



PILBARA IRON ORE AND INFRASTRUCTURE PROJECT

Chemical and Hydrocarbon Management Plan

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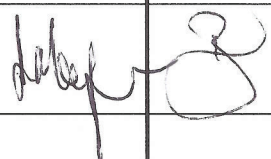

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			Originator	Checked	Approved
a		Plan developed	Dan Rowe		
b		Changed to revised EMP format	Dan Rowe		
c		Update to include risk assessment and other requirements of Ministerial Statement 690, and safety current procedures	Dan Rowe	Greg Barrett	
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1. INTRODUCTION

1.1 BACKGROUND

Fortescue Metals Group Limited (FMG) is proposing to develop the Pilbara Iron Ore and Infrastructure Project (the Project), which involves a series of iron ore mines in the Pilbara region of Western Australia, and rail and port infrastructure for export of iron ore through Port Hedland. A 190 km long north-south railway will link the east-west rail spur with the port facility. The 111 km east-west rail spur will link the Christmas Creek and Cloud Break deposits northeast of Newman, to the main north-south rail line just north of the Chichester Ranges (Figure 1).

Assessment under Part IV of the Western Australian *Environmental Protection Act 1986* has been in the following stages:

- Stage A Project: proposed port and a 190 km long north-south railway from north of the Chichester Ranges in the Central Pilbara to Port Hedland;
- Stage B Project: Christmas Creek and Mindy Mindy mines and a 111 km long east-west rail spur; and
- Cloud Break Project: the Cloud Break mining operations.

