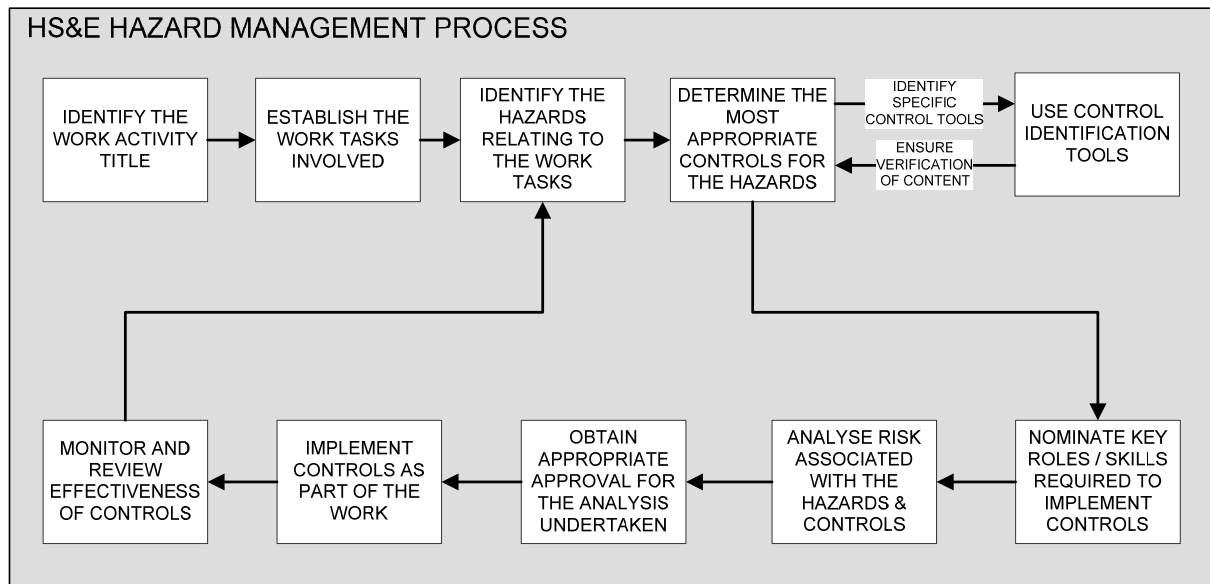


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Functional Flowchart



++ Objective

- + To outline the principles and process for developing Work Method Statements (WMS) to protect people, plant and the environment.

+ Scope

- + This applies to work activities undertaken as part of a work order or approved basic work activities undertaken at all SCL operated and maintained sites.

Note 1: Work Method Statements for Basic Work Activities will be implemented over a two year period commencing September 2006.

Note 2: The work method statement process forms the foundation by which hazards are identified and controlled on a day-by-day basis during work activities across SCL. Importantly, a number of other tools are also used to document the way hazards and risks to the organisation are managed. These tools supplement the HS&E Hazard Management process and typically address longer term health, safety, environment and corporate risk scenarios for the organisation. Although outside the scope of this corporate standard, some of these tools include:

- Corporate Risk Management System,
- Operational Risk Database, and
- Environmental Aspects and Impacts Process.

Definitions

Acceptable level of risk: A risk or working situation that, after an informed decision is made, is considered a minimal acceptable risk to both SCL and the workers who will be affected by the hazard or hazardous situation.

Approval: A confirmation, in writing, from an appropriate authority as defined by SCL that the correct processes have been followed.

Note: In the context of HS&E Hazard Management and WMS development, this approval by an appropriate authority identifies that an adequate risk analysis process has been followed and that control measures documented will result in an acceptable level of risk.

Approver: An authorised person who is defined within the Approval Table of this Corporate Standard, (within Risk Tables – Attachment 1).

Authorised person: A person who has undertaken specific training and assessment and has been authorised as per Section 12 of this Corporate Standard and/or the [Authority To Work Corporate Standard – HB # 619258](#).

ATW: Authority to Work

ATW Wizard: A computer based data entry and development tool, contained within the CMMS (Computerised Maintenance Management System), which operationalises and documents the ATW Process.

- + + **Basic Work Activity:** Any work that is not captured under a plant work order, does not require a control guide to control hazards, and that is within the training, competence and qualifications of the workforce.

