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Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Transnet Capital Projects Health and Safety Management Health and Safety Plan and Specification HAS-STD-0001

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 Transnet Capital Projects Health and Safety Management
 Health and Safety Plan and Specification
 12 March 2008

Table of Contents

1. Purpose 1

2. Scope..... 1

3. References 1

4. Requirements..... 1

 4.1 Leadership and Commitment 1

 4.1.1 Legal Requirements and Regulations for Health and Safety 2

 4.1.2 Contractor’s General Requirements for Health and Safety 2

 4.1.3 Contractor’s Health and Safety Management Plan 3

 4.1.4 Site Supervision 9

 4.1.5 Contractor’s Safety Officer 10

 4.1.6 Contractor’s Safety Manual 11

 4.2 Performance Measurement and Reporting 11

 4.2.1 Health and Safety Statistics 11

 4.2.2 Safety Management Records 11

 4.2.3 Field Technical/Safety Audit by Transnet Capital Projects 11

 4.2.4 Unsafe Act/Condition Auditing 12

 4.3 Involvement Communication and Motivation 12

 4.3.1 Safety Meetings 13

 4.3.2 Pre-start Safety Briefings 13

 4.3.3 Safety Review Meetings 13

 4.3.4 Employee Health and Safety Representative 13

 4.3.5 Health and Safety Discipline Procedure 14

 4.4 Contractor Management..... 14

 4.4.1 Sub-contractor’s Safety Management Plan 14

 4.4.2 Working Together for a Safe Site..... 14

 4.5 Training and Competency 15

 4.5.1 Contractor Personnel Competency and Responsibility for Health and Safety 15

 4.5.2 Training 18

 4.6 Hazard and Risk Management 20

 4.6.1 Project Specific Hazards 20

 4.6.2 Hazard and Facility Review Studies (RAMBO) 20

 4.6.3 Hazard Identification and Risk Assessment Workshops 20

 4.6.4 Risk Assessment of Plant and Equipment 21

 4.6.5 Work Method Statement 23

 4.6.6 Critical Hazard Management Plan 23

 4.6.7 Risk Assessment 23

 4.6.8 Unsafe Operations 24

 4.6.9 Work in Operating Areas 24

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
 Health and Safety Plan and Specification
 12 March 2008

4.6.10	Hazardous Materials	25
4.6.11	Hierarchy of Control	25
4.6.12	Management of Change	25
4.6.13	Construction Regulation	26
4.7	Occupational Health and Hygiene	26
4.7.1	Fitness for Duty	26
4.7.2	Alcohol and Other Drugs	26
4.7.3	Health Assessments and Health Monitoring	26
4.7.4	Hygiene	27
4.7.5	Cleaners, Solvents and Hazardous Materials	27
4.7.6	First Aid Services	27
4.7.7	Smoking	28
4.7.8	Sun Protection	28
4.7.9	Working Hours	28
4.8	Safe Systems of Work	28
4.8.1	Typical Activities Requiring Safe Work Procedures (SWP's)	28
4.8.2	Personal Protection	29
4.8.3	Working on Live Electrical Equipment/Sub-station	31
4.8.4	Requirements when Off-loading Vehicles	31
4.8.5	Elevated Work	31
4.8.6	Structures	32
4.8.7	Barricading Requirements	32
4.8.8	Working in Existing Operations	33
4.8.9	Lock-out Procedures	33
4.8.10	Alterations to Existing Facilities	36
4.8.11	Work in Operating Areas	36
4.8.12	Client Operations	37
4.8.13	Piling Operations	38
4.8.14	Plant Isolation Procedures	38
4.8.15	Working on Moving Equipment	38
4.8.16	Compressed Air	38
4.8.17	Oxygen, Acetylene and LPG Cylinders	39
4.8.18	Recognised Walkways	40
4.8.19	Commissioning of New Installation	40
4.8.20	Explosive Powered Tools	40
4.8.21	Welding, Cutting, Grinding and Heating	40
4.8.22	Electrical Equipment	42
4.8.23	Rail Tracks and Roadways	45
4.8.24	Working at Heights on Platforms, Scaffolding and in Cradles	45
4.8.25	Work Platforms	46
4.8.26	Suspended Scaffold Platform	46
4.8.27	Crane Cradle (Man Cages)	46
4.8.28	Scaffolding	46
4.8.29	Formwork and Support Work	47
4.8.30	Ladders (Portable)	47
4.8.31	Overhead Cranes and Runways	48
4.8.32	Suspended Loads	48