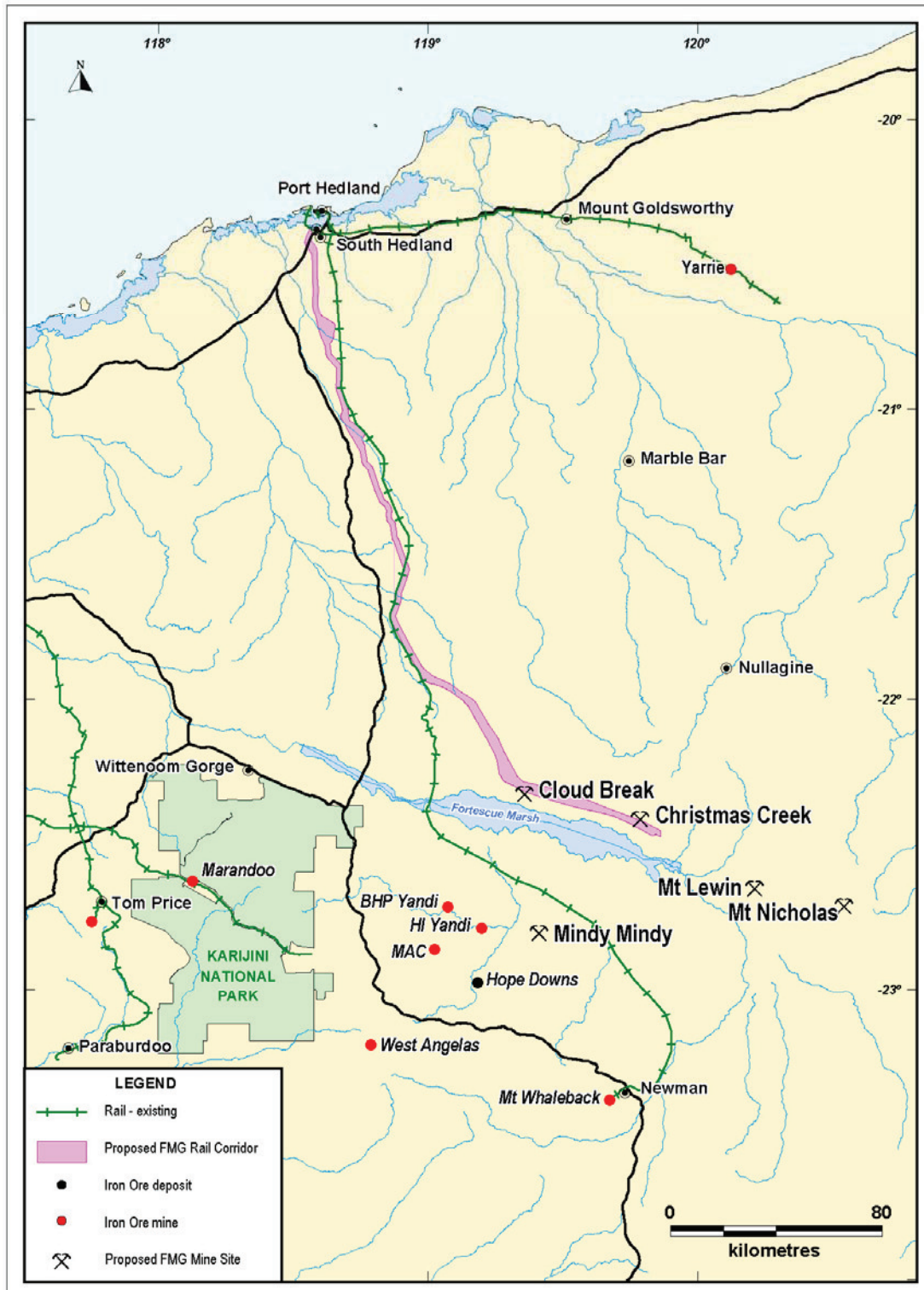
1.2 PURPOSE AND SCOPE

Chemicals and hydrocarbons are a necessary component to any development project. If utilised in an uncontrolled manner, these substances can pose a significant hazard to people and the environment. The purpose of this document is to outline how FMG will manage the potential hazards that chemicals and hydrocarbons present. The specific objectives of this plan include

- Ensure that transport of chemicals and hydrocarbons is in compliance with all relevant standards;
- Ensure that storage of chemicals and hydrocarbons is in compliance with all relevant standards, and that the risk resulting from a spill is minimised;
- Ensure a rapid response to spills; and
- Ensure that disposal of contaminated material is in accordance with standards.



This Plan has also been produced to meet the requirements of Ministerial Statements 690 and 707 issued under the *Environmental Protection Act 1986*. The Plan will be amended in the future to address the requirements of a further Ministerial Statement relating to Cloud Break.



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Figure 1: Regional location plan.



1.3 RELATED DOCUMENTS

Related documents include:

- Port Hedland Port Authority – Environmental Management Plan (January 2005).
- Port Hedland Port Authority – Port Emergency Plan (April 1999).
- Cloud Break Environmental Management Manual (204-03-EN-MA-0001).
- Rail Construction Environmental Management Plan (204-60-EN-RP-0015).
- Port Facility – Construction Environmental Management Plan (204-50-EN-PP-0031).



2. APPLICABLE LEGISLATION

FMG, its employees and contractors will comply with all Commonwealth and State legislation that applies to the development and operation of the Pilbara Iron Ore and Infrastructure Project. Legislation relevant to Chemical and Hydrocarbon Management and its applicability are outlined in Table 1.

Table 1: Relevant Legislation And Codes Of Practice, And Their Application

State Government Legislation and Codes of Practice	Application
<i>Explosives and Dangerous Goods Regulations 1992</i>	Regulations outlining the responsibilities for handling and storage of dangerous goods.
<i>Dangerous Goods (Transport) Act 1998</i>	Outlines requirements for transporting dangerous goods by road or rail.
<i>Dangerous Goods (Road and Rail) Regulations 1999</i>	Outlines the procedures for transporting dangerous goods by road or rail. Supports the legislation
<i>Road Traffic Act 1974</i>	Covers licensing requirements for transport vehicles.
Australian Dangerous Goods Code (ADG Code)	Covers procedures and vehicle requirements for carrying Dangerous Goods
<i>Pollution of Waters by Oil and Noxious Substances Act 1987</i>	Empowers the Port Hedland Port Authority to manage oil pollution within its area of responsibility.

Other applicable guidelines include:

- Australian Standard (AS) 1940-1993 (The storage and handling of flammable and combustible liquids).
- Australian Standard/New Zealand Standard (AS/NZ) 3833-1998 (The safe storage and handling of mixed classes of dangerous goods, including segregation and compatibility guidelines).

The Plan also specifically addresses the requirements of Ministerial Statement 690 (Proponent Commitment 6) and Ministerial Statement 707 (Proponent Commitment 8) in respect of the provision of a “Hydrocarbon Management Plan / Oil & Chemical Spill Contingency Plan”. The details of the specific requirements of these commitments, and their location within the Plan, are outlined in Table 2.



