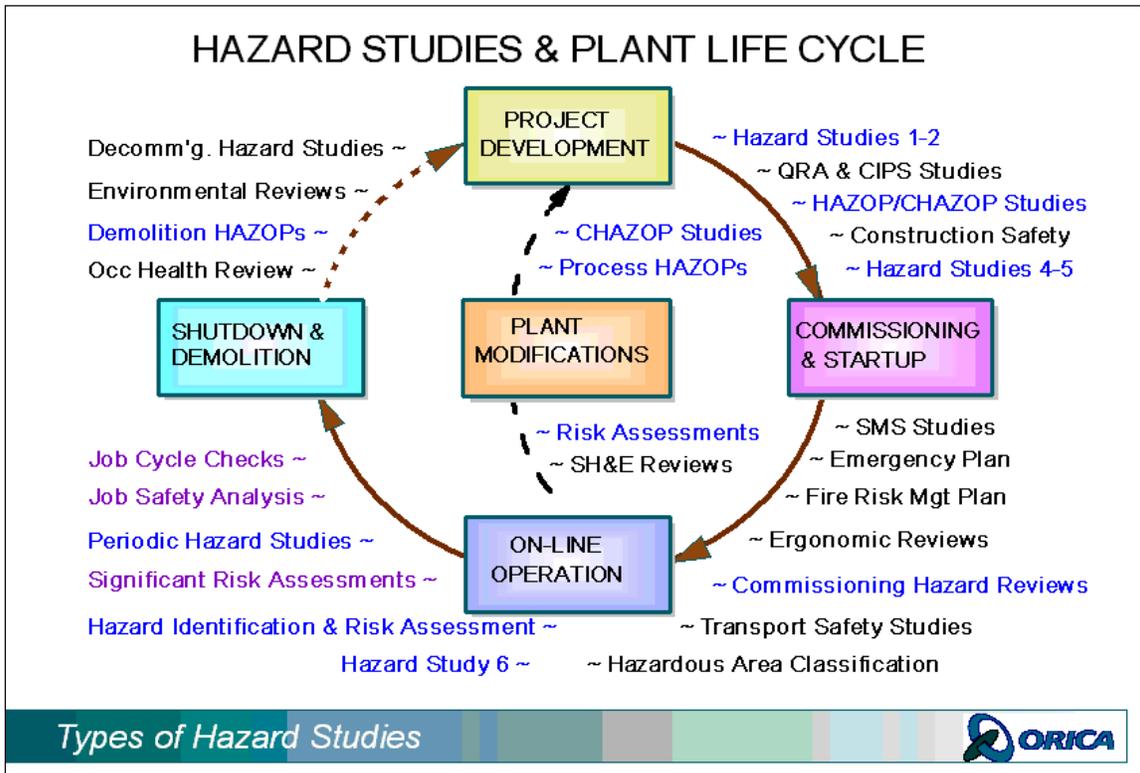


Figure 6: Overview of Orica Risk Management Processes

The hazard assessment tools cover new plants or major modifications, reviewing of existing operations and task based hazard assessments. Figure 7 details the relationship of each of these tools to the hazard and risk processes.

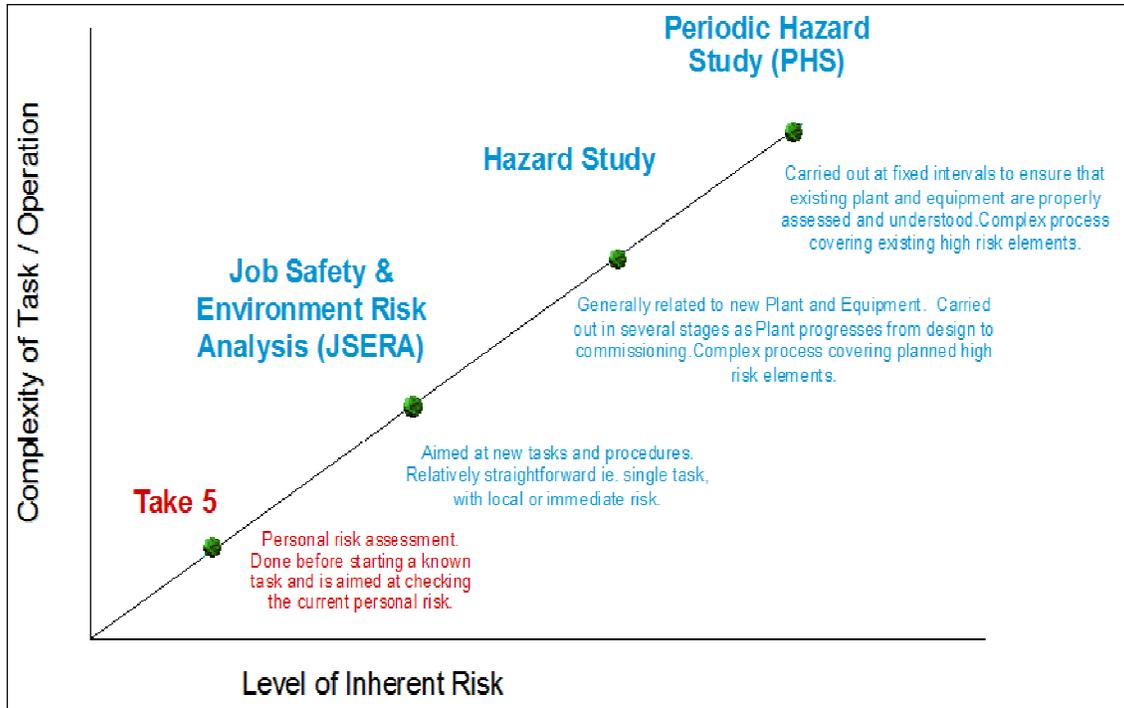


Figure 7: Relationship of Hazard Studies to the Plant Life Cycle

9.2 New Plants or Major Modifications

9.2.1 Hazard Identification

Hazard identification for existing plants is based on the Orica *Periodic Hazard Study (PHS)* methodology. A hazard study facilitator leads a multi-disciplinary team through a guided brainstorming process to generate a list of hazardous scenarios, together with approximate consequences and likelihood ratings. The results may be supplemented by other activities such as a review of previous incidents and near misses, review of previous hazard studies, literature surveys, detailed HAZOP studies etc.

