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Attachment Z – Chemical Management and Dangerous Goods

Santos Ltd



Please note: the links in this document will not work from the Santos website. This document is only considered current on the 6th February, 2009. The purpose is to provide an overview of Santos' expectations on the specific topic areas. If you require current versions of the standard, or any additional information or advice on the standard requirements, please contact Kirsty McCulloch on (08) 8116 5360 email kirsty.mcculloch@santos.com or Cheryl Ormond, Team Leader EHS Performance & Systems on (08) 8116 5705 email: cheryl.ormond@santos.com.



EHS MANAGEMENT SYSTEM STANDARD

HSHS08 CHEMICAL MANAGEMENT AND DANGEROUS GOODS

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1. Purpose

This Standard details the requirements for the management of EHS hazards associated with the storage, handling and use of chemicals.

2. Scope

This Standard applies to hazardous substances, dangerous goods and other chemicals (where specified) not deemed to be hazardous and/or dangerous which are stored, handled or used at Santos sites

This standard does not address the transportation of Dangerous Goods.

3. Definitions

ADG Code	Means the Australian Code for the Transport of Dangerous Goods by Road and Rail
ASCC	Australian Safety and Compensation Council The ASCC is a partnership of governments, employers and employees that provides policy advice to the Workplace Relations Ministers' Council on national OHS and workers' compensation arrangements in order to achieve national regulatory frameworks.
Business Sample	A chemical generally obtained as examples for customers or clients, or received as samples from suppliers. These are usually distributed or despatched in small quantities for inspection and appraisal.
Chemical	A chemical is any substance (solid, liquid or gas) which because of its intrinsic properties has the potential to cause injury, short or long term health effects, environmental harm and property damage, and thus must be subject to a risk assessment. The need for the risk assessment may be regulatory or by choice of Santos.
Chemical hazard	The inherent property of a chemical substance to cause harm
Chemwatch	A proprietary electronic chemical management system used by Santos for the management of site chemical registers and for the display and distribution of material safety data sheets (MSDS) for chemical products produced and/or used at Santos sites
Class C1 Combustible Liquid	A liquid with a flashpoint greater than 60.5°C and less than 150°C
Class C2 Combustible Liquid	A liquid with a flashpoint greater than 150°C
Dangerous goods	Means those chemicals that are defined as Dangerous Goods in the National Standard for the Storage and Handling of Workplace Dangerous Goods MSDS prepared to NOHSC standards will specify whether a chemical is a dangerous good WARNING: The NOHSC Standard specifies C1 combustible liquids and C2 Combustible Liquids (when stored and handled with fire risk dangerous goods) as dangerous goods for those situations where the Standard applies (not transport)

Dangerous goods risk assessment	An process to determine the risks to personnel and property associated with the storage, handling or use of dangerous goods
Decanted substance	A chemical that has been transferred from its original container (as obtained from the supplier) to another container for use
Enclosed system	A fixed system such as piping, tanks, reactors or other process vessels that contain chemicals
Fire risk dangerous good	Dangerous goods of classes 2.1, 3, 4 or 5, or subsidiary risk 2.1, 3, 4 or 5 which burn readily or support combustion
Hazardous substance	<p>A chemical, which is listed in the Hazardous Substances Information System (HSIS) or a chemical that is not a "designated hazardous substance", but meets approved criteria for classification as a hazardous substance, as detailed in the NOHSC document Approved Criteria for Classifying Hazardous Substances.</p> <p>Hazardous substances may be solids, liquids or gases, being raw materials, finished products, by-products, catalysts, aids to manufacture, consumables, cleaning solvents, wastes, etc.</p> <p>MSDS prepared to NOHSC standards will specify whether a chemical is a hazardous substance</p>
Hazardous substances risk assessment	An process to determine the health risks to personnel associated with the handling or use of hazardous substances
Health surveillance	The monitoring (including biological monitoring and health assessment) of a person to identify changes in the person's health because of exposure to a hazardous substance
Monitoring	Monitoring means regularly checking, other than by biological monitoring, the level of exposure to a hazardous substance and the effectiveness of hazardous substances control measures at a person's workplace
MSDS	<p>Material Safety Data Sheet</p> <p>A document that describes the chemical and physical properties of a material and provides advice on its safe storage, handling and use. It includes details of health and physicochemical hazards, exposure controls, personal protective equipment, safe handling and storage instructions, emergency procedures and disposal advice.</p>
NOHSC	<p>National Occupational Health and Safety Commission</p> <p>Has been replaced by the ACCC. However, a number of documents that provide standards that define the requirements for dangerous goods and hazardous substances still bear the NOHSC name.</p>
Use	Use includes handling, production, storage, movement and disposal of a substance, but does not include the carriage of the substance, which is covered by the Australian Dangerous Goods (ADG) Code

Refer to Santos [EHSMS Glossary](#) for definitions of other terms used in this standard.