Table 2: Ministerial Statements 690 (Proponent Commitment 6) And 707 (Proponent Commitment 8) – Location Of Requirements Within Plan.

Elements of Proponent Commitment	Location in Plan
Spill prevention.	Sections 5.2, 5.4, 5.5, 5.6
Identification of the level of risk posed from contamination by hydrocarbon and chemicals in the area of operations which includes: a) identification of sensitive areas and measures to protect them; b) likely types and volumes of hydrocarbons / chemicals.	Section 3
Appropriate procedures to allow rapid assessment of a spill and the mobilisation of response.	Section 5.3
Appropriate procedures to control fuel and chemicals handling and berthing contamination.	Section 5.3-5.7
Appropriate clean up procedures on site according to the level of risk posed.	Section 5.3
A first strike response capability is maintained in the event of a spill, which includes the following: a) equipment appropriate to the level of risk; b) on site personnel trained in spill response and management.	Section 5.3
Appropriate on site arrangements for the disposal of oily and chemical wastes.	Section 5.6
Systems in place to monitor and report spills.	Section 5.1
Systems to continually monitor and reduce contamination.	Section 5.1 and FMG EMS



3. RISK ASSESSMENT AND PREVENTATIVE MEASURES

3.1 TERRESTRIAL ENVIRONMENT

The residual risks posed by hydrocarbon and chemical storage and use at the port are outlined in Table 3. The risk assessment follows the methodology outlined in Australian Standard AS 4360:1999. Bulk hydrocarbon (diesel) storage is expected to be limited to 10 kL during both construction and operations. There will be negligible quantities of chemicals used and stored during both construction and operations. The preventative measures to be adopted are expected to result in a low level of residual risk.

Table 3: Environmental Aspects, Preventative Measures And Residual Risk Of Terrestrial Hydrocarbon And Chemical Use And Storage

Environmental Aspect	Preventative Measures	Residual Risk
Soil or groundwater contamination through hydrocarbon leak/spill in storage.	Bunding to Australian Standards.	L
Soil or groundwater contamination through hydrocarbon leak/spill outside of storage.	Spill kits available. Training and awareness of personnel. Collection and removal of contaminated material. Designated area for vehicle washdown. Oil-water separator.	L
Contamination of marine environment due to discharge of hydrocarbon or contaminated water from land.	Catch bunds in site drainage (see site layout in Figure 2). Location of fuel storage tank at southern end of port site. Oil-water separator.	L
Soil or groundwater contamination due to discharge from hydrocarbon-contaminated soils.	Temporary banded storage of contaminated soils. Timely removal from port to approved disposal site.	L
Soil or groundwater contamination due to chemical spill.	Negligible quantities of chemicals stored and used at port.	L
Procurement of hydrocarbons and chemicals	Procurement policy that encourages purchase of products that are of the least potential harm to the environment.	L



3.2 MARINE ENVIRONMENT

The risk from spillage of hydrocarbons or chemicals from shipping in the marine environment can be substantial. A review of these risks is given in Appendix A of the Port Hedland Port Authority Environmental Management Plan (January 2005). These include spillages as a result of ship collisions or grounding, discharge of oil in bilge water, during bunkering, or deliberate discharge.

According to the Port Emergency Plan (Port Hedland Port Authority, April 1999), “in the event of an incident resulting in pollution from these (petroleum) products occurring in the port of Port Hedland, Port Hedland Port Authority (PHPA) has the prime responsibility to take whatever action it deems appropriate to cope with that incident”. FMG’s role, therefore, is to support the PHPA in whatever way it can, including ensuring all FMG personnel are aware of the procedures associated with such an emergency.



4. ROLES AND RESPONSIBILITY

Table 4 provides provisional roles and responsibilities of the personnel responsible for the Chemical and Hydrocarbon Management Plan. Contractor responsibilities will be outlined within contract documents.