9.2.2 Hazards Studies

Orica has developed a series of six studies to assist in identifying and controlling potential risks associated with a project or plant modification that are applied on all capital projects within Orica. They focus mainly on moderate to major potential hazards and are undertaken in relation to the Project and enable Orica to meet its safety, health and environmental targets in any planned or current business activity. Depending upon the size, cost and risks associated with the development all, or just selected studies, will be undertaken. The six studies include:

- **Hazard Study 1.** This study is performed during the Project Feasibility phase to identify the basic hazards of the process and materials chosen for the project ensuring that the project, processes and materials involved are sufficiently understood to enable safety, health and environmental issues to be adequately assessed. It establishes safety, health and environmental criteria and ensures the necessary contacts with functional groups and external authorities.

- Hazard Study 2. This study is performed at the early Project Definition stage. It is geared around the use of a guide word based proforma methodology to stimulate creative thinking and to identify significant hazards relating to the proposed process and materials. This allows the opportunity for elimination through design or development of additional control measures.
- Hazard Study 3. This is the Hazard and Operability Study (HAZOP). It is performed at the end of the project detailed design stage to identify hazard and operability problems via a detailed look at the design. It is a "bottom up" analysis which is based on a study of the potential effects of deviations from the design conditions and intended operating procedures.
- Hazard Study 4. This study is performed towards the end of the construction stage for each separate system or plant section. It checks that the equipment and procedures are as required by the previous Hazard Studies to the intended design.
- Hazard Study 5. This study is performed at the end of the overall construction stage but before process materials are introduced for operation. It is a check to ensure that the project meets the corporate and legislative requirements and incorporates all of the basic SH&E practices needed to make the working environment suitable for ongoing operation.
- Hazard Study 6. This study is performed 3 to 6 months after full production has been established. This study checks that all previous studies have been completed, SH&E issues have been successfully addressed, reviews any outstanding Hazard Study actions and investigates whether early operation is consistent with the design intent and with the assumptions made in earlier Hazard Studies.

9.3 Periodic Hazard Studies of Existing Operations

Periodic Hazard Studies are undertaken in accordance with the relevant Model Procedure (MP-SG-032 Periodic Hazard Studies) on a five yearly cycle. These studies, which are modified to be more applicable to existing plants, are based on the first three stages of the Hazard Study Process and involve a review of the cumulative effects of facility modifications, changes to legislation and statutory requirements and organizational change..

9.4 Task Based Hazard Assessments

Other processes that are used to assess and control hazards at a site operational level include:

- **Job Safety and Environmental Risk Analysis (JSERA)**

A JSERA is completed prior to carrying out all maintenance and project task for which no procedure exists. The aim is to carry out an informal risk assessment of the task, identify any hazards and take steps to eliminate or control them.

- **Job Cycle Checks (JCC)**

A JCC is carried out to confirm that a task is being undertaken according to the current procedure. If not, the procedure and task are examined to determine the appropriate changes to the task/procedure to re-establish conformance.

- **Personal Safety Checks - Take 5**

A Take 5 is a personal risk assessment and can be carried out prior to starting a known task or during the task if a new hazard is identified. It is aimed at reviewing the risks of any given task to the person undertaking the task and their surroundings.

9.5 Risk Assessment

Following the identification of SH&E hazards each of the hazard study and risk analysis tools requires the assessment of the likelihood and consequence of each event and assigns a risk ranking. This is undertaken in accordance with Orica's Model Procedure "SH&E Risk Management" (MP-SG-30), where Orica's qualitative risk matrix is detailed. Depending up on the type of risk assessment being undertaken, quantitative risk assessments may also be undertaken in accordance with the Model Procedure.

The risk assessment will determine whether the risk is acceptable, unacceptable or "as low as reasonably practicable".

9.6 Information Recording, Storage, and Reporting

All hazards identified, together with the causes, consequences and frequencies, and hence risks assessed from the various hazard study processes carried out at the Kurri Kurri ANE site are recorded in the OMS SHE Risk Register, a Lotus Notes database. The SHE Risk Register database is a controlled document management system with protocols for adding, revising and authorising documents.

It also incorporates an action management system to track completion of actions arising from the Hazard Studies, with timeframes for appropriate close out of actions. The status of these actions is reviewed monthly by the Orica Kurri Kurri ANE Management Team.

9.7 Risk Assessment

Following the identification of SH&E hazards each of the hazard study and risk analysis tools requires the assessment of the likelihood and consequence of each event and assigns a risk ranking. This is undertaken in accordance with Orica's Model Procedure "SH&E Risk Management" (MP-SG-30), where Orica's qualitative risk matrix is detailed. Depending up on the type of risk assessment being undertaken, quantitative risk assessments may also be undertaken in accordance with the Model Procedure.

The risk assessment will determine whether the risk is acceptable, unacceptable or "as low as reasonably practicable".

10 Equipment Integrity

Orica Kurri Kurri ANE has an effective and comprehensive reliability and integrity management system in place for all critical plant and equipment. The system includes the following:

- Risk based inspections of plant and equipment.
- Root cause analysis of failure mechanisms to minimise the potential for a recurrence of reliability issues.
- Planning and scheduling of maintenance in systems such as the SAP Planned Maintenance System (Red Book)
- Monitoring and reporting on key performance indicators.
- Engineering standards.
- Engineering specifications documenting the requirements for new plant and equipment, including quality assurance on materials and manufacturing, inspection and test plans, third party inspections, document provision and signoff by key parties as required. Development of life cycle plans for maintenance of the new plant and equipment.
- Condition monitoring of key plant and equipment.

Orica Model Procedures relating to equipment integrity include:

- PI - 01 Plant Structures and Pipe Bridges
- PI – 02 Critical Machine Systems
- PI – 03 Gas Detectors
- PI – 04 Dangerous Tools, including Knives
- PI – 05 Machine Guarding
- PI – 06 Safety Instrumented Systems
- PI – 07 Use of Hoses
- PI - 08 Pressure Systems
- PI - 09 Lifting Equipment
- PI – 10 Electrical Equipment
- PI – 11 Underground & Secondary Containment Systems, including Bunding
- PI - 12 SH&E Critical Equipment

Site specific systems have been developed to ensure that the integrity of these systems is maintained and managed appropriately.