Note: Under certain circumstances, a situation that involves a scope that requires a control guide may be approved to be a basic work activity if the situation is not related to a plant work order and is well within the specific competency of those involved (ie climbing of a Wind Turbine Ladder Access).

Competent person: A person who has acquired, through training, qualifications, experience or a combination of these, the knowledge and skills enabling the person to perform the specified task.

Control measure: The implementation of the hierarchy of control options to reduce the risk to an acceptable level.

Event: The occurrence of a particular set of circumstances that has the potential to cause an impact on people, plant or the environment.

Hazard: A source of potential harm to people, plant or the environment.

Hierarchy of controls: A description of the varying control measure options that may be utilised in the management of hazards. The hierarchy in order of preference encompasses the following:

- Elimination
- Substitution
- Engineering / Isolation
- Administration / Training
- Personal Protective Equipment (PPE)

Impact: The outcome of an event.

Level of risk: A measure determined via the risk analysis process, assuming that identified control measures will be implemented and function as intended.

Likelihood: The extent to which an event is likely to occur.

Risk: The chance of something happening that may have a negative impact on people, plant or the environment.

Risk analysis: The determination of the magnitude of an event's impact and likelihood, to establish a level of risk using the risk tables.

Risk tables: A series of tables used to analyse risk by using likelihood and impact factors to determine the level of risk and approval level required. Refer also to Risk Tables – Attachment 1.

Work activity: Work that is conducted under a plant work order or requires control via control guides, excluding those orders that relate solely to administrative functions such as training, cost or resource tracking.

Work Method Statement (WMS): A document used to record the risk analysis process for a particular work activity or basic work activity.

- + + **Work tasks:** The tasks required to be undertaken to complete a particular work activity or basic work activity.

Responsibilities

+ OH&S Manager

- + To maintain the currency and accuracy of the HS&E Hazard Management Corporate Standard reflective of legislative and corporate change

Station/Site Manager

To monitor the implementation of the HS&E Hazard Management Corporate Standard and allocate responsibilities and resources to ensure site-specific practices/procedures are developed to satisfy the Corporate Standard

ATW Coordinators & Workers

To comply at all times with the requirements specified within this Corporate Standard and any site-specific procedures

For each of the hazards identified within the WMS is to be documented with the appropriate role or skill level required to implement the controls identified.

Note: This may include SCL specific roles (eg: ATW Coordinator, Work Party Member, Confined Space Entry Person) skill / competency specific roles (eg: Prescribed Occupations) or contractor related roles (eg: Contract Supervisor, Contract Foreman or similar).

Hazards

Hazard Management Principles Process

SCL and its employees are to identify hazards and control them such that undue risks are not taken, ignored or assumed. This is achieved via the implementation of the Hazard Management Process.

The hazard management process is to be documented by a competent person in the format of a Work Method Statement (WMS). A documented WMS needs to include the following:

- a general title/description of the work activity or basic work activity to be carried out,
- a list of personnel involved in the hazard management process,
- a sequential breakdown of the tasks involved with the work,
- an identification of the hazards relating to each of the tasks determined,
- a list of control measures intended to ensure the safety of people, plant and environment,
- an analysis of risk relating to the hazards if the intended control measures are implemented as planned, and
- documented evidence showing appropriate independent checking and approval of the information contained in the document.

Work Method Statement Development

A WMS can be documented via the following two mechanisms:

- Work activities:
 - Via the ATW Wizard within an ATW Form,
- Basic work activities:
 - Via the SCL Template Folder within a Work Method Statement Form.

The work activity or basic work activity title component of the WMS form is to be documented in a clear way that identifies the nature of the work to be undertaken and any specific plant or process involved.

- + + A WMS must be developed by two competent persons as a minimum. If unsure about any step of the hazard management process or what to document within a WMS they are to seek the assistance of other personnel, (i.e. HS&E specialists, engineers, plant specialists etc).

The approver of a WMS for a work activity or basic work activity is to be in accordance with the Approval Table in *Attachment 1*.

- + Where it is identified that a contracted party is the most appropriate party to undertake a specific work task(s) as part of a work activity, a contractor's documentation may be accepted as part of the WMS development process. Where this occurs, SCL's HS&E principles are to be adopted as a minimum standard.