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
 Health and Safety Plan and Specification
 12 March 2008

4.8.33	Working Overhead.....	49
4.8.34	Roofing and Cladding	49
4.8.35	Pneumatic Tools and Compressed Air	50
4.8.36	Radio-active Sources	50
4.8.37	Cradle (Man – cages).....	51
4.8.38	Conveyors.....	51
4.8.39	Riding On and Operating Equipment.....	52
4.8.40	Fire and Emergency Equipment (Site).....	52
4.8.41	Confined Space Work	52
4.8.42	Excavations, Trenches and Floor Openings.....	53
4.8.43	Noise	53
4.8.44	Abrasive Blasting and Spray Painting	54
4.8.45	Ventilation	54
4.8.46	Lighting	54
4.8.47	Stacking Material.....	55
4.8.48	Manual Handling of Materials	55
4.8.49	Heat Stress	55
4.8.50	Explosives.....	55
4.8.51	Earthwork Hauling Requirements.....	55
4.8.52	Crane Requirements	58
4.8.53	Usage of Skyjacks and Material Hoist (Builder’s Lift)	60
4.8.54	Material Hoists	60
4.8.55	Water Environments	60
4.8.56	Motor Fuel and Flammable Liquids	60
4.8.57	Diesel Storage.....	61
4.8.58	Hazardous Material.....	62
4.8.59	Batch plants.....	62
4.9	Incident Management	63
4.9.1	Incident Reporting System.....	63
4.9.2	Serious Incidents.....	63
4.9.3	Incident Report and Close-out.....	63
4.9.4	Corrective Action	64
4.9.5	Injury Management	64
4.10	Site Management.....	65
4.10.1	Notices	65
4.10.2	Incorporation of Documents into Contract.....	65
4.10.3	Interpretation of Safe Working Instructions.....	65
4.10.4	Emergency Response Manual.....	65
4.10.5	Safety Equipment	67
4.10.6	Weather Precautions	68
4.10.7	Vehicles	68
4.10.8	Commencement of Work	72
4.10.9	Notifications.....	72
4.10.10	Completion Inspection	73
4.10.11	Housekeeping	73
4.10.12	Maintenance	74
4.10.13	Defect Reporting and Correction.....	74

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

4.10.14 Contractor Health and Safety Documentation	74
4.10.15 Electricity	74
4.10.16 Wearing of Short Trousers/Pants on Site (Prohibited)	74
4.10.17 Intoxicating Liquor or Drugs.....	74
4.10.18 Access Control	75
4.10.19 Trespass.....	75
4.10.20 Visitors to Site.....	75
4.10.21 Construction Welfare Facilities.....	75
4.10.22 Emergency Evacuation.....	75
4.10.23 Officer Health and Safety Roles and Responsibilities	76
4.10.24 Risk Assessments (RA's)	77
4.10.25 Daily Safe Task Instructions (DSTI's).....	78
4.10.26 Planned Task Observations (PTO)	78
4.10.27 Management - Visible Felt Leadership.....	78
4.10.28 Health and Safety Experience Board	78
4.10.29 Safety Management Information Notice Boards.....	79
4.10.30 Site Specific Health and Safety Rules and Requirements	79
4.10.31 Fundamental Health and Safety Requirements	81
4.11 Termination and Suspension for Breach of Health and Safety Conditions.....	82
4.12 Safety Conflict	83
5. Annexures	83
6. Records	83

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

1. Purpose

These Health and Safety Specifications identify and encompass the working behaviours and safe work practices that are expected of all Transnet Capital Projects employees, Vendors and *Contractors*, Sub-contractors and Visitors, engaged on Transnet Capital Projects managed Projects.

Providing a guideline to comply with Transnet Capital Projects best Health and Safety Practices and the Occupational Health and Safety Act 85/1993 as amended, including reference to applicable legislative requirement.

2. Scope

The *Contractor* is required to read and take note of the requirements within this Specification and ensure that they provide the required budget for stipulated safety requirements, and complete and submit the Health and Safety Questionnaire (Annexure 8).

This specification applies to all Transnet Capital Projects construction sites. The Specification defines the strategies to manage Health and Safety.