11 Safe Working Practices

11.1 Permit to Work

Orica has in place a comprehensive series of Model Procedures to manage all work undertaken at the site. The Model Procedures in the Permit to Work suite address the management of the following key activities:

- PW-01 Permit to Work
- PW-02 Isolation of Plant and Equipment from Hazardous Materials and Stored Mechanical Energy
- PW-03 Entry into Confined Spaces
- PW-04 Excavation/Break-in Authority
- PW-05 Electrical Isolation and Permits
- PW-06 Work at Heights/Work on Roofs and the use of Scaffolding, Ladders and Portable Steps
- PW-07 Control of Hot Work
- PW-08 Decontamination of Process Equipment

Permits to Work are used to authorise performance of non-routine work (eg. maintenance activities), to document transfer of control of the affected parts of a facility and to describe agreed controls to apply to the work. The requirements of this suite of Model Procedures apply to all facilities, including offices.

Permits to Work and other associated permits are only able to be issued by Authorised Persons, who are experienced personnel who are familiar both with the plant operations and the SH&E Management System requirements for permitting.

The permit issuer is responsible for ensuring compliance with all requirements of the Permit to Work and associated permits and JSERA. They are also responsible for communicating the Permit to Work requirements to all personnel involved in the work.

11.2 Additional Work Practices

There is a handover at the beginning of each shift to enable communication between the outgoing and incoming team on the status of the plants, any operational issues and maintenance or project activities that are underway.

12 Management of Change

12.1 Management of Change

The requirements for the Management of Change are detailed in the Model Procedure RM-03, which defines the requirements to identify and manage the potential safety, health, environmental, and physical security risks associated with permanent or temporary changes to;

- Equipment
- Procedures
- Materials
- Process settings and/or,
- Organisational structure.

The modification process involves a review of the proposed modification by a range of plant personnel, which can include engineering and maintenance personnel, approval by the Plant Manager and recording of the modification details in the Plant Modification database. The review includes consideration of the hazards and controls to ensure that the risk has been eliminated or controlled to as low as reasonably practicable.

Where a significant SH&E risk may exist, or the scale of the project is significant, then a full hazard study process may be undertaken to assess the modification (Section 9).

Prior to implementation of any modification the changes are subjected to a SH&E Acceptance Check prior to final introduction to confirm that:

- The changes will be implemented in accordance with the change proposal;
- Specified risk assessments and design verification activities have been completed and all required actions have been implemented;
- Temporary change or repair proposals include the time period for which they are valid as part of their approval, and
- The changes will not introduce any unforeseen risks.

For temporary changes a temporary modification is completed. These temporary modifications have a validity period installed as appropriate in accordance with the risk to the process and the hazard. Temporary Modifications are periodically reviewed to ensure the validity period is not exceeded.

All permanent and temporary plant modifications are managed and recorded in the OMS Modification Database (AA), with the status of modifications reviewed on a weekly basis as part of Kurri Site Incident and Modification review

12.2 Communication of Change

Operations personnel are advised of relevant modifications by shift reviewing processes, regular shift handover procedures including meeting with site operational management personnel, or changes to the operational training material, which is reviewed and carried out by relevant site training personnel.

12.3 Change System Access

A modification can be proposed by any person with appropriate skills and training, and Access the Lotus Notes AA Database.

13 Accident and Near Miss Reporting

13.1 Incident Reporting and Investigation

The reporting and investigation of incidents is managed in accordance with the requirements of a Model Procedure, *BG-06: Incident Management & Corrective Action*. The Procedure addresses the requirements for immediate action, classification, investigation and reporting of SH&E and Physical Security Incidents.

All incidents are recorded into the electronic Safety, Health and Environment Management Information System (SHERMIS) database, classified according to the nature of the incident, assessed to determine what external reporting is required, assigned an Investigation Manager and investigated using a 5 step process or similar investigative technique as follows:

1. Define the problem i.e. incident, subject and consequence;
2. Apply quick fix to render situation safe until root causes identified;
3. Perform a root cause analysis;
4. Determine and apply appropriate corrective actions; and
5. Follow up and evaluate

The level of risk is identified for each incident depending upon the classification of the incident and this governs the level of management reporting and response. Significant incidents are listed in monthly SH&E Performance Metrics which are distributed to all site personnel for communication. Incident classifications include injury/illness, site loss of containment, environmental non-compliance, environmental complaint, security, distribution and vehicles.

A number of personnel onsite have undertaken Root Cause Analysis training which is used in the investigation of significant incidents.

Recordable and Lost Work Case injury investigations are either chaired or followed up by an external senior manager to verify the incident has been appropriately investigated and corrective actions are in keeping with the nature of the injury.

Serious incidents are also reportable to the OMS senior management team and the Corporate SH&E Manager who in turn reports to Orica's Executive Team.

Serious incidents may also require reporting to regulatory authorities such as WorkCover or the Office of Environment and Heritage. Instructions on what has to be reported to these agencies are contained within the Model Procedure and site specific procedures.

Incidents are communicated to site electronically as required. Significant issues are also communicated via routine meetings, monthly reviews by the Occupational Safety, Health and Environment Committee. Site personnel also review relevant incidents at their monthly Safety Meetings. All personnel are able to review incidents from both the Kurri Kurri site and any other Orica operation.

The status of incidents in the SHERMIS system is tracked on a monthly basis by the Kurri Kurri Compliance Manager, with a KPI of no incidents open post the end of the following month of the incident. The number of incidents recorded monthly is also captured and trended.

Actions identified in incident investigations are raised in the SH&E Action Database. This database includes automatic notification for personnel that they have been assigned an action, as well as automatic reminders when actions become due. The status of actions is reviewed on a monthly basis, with a target of no overdue actions at the end of each month.

Significant incidents are reviewed by the Expert Panels to determine whether any changes to the Basis of Safety are required.

13.2 Near Miss fatality (NMF)

The Orica Near Miss Fatality (NMF) System is a reporting framework that supplements the All Worker Case Rate as a measure of SH&E performance by focusing on incidents where due to a lack of, or failure of controls, employees have been exposed to unacceptable risk. This increased focus on fatality prevention is consistent with Orica's goal of 'No Injuries to Anyone Ever' ethos.

This enables a focus on fatality prevention via a strong focus on the potential consequences resulting from incidents that could have potentially resulted in a fatality but only due to the particular fortunate circumstances prevailing at the time had not could escape "under the radar" with no detailed investigation if there was no injury.

NMF are widely communicated via incorporation in the incident investigation and reporting framework allowing for higher senior level focus/attention, improved hazard identification and awareness, and greater shared learning's across the Business.

14 Training and Competency

The SH&E Training Model Procedure (SG-005) describes the management of training within Orica and includes:

- Training needs assessed at the time of employment,
- Provision of safety induction training prior to commencing work on site,
- Training provided by people with appropriate levels of knowledge, and
- Requirements for maintenance of training records

Appendix 1 provides the linkage between the Work Processes required at the Kurri Kurri ANE Plant and the Training that will be provided to allow safe completion of those Work Processes.