Table 4: Roles Of Responsibilities Of All Personnel

Position	Responsibility
Environment Manager	To ensure guidelines and procedures are prepared to ensure that environmental risks associated with chemicals and hydrocarbons are managed
Site Environmental Officers	To provide technical support to site personnel
Construction and Site Managers	To ensure compliance with this Plan and all FMG's corporate and legislative requirements
All personnel	To ensure adherence to site procedures for the prevention and management of hydrocarbon and chemical spills



5. ENVIRONMENTAL MANAGEMENT

The objectives of chemical and hydrocarbon management have been detailed in a series of tables. These objectives have had management actions developed to ensure the risk to the environment is minimised. Each of the objectives and associated actions follow the structure outlined below:

Item	Content
Objective	What is intended to be achieved
Management Actions	Tasks that will be undertaken to ensure the Objective is met Include list of the relevant procedures
Performance Indicators	Qualitative or quantitative measurement to gauge the performance of the actions undertaken
Monitoring	Details of measurement of performance indicators
Reporting	Nature, timing and responsibility for reporting results
Corrective Action	Action to be taken if monitoring indicates objective is not being met
Term	Active term of management plan
Responsibility	Delegation/nomination of responsibilities for overseeing management plan operation



5.1 ACCIDENT AND INCIDENT REPORTING

Objective/Target	Ensure all accidents and incidents are reported and investigated in a timely manner
Actions	Train personnel in accident and incident reporting Investigate all reports and take appropriate action
Performance Indicators	All accidents and incidents are reported All reports are investigated and the appropriate action taken in a timely manner
Monitoring	'Clear up' rate of reports Safety and environmental audits
Reporting	Internal safety reports Reporting to government agencies as required
Corrective and Preventative Action	Retraining of personnel if accident and incident reporting found to be unsatisfactory
Term	Life of the project
Responsibility	All personnel.

Key documents:

- Quickspill Report (110198-06000-EN-FM-0002 Rev A : 08.02.07)
- Incident report (11098-00000-SA-FM-0066-REV0)



5.2 TRAINING AND AWARENESS

Objective/Target	Ensure all personnel have the necessary training to deal with environmental incidents.
Actions	Include an environment component in site induction (all personnel). Provide specialist training to those likely to be involved in spill management. Conduct training exercises in spill prevention and control.
Performance Indicators	Personnel who have received environment induction (%). Personnel who have received specialist training in spill management (n). Training exercises conducted (n).
Monitoring	Review of internal reporting.
Reporting	Internal reports.
Corrective and Preventative Action	Ensure all personnel inducted. Retrain depending on result of training exercises or changes in procedures.
Term	Life of the project.
Responsibility	Training and environment personnel.

Key documents:

- Spill Kit Training Presentation (September 2005)
- D-SA-PP-1205-1132 - Chemical and Hydrocarbon Spills



5.3 SPILL RESPONSE

Objective/Target	Ensure any hydrocarbon or chemical spills are managed such that there is the minimum impact on the environment.
Actions	Train personnel in requirements for spill response within terrestrial environment. Train port personnel in Port Hedland Port Authority requirements for spill response in marine environment. Conduct training exercises in spill prevention and control.
Performance Indicators	All spills managed in accordance with established procedures.
Monitoring	Monitoring through accident and incident reports and through outcomes of training exercises.
Reporting	Internal reporting on effectiveness of spill response.
Corrective and Preventative Action	Retraining of personnel. Revision of procedures.
Term	Life of the project.
Responsibility	Site Manager, Manager Environment, Environment Co-ordinator

Key documents:

- Spill Kit Training Presentation (September 2005)
- D-SA-PP-1205-1132 - Chemical and Hydrocarbon Spills



5.4 CHEMICAL AND HYDROCARBON STORAGE

Objective/Target	Ensure all hydrocarbons and chemicals are stored in a manner that meets the requirements of legislation and guidelines, reflects industry best practice, and minimises the risk to the environment.
Actions	Construct site and establish storage facilities that meet requirements of the Chemical and Hydrocarbon Storage Procedure.
Performance Indicators	All hydrocarbons and chemicals stored in accordance with established requirements.
Monitoring	Auditing.
Reporting	Audit reports.
Corrective and Preventative Action	Take any action required to meet objective outlined above.
Term	Life of the project.
Responsibility	Site Manager, Supply Manager, Environment Co-ordinator

Key documents:

- D-SA-PP-1205-1133 - Chemical and Hydrocarbon Storage



5.5 CHEMICAL AND HYDROCARBON TRANSPORT

Objective/Target	Ensure chemicals and hydrocarbons are transported on site in a manner that reduces the risk of environmental pollution arising from an accident or incident and in accordance with the <i>Dangerous Goods (Road and Rail) Regulations 1999</i>
Actions	Check that Transport Contractors are appropriately licensed Check that all Transport Contractors have appropriate spill equipment on their vehicles.
Performance Indicators	Chemicals and hydrocarbons transported in accordance with all requirements.
Monitoring	Prior to transporting a chemical or hydrocarbon, it shall be confirmed that the Transport Contractors has the appropriate licenses.
Reporting	Confirmation that Transport Contractors meets licensing requirements and has appropriate spill equipment.
Corrective and Preventative Action	Request corrective action and re-audit Transport Contractors in the event that the above requirements are not met.
Term	Life of the project.
Responsibility	Site Manager, Supply Manager, Transport Contractors.



5.6 CHEMICAL AND HYDROCARBON USE AND DISPOSAL

Objective/Target	Ensure that the use and disposal of chemicals and hydrocarbons does not cause pollution to the environment.
Actions	<p>Any specific environmental controls and disposal conditions identified in the Material Safety Data Sheet shall be complied with.</p> <p>Appropriate spill equipment shall be located in close proximity to where chemicals and hydrocarbons are being used.</p> <p>Hazardous and dangerous wastes shall be segregated from the general waste stream.</p> <p>Train personnel in correct handling and disposal of hydrocarbons and chemicals.</p>
Performance Indicators	<p>Compliance with the requirements of procedures and MSDS.</p> <p>No pollution to the environment from the use and disposal of chemicals and hydrocarbons.</p>
Monitoring	Incident and accident reporting.
Reporting	<p>Incident and accident investigations.</p> <p>Reporting to government agencies as required.</p>
Corrective and Preventative Action	<p>Implementation of corrective and preventative actions identified as necessary through the accident and incident investigation.</p> <p>Re-induction of personnel.</p>
Term	Life of the project.
Responsibility	Site Manager, Supply Manager, Environment Co-ordinator



5.7 CHEMICAL AND HYDROCARBON PROCUREMENT

Objective/Target	<p>Ensure that due consideration is given to the environmental concerns of chemicals and hydrocarbons before they are brought to the project area.</p> <p>Ensure that control and remediation measures are in place prior to chemicals being approved for site use.</p>
Actions	<p>Contractors and FMG personnel shall provide a list of chemicals and hydrocarbons and the associated MSDS sheets that they wish to use at the project site (including the maximum quantity that will be stored onsite).</p> <p>The request list and MSDS shall be reviewed and either approved, approved with conditions, or rejected, dependent on:</p> <ul style="list-style-type: none">- The level of risk (environmental and safety).- The availability of acceptable alternatives.- The necessity of the chemical on-site. <p>A list of approved chemicals and hydrocarbons will be maintained.</p>
Performance Indicators	<p>Only approved chemicals and hydrocarbons located on the project site.</p>
Monitoring	<p>The chemicals and hydrocarbons stored onsite shall be compared to an approved list during site audits.</p>
Reporting	<p>Internal reporting.</p>
Corrective and Preventative Action	<p>Corrective action to be undertaken to meet above requirements. Corrective action could include removal of unapproved chemicals or hydrocarbons from site.</p>
Term	<p>Life of the project.</p>
Responsibility	<p>Site Manager, Supply Manager, Environment Co-ordinator</p>



5.8 AUDITS AND INSPECTIONS

Objective/Target	Ensure that regular inspections and audits are conducted to ensure chemical and hydrocarbon management practices meet the required standards.
Actions	Develop and implement an inspection and audit program. Review results of inspections and audits and take appropriate action. Ensure that contaminated site audit is conducted prior to return of the port site to the Port Hedland Port Authority.
Performance Indicators	Inspection and audit program developed and implemented.
Monitoring	Check that inspections and audits have been conducted and that any necessary follow up action has been undertaken in a timely manner.
Reporting	Internal reporting. Accident and incident reporting (for non-compliances).
Corrective and Preventative Action	As above.
Term	Life of the project.
Responsibility	Site Manager, Supply Manager, Safety Co-ordinator, Environment Co-ordinator.



6. REVIEW

This management plan will be reviewed every two years or at such time as the project scope changes. The revision status will be recorded as directed by the FMG Document Control Procedure.

The review will seek to incorporate any new investigations, information and new techniques.