Work Method Statement Communication

Prior to a work activity commencing, authorised persons involved are to be informed/briefed by the ATW Coordinator with respect to the documentation content to ensure that they understand and have an opportunity to comment on, the hazards, level of risk and control measures. Work is not to proceed until all those involved are aware of how the controls measures are to be implemented.

Prior to personnel undertaking basic work activities that apply to their job description, they are to be informed/briefed on a maximum two-yearly basis to ensure that they understand and have an opportunity to comment on, the hazards, level of risk and control measures. This communication may occur via:

- a team or work area induction upon commencement of employment,
- tool-box talks provided to teams,
- on the job briefing / explanation by a supervisor or team leader.

Hazard identification

Hazards relating to the above mentioned work tasks are to be identified and documented.

Where a hazard is identified across multiple work tasks the hazard is to be documented against each specific work task and control measures are to be nominated accordingly.

Note: For example, a work task is overhaul of a pump. This task contains a falling object hazard (pump) that will need to be controlled during the removal of the pump via a crane and a falling object hazard (tools, bolts, etc) that will need to be controlled during the removal and replacement of the pump. Both types of falling object hazard need to be identified, analysed and controlled accordingly

Competent persons, when identifying hazards and completing the WMS are to ensure that event outcomes are not used instead of hazards, (eg: electrocution instead of contact with live electrical parts). As such, the list of hazards (refer to Attachment 2) are to be used as a guide to ensure consistency.

Work Task Breakdown

The work task breakdown must be documented in such a way that the work activity or basic work activity is broken down sequentially into a series of distinct tasks or processes involved in the work.

Work tasks are not to be mistaken with low-level steps such as undoing nuts and bolts, these are job steps usually explained in a maintenance manual as a procedure. The work tasks are to relate to higher level groupings of tasks that when complete represent the milestones of the job.

+ +

- + Note: Work tasks could range from providing access to the plant using a scaffold, to undertaking the physical removal of the plant using a crane, to overhauling components in the workshop. An example of work task breakdown is provided below:
 - +
 - +
 - Access plant with process energies
 - Erect scaffold
 - Remove valve
 - Overhaul valve
 - Install valve
 - Dismantle scaffold
 - Re-energise and commission plant

Due to the complexity of some work activity scopes, numerous groupings of tasks may actually be undertaken simultaneously by various groups of personnel, and hence become difficult to show in a sequential task order. Where this is the case, groupings of tasks within a WMS may be more clearly shown by including an additional sub-activity title. These sub-activity titles are to be clearly shown within the WMS.

Selection and Documentation of Control Measures

Priorities are to be aimed at eliminating hazards completely, or to otherwise select control measures that will result in an acceptable level of risk for people, plant and the environment.

Note: High Energy High Impact (HEHI) Control Guide requirements can be used as the control measures for the HEHI component identified in the work task breakdown. The type of control guide is to be listed as the control.

As part of implementing controls, an acceptable level of risk is one that

- Is reduced to as low as reasonably achievable by implementation of controls measures,
- Is based on an assumption that control measures will be successfully implemented,
- is reviewed and accepted by those performing the work, coordinating the work, approving the work and finalising the documented WMS.

In order of preference, the hierarchy of control options, as listed in "Table A" following, must be considered for implementation when deciding on appropriate control measures to be documented in the WMS Form.

Table A – Hierarchy of Control Options

Control Option Preference	Description
1 Elimination	The complete removal of the hazard i.e. the removal of a plant/equipment item, plant process or personnel work process in which a required outcome can still be achieved
2 Substitution	The implementation of an alternative that replaces the hazard with another less damaging hazard i.e. the use of an alternative plant/equipment item, work process, material, substance, etc
3 Engineering / Isolation	The engineering of the interface with the hazard i.e. the engineering of the plant/equipment item, working environment, current control options, etc such that additional space, barriers, guards, restrictions, or electrical / mechanical isolations are implemented
4 Administrative / Training	The administration of personnel awareness, implementation of limiters in relation to the hazard or the minimisation of exposure of the people, plant, or environment to the hazard i.e. the improvement of personnel awareness through formal instructions, training, procedural development, etc and the limiting of hazard exposure through job rotation, altering the timing of the exposure, etc
5 Personal Protective Equipment (PPE)	The use of personal protective measures to guard the people from the hazard i.e. a device, item of clothing or substance used to provide a barrier or some form of personal protection

Control measures are to be documented, as deemed appropriate for each of the hazards to eliminate the hazard completely or to ensure an acceptable level of risk.