4. Requirements

4.1 Santos Produced Substances

4.1.1 Assessment of Santos Products

Santos as a producer of chemicals shall determine if those produced chemicals are Dangerous Goods and/or Hazardous Substances. The Manager EHS & Sustainability (or nominee) shall ensure that a Santos MSDS is prepared for those substances that are assessed as a Hazardous Substance or Dangerous Goods (including produced waste products).

4.1.2 Santos MSDS Requirements

Santos MSDS shall be:

- prepared to conform with relevant legal requirements
- entered into Chemwatch and relevant Site Register/s
- supplied to Corporate Gas Commercialisation and Marketing for distribution to relevant customers with each first purchase of a product and after that time upon demand, or when the MSDS is amended
- supplied to the Australian National Material Safety Data Sheet Repository upon preparation, and thereafter when the Santos MSDS is updated
- supplied to customers on request, along with additional information, if requested, relating to the safe storage and handling of Dangerous Goods or Hazardous Substances
- no more than 5 years old
- kept for at least 40 years (all versions)

The Vice President – Commercial (or nominee) shall ensure that a list of customers, products supplied and Santos MSDS supplied for at least 10 years after the last supply is developed and maintained.

In addition to the requirements noted above, a revision of a Santos Material Safety Data Sheet should be initiated when:

- there is a change in the method of storage, handling or use of the material
- there is a change in the composition of the product or material, or the requirements of legislation such as:
 - a significant change in the level (% weight/weight) of constituents
 - a change in legislative requirements
 - a change in company standards
 - new information becomes available affecting the risk in handling or use of the material e.g. new toxicological data.

4.1.3 Labelling of Santos Products

Santos as a producer of Hazardous Substances and Dangerous Goods, that are to be stored or handled at another premises, shall ensure that where applicable they are contained, packaged and labelled in accordance with the ADG Code, and for the workplace supplied, labelled with information to protect the health and safety of persons (before the goods are supplied).

Santos is responsible for labelling of waste unless this responsibility is devolved contractually.

Containers of Hazardous Substances and Dangerous Goods shall be correctly contained, packaged and labelled at the time of dispatch from a Santos site.

4.2 Purchasing New Substances

Prior to the purchase of a **new** chemical (including a sample or petty cash purchase):

- the potential user shall obtain advice as to whether the chemical(s) is a Hazardous Substance or a Dangerous Good
- if the chemical is a hazardous substance the potential user should assess if there are alternative non-hazardous substances that could be used for the intended application in preference to the purchase of a new hazardous substance
- if the new chemical is a Hazardous Substance or Dangerous Good, the potential user shall obtain a copy of the MSDS for the substance(s) and arrange for a risk assessment to be completed for the substance(s) and have the assessment approved by the relevant site line manager (see Section 4.4)
- forward a copy of the MSDS and the completed risk assessment (refer to Section 4.4 and [Appendix B](#)) to Manager EHS&S (or nominee) for review and approval.

The MSDS shall, be made available to personnel likely to be involved with the use of the substance including relevant emergency response and medical personnel if available.

4.2.1 Adding New Substances to Chemwatch Site Manifest and Site Chemical Register

If a new Hazardous Substance or Dangerous Good is approved, Manager EHS&S (or nominee) shall:

- forward a copy of the MSDS to Chemwatch for addition to the Santos database
- notify the relevant Site Chemical Coordinator to:
 - initiate the incorporation of the risk assessment controls into the relevant standard operating procedure/s or JHA/s
 - add the MSDS (for sites not using Chemwatch) and Risk Assessment to the Site Chemical Register
 - add the chemical to the relevant Chemwatch site manifest.

N.B. Samples which are Hazardous Substances or Dangerous Goods need not comply with the requirements of Section 4.2.1 until the trial of the sample is completed and a decision is made to purchase and use the new chemical.

4.3 Incoming Hazardous Substances and Dangerous Goods

Hazardous substances and Dangerous Goods shall be checked on, or immediately after, receipt at site to ensure correct labelling by Stores personnel or a nominee.

If a site receives Hazardous Substances or Dangerous Goods where the label, placard or marking does not comply with the ADG Code or the [National Code of Practice for the Labelling of Workplace Hazardous Substances](#), the site shall:

- a) not accept receipt of those goods from the supplier, or
- b) accept receipt and ensure that the Hazardous Substances or Dangerous Goods are labelled, placarded or marked in accordance with:
 - ADG Code where they are contained in a portable tank or IBC (bulky bin)
 - [National Code of Practice for the Labelling of Workplace Hazardous Substances](#)

4.4 Risk Assessment of Chemical Substance

No Hazardous Substance or Dangerous Good shall be used onsite unless a risk assessment **of the particular use** has been undertaken, documented and the recommendations from the risk assessment actioned. The aim of the risk assessment is to ensure that the potential risk to the environment and the health and safety of personnel is reduced to as low as reasonably practicable (see [EHSMS09 Hazard Identification, Risk Assessment and Control](#)).

N.B: The risk assessment may be a generic assessment prepared for workplaces where the substance is used in the same or similar circumstances. Sites adopting generic risk assessments should validate their applicability.