3. References

- Occupational Health and Safety Act 85/1993 as amended and Regulations (including Construction Regulations)
- Explosives Act 26/1956
- Nuclear Energy Act 131/1993
- Compensation of Injuries and Diseases Act 133/1993

4. Requirements

4.1 Leadership and Commitment

The *Contractor* acknowledges Transnet Capital Projects strong commitment to Health and Safety and the *Contractor* affirms that it has a written Transnet Capital Projects and *Client* Health and Safety Management Policy that has been signed and is actively supported and endorsed by the *Contractor's* Management. The *Contractor* represents that its written Policy is widely disseminated and understood among its employees, and that its Policy includes a description of the *Contractor's* Organization, Procedures and Methods of Communication to and from personnel. The *Contractor* must provide copies of its Policy and Policy Statement to Transnet Capital Projects upon request.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

4.1.1 Legal Requirements and Regulations for Health and Safety

The *Contractor* warrants that it is familiar with the contents and implications of the applicable Legislation (latest reprints), Transnet Capital Projects Induction Booklet, Codes of Practice, Guidelines and Standards applicable to the services to be provided.

The Act and the Regulation, where applicable, require development and implementation of Work Method Statements for a range of high-risk construction activities and prescribed demolition activities, which, where applicable, the *Contractor* must develop and implement.

The *Contractor* must ensure that its personnel and its Sub-contractor's personnel have been informed of all such Laws, Acts, Regulations, Codes of Practice, Guidelines and Standards.

4.1.2 Contractor's General Requirements for Health and Safety

The *Contractor* is solely responsible for carrying out the work under the Contract having the highest regard for the health and safety of its employees, Transnet Capital Projects employees and persons at or in the vicinity of the Site, the Works, temporary work, materials, the property of Third Parties and any purpose relating to the *Contractor* carrying out its obligations under this Contract.

The *Contractor* must initiate and maintain safety precautions and programs to conform to all applicable Health and Safety Laws or other requirements, including requirements of any applicable government instrumentality. The *Contractor* must, at its own cost, erect and maintain safeguards for the protection of workers and the public. The *Contractor* must manage all reasonably foreseeable hazards created by performance of the work. The *Contractor* must:

- Provide all things and take all measures necessary for maintaining proper personal hygiene, ensuring safety of persons and property and protecting the environment at or near the Site
- Avoid unnecessary interference with the passage of people and property at or near the Site
- Prevent nuisance and excessive noises and unreasonable disturbances in performing the Services
- Be responsible for the adequacy, stability and safety of all of its site operations, of all its methods of design, construction and work and be responsible for all of the work, irrespective of any acceptance, recommendation or consent by Transnet Capital Projects, its *Contractors*, employees, agents and invitees, or any Government Body
- Costs for the above are borne by the *Contractor*

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

The *Contractor* must comply and is responsible for ensuring that all of its Sub-contractors comply with the relevant Statutory Regulations for Safety and Transnet Capital Projects Health and Safety Requirements included in this Contract.

4.1.3 Contractor's Health and Safety Management Plan

The *Contractor* must prepare, implement and administer the *Contractor's* Health and Safety Management Plan. The Plan is in writing and accepted by Transnet Capital Projects, prior to mobilisation to the construction site for work under the Contract, to Transnet Capital Projects or Transnet Capital Projects nominated Representative, for acceptance. The Health and Safety Management Plan must comply with this Contract including Project Site Rules, and applicable law relating to Workplace Health and Safety and Environmental Health. Any proposed amendments or revisions to the *Contractor's* Safety Management Plan is submitted to Transnet Capital Projects for acceptance, and once accepted, it becomes part of the Transnet Capital Projects Safety Management Plan.

The Health and Safety Management Plan must provide a systematic method of managing hazards according to the risk priority, and must include all mobilisation and site set-up activities.

The Plan will be audited for completeness by Transnet Capital Projects or Transnet Capital Projects nominated Representative using an Audit Tool, and a score of 90% will be required before it will be "accepted with comments".

The Plan is presented and at least "accepted with comments" by Transnet Capital Projects BEFORE permission will be granted to the *Contractor* to mobilise to site.

The *Contractor's* Health and Safety Management Plan must demonstrate Management's commitment to safety and must include, but not be limited to, the following minimum auditable elements:

4.1.3.1 Legal and Site Specific Requirements

The Contractor shall develop, implement and administer an Environmental Health and Safety Plan. The Plan shall be in writing and shall be submitted to the Transnet Capital Projects Representative prior to the commencement of work under the Contract at site.