14.1 Recruitment

Orica seeks to ensure that personnel within our operations are committed to ensuring a high standard of SH&E performance and technical competency through the use of a formal recruitment process. This process includes the use of targeted selection, which includes assessment of SH&E commitment and reference checking to confirm technical competency.

14.2 General Site Induction

All employees and contractors undertaking work at the site complete the General Site Induction. The induction includes an introduction to the operations at the site and the associated hazards. The SH&E Management Systems which are used at the site to control these hazards are introduced to personnel.

The induction includes an assessment of the competency of the inductee, with personnel required to successfully complete a questionnaire.

Visitors undertake a brief induction prior to entering the site and are escorted at all times whilst onsite.

14.3 Training Requirements

Central to Orica's SH&E strategy is that appropriate training is in place to equip all personnel to carry out their tasks so as to take care of themselves, others and the environment. The training needs of all personnel onsite are documented in training matrices or career progression skills manuals. These include both SH&E and technical training requirements, and in Mining Services is called the Licence to Operate.

These include

- Basis of Safety,
- Model Procedure awareness;
- Emergency response and emergency systems training;
- Root cause analysis;
- Behavioural Safety Program;
- Plant inductions;
- Specialist training; and

- External training.

14.3.1 Specialist SH&E Training

The Orica Corporate SH&E group develops, maintains and assists in the facilitation of SH&E Leadership Training modules, which aim to explore and develop the "leadership" characteristics of SH&E within the organisations. The key training for site based personnel includes:

- Senior Manager and Business Management Leadership.
- Operations Managers and Senior Manufacturing / Production Leadership

All personnel in positions of leadership complete the appropriate SH&E Leadership course, with new Managers required to attend SH&E leadership training within the first year of appointment.

Additionally, all principal Site Managers undergo a Site Manager's Competency Assessment, and preparation of a development plan at least every 4 years. The Engineering Shared Services team is responsible for scheduling the competency assessment.

In addition, specialist training in areas such as general and technical hazard study, root cause analysis and safety integrated systems are periodically undertaken.

14.3.2 Process Operator Training

Process operators undertake training in accordance with career progression manuals and training matrices.

Training modules include the assessment of competency both through classroom and field assessment.

Training for new plant and equipment is developed and delivered to operating and maintenance personnel by the Training Managers.

Updates to plant operating procedures are electronically sent to all relevant personnel using the Document Management System. Procedures are updated following plant modifications or as a result of actions from incident investigations.

14.4 Training Records

Training records are maintained in HR Connect, with hard copy documentation maintained by the Training Officer.

14.5 Contractor /Sub Contractor Selection and Control

All work performed by Contractors and Sub-Contractors on the Kurri Kurri ANE site is covered by the Model Procedure *MP-SG-011F - On Site Contractor SH&E Management* which defines requirements to ensure works are carried out in a manner which does not present an unacceptable safety, health or environmental risk.

Prior to carrying out any work onsite evidence of past SH&E performance and commitment to management of SH&E performance are considered in the selection criteria for Contractors. Their previous performance in this regard is assessed commensurate with the risk associated with the work to be performed, the hazards present in the work area and the degree of supervision to be provided.

SH&E requirements are incorporated into the Site Contractor Regulations and in the general conditions for onsite work.

All contractors onsite undertake the standard site induction and any relevant plant or specialist inductions.

Contractors who are onsite in a full time support role are included in Orica SH&E initiatives.

Selection and control of offsite contractors, such as the organisations who are contracted to transport hazardous materials from the site, are covered by MP-SG-017 Toll Manufacture and Other Contracted Offsite Operations.

An Orica Manager is nominated to control and monitor the contractor's operations and ensure the SH&E, security and quality aspects of the work to be performed are considered. The contractors are assessed prior to appointment to ensure that they understand the hazards relating to the activities and that appropriate measures are in place to manage these hazards, that they hold the appropriate licences and approvals and that they are competent to undertake the activities. An assessment of past SH&E performance and commitment is undertaken.

In addition, periodic reviews of the contractors are undertaken to ensure that the SH&E management systems are operating effectively.

15 Emergency Planning and Response

A comprehensive Emergency Response Plan (ERP) is in operation at the site to limit the consequences and assist in managing an emergency situation which may develop at the site and have the potential to impact either onsite or offsite personnel, property or environment.

The plan includes information on the procedures to be implemented to prepare for, respond to and recover from an emergency at the site. It also includes details on the roles of response personnel, general site personnel, the training undertaken to prepare personnel to respond to an emergency and the resources and equipment for use during the incident.

The ERP includes details on how the site is notified of an emergency and the communication channels available during the emergency.

Details for the notification of emergency services, agencies, adjacent neighbours and other stakeholders in the event of an emergency are also included within the plan.

The ERP includes details on how personnel onsite are accounted for in the event of an emergency, with the electronic access system used to account for personnel initially. Additional responses are available to locate personnel in the event that they are not able to access the electronic access system.

Investigation of the emergency incident will be undertaken in accordance with Orica's procedure for Incident Management and Corrective and Preventative Action (BG-06). Where required, reports detailing the outcomes of the investigation will be provided to the relevant authorities in the required timeframe.

The ERP is kept in key locations at the site, is available electronically and has been provided to the NSW Fire Brigade.

16 Security

To ensure the protection of its employees, the public, capital assets and information, Orica Group has established a broad Group Security Policy to which each of the component parts of the Group can work.

"Orica will provide a secure working environment to protect people, capital, information and other assets from the risk of deliberate harm, damage or loss."

In particular we will:

- comply with all applicable laws and regulations;
- periodically conduct assessments to identify and assess the risk from Physical Security threats;
- establish and maintain Physical Security standards, procedures and other measures to reduce the risk from Physical Security threats as far as possible;
- ensure that appropriate resources are provided to manage Physical Security issues;
- require all employees and contractors to act within the law, exercise personal responsibility and comply with established procedures;
- investigate security incidents and put in place corrective and preventative actions; and
- audit the application of this Physical Security Policy on a periodic basis.

The Kurri Kurri ANE site has a Security Plan which details the implementation of the security policy. Risk assessments were undertaken during the development of the Security Plan.

The Security Plan includes:

- personnel and vehicle access arrangements, including supervised access points and electronic access systems.
- security site physical assets
- security arrangements associated with the manufacture and storage of security sensitive ammonium nitrate.
- security monitoring and assurance

Security of electronic information and documents is also managed. Both the site Local Area Network and the plant Distributed Control System including features to ensure only authorised personnel are able to access the system and that the systems are backed up on a regular basis. Key documents are retained in secure locations.