The controls identified from the risk assessment shall be incorporated into relevant Standard Operating Procedures and/or JHAs. A copy of the risk assessment (see [Appendix B](#)) shall be included in the Site Chemical Register.

Where a new chemical substance is neither a Hazardous Substance nor a Dangerous Good a decision shall be made by the Site Chemical Management Co-ordinator regarding whether the nature of the chemical and its proposed use is such that a risk assessment should be undertaken.

Completed risk assessments shall be approved on site as follows:

- where the assessed risk is "Not significant" by the relevant Supervisor; and
- where the assessed risk is "Significant" by the site senior line manager.

4.5 Placarding, Segregation, Bunding and Emergency Services Manifest

Where a new Dangerous Good is introduced to a site, it shall be ensured that storage of the new chemical is consistent with placarding, segregation and bunding requirements and that the Emergency Services Manifest is updated.

4.6 Management of Chemical Substances – Santos as User

A person shall be appointed for each site as the Site Chemical Management Co-ordinator to co-ordinate and conduct chemical management initiatives at the site. The Site Chemical Management Co-ordinator shall undergo relevant training in order to fulfil the responsibilities of the position.

There may be more than one person at a site with responsibility for conducting risk assessments. The person(s) nominated to conduct/lead risk assessments shall undergo relevant training.

4.7 Information Provision

Santos shall ensure that a MSDS:


- provided by the supplier is available for all Dangerous Goods and Hazardous Substances stored and handled, and is readily accessible to employees and any other person who are likely to be affected at the site where the substance shall be used;
- from a supplier is not altered except where an overseas MSDS is to be reformatted by Chemwatch; and
- for chemicals which are produced / manufactured at a site shall be made available.

Santos shall ensure that copies of current risk assessments are readily available to employees who are likely to be affected by the Dangerous Goods or Hazardous Substances.

4.8 Chemical Site Register

A Site Chemical Register of all chemicals stored and/or used on site (excluding chemicals brought on site by contractors), including the identification of Hazardous Substances and Dangerous Goods, shall be prepared, maintained and made readily available at the site. Refer to [Appendix A](#) for an example of a Site Chemical Register form.

The Site Chemical Register shall contain a copy of all current risk assessments (refer to [Appendix B](#)) and a hard copy of the MSDS for each chemical on site (excluding chemicals brought on site by contractors) that is not available to be viewed/printed from Chemwatch).

	Important Information	Need for Chemwatch Redundancy * It is recognised that most sites will access MSDS through Chemwatch on the Santos Intranet however there needs to be a system in place at each site to access copies of MSDS for all chemicals on site should the Santos intranet be unavailable when a MSDS is required.
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A MSDS for each chemical on site shall be readily accessible to personnel at that site. MSDS should be in a format which meets applicable regulatory requirements (in Australia, National Occupational Health & Safety Commission; [NOHSC: 2011](#)) and shall be available in hard copy. If Chemwatch is used to access MSDS then facilities and personnel shall be readily available to provide a hard copy of a MSDS when required/requested from personnel.

4.9 Training

All employees involved in the purchase, handling, storage or use of chemical substances shall receive training in how to access and understand MSDS and the requirements for labelling of Hazardous Substances.

All persons (and their supervisors) potentially affected by exposure to Hazardous Substances or Dangerous Goods shall receive training and instruction on the risk associated with storage and handling of substances and the necessary controls. This shall occur at induction and/or job transfer. Appropriate refresher training shall be conducted.

In addition, Santos shall ensure that relevant personnel receive additional training when:

- new toxicological information is available; or
- new control measures are installed (e.g. ventilation).
- new hazardous substances are introduced

Records of induction and training activities shall be kept for a minimum of 5 years (refer to [EHSMS06 Training and Competency](#)).

4.10 MSDS and Contractors

A Contractor shall not be permitted to bring a Hazardous Substance or Dangerous Good onto a Santos site (operating, construction, exploration) until the contractor has supplied the relevant site Chemical Management Coordinator a copy of:

- the MSDS for each Hazardous Substance or Dangerous Good; and
- a documented Risk Assessment undertaken in accordance with applicable regulatory requirements (in Australia – [NOHSC, 2007](#)) including the controls that will be used, for the intended use of each substance.

The risk assessment shall be reviewed by the site Chemical Management Coordinator before the substance can be used and additional controls shall be applied if required.

The contractor shall keep a copy of the MSDS and risk assessment in close proximity to where the substance/s is being used.

The MSDS shall be made available to personnel likely to be involved with the use of the substance including emergency response and medical personnel if available.

On completion of work at a site, the contractor shall remove all unused chemicals from the site.

4.11 Visitors

A visitor who is likely to be affected on the site by the Dangerous Goods or Hazardous Substances that are stored and handled on the site shall be provided with appropriate information and supervision.

4.12 Risk Assessment

A risk assessment shall be conducted and recorded for each particular use of a hazardous substance and/or dangerous good in accordance with the requirements of [Appendix B](#).

It should be noted that exposure monitoring may be required as an input for a risk assessment of a hazardous substance.