The Plan shall demonstrate Management's commitment to safety and include, but not be limited to, the following minimum auditable elements:

- The *Contractor's* Safety Policy (**OH&S Act - Section 7**)
- How safety responsibilities are assigned to different roles within the organisation. Identification of role of Safety Coordinator, and On Site Agent/Managers (**OH&S Act - Section 8 and Construction Regulation 6**)

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Selection, Placement and Training Procedures, including Inductions and On-going Training in 'Basic Safe Work' and Occupational Health and Safety Training for newly hired or promoted Supervisors **(OH&S Act - Section 8)**
- Occupational Health and Safety Communications and Meetings, including daily Safe Task Instructions and Project Safety Meetings **(OH&S Act - Section 19 & 20)**
- Assessment of Sub-contractors, including requirements for Health and Safety Plans
- Safety Awareness Promotions
- Nomination of personnel to carry out Safety Inspections. The task may be shared with other duties and provided within the resources of individual gangs and may be rotated
- *Contractor* Senior Management involvement with Company's staff in Consultative Processes and daily Management Safety Walkabouts
- Occupational Health and Safety Workplace Environment, including provision for monitoring employee exposures to noise, dust etc. **(OH&S Act – Environmental & Facilities Regulations)**
- Rules and Regulations including Safety Procedures the *Contractor* has in place for recurring work activities
- Personal Protective Equipment Rules **(OH&S Act – General Safety Regulation 2)**
- Control of dangerous and hazardous substances **(OH&S Act – Hazardous Substance Regulations)**
- System of Hazard Identification and Risk Control, such as Risk Assessments, Daily Safe Task Instructions and Communication **(OH&S Act – Section 8, Risk Assessment, Construction Regulation 7)**
- Design Control (if applicable) **(OH&S Act – Section 10)**
- Verification Procedures including: **(OH&S Act - Section 8)**
- Monthly Internal Safety Audits to ensure compliance with Health and Safety Plans
- Daily Site Safety Inspections and Audits. The auditing role may be shared with other duties or provided within the resources of individual groups. The role may be rotated
- Inspection of plant, tools and equipment prior to introduction to site and at least monthly thereafter

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Accident/Incident Reporting, Recording, Investigation and Analysis, which ensure that corrective action is taken and this action is communicated to Report Initiators (**OH&S Act – General Administrative Regulation 6**)
- Evacuation and Emergency Planning (**OH&S Act – Environmental Regulation 9**)
- Rehabilitation Procedures that encourage an early return to work
- Record keeping, including details of what is kept and for how long

4.1.3.2 Hazard Identification, Risk Assessment and Risk Control

- The development of a Project/Work Scope and Activity Risk Profile identifying and considering, safety, health and environmental hazards and exposures, for example, rigging, working at height, welding, confined spaces, delivery *Contractors*, unloading materials and equipment from trucks, hazardous substances etc.
- How controls to manage risks identified within the Risk Profile will be formalised and implemented
- Personal Protection Equipment
- The Hazard Identification and Risk Assessment Process for specific operations and activities and for new activities identified after the development of the Project/Work Scope and Activity Risk Profile. (Considers methodology, expert advice and selection of participants)
- The Process to be used to review the effectiveness of Risk Controls
- Workplace Hazard Inspections
- The implementation of a Safety Observation (Behaviour Audit) and Coaching Process conducted as a minimum by persons in leadership roles
- Method by which daily activities will be assessed for hazards and controls defined before work commences
- *Contractor* will carry out inspections and maintain requests of the identification of and implementation of Inspection and Maintenance Controls for plant, mobile plant, equipment and tools requiring formal Management, including:
 - ◆ Mobile cranes
 - ◆ Vehicles
 - ◆ Scaffolding
 - ◆ Hoists and winches
 - ◆ Lifting gear
 - ◆ PPE

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- ◆ Ladders
- ◆ Pressure vessels
- ◆ Elevated work platforms
- ◆ Man hoists
- ◆ Explosive powered tools
- ◆ Portable electrical equipment
- ◆ Confined spaces
- ◆ MSDS Register and Information
- ◆ Authorised Isolators and Lock Holders
- Process for identifying, developing and communicating Site Rules and Standards
- Control of dangerous and hazardous substances