Breaches of security arrangements are reported through the SHERMIS system.

17 Performance Monitoring and Reporting

The SH&E due diligence process is a vital part of internal benchmarking and compliance assurance for Orica. This is achieved via two initiatives, namely Corporate SH&E auditing and the Letter of Assurance process.

Verification and compliance of the various SMS components is conducted through an internal and external audit process. An audit schedule is created annually to document the internal audits of identified core and critical Model Procedures and for required corporate audits e.g. Significant Risk Assessments (SRA), Safety Health and Environment Management Systems audits (SHEMS). The corporate audits provide an opportunity to capture best practice across the organisation.

Data is recorded monthly on numbers of audits completed and compliance to the audit schedule, with the audits carried out by trained auditors in accordance with procedures outlined in the relevant Model Procedures. Auditing identified deficiencies are recorded, assessed and corrective actions implemented based on priority ensuring the requirements of the SMS are established and maintained.

The relevant model procedures, which govern this process, are:

- MP-SG-006 Corporate SH&E Audits; and
- MP-SG-022 Internal SH&E Audits.

17.1 Corporate SH&E Audits

Corporate SH&E Audits requirements are described in MP-SG-006, including the requirements for planning, administration, reporting, corrective action and follow-up of Corporate SH&E and Physical Security audits and reviews.

The Corporate SH&E Auditors perform their auditing activities at the request of the Orica Limited Board of Directors. They utilise a number of audit types to gather the required data on both the effectiveness of sites SH&E Management Systems, their compliance with the Model Procedure key requirements and their potential environmental legacy issues.

Sites are selected for audits using a risk-based prioritisation system, published as an annual auditing plan approved by the Corporate SH&E Manager as being representative of Orica's risk profile.

The findings of these audits are initially reported to the site teams, Business Group General Manager and the Corporate SH&E Manager. They are then logged in the Corporate Auditing Database for reference purposes.

Each audit is accompanied by a series of recommendations for prioritisation and action by the site and Business Group management teams.

17.2 Letter of Assurance

The Letter of Assurance process is used to report SH&E Assurance annually to the Chief Executive Officer (CEO) of Orica Ltd. The purpose of this process is to provide the Orica Board with a statement of the overall level of compliance with the 19 Group SH&E Standards, allowing for quick identification of areas for focus and assists to provide assurance that Orica sites are working in a safe environment in accordance with legislative requirements. The process is a holistic statement of compliance and performance as well as a gap analysis for operating sites.

The Letter of Assurance submissions from each Business Group are reviewed each year by the Corporate SH&E Manager. A diagram of the Orica Due Diligence process is shown in :

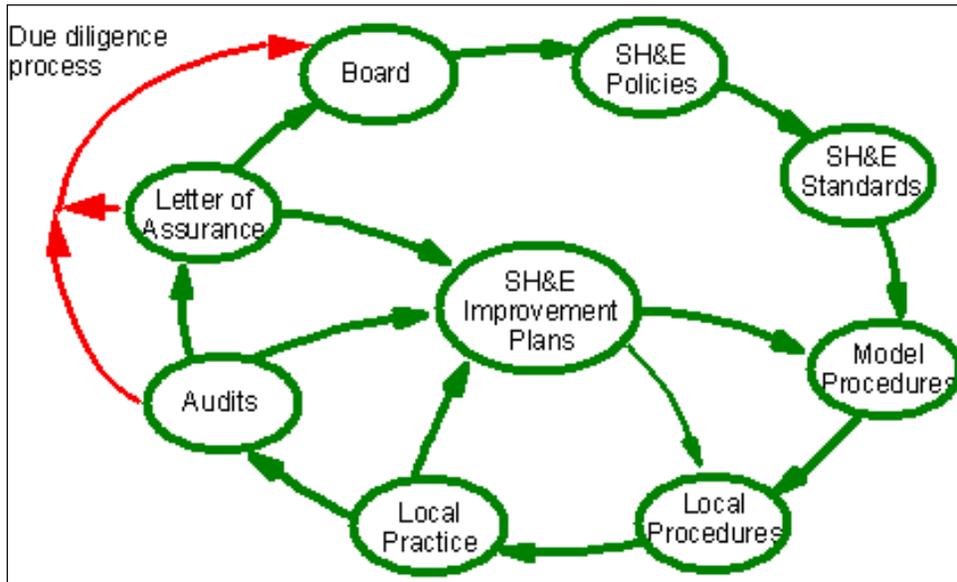


Figure 8: Summary of Due Diligence Processes

Letters of Assurance are prepared by each Site Manager, using information gained during audits conducted during the period, the results of investigations into incidents and reviews with the Site Management Team.

17.3 Internal SH&E Audits

The site audits compliance with model procedures on an annual basis against the key requirements of the procedures. The SHE Team develops an audit schedule is developed within the SH&E Audit Database which details the auditor and audit due date. Progress against the schedule is routinely tracked at the Management Team meetings with appropriate follow up on any overdue audits.

Auditors are members of the SHE Team.

The audit outcome and references to any improvement actions raised to address non-conformances are assigned an owner and entered into the SH&E Audit Database.

Actions identified from audits are included in the SH&E Action database.

18 Appendix 1: Kurri ANE Plant Training

	Work Process	Training
	Supervisory Training	Licence to Supervise, Permit to work, Workplace Train and Assess
	Core Training	SHE Induction, Fatigue Awareness, SHE Charter, Take 5, BOS, SSAN, First Aid, JSERA
General Information	1 General Overview - Kurri ANE Manufacturing Plant	Site Induction
	2 Description of the Systems	Plant Safety
	3 ANE Production - Control System Overview	BOS, Automated Control Systems
	4 Inspection and Testing	Inspection, Testing & Correction
Safety, Health and Environment	1 General Overview -Safety	SHE Charter, SHE Induction, Take 5, JSERA
	2 Personal Protective Equipment	Plant Safety, Chemical handling, BOS
	3 Chemical Hazards	Chemical Handling, BOS
	4 Housekeeping	Plant Safety, BOS
	5 Safety Equipment	Plant Safety, Fire Fighting Awareness
	6 Safety Control Systems	Plant Safety, BOS
	7 Safe Operation of Pumps Augers	Critical Pump Operation, BOS,
	8 Safe Operating of Mobile Plant	Forklift Training, Site Induction, BOS
	9 Safe Manual Handling Techniques	Manual Handling, Take 5
	10 Emergency Evacuation	Site Induction, SHE Induction
	11 Site Security	Site Induction, Security Clearance, SSAN
Site Services	1 General Overview - Site Services	Operating Procedures; Fixed Plant Maintenance
	2 Power	Operating Procedures; Fixed Plant Maintenance
	3 Compressed Air Systems	Operating Procedures; Fixed Plant Maintenance
	4 Domestic Water	Operating Procedures; Fixed Plant Maintenance
	5 Hot Water System	Operating Procedures; Fixed Plant Maintenance
	6 Process Water	Operating Procedures; Fixed Plant Maintenance
	7 Cooling Water System	Operating Procedures; Fixed