Risk Analysis & Approval

For each of the hazards identified within the WMS, a level of risk is to be evaluated. The risk tables (refer to *Attachment 1*) are to be used as the basis for conducting the risk analysis.

The risk analysis process is to be undertaken for each hazard identified. That is, a risk level is to be identified for each hazard assuming that the selected control measures will be implemented and function as intended.

This risk analysis process is to be undertaken using the steps outlined in “Table B”, following.

Table B – Risk Analysis Process

Step	Description
A Choose the Likelihood	From Table 1, identify the likelihood of the event occurring.
B Choose the Impact	From Table 2, identify the probable impact of the event.
C Calculate the Level of Risk	From Table 3, calculate the level of risk. This is achieved by identifying the location on the table where the chosen likelihood level matches with the chosen impact level. Essentially, the chosen likelihood level is traced horizontally along the table until the chosen impact level, being traced vertically, is intersected. The common area of these two indicators is the level of risk. Level of risk is represented as a number.

- + + Once the level of risk is determined then the appropriate approval level is obtained from the Approval Table (refer to *Attachment 1*). Approval level is determined by transferring the highest level of risk (represented as a number) into the Approval Table. This process identifies the appropriate authority for approval.
- + Approval must be obtained from an additional person, other than the person documenting the WMS, ensuring a two person process check is achieved.
- +

Training and Competency

HS&E Hazard Management training is to be undertaken in accordance with the [Safety Training Attendance Guideline – Hummingbird # 560126](#). This document specifies the following training courses and target audiences:

- Hazard Identification training – All SCL employees
- Hazard Management training – Relevant employees and contracted personnel required to complete Work Method Statements.

Note: Refer to the Safety Training Attendance Guideline for further information regarding training requirements.

Review

All workers and supervisory personnel are responsible for informally monitoring risk control measures during work activities and basic work activities, to ensure:

- chosen control measures reduce risk levels to as low as reasonably achievable (utilising the hierarchy of controls),
- chosen control measures have been implemented correctly and as planned,
- the control measures are working effectively,
- the control measures have not introduced new hazards or complicated existing hazards.

Where previously planned work activities and hazard management documentation is filed on site for later use or regular referral, this is to be managed as per site document control procedures. The WMS must be fully reviewed prior to re-use. That is, the entire content of the form must be reviewed. If changes are made to the WMS then appropriate checks and approval need to be obtained.

Where previously planned basic work activities and hazard management documentation is filed on site for later use, this is to be managed as per site document control procedures. A formal review and re-approval must occur every 2 years to ensure the content of the documentation still reflects basic work activity requirements. If a change is identified within the review period this automatically initiates the formal review process. Any changes that are made to the WMS require appropriate checks and approval.

Additionally, a 're-evaluation' of developed/existing hazard management documentation is to be undertaken in circumstances including:

- if legislation or standards addressing the hazard are introduced or modified,
- if there is an incident (a person, plant or the environment is harmed or there is the potential for harm) through exposure to a hazard that the WMS addressed,
- if there is a change in the work environment/processes concerning the hazards for which the WMS was originally developed.

Where a reviewing person has difficulty in determining the adequacy of control measures detailed or is unsure with respect to current legislative requirements, consultation is to be sought from other specialist and supervisory personnel as applicable.

- + + Additional structured monitoring and reviewing processes must also be established. This monitoring and reviewing process may be undertaken as part of periodic documentation reviews, workplace inspections and audits, incident response strategies and specific work process reviews. The responsibility for these types of monitoring and review functions is to be managed at a site-specific level. The reviews must look at both work activities and basic work activities hazard management documentation.