A hazardous substance risk assessment may also identify exposure monitoring as a control measure when the hazardous substance is used and/or to monitor the effectiveness of exposure control measures.

Health surveillance and/or bio-monitoring shall be conducted for personnel exposed to hazardous substances which can cause serious health effects including asbestos, benzene and inorganic mercury. The requirement for health surveillance and/or bio-monitoring shall be recorded on the relevant risk assessments.

NB: Health surveillance and/or bio-monitoring are regulatory requirements which vary between countries and states and therefore relevant regulations should be reviewed to determine if additional health surveillance and/or bio-monitoring is required.

NB: The risk assessment process used for assessing hazardous substances and dangerous goods is prescribed by regulation and differs from the risk assessment processes (Santos Risk Matrix) outlined in [EHSMS09 Hazard Identification, Risk Assessment and Control](#).

4.12.1 Records

Hazardous substance risk assessments with a "Significant" risk level and any associated exposure monitoring or health surveillance records relating to the hazardous substance shall be kept for 40 years from the last entry date in the assessment record.

Hazardous substance risk assessment records with a "Not Significant" risk level shall be kept for 5 years.

4.12.2 Review of Risk Assessment

A risk assessment shall be reviewed:

- when there is a change in storing, handling or use such that the previous risk assessment is no longer valid;
- at intervals of not more than five years from the previous risk assessment or review of the risk assessment.

4.13 Placarding and Labelling

The Dangerous Goods storage at each site shall be placarded in accordance with relevant legislation.

Santos shall ensure that Hazardous Substances or Dangerous Goods contained in enclosed systems are identified to persons liable to exposure to the contents.

4.13.1 Labelling of Decanted Hazardous Substances

All Hazardous Substances and Dangerous Goods that are decanted and are not consumed immediately shall be labelled with the product name and the risk and safety phrases.

4.13.2 Internally Generated Substances Including Waste

Any Hazardous Substance or Dangerous Good produced at a site and placed in drums or other containers shall be labelled in conformity with relevant regulatory requirements (e.g. in Australia the [National Code of Practice for the Labelling of Workplace Hazardous Substances](#)).

4.13.3 Unlabelled Containers

If the contents of a container cannot be identified the container shall be labelled "Caution do not use: unknown substance" and should be stored and disposed of in accordance with the requirements in [EHS04 Waste Management](#).

4.13.4 Empty Containers

Containers shall remain correctly labelled until cleaned so that they no longer contain any Hazardous Substance or Dangerous Good.

Empty containers that will not be reused shall be stored and disposed of in accordance with the requirements in [EHS04 Waste Management](#).

4.14 Dangerous Goods – Workplace Design

Santos shall ensure that a structure for the storage and handling of Dangerous Goods satisfies the following requirements:

- the plant or structure is suitable and safe for use with those goods;
- the plant or structure conforms with the design for that plant or structure; and
- for plant or a structure that is designed to be operated in a fixed position, inadvertent movement is prevented.

4.14.1 Ignition Sources in Hazardous Areas

In relation to the storage and handling of Dangerous Goods, ignition sources in hazardous areas shall be eliminated or, where this is not practicable, the risk arising from the ignition source shall be controlled.

4.14.2 Control of Hazardous Atmosphere

Dangerous Goods shall be stored and handled in a manner to prevent contamination of the atmosphere.

4.14.3 Lighting

In relation to the storage and handling of Dangerous Goods, sufficient and suitable lighting shall be provided to:

- c) enable safe access within and to and from the premises; and
- d) ensure that a person working in an area where Dangerous Goods are stored or handled is able to do so safely.

4.14.4 Access

In relation to the storage and handling of Dangerous Goods:

- safe means of access within and to and from the premises shall be provided and maintained; and
- that authorised persons have access at all times while on the premises to where:
 - decontamination materials and their associated equipment are kept; and
 - fire fighting equipment is located.

4.14.5 Security

Unauthorised access and activity on the premises where hazardous substances or dangerous goods are stored shall be prevented as far as practicable.

4.14.6 Segregation of Dangerous Goods

As far as is practicable, Dangerous Goods shall be stored and transported in a manner that prevents the interaction of goods which are not compatible.

As far as practicable, Dangerous Goods shall be stored and handled in a manner that prevents contamination of food, food packaging, or personal use products.

4.14.7 Containers for Bulk Dangerous Goods

Containers in which Dangerous Goods are stored in bulk and any associated pipe work or attachments to that container, shall be located and, where necessary, securely fixed to a stable foundation to prevent damage from relative movement between the container and the associated pipe work or attachments.

4.14.8 Spills and Containment

Controls shall be in place to ensure that:

- any spill, leak or inadvertent release of solid or liquid Dangerous Goods is confined within the premises; and
- when a spill, leak or inadvertent release of Dangerous Goods occurs, immediate action is taken to assess and control any risk from the spill, leak or inadvertent release; and
- when a spill, leak or inadvertent release of Dangerous Goods occurs or is detected the Dangerous Goods are contained, cleaned up and disposed of, or otherwise made safe, as soon as practicable.