		Plant Maintenance
	8 Recycled Water System	Operating Procedures; Fixed Plant Maintenance, Environmental Management
	9 Stormceptor	Operating Procedures; Fixed Plant Maintenance, Environmental Management
	10 Office Water	Operating Procedures; Fixed Plant Maintenance, Environmental Management
	11 Envirocycle System	Operating Procedures; Fixed Plant Maintenance, Environmental Management
	12 Bunded Areas and Sumps	Operating Procedures; Fixed Plant Maintenance, Environmental Management
	13 Other Site Services	Fixed Plant Maintenance
	14 General Site Services Procedures	Fixed Plant Maintenance
	15 Waste Management	Fixed Plant Maintenance, Environmental Management
Raw Materials Handling and Storage	1 General Overview - Raw Materials	Raw Material Management,
	2 Ammonium Nitrate Solution	Raw Material Management, BOS
	3 Diesel	Raw Material Management
	4 Fuel Blends	Raw Material Management
	5 Emulsifier E25-66T	Raw Material Management
	6 Urea	Raw Material Management, Forklift
	7 Thiourea	Raw Material Management, Forklift
	8 Acetic Acid	Raw Material Management, Acetic Acid System,
	9 Caustic	Raw Material Management, Caustic System,
	10 Dyes	Raw Material Management
Oxidiser Solution Preparation	1 General Overview	Solution Manufacture, BOS
	2 Safety Information	Solution Manufacture,
	3 Description of the Systems	Solution Manufacture
	4 Main Operating Instructions	Solution Manufacture, Inspection, Testing and Correction,
ANE Production	1 General Overview	Emulsion Manufacture
	2 General Safety Information	Emulsion Manufacture, BOS
	3 ANE Manufacturing	Emulsion Manufacture

<i>and Loadout</i>	4 ANE Production - Control System	Emulsion Manufacture, Inspection, Testing & Correction, Automated Control Systems
	5 Main Operating Instructions	Emulsion Manufacture
	6 Emulsion Loadout	Emulsion Manufacture, SSAN, DG Training
<i>Comsol Manufacture</i>	1 General Overview	ComSol Manufacture, BOS
	2 General Safety Information	ComSol Manufacture
	3 Comsol Manufacture	ComSol Manufacture
	4 Main Operating Instructions	ComSol Manufacture
	5 Comsol Loadout	ComSol Manufacture, SSAN, DG Training



At Orica we believe that all work-related injuries, illnesses and environmental incidents are preventable.

We will manage all our activities with concern for people and the environment and will conduct our business for the benefit of society and without compromising the quality of life of future generations.

In particular, we will:

- strive to ensure our facilities operate to the highest standards to protect our employees, contractors, neighbours and the environment.
- continue to seek ways to efficiently use materials and energy.
- sell only those products that can be produced, transported, stored, used and disposed of safely.
- provide appropriate information and/or training on the safe use and disposal of our products to our customers and consumers.
- seek to develop new or improved products and processes to improve the contribution we make to the quality of people's lives and to minimise the impact on the environment.
- require every employee and contractor working for us to comply with relevant legislation and with this policy, and we will provide them with the necessary training.
- encourage employee initiatives that contribute to a safer and improved environment at work, at home and in the community.
- set challenging targets and measure progress to ensure we continuously improve our safety, health and environmental performance.
- communicate openly about our activities and report progress on our safety, health and environmental performance.

We make this commitment to our employees, contractors, customers, shareholders and the community as we work towards our vision of

**No injuries to anyone, ever.
Value people and the environment.**

Graeme Liebelt
Managing Director and Chief Executive Officer
1 October 2005



20 Appendix 3 – Employee SHE Charter

retain this section for your records

Orica's Commitment to Your Safety

Expectations - Everybody

- Learn and follow all SH&E requirements related to your job
- Maintain SH&E awareness in all tasks preventing injuries or illnesses, safety or environmental incidents
- Maintain a clean and orderly work environment at all times
- Constantly review the workplace for hazards which could lead to injury, illness or incident and initiate appropriate corrective actions
- Report to work fit for duty without impairment from alcohol, drugs, medications or other influences
- Recognise good SH&E practices and behaviours in others
- Address improper SH&E practices observed in co-workers including contractors
- Look for opportunities to improve SH&E performance and actively participate in SH&E improvement activities
- Immediately report all injuries, illnesses and safety or environmental incidents
- If ill or injured, actively participate in rehabilitation programs to promote recovery
- Clearly communicate the Vision and Expectations and keep SH&E as the top priority in all decisions, actions and communications
- Provide leadership for the development and implementation of SH&E plans
- Ensure rules and procedures for preventing SH&E incidents are in place and are enforced
- Lead by example - set high SH&E standards, follow rules, procedures and use good work practices
- Know the SH&E requirements of the job performed by the people you lead and ensure they are appropriately trained
- Audit work practices frequently and do not tolerate deviations from required standards, addressing known SH&E non-conformance or improvement opportunities with proper priority
- Ensure all contractors are managed or supervised to the same standards as Orica employees
- Create an environment of openness, trust and mutual respect allowing everyone to excel and be recognised for good SH&E performance
- Participate in SH&E incident investigations and ensure recommendations are followed through to completion
- Promptly arrange rehabilitation for an ill or injured employee providing full support for them and their family.

Everybody is personally responsible for their SH&E performance and for the SH&E performance of those they manage or supervise. All employees are reminded that failure to meet SH&E requirements will result in normal disciplinary action being applied.