References

QLD	Workplace Health and Safety Act 1995, Section 22 & 27A
QLD	Risk Management Advisory Standard 2000
VIC	Occupational Health & Safety Act 1985, Part 3
WA	Occupational Safety and Health Act 1984, Part 3
WA	Code of Practice for Risk Assessment, 2001
SA	Occupational Health, Safety and Welfare Act 1986, Section 19
NSW	Occupational Health and Safety Regulation 2001, Chapter 2
NSW	Risk Assessment Code of Practice 2001
TAS	Workplace Health & Safety Act, 1995, Part 3
NT	Work Health Act, Part 4, Division 1
ACT	Occupational Health and Safety Act 1989, Section 27

AS/NZS 4360: 2004 – Risk Management

HB 4360:2004 Risk Management Guidelines (*Companion to AS/NZS 4360: 2004 – Risk Management*)

[Safety Training Attendance Guideline – Hummingbird # 560126](#)

[Authority To Work Corporate Standard – HB # 619258.](#)

SCL Form – ATW Form

SCL Form – Work Method Statement

Attachments

Risk Tables
Energy / Hazard Table
Audit Checklist

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Risk Tables

Table A: Measure of Likelihood*

Likelihood	Description
Almost certain	The event is expected to occur in most circumstances
Likely	The event will probably occur in most circumstances
Possible	The event should occur at some time
Unlikely	The event could occur at some time
Rare	The event may only occur in exceptional circumstances

* Likelihood of the event occurring.

Table B: Measure of Impact*

Impact	Description	
	Health & Safety	Environment
Catastrophic	One or more fatalities or serious long-term impairment and inability to continue work e.g. loss of limb, paraplegic.	Incident causing serious environmental harm and resulting in EPA closure of facilities for undisclosed period.
Severe	Serious injury resulting in long-term absence and rehabilitation and redeployment.	Incident causing off-site release and detrimental effect resulting in EPA closure of local operation for undisclosed period.
Major	Serious injury without long-term effects e.g. rendered unconscious.	On or off-site release and detrimental effects resulting in EPA prosecution with fine imposed.
Moderate	Medical treatment required.	Incident contained on site or minor discharge off site (e.g. large oil spill (>5kl) on site, offsite discharge of coal dust).
Minor	First aid or no treatment.	Incident contained on site (e.g. oil spill <5kl. Coal dust on site).

* Impact that is probable from the event occurring.

Table C: Work Task Risk Analysis Table*

		Impact				
		Minor	Moderate	Major	Severe	Catastrophic
Likelihood	Almost Certain	11	16	20	23	25
	Likely	7	12	17	21	24
	Possible	4	8	13	18	22
	Unlikely	2	5	9	14	19
	Rare	1	3	6	10	15

* The analysis process is to be undertaken assuming that the selected control measures will be implemented and function as intended.

Corporate Standard

HS&E Hazard Management

HB# 692247











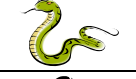


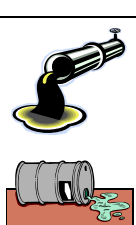
Amd Date 22/11/06

Approval*

Number Range	Approval Position	Training, Qualification, Experience
1 – 5	Competent Person	<ul style="list-style-type: none"> Hazard Management Trained, AND Specific knowledge / experience in work being conducted
6 – 10	Senior Professional / Manager	<ul style="list-style-type: none"> Engineering Professional: <ul style="list-style-type: none"> RPEQ status, or Engineer (>10 years heavy industry experience) Team Leader (SPS) H&S Advisor (H&S Issues Only) Environmental Advisor (Env. Issues Only) Other Professional nominated by the Site Manager
11 – 12	Senior Manager / Site Co-ordinator	<ul style="list-style-type: none"> Direct Report to the Site Manager
13 – 14	Site Manager	<ul style="list-style-type: none"> Direct Report to the General Manager or Area Manager
15 – 18	General Manager	<ul style="list-style-type: none"> Direct Report to the CEO
19 – 25	None – Work cannot proceed until the level of risk is reduced (below 19)	

* A confirmation, in writing, from an appropriate authority as defined by SCL that the correct processes have been followed.
 Note: In the context of HS&E Hazard Management and WMS development, this approval by an appropriate authority identifies that an adequate risk analysis process has been followed and that control measures documented will result in an acceptable level of risk