Bundling protection shall be provided for all liquid Dangerous Goods. In Australia, the volume of bunding required, the design features of the bunding, the type of storage tanks or packages requiring protection, the exemptions for specific quantities and any particular usages of the facility are specified in the [National Standard for the Storage and Handling of Workplace](#)

[Dangerous Goods](#). Refer also to EHS02 Underground Storage Tanks and Bunds for information about bunding requirements.

Drainage shall be controlled to ensure that contaminated water does not enter waterways, sewer or stormwater drains. Refer to EHS02 Underground Storage Tanks and Bunds and [EHS10 Water Resource Management](#) for further information about segregation of contaminated and uncontaminated water, in particular stormwater.

4.14.9 Impact Protection

As far as practicable any pipework, attachments or containers of Dangerous Goods shall be protected against damage from impact resulting from activities in or at the premises.

4.14.10 Transfer of Dangerous Goods

The risks associated with the transfer of Dangerous Goods shall be eliminated or, where this is not possible, minimised as far as is practicable, having regard to the need to:

- avoid spillage or overflow
- minimise static electricity
- minimise vapour generation
- ensure that transfer fittings are compatible with each other
- avoid sources of ignition.

4.15 Dangerous Goods – Operations and Maintenance

Santos shall ensure that:

- the plant and structures associated with the storage and handling of Dangerous Goods are designed, manufactured, installed, commissioned, operated, tested, maintained, repaired and decommissioned so as to eliminate the hazards giving rise to a risk or, where this is not practicable, reduce the risk as far as practicable
- any structures, plant (including the characteristics of the materials used in the plant), activities, systems of work, substances or articles which are not used to store or handle the Dangerous Goods at the premises, do not affect the Dangerous Goods or the manner in which the Dangerous Goods are stored and handled, which increases the risk
- controls are put in place to eliminate or, where this is not practicable, reduce the risk posed to the public, property or environment arising from the storage and handling of Dangerous Goods on the premises
- plant, structures, processes, activities and system of work used for storage and handling of Dangerous Goods, arising from actions by members of the public who are permitted to have access to any area where Dangerous Goods are stored or handled.

4.16 Repair, Decommissioning, Abandoning and Disposal

Santos shall ensure that all plant, equipment and containers are free from Dangerous Goods and/or Hazardous Substances as far as practicable or otherwise made safe where the plant, equipment or containers are:

- sent off site for repair;
- no longer intended to be used in connection with Dangerous Goods; or
- to be disposed of.

4.17 Management of Particular Chemicals

Specific chemicals or classes of chemicals shall be managed in accordance with the following hazard standards:

Substance	Hazard Standard
Asbestos	HSHS08.1
Synthetic Mineral Fibres	HSHS08.2
Benzene	HSHS08.3
Mercury	HSHS08.4
Vanadium	HSHS08.5
Nitrogen	HSHS08.6
Hydrogen Sulphide	HSHS08.7

4.18 Emergency Response

Santos shall ensure that:

- an emergency plan is developed, implemented and maintained and communicated to persons who may be affected by or respond to an emergency.
- suitable equipment is available.
- relevant elements of the plan are communicated to persons, on the site and on adjacent premises that may be affected by an emergency.

Refer to [EHSMS13 Emergency Preparedness](#) for further details.

4.19 Emergency Manifest

A manifest of Dangerous Goods *Emergency Services Manifest* shall be prepared and maintained for each site in accordance with relevant regulatory requirements.

4.20 Fire Protection

Operations Managers shall ensure that:

- a) Each site provided with fire protection and fire fighting equipment which is designed and constructed for the type and quantity of the Dangerous Goods and the conditions under which they are stored and handled, having regard to:-
 - the fire load of Dangerous Goods;
 - other exposures;
 - other premises; and
 - compatibility with other goods.
- b) that fire protection and fire fighting equipment is installed, tested and maintained; and
- c) in the event that the components of the fire protection and fire fighting equipment are rendered unserviceable or inoperative the implications of the loss of serviceable or operative equipment are assessed as soon as possible, and where necessary.
 - alternative means of fire protection are provided to ensure that levels of protection are maintained; or

- action is taken to eliminate, as far as practicable, the risks associated with the storage and handling of the Dangerous Goods by modifying processes, storage areas or work practices; and
- action is taken as soon as practicable, to return the fire fighting and protection equipment to full service and operation.

Refer [EHSMS11.10 Fire Risk Management](#).