Employee

Signed _____

Name _____

Date _____

Please sign and return this section to your line manager

Orica's Commitment to Your Safety

Expectations - Everybody

- Learn and follow all SH&E requirements related to your job
- Maintain SH&E awareness in all tasks preventing injuries or illnesses, safety or environmental incidents
- Maintain a clean and orderly work environment at all times
- Constantly review the workplace for hazards which could lead to injury, illness or incident and initiate appropriate corrective actions
- Report to work fit for duty without impairment from alcohol, drugs, medications or other influences
- Recognise good SH&E practices and behaviours in others
- Address improper SH&E practices observed in co-workers including contractors
- Look for opportunities to improve SH&E performance and actively participate in SH&E improvement activities
- Immediately report all injuries, illnesses and safety or environmental incidents
- If ill or injured, actively participate in rehabilitation programs to promote recovery

I have read and understand the expectations required of me

Employee

Signed _____

Name _____

Date _____

Line Manager

Signed _____

Name _____

Date _____

Please sign and return this section to your line manager

Orica's Commitment to Your Safety Expectations - Line Managers

- Clearly communicate the Vision and Expectations and keep SH&E as the top priority in all decisions, actions and communications
- Provide leadership for the development and implementation of SH&E plans
- Ensure rules and procedures for preventing SH&E incidents are in place and are enforced
- Lead by example - set high SH&E standards, follow rules, procedures and use good work practices
- Know the SH&E requirements of the job performed by the people you lead and ensure they are appropriately trained
- Audit work practices frequently and do not tolerate deviations from required standards, addressing known SH&E non-conformance or improvement opportunities with proper priority
- Ensure all contractors are managed or supervised to the same standards as Orica employees
- Create an environment of openness, trust and mutual respect allowing everyone to excel and be recognised for good SH&E performance
- Participate in SH&E incident investigations and ensure recommendations are followed through to completion
- Promptly arrange rehabilitation for an ill or injured employee providing full support for them and their family.

Orica Supervisor

Signed _____

Name _____

Date _____



SH&E - Ensuring Our Future

No injuries to anyone, ever.
Value people and the environment.

To achieve our vision - the way we work and live must demonstrate SH&E behaviours such as:

- Personal responsibility
- Active participation
- Constant promotion
- Awareness on and off the job
- Visible line leadership
- Adherence to procedures
- Clear expectations
- Prevention mindset

Our work is never so urgent or important that we cannot take the time to do it safely.

Take care of yourself and others - if you see someone working in an unsafe manner and you don't confront that person on the issue, are you really valuing that person?



Orica SH&E Charter



Orica's SH&E Commitment

Orica's safety, health and environment objective is simply not to harm people or the environment.

Our vision of

- "No injuries to anyone, ever" expresses our commitment to eliminate all injuries.
- "Value people and the environment" expresses a similar commitment to eliminate all work-related incidents and releases that could harm people or the environment.

To achieve our objective we must develop our SH&E culture and have the commitment of all employees and contractors to meet the expectations described in this SH&E charter. The expectations impact as much on line managers or supervisors as on individuals and will be an integral part of all job performance assessments. Failure to live up to the expectations of this SH&E charter is not acceptable.

I ask you to read this charter carefully and discuss it with your line manager or supervisor before agreeing to this commitment.

I am confident that with the outstanding people we have in Orica, we can continually improve our safety, health and environment performance to be among the best in the world.

Graeme Liebelt
Managing Director and CEO



retain this section for your records

Orica's Commitment to Your Safety
As a company, we will clearly indicate our expectations of you and will:

retain this section for your records

Orica's Expectations of Contractors
As a contractor, I am committed to work safely at all times and will:

Please sign and return this section to your Orica supervisor

Orica's Expectations of Contractors
As a contractor, I am committed to work safely at all times and will:

- provide you with a general safety, health and environmental induction to the site including emergency procedures
 - where appropriate, provide specific induction and training depending on the scope of the work
 - comply with all relevant regulations relating to your safety and health
 - provide you with the relevant information on the hazards associated with the work environment and other activities which may impact on the work to be performed
 - work with you to ensure that the work can be performed safely
 - as required, give you special training on the hazards associated with the work
 - where necessary, issue you with clearance certificates and ensure you are fully conversant with the clearance requirements
 - listen to your feedback and suggestions for improvement
- If any of these conditions are not met then you should cease work and raise it with the person responsible for supervising your work.

Orica Supervisor

Signed _____

Name _____

Date _____

- work in a way to minimise the risk to safety and health of myself and others and ensure that any work I do will not damage the environment
- not undertake tasks for which I am not appropriately licensed, qualified, trained or skilled
- comply with all work instructions and safety procedures
- wear the required personal protective equipment appropriate to the task
- ensure that any tool I use is fit for purpose
- provide information regarding hazards introduced by the work I am to perform eg MSDS of materials to be used
- have a knowledge of and ensure compliance with all relevant regulations
- report back to the Orica supervisor if the conditions of work alter or the nature of my job changes
- follow the relevant emergency procedures
- immediately report any injury or other incident which occurs as a result of my work
- report any opportunity for safety improvement I have read and understand the expectations required of me

Contractor

Signed _____

Name _____

Date _____

- work in a way to minimise the risk to safety and health of myself and others and ensure that any work I do will not damage the environment
- not undertake tasks for which I am not appropriately licensed, qualified, trained or skilled
- comply with all work instructions and safety procedures
- wear the required personal protective equipment appropriate to the task
- ensure that any tool I use is fit for purpose
- provide information regarding hazards introduced by the work I am to perform eg MSDS of materials to be used
- have a knowledge of and ensure compliance with all relevant regulations
- report back to the Orica supervisor if the conditions of work alter or the nature of my job changes
- follow the relevant emergency procedures
- immediately report any injury or other incident which occurs as a result of my work
- report any opportunity for safety improvement I have read and understand the expectations required of me

Contractor

Signed _____

Name _____

Date _____

Please sign and return this section to your Orica Supervisor
Orica's Commitment to Your Safety
As a company, we will clearly indicate our expectations of you and will:

- provide you with a general safety, health and environmental induction to the site including emergency procedures
- where appropriate, provide specific induction and training depending on the scope of the work
- comply with all relevant regulations relating to your safety and health
- provide you with the relevant information on the hazards associated with the work environment and other activities which may impact on the work to be performed
- work with you to ensure that the work can be performed safely
- as required, give you special training on the hazards associated with the work
- where necessary, issue you with clearance certificates and ensure you are fully conversant with the clearance requirements
- listen to your feedback and suggestions for improvement

If any of these conditions are not met then you should cease work and raise it with the person responsible for supervising your work.

Orica Supervisor _____

Signed _____

Name _____

Date _____

SH&E - Ensuring Our Future



No injuries to anyone, ever.
 Value people and the environment.