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Energy / Hazard Types		Examples of Hazards
Any Hazard		When determining hazards associated with a particular task, consideration should also be given to the exposure of people, plant and property <u>external</u> to the work task at hand.
Electrical Energy		Contact with live electrical parts (overhead power line, welding electrode, induced voltage) Exposure to high fault currents (battery banks, within switchboards) Water ingress into electrical components Exposure to electro-magnetic fields / static build up Mechanical damage to power leads / fixed electrical wiring
Gravitational Energy		Falling from a height Falling objects Slips and trips Working beneath a suspended load
Kinetic / Mechanical Energy		Contact with moving vehicles / mobile plant Contact with moving plant / parts: cutting, shearing, drawing in, entanglement, etc Contact with sharp objects Struck by projectiles and ejected items (including struck by foreign object in the eye) Mechanical damage to PPE, services or other items
Radiation Energy		Exposure to ionising radiation source (industrial radiography, non-destructive testing) Exposure to non-ionising radiation source (ultraviolet, laser, welding flash, infrared, microwave, radiofrequency)
Noise and/or Vibration Energy		Exposure to increased noise (levels that may cause hearing damage / worker discomfort) Contact with vibrating plant / vehicles Contact with vibrating tools / objects
Thermal and/or Explosive Energy		Contact with hot / cold objects Excessively hot / cold environments (including heat stress) Fire / Explosion Ignition of gas / dust in a hazardous area
Pressurised Energy		Release of a stored gas, liquid, solid under pressure Release of spring / tension energy Contact with pressurised agent
Chemicals / Substances Energy		Contact with or ingestion of chemicals / substances Inhalation of dusts, gases, fumes, vapours and mists
Manual Handling / Postural Hazards		Handling heavy, unstable or awkward objects / loads Maintaining static work postures Repetitious movements
Biological Hazards		Exposure to algal, bacterial, fungal, viral or parasitic agents (contact, ingestion, inhalation) Animal, insect and spider bites / stings Sharps injury / needle-stick exposure
Psychological, Mental, Social and Medical Hazards		Exposure to workplace bullying, harassment, violence Working for excessive time periods and/or while fatigued Working under the influence of alcohol / drugs or other agents Working in extreme environments (heated, noisy, low visibility, etc)
Work Environment Hazards		Working alone Inadequate lighting Wet / slippery floor / surface Weather conditions eg. floods, lightning, wind Atmospheric conditions eg. dust, vapours, oxygen depletion Restricted / confined space access or working space Inability to communicate due to noise Inability to wim
Environmental Hazards		Unauthorised emissions to air, land or water Release of a stored chemicals used as part of plant operations Contamination of process waters / surface waters (including disposal into incorrect drains) Excess release of particulates and NOx / SOx gases Release of a harmful solid, liquid or gas during transport on / off site Bush Fires/Explosion Land contamination from chemical spills and sandblasting activities Incorrect waste disposal Uncontrolled release (oil, coolants, other substances)

Corporate Standard

HS&E Hazard Management

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Item	Status			Action Required	Responsible Person	Completed (Insert Date & Initials)
Work Method Statement (WMS) Development						
WMS's developed for work activities (as defined).	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
WMS content includes:						
<ul style="list-style-type: none"> • appropriate and clear titles, • involvement of two persons as a minimum, • appropriate approval acknowledgement. 	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
WMS's developed for basic work activities (as defined) and communication / roll-out of their content has been recorded, both initially & on a 2-yearly basis.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
WMS HS&E Content						
WMS content includes evidence of:						
<ul style="list-style-type: none"> • adequate task breakdown / description, • accurate / sufficient hazard identification, • detailed control measures, (inclusive of reference to control guides where relevant), • clearly allocated responsibilities (skill / role for the tasks), • adequate risk analysis content. 	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
WMS Monitoring & Review						
WMS's have been formally reviewed and re-approved (via a new approval acknowledgement) within the last 2-years.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Training and Competency of Personnel						
Content of the Hazard identification and Hazard Management training courses is current and up-to-date with the requirements of this Corporate Standard.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Hazard Identification Training delivered to relevant workers and recorded.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Hazard Management Training delivered to relevant workers and recorded.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Training details maintained as per corporate training and record keeping requirements.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Trainers to deliver the above listed training courses have been authorised and recorded.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			
Contractor Management						
Contractor documentation / WMS's contain adequate information in accordance with SCL's HS&E Hazard Management principles.	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>			

Other / Further Details:

Signature of Person Conducting Inspection:

Copies

Provided to:

(Print First & Last Names)