5. Auditor Guide

[HSHS08 Chemical Management and Dangerous Goods Auditor Guide](#)

6. Responsibility

Position	Responsible for:
Employees and Contractor Employees	<ul style="list-style-type: none"> • complying with training, instructions and notices given or displayed by Santos that relate to the use of chemicals • complying with control measures detailed in hazardous substance or dangerous good risk assessments • participating in relevant risk assessments of chemical substances
Contractors	<ul style="list-style-type: none"> • conducting a risk assessment for all hazardous substances /dangerous goods to be used and forwarding these with the MSDS to Santos for approval prior to bringing the substances onto a Santos site • complying with the controls detailed in hazardous substances /dangerous goods risk assessments
Site Chemical Management Co-ordinator	<ul style="list-style-type: none"> • ensuring Chemwatch site manifest and site registers are kept up to date • assisting workgroups with risk assessments • reviewing risk assessments for hazardous substances and dangerous goods that a contractor intends to bring on site
Manager EHS & Sustainability	<ul style="list-style-type: none"> • ensuring that a MSDS is prepared and maintained for substances/wastes produced by Santos deemed to be a Hazardous Substance or Dangerous Good • supplying Santos MSDS to Santos Marketing • supplying Santos MSDS to the Australian National Material Safety Data Sheet Repository • arranging updates of MSDS on Chemwatch • forwarding MSDS of new hazardous substances and dangerous goods to Chemwatch • providing advice on hazardous substances/dangerous goods risk assessments • approving new hazardous substances and dangerous goods

Position	Responsible for:
Operations Managers	<ul style="list-style-type: none"> • ensuring emergency response and fire fighting systems are in place • ensuring placards are provided • ensuring risk assessments are conducted for hazardous substances and dangerous goods • ensuring Chemwatch and risk assessment training is conducted • ensuring personnel receive training in how to access and understand MSDS and the requirements for labelling of Hazardous Substances • ensuring personnel potentially affected by exposure to Hazardous Substances or Dangerous Goods receive training at induction and/or job transfer on the risks and the necessary controls • ensuring personnel have ready access to all relevant hazardous substance exposure monitoring and health surveillance and bio-monitoring records
Vice President – Commercial	<ul style="list-style-type: none"> • ensuring that a list of customers, products supplied and Santos MSDS supplied for at least 10 years after the last supply is developed and maintained

7. Linkages

Relevant Document/ Info Sources	Document	Location
ASCC Database	Hazardous Substances Information System (HSIS) The HSIS replaces the previous <i>List of Designated Hazardous Substances</i> . A complete listing of hazardous substances can be obtained by using the HSIS Consolidate Lists link from the HSIS.	HSIS
National Road Transport Commission – National Code	Australian Dangerous Goods Code	Department of Infrastructure, Transport, Regional Development and Local Government
NOHSC Standard	Approved Criteria for Classifying Hazardous Substances	NOHSC:1008
NOHSC Standard	National Standard for the Storage and Handling of Workplace Dangerous Goods	NOHSC:1015
NOHSC Code of Practice	National Code of Practice for the Control of Workplace Hazardous Substances	NOHSC:2007
NOHSC Code of Practice	National Code of Practice for the Preparation of Material Safety Data Sheets	NOHSC: 2011

Relevant Document/ Info Sources	Document	Location
NOHSC Code of Practice	National Code of Practice for the Labelling of Workplace Substances	NOHSC:2012
Santos EHSMS Hazard Standard	EHS04 Waste Management	EHS04 Waste Management
Santos EHSMS Hazard Standard	EHS08 Contaminated Site Management	EHS08 Contaminated Site Management
Santos EHSMS Management Standard	EHSMS06 Training and Competency	EHSMS06 Training and Competency
Santos EHSMS Management Standard	EHSMS09 Hazard Identification, Risk Assessment and Control	EHSMS09 Hazard Identification, Risk Assessment and Control
Santos EHSMS Management Standard	EHSMS11.10 Fire Risk Management	EHSMS11.10 Fire Risk Management
Santos EHSMS Management Standard	EHSMS13 Emergency Preparedness	EHSMS13 Emergency Preparedness
Santos EHSMS Management Standard	EHSMS15 Incident & Non-Conformance Investigation, Corrective and Preventative Action	EHSMS15 Incident & Non-Conformance Investigation, Corrective and Preventative Action
Santos EHSMS Hazard Standard	HSHS08.1 Asbestos	HSHS08.1 Asbestos
Santos EHSMS Hazard Standard	HSHS08.2 Synthetic Mineral Fibres	HSHS08.2 Synthetic Mineral Fibres
Santos EHSMS Hazard Standard	HSHS08.3 Carcinogenic Substances	HSHS08.3 Carcinogenic Substances
Santos EHSMS Hazard Standard	HSHS08.4 Mercury	HSHS08.4 Mercury
Santos EHSMS Hazard Standard	HSHS08.5 Vanadium	HSHS08.5 Vanadium
Santos EHSMS Hazard Standard	HSHS08.6 Nitrogen	HSHS08.6 Nitrogen
Santos EHSMS Hazard Standard	HSHS08.7 Hydrogen Sulphide	HSHS08.7 Hydrogen Sulphide

8. Appendices

Appendix A [Example of Site Chemical Register Form](#)

Appendix B [Risk Assessment Proforma](#)

EHS MANAGEMENT SYSTEM STANDARD

HSMS08 Chemical Management and Dangerous Goods

Appendix B – Risk Assessment Proforma

INTRODUCTION

The purpose of this Appendix is to assist personnel in conducting and recording hazardous substances and/or dangerous goods risk assessments as required by legislation and/or company standards.