- Take care of yourself and others
- Meet the needs of our customers and the community in an environmentally sustainable manner
- Always improve our SH&E performance

We believe that all work related injuries, illness and environmental incidents are preventable.

Our work is never so urgent or important that we cannot take the time to do it safely

Contractor's Charter




SH&E - Ensuring Our Future
 No injuries to anyone, ever.
 Value people and the environment.



22 Appendix 5 – Application of Basis of Safety

BOS Manufacture and Storage of Bulk Emulsion Explosive & Precursors

BOS Requirement	Example of Implementation	Comment
Minimise number of operating personnel in higher risk areas.	Plant is designed to be operated by two operators.	
Appropriate segregation of fuel and oxidiser areas	Fuels and oxidisers are segregated in separated areas of the plant. Fuel transfer lines are routed away from oxidiser storages and bunds and do not pass over them.	
Minimise the amount of product in process	Using continuous emulsion manufacture technology with a jet mixer to limit inventory compared to an equivalent batch mixing process such as a ribbon blender.	
Avoid un-vented hollow sections where internal contamination by products cannot be cleaned.	Included in design. Use solid mixer shafts in oxidiser tanks.	
Ensure all personnel are fully trained in bulk emulsion manufacture including BOS training at mandated intervals.	BOS training is conducted as part of LTO and is re-assessed every 2 years.	
Ensure all pumps are registered and maintained to Company standard. This applies particularly to ANS, oxidiser and ANE pumps.	<p>Pumps are issued with individual log books to record maintenance. Pumps are also identified with a unique metal identification tag.</p> <p>Pump maintenance is managed in computer based SAP maintenance module with compliance reporting. SAP automatically issues work orders and clearances for pump maintenance activities to the required schedule.</p>	

BOS Requirement	Example of Implementation	Comment
<p>Ensure that segregation of incompatible materials is maintained.</p>	<p>Kurri ANE plant does not store Sodium Nitrite.</p> <p>Acetic acid is stored in separately bunded area located 60m from ANE and 30m from ANS</p> <p>Caustic soda is stored in separately bunded area located 60m from ANE and 30m from ANS.</p> <p>Fuels are stored in separately bunded area or in self-bunded tanks located 60m from ANE and 30m from ANS</p>	
<p>Ensure there is a change management system in place to ensure that changes do not introduce new risks or inadvertently bypass the existing control system/ BOS.</p>	<p>Change will be managed using OMS Alteration authority system which is managed through an electronic database.</p>	
<p>Ensure that all electrical equipment meets required general or specific area classification requirements.</p>	<p>Hazardous Area classification completed for plant. Hazardous areas limited to within 1m of ELK hopper.</p> <p>All electrical equipment</p>	
<p>Ensure that all pumps and mixers are fitted with appropriate safety devices and validation procedures are in place and fully complied with.</p>	<p>ANS unloading pump is fitted with:</p> <ul style="list-style-type: none"> - Low pressure trip - High temperature trip - Low flow trip <p>ANS transfer pump is fitted with:</p> <ul style="list-style-type: none"> - High temperature trip - Low flow trip 	<p>ANE storage tanks are located overhead and use gravity feed discharge eliminating need for additional ANE transfer pumps for tanker load-out minimising the number of pumps in the process.</p>

BOS Requirement	Example of Implementation	Comment
	<p>Oxidiser transfer pump is fitted with:</p> <ul style="list-style-type: none"> - High and low pressure trip - High temperature trip - Low flow trip <p>ANE static mixer pump is fitted with:</p> <ul style="list-style-type: none"> - High and low pressure trip - High temperature trip - Thermofuse <p>Refined ANE transfer pump is fitted with :</p> <ul style="list-style-type: none"> - High and low pressure trip - High temperature trip Thermofuse 	
<p>Ensure scheduled maintenance of equipment.</p>	<p>Computer based SAP maintenance module used to register and record maintenance requirements for plant items. Provides maintenance schedule and compliance reporting.</p>	
<p>Ensure fitting of appropriate sieves and screens (to prevent ingress of foreign objects)</p>	<p>Mesh screens fitted on vents and overflows of tanks.</p> <p>Solid raw materials (Urea/ Thiourea screened prior to addition to process.</p>	
<p>ANE storage tanks should, ideally, not be bunded.</p>	<p>Need to prevent fuels pooling under ANE. Grounds is sloped away and ANE tanks are not bunded.</p>	
<p>Storage vessels should have adequate venting to avoid confinement during a fire.</p>	<p>ANE storage tanks are fitted with loose fitting lids on the manhole that allow emergency venting in the</p>	

BOS Requirement	Example of Implementation	Comment
	event of a fire.	
No surface in contact with emulsion (directly or through direct contact with piping) should be capable of exceeding 140°C in normal operation.	ELK chamber is hot water jacketed. ELK chamber is heated with hot water from a hot water generator system that is open to atmosphere and cannot generate a water temperature greater than 100°C	
Must have a waste management system in place to ensure there is no cross-contamination of reactive/ incompatible materials.	Waste management system in place with segregation of bunded storages for acids, caustic soda and fuels and procedures for testing of bund water prior to manually initiated transfer to effluent and recycled water system.	
Incompatible / reactive materials must be segregated – follow Orica storage rules and keep materials in their designated areas.	Plant is divided into designated storage areas with separation of incompatible materials.	
Avoid process layouts which might allow reactive/ incompatible materials to mix under abnormal conditions (e.g. leaks, spills)	Incorporated in design and layout of plant	
Ensure that bursting discs and thermofuses have the correct rating for the application and are fitted in the correct location.	Detonation trap installed on discharge of Refined ANE transfer pump.	
There must an unusual occurrence reporting system in place.	Plant will use Incident Reporting system in SHERMIS Lotus Notes database	
All personnel are to receive all required training. Training records are to be kept.	See Appendix	

BOS Ammonium Nitrate Solution

Additional requirements

BOS Requirement	Example of Implementation	Comment
Avoid confinement		
Avoid low pH (<2)	Design includes provision of caustic addition to ANS storage tanks in event of low pH during storage.	
Drain and steam out lines when not in use – avoid blockages	ANS lines are designed to be self-draining. All ANS lines are fitted with washout points on all changes of direction.	
Always wear PPE where there is a potential for exposure to ANS liquor.	Operating procedures specify use of : <ul style="list-style-type: none">- PVC suit- Faceshield- Rubber boots- Long chemical PVC gloves when making or breaking ANS connections.	