4.1.3.3 Policies Mandated by Transnet Capital Projects

Transnet Capital Projects will require all *Contractors* on the Project to comply with and/or achieve the objectives of the following:

- *Client* Health and Safety Policies and Standards
- *Client* Health and Safety Policies and Procedures
- *Client* Safety Management System and Procedures
- The Project Safety Management Plan
- Transnet Capital Projects or Transnet Capital Projects nominated Representative's Safe Operating Procedures evolving from Project Risk Assessments and included in the Project Safety Management Plan and the Project Site Rules

4.1.3.4 Injury Management

- Processes to ensure employees are medically fit and suited to perform their functions safely
- An Incident Reporting and Investigation Structure including root cause establishment and corrective action taken
- Experienced/trained Investigators
- A Process to review the effectiveness of Incident Investigation Action Plans
- The conducting of First Aid needs and Emergency Response Risk Assessments
- A Return to Work Program (restricted duties)
- A Rehabilitation Program

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Trauma counselling
- Processes to ensure the appropriate authorities are notified in the event of a reportable incident

4.1.3.5 Health and Safety Communication and Consultative Processes

- How Project Leadership will ensure all personnel are kept regularly up to date with Health and Safety information and how prompt feedback will be given to personnel for issues they raise. For example, Hazard Reports
- The establishment and maintenance of a Consultative Process for the duration of the Project
- Daily Pre-start Discussions that encourage staff and leaders to try to anticipate and pre-empt potential hazards within the day's activities along with "Toolbox" Meetings and Project Safety Meetings
- Implementation of Improvement Programs that encourage and recognise personnel suggestions to enhance Health and Safety on site
- Health and Safety Publicity and Awareness Programs. For example, Competitions and Lifestyle Improvement
- Attendance at Site Safety Meetings by *Project Manager*, Safety Manager and Safety Representatives. (To be elected and appointed per Work Area and Discipline and comply with the **Act Section 17 and 18**)

4.1.3.6 Education, Training and Competency

- Identification of the competencies required by employees along with selection, placement and any training requirements
- Identification and implementation of the Process that will be used to ensure that employees hold the required competencies
- The identification of minimum core and Health and Safety skills required by persons in leadership and supervisory roles
- Identification Assessment and Management of Hazards
- The development of a Training Plan that ensures personnel attains the desired skills and is also able to monitor refresher-training requirements
- Mechanisms to review the effectiveness of training where appropriate
- A Site Induction and Orientation System that includes specific site issues and requirements and compliments the General Induction
- Methodology for briefing personnel on new or changed Standards, Site Rules and or Procedures, particularly after absence from site

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Compliance with Transnet Capital Projects Training and Competency Requirements

4.1.3.7 Measurement and Review

- Safety Performance Reviews with all site personnel by their Supervisors at monthly intervals
- Schedule of Site Inspections and Audits involving persons in leadership roles
- Leadership participation and review of significant incidents
- Schedule of Reviews of the Health and Safety Plan Implementation Progress
- Schedule of External Safety Audits of the Project
- Scheduled Reviews after the completion of potentially high-risk activities on site
- Provision for monitoring of employees exposure to noise, dust etc.
- Inspection and acceptance of plant, equipment, tools etc. prior to introduction to site and regularly thereafter

4.1.3.8 Health and Safety Alignment Meetings

Transnet Capital Projects or Transnet Capital Projects nominated Representative may hold a Health and Safety Alignment Session with preferred Tenderers in the period between Tender submission and Contract Award. The Tenderer's Senior Project and Proposed Site Management Personnel will be expected to attend.

This session will be focussed on the contents of the Tender in relation to the expectations of Transnet Capital Projects and Transnet Capital Projects nominated Representative with regard to the Tenderer's Health and Safety Leadership and Project Health and Safety Management Proposals

The aspects of the *Contractor's* Tender that are unclear or sections of the Tender Document that have been missed or not fully understood and may need further explanation, will be discussed and resolved.

At the end of the session, the *Contractor* will have a complete and unambiguous understanding of the requirements with respect to the management of Health and Safety during the Project Works and Transnet Capital Projects will fully understand what the *Contractor* has included in his Tender.

Transnet Capital Projects may elect to allow the *Contractor* to review its Tender submission as a result of this session.

After award of the Contract and prior to work commencing, the *Contractor* must participate in a Kick-off Health and Safety Review with Transnet Capital Projects or Transnet Capital Projects nominated Representative. The purpose of this Review is:

- To compare the contents of the *Contractor's* Health and Safety Management Plan and the Project Health and Safety Management Plan

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- To facilitate a consistent approach to Health and Safety issues
- To ensure specific Health and Safety risks are addressed prior to commencement

The *Contractor's Project Manager* and Project Sponsor or equivalent, and Senior Site Representative must attend the above meeting. The meeting is conducted prior to the *Contractor* commencing activities on the Site, including mobilisation and site set-up activities.

The *Contractor* must not commence any site activities until written acceptance (at least "accepted with comments") of the *Contractor's* Health and Safety Management Plan is obtained from Transnet Capital Projects.

Contractors are responsible for qualifying all Sub-contractors using this system. Sub-contractors approved are forwarded to Transnet Capital Projects.

4.1.4 Site Supervision

The *Contractor* must implement and comply with Construction **Regulation 6 OH&S Act – Section 8 and 16**.

The *Contractor* must nominate and appoint a responsible person on site to whom Transnet Capital Projects may refer in connection with the Works. Persons are nominated for all shifts worked or whilst any activity relating to the Contract is being performed on site, and must have the authority to bind the *Contractor* with respect to the Contract (**OH&S Act - 16 Section (2)**).

The *Contractor* must ensure that the performance of all specified Works is supervised throughout by a sufficient number of qualified and competent appointed Representatives of the *Contractor*, who have experience in the type of work specified (**OH&S Act – Construction Regulation 6 (1) and 6.(2)**).

Note: No work may commence and or continue without Supervisory Appointees present on site.

The Site Supervisor must be equipped with a mobile telephone with message bank and/or pager or an equivalent communication device so that communication throughout the Contract can be maintained at all times.

The Site Supervisor must provide a list of names and contact telephone numbers of all *Contractor's* and Sub-contractor's employees on Site. This list is updated as a new *Contractor* or Sub-contractor employee commences on Site.

The Site Supervisor must keep a record of all employees, including date of induction, relevant skills and licences, and be able to produce this list at the request of the Transnet Capital Projects Representative.

The Site Supervisor must complete and issue to the Transnet Capital Projects Representative manning sheets describing the day's activities, labour numbers and classifications prior to 9.00 am on a daily basis.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

The Transnet Capital Projects Representative is notified of any new starter with evidence of Induction and Site Specific Induction prior to commencement of work.

4.1.5 Contractor's Safety Officer

Appointed in terms of the Occupational Health and Safety Act, is on site when work commences and be present until all activities for the day (including Sub-contractors) are finished.

Safety Officers are appointed in the following ratio: (Total number of people to include Sub-contractors)

- 49 or less people on site – Part-time Safety Officer spending 2 full days per week on site
- 50 people on site and up to and including 300 people – Full-time Safety Officer
- Full time Safety Officer for night shift(s)
- More than 300 people on site - a Full-time Safety Officer for every 300 (e.g. 350 = 2 / 690 = 3 etc.)

The *Contractor's* Safety Officer is responsible to assist with legal compliance for his 16 (2) Appointee. He must report functionally to the Transnet Capital Projects Safety Manager on site. He is equipped with a phone and a PC to ensure his duties and functions can be met.

The Safety Officer must have the following minimum qualifications:

- At least 5 years experience as a Safety Advisor on construction projects
- Successful completion of a Supervisors Training Course
- Sound knowledge of the Occupational Health and Safety Act and Regulations
- Sound knowledge of Hazard Identification and Risk Management Processes
- Sound knowledge of Incident Causation Phenomena
- Sound knowledge of Accident Investigation Procedures
- St Johns First Aid Certificate or equivalent

Prior to work commencing, *Contractors* must submit a CV of their proposed Site Safety Officer to the Transnet Capital Projects Health and Safety Programme Manager for an interview and approval.

The *Contractor* must notify Transnet Capital Projects in writing of the name, qualifications, and duties and responsibilities of the Safety Officer proposed. Approval is obtained from Transnet Capital Projects, and the person is appointed and mobilised, prior to the *Contractor* mobilising to Site.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

4.1.6 Contractor's Safety Manual

The *Contractor* must provide both electronic and hard copies of its Safety Manuals, Policies and Procedures to Transnet Capital Projects and must ensure that its personnel, at all times, strictly observe and comply with the Procedures set out therein as well as Safety Procedures requested by Transnet Capital Projects or Transnet Capital Projects nominated Representative from time to time applying to the area of operations. The *Contractor* must forward to Transnet Capital Projects any updates or revisions to its Safety Manuals, Policies or Procedures as soon as practicable following revision or update and must receive Transnet Capital Projects acceptance in both electronic and hard copy format.

Transnet Capital Projects may require the *Contractor* from time to time to supplement its Safety Manual, Policies and Procedures with Guidelines and/or Operating Standards provided to the *Contractor* by Transnet Capital Projects. The *Contractor* must comply with such requests where the request is consistent with the requirements of the Contract. The *Contractor* must give prompt written notice to Transnet Capital Projects of any objection of the *Contractor* to the requested supplement, including the reasons for objection. Transnet Capital Projects rights under this clause are not intended, and must not be construed, to relieve the *Contractor* from any obligations to ensure compliance with all provisions of this Contract.

4.2 Performance Measurement and Reporting

4.2.1 Health and Safety Statistics

The *Contractor* and each of its Sub-contractors must complete and submit to Transnet Capital Projects or Transnet Capital Projects nominated Representative, or as amended by Transnet Capital Projects, on the Friday of each week.

4.2.2 Safety Management Records

The *Contractor* must submit to Transnet Capital Projects for acceptance a Schedule of the Specific Health and Safety Records it intends to maintain for the Contract. As a minimum, such Records are as specified by applicable legislation. Copies are provided to Transnet Capital Projects or Transnet Capital Projects nominated Representative if requested.

4.2.3 Field Technical/Safety Audit by Transnet Capital Projects

Transnet Capital Projects or the Transnet Capital Projects nominated Representative must have the right to conduct Audits/Inspections of the *Contractor's* Safety Management Plan Implementation, Operations, Equipment, Emergency Procedures etc. at any time, and the *Contractor* must fully cooperate with Transnet Capital Projects or Transnet Capital Projects nominated Representative during such Audits/Inspections. Transnet Capital Projects rights under this clause must not relieve the *Contractor* of its own obligations to conduct Audits and Reviews of its own Health and Safety performance.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Where such Audits/Inspections reveal deficiencies in the *Contractor's* Procedures, drills, training or equipment, or non-conformities with the *Contractor's* accepted Project Safety Management Plan, of a minor nature (Risk Rating of 6 or less), the *Contractor* must investigate the cause of the non-conformity and initiate corrective and preventive action to rectify such deficiencies and non-conformities and prevent recurrence as soon as practicable.

Where such Audits/Inspections reveal deficiencies of a major nature (Risk Rating of 7 or greater), the *Contractor* must stop work on the operation/activity concerned, immediately investigate the cause of the non-conformity, and initiate corrective actions to rectify such deficiencies and non-conformities and to prevent recurrence. These Corrective Action Plans are submitted to Transnet Capital Projects for review and comment within 24 hours of the Audit Finding.

Where such deficiencies include an unsafe practice or a breach of the Statutory or the Contract's Requirements, Transnet Capital Projects or Transnet Capital Projects nominated Representative may in accordance with the General Conditions of Contract suspend the work associated with the unsafe practice or breach until the deficiency is rectified.

Transnet Capital Projects or Transnet Capital Projects nominated Representative will establish a Schedule of Regular Field Safety Audits which will be based on an Audit Tool aligned to the *Contractor's* Safety Management Plan and Site Operations and Activities. The *Contractor's* Audit Conformance will be assessed as a percentage and where conformance is better than 90% it will be considered satisfactory and the *Contractor* must develop and implement an Action Plan within 4 weeks, to be reviewed at the next regular Audit. Where the *Contractor's* level of conformance is between 75 – 90 %, a Corrective Action Plan will be required to be developed and implemented within 2 weeks, and a Follow-up Audit will be carried out. Where the *Contractor's* conformance is less than 75% the *Contractor* must stop work until an investigation of the cause/s has been completed and corrective actions have been developed and implemented by the *Contractor*.

The *Contractor* must provide to Transnet Capital Projects or Transnet Capital Projects nominated Representative, at a time to be agreed, a regular Status Report on all outstanding corrective actions until they are successfully closed out.

4.2.4 Unsafe Act/Condition Auditing

The *Contractor* must implement a system to recognize, correct, and report unsafe acts/conditions (Unsafe Act/Condition Auditing) associated with all Site activities.

4.3 Involvement Communication and Motivation

The *Contractor's* and Sub-contractor's workforce must, through their supervision, Safety Notice Boards, Toolbox Meetings and daily Pre-start Meetings be kept aware of safety related matters.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

4.3.1 Safety Meetings

The *Contractor* must implement and comply with OH&S Act, Section 19.

The *Contractor* must conduct Weekly Safety Meetings with his employees to foster safety awareness. Copies of minutes and action items arising from such Toolbox Meetings is submitted or otherwise made available for review by Transnet Capital Projects or Transnet Capital Projects nominated Representative.

Such meetings should at least address:

- Accident/safety incidents
- Hazardous conditions
- Hazardous materials/substances
- Work Procedures
- Protective clothing/equipment
- Housekeeping
- General safety topics
- Job or work look-ahead issues
- Safety statistics

The *Contractor* must conduct at least one Formal Safety Meeting per month and must maintain appropriate records of attendance and meeting content. Such records are made available to the Transnet Capital Projects Representative.

In addition to Daily Safe Task Instructions, the *Contractor* must conduct at least weekly "Toolbox" Meetings to discuss Safety Issues and Procedures.

4.3.2 Pre-start Safety Briefings

The *Contractor* must hold documented Daily Safe Task Instructions with each work team before the start of each shift. Attendance records and brief topic notes are kept for auditing and record purposes.

4.3.3 Safety Review Meetings

The *Contractor's* Site Manager and a Site Safety Representative must take part in Weekly Safety Review Meetings between the *Contractors* and Transnet Capital Projects or Transnet Capital Projects nominated Representative.

The *Contractor* must attend all Project Safety Meetings as outlined in the Project Safety Management Plan.

4.3.4 Employee Health and Safety Representative

The *Contractor* must ensure that sufficient elected and/or appointed Health and Safety Representative/s represent all workers employed by the *Contractor*. Each elected and/or appointed Health and Safety Representative is required to attend an

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

accredited Health and Safety Representatives Training Course, at the expense of the *Contractor*, in accordance with the provisions of the applicable legislative requirements.

The *Contractor* must ensure that elected and/or appointed Health and Safety Representatives execute their functions as under the provisions of applicable legislation.

An appropriate sticker is to be issued by the *Contractor* and affixed to a **DARK GREEN** helmet to identify each Health and Safety Representative.

4.3.5 Health and Safety Discipline Procedure

Where a breach of a Site Health and Safety Rules or the *Contractor's* Safety Procedure is identified the *Contractor* must ensure that any disciplinary action taken is in accordance with an approved Procedure. In the absence of a Disciplinary Procedure and dependent on the nature of the breach, the Process as outlined below should be used:

- First breach - verbal warning/counselling
- Second breach - written warning/counselling
- Third breach - appropriate disciplinary action taken

Where a breach of a Health and Safety Rules has occurred and is considered blatant, the person's Site access may be withdrawn at the discretion of the Transnet Capital Projects Construction Manager after consultation with the relevant persons.

4.4 Contractor Management

4.4.1 Sub-contractor's Safety Management Plan

The *Contractor* must ensure that all its Sub-contractors have written Safety Management Plans in place that are of a standard suitable for the type of activity being undertaken, which address the hazards involved with the particular work activity, and which support the *Contractor's* accepted Safety Management approach. The *Contractor* must ensure these Plans are in place before allowing Sub-contractors to mobilise to site. Sub-contractor Safety Management Plans must include management of transport and delivery *Contractors* entering the site delivering materials and/or equipment.

4.4.2 Working Together for a Safe Site

The *Contractor* and its Sub-contractors must actively participate in any programs and/or activities designed to improve the Health and Safety performance on the Project.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

4.5 Training and Competency

4.5.1 Contractor Personnel Competency and Responsibility for Health and Safety

Prior to the commencement of the work, including mobilisation and site set-up activities, the *Contractor* must provide current documentation to the satisfaction of Transnet Capital Projects verifying that the *Contractor's* and Sub-contractor's personnel are competent and have the appropriate qualifications, job skills and training as required by this Contract and applicable laws.

The *Contractor* must