N.B. Document control is now managed via the electronic document management system - TIMS. The current revision numbers of this standard and associated documents i.e. appendices and assessment and/or auditor guides are displayed in TIMS. Users of printed copies of this standard and/or associated documents must ensure that they are the current revision. This is done by checking that the revision number printed at the top of the front page of the document is the same as the revision number as displayed in TIMS.

OVERVIEW

This Appendix contains four sections. The purpose of the first section is to summarise information and provide a record of the risk assessment outcome. Sections two and three are used for data collection and analysis and section four provides guidance in determining the risk level and possible actions required.

N.B. Due to specific legislative requirements applying to risk assessments of hazardous substances and dangerous goods the risk assessment process detailed below varies to that detailed in [EHSMS09 Hazard Identification, Risk Assessment and Control](#).

Note that where the risk assessment indicates that there is potential for significant risk, then a more detailed assessment may be required, refer to Corporate EHS personnel for guidance.

N.B when documenting controls measures on the risk assessment record, and in particular with requisite personal protective equipment, ensure that specific guidance is provided e.g. **do not** make generic statements such as "gloves must be worn", **do** provide specific guidance (as detailed on the MSDS) such as "PVC gloves must be worn".

RISK ASSESSMENT GUIDE

This guide is structured to undertake risk assessments on scenarios identified using the data collection and analysis forms on pages 3 and 4.

Hazardous Substance / Dangerous Goods Risk Assessment Record

Date: _____

Site: _____

Location: _____

Name of Hazard Substance/Dangerous Good:

Manner in Which Substance will be Used (e.g. applied by paint brush):

Names of Assessment Team Members:

RISK ASSESSMENT SUMMARY (tick appropriate level) Refer to guidance notes on pages 6 - 8

- Risk "Not Significant" now and not likely to increase in the future
- Risks are "Significant" but effectively controlled, and could increase in the future
- Risks "Significant" now, and not effectively controlled
- Uncertain about risks: not enough information, or uncertain about degree and extent of exposure

Actions Required to Reduce the Risk Level:

- Is atmospheric monitoring required to check on the effectiveness of controls?
- Is health surveillance/bio-monitoring required to check on the effectiveness of controls?

Approved By/Name:
Date:

Signature:

NB: For new Hazardous Substances / Dangerous Goods not listed in the Santos Chemwatch inventory a copy of the risk assessment and MSDS shall be forwarded to Manager EHS or nominee for approval. When approved the risk controls from this assessment shall be incorporated into relevant Standard Operating Procedure, Work Instruction or JHA's and a copy of the assessment shall be filed in the Site Chemical Register.

If there are additional controls required to reduce the risk then the hazard and the associated actions shall be entered in IMS.

HAZARDOUS SUBSTANCES DETAILS

INFORMATION

Yes Are there alternate products which could be used and are not classified as a hazardous substance?
 No

Is a MSDS available?

Yes
 No

Yes Is the hazardous substance correctly labelled?
 No

HAZARDS (After reviewing the MSDS, are any of the following health hazards or hazardous effects possible?)

Details

Yes Acute toxicity
 No

.....

Yes Chronic toxicity
 No

.....

Yes Corrosive
 No

.....

Yes Irritant
 No

.....

Yes Sensitiser
 No

.....

Yes Carcinogen
 No

.....

Yes Mutagen
 No

.....

Yes Teratogen
 No

.....

Yes Asphyxiant
 No

.....

Yes Explosive reaction
 No

.....

Yes Flammability
 No

.....

Yes Spontaneous reactivity
 No

.....

Yes Reactive with water
 No

.....

Yes Oxidising agent
 No

Yes Other dangerous
 No reactions

EXPOSURE

Are the following routes of exposure possible? If yes, what specific PPE must be used in addition

to other control measures e.g. PVC gloves, half face respirator fitted with a particulate cartridge.

Yes Inhalation
 No

Yes Ingestion
 No

Yes Skin contact /
 No absorption

Yes Eye contact
 No

Yes Injection
 No

Is there evidence of exposure?

Yes Presence of
 No dust/odours

Yes Evidence of leaks, spills,
 No residues

Yes Worker symptoms
 No

Yes Observation of direct
 No contact

What is the typical worker exposure to the chemical?

Yes Less than 30 minutes
 No per day

Yes 30 minutes to 1 hour
 No

Yes 1 to 4 hours
 No

Yes Greater than 4 hours
 No

Which risk controls are currently in place?

Yes Engineering
 No

.....

Yes Administrative controls
 No

.....

Yes Personal protective
 No equipment

.....

Yes Training in relation to
 No the above

.....

Is there any other relevant information?

.....
.....
.....
.....

DANGEROUS GOODS DETAILS

Is there scope for any of the following:-

Details

<input type="checkbox"/> Yes <input type="checkbox"/> No	Fire	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	Explosion	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	Release of toxic gases	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	Release of toxic liquids	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	Knock-on effects to other installations	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	Structural failure and collapse	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	Loss of containment	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	Impact on emergency equipment, e.g. fire equipment	_____

Does the storage of the dangerous good impact on any of the following:-

<input type="checkbox"/> Yes <input type="checkbox"/> No	Labelling	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	Placarding	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	Marking of pipelines and other containers	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	Segregation	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	Bunding	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	Licensing	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	Emergency services manifest	_____
<input type="checkbox"/> Yes <input type="checkbox"/> No	Emergency plan	_____

Other relevant information?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Evaluating the Risk

What conclusions need to be made about the risk?

To estimate the level of risk it will be necessary to draw together the information gathered about the hazardous substances and dangerous goods. In summary this will involve considering:

- (a) the nature and severity of the hazard for each substance;
- (b) the degree of exposure of persons in the workplace; and
- (c) whether existing control measures adequately control exposure.

The risk may generally be described as '**not significant**' or '**significant**'.

Not Significant

The risk can be regarded as 'not significant' if it is unlikely that the work will adversely affect the health of people in the workplace.

If the work evaluation is straight forward and shows that hazardous substances are already or can be readily controlled in accordance with the MSDS and there is not a significant risk to health, then the assessment is complete. The assessment can be regarded as 'simple and obvious', that is, the risks are not significant now and are not likely to increase in the future.

Significant Risk

A 'significant risk' means that the work is **likely** to adversely affect the health of people in the workplace. For example, there would be a 'significant risk' if:

- (a) exposure is high or the substance used is highly toxic;
- (b) a dangerous reaction with other substances might occur; or
- (c) it is reasonably foreseeable that leaks or spills of a hazardous substance might occur.

In these circumstances, there are commonly three possibilities for describing the risk:

- (a) the risks are significant, but already effectively controlled;
- (b) the risks are significant now, and not adequately controlled; or
- (c) there is uncertainty about the risks, there is not enough information about the hazards or there is uncertainty about the degree of exposure.

In these circumstances, further work may be required to ensure that control measures are maintained and implemented, to undertake monitoring or health surveillance, or to repeat the assessment.

Conclusion 1: Risks not significant now and not likely to increase in future

Actions required:

- End current assessment.
- Review assessment in five years or if situation changes.

Some examples are:

- the amounts or rates of use of the substance are too small to constitute a risk, even if controls fail;
- the operations obviously and strictly conform to the guidelines contained in the suppliers' MSDS and label;
- similar assessments in the past have confirmed that the risks were not significant, and work conditions now are the same; and/or

- the process is conducted according to standards equivalent to, or better than, those recommended in relevant Commonwealth/State/Territory government guidance on good practice.

Conclusion 2: Risks are significant but already effectively controlled, could increase in the future

Actions required:

- Determine precautions to maintain controls and minimise chances of higher exposure occurring.
- Determine additional measures for regaining control if a high risk event occurs, despite precautions.
- Determine if monitoring or health surveillance are required to check on effectiveness of controls.
- Provide induction and training.
- Review assessment in five years or if situation changes.

This conclusion usually applies to conditions where serious health effects could result if the control measures fail or deteriorate because the substance used is highly toxic or the potential exposure is high.

Risks, while presently adequately controlled, could increase in the future, owing to, for example:

- undetected deterioration in the efficiency of control measures;
- plant or system failure;
- control measures not used properly;
- human error, from lack of awareness, monitoring or training;
- changes in methods or rate of work; and/or
- a significant increase in the quantity of substances used.

Conclusion 3: Risks significant now, and not adequately controlled

Actions required:

- Identify and implement immediate measures for preventing or controlling exposure.
- Consider stopping the process.
- Begin review of longer term control requirements.
- Re-evaluate exposures when the upgraded control measures are in place.
- Determine if monitoring or health surveillance is required.
- Provide induction and training.

The following are examples of work conditions where the use of a hazardous substance is likely to constitute

a risk, and further investigation, for example, monitoring, might be necessary:

- dusts, mists or fumes visible in the air, for example, in light beams, and there are persistent or widespread complaints of illness, discomfort, irritation or excessive odour;
- splashing with substances is observed;
- broken, defective or badly maintained control measures;
- recognised good practice is not being observed;
- airborne concentrations approach or exceed exposure standards*; and/or
- ill-health associated with exposure has been detected by health surveillance.

Conclusion 4: Uncertain about risks: not enough information, or uncertain about degree of exposure

Actions required:

- Find more information or conduct a more detailed assessment. Obtain specialist advice if necessary.
- Arrive at Conclusion 1, 2 or 3 and take the appropriate actions.
- Meanwhile, apply good practice to minimise exposure.

If the level of exposure cannot be estimated with confidence, further investigation is necessary. Atmospheric monitoring might be required to estimate the level of exposure. For substances absorbed through the skin or ingested, biological monitoring might be required. A detailed evaluation might be needed if there is the potential for a major hazard such as a large leak or spill. (In these cases, relevant specialist advice would probably be required (**see** Appendix 1). If there is not enough information from which to estimate the risks, more information or help should be sought from sources such as suppliers, occupational health and safety consultants, industry or trade associations or the relevant public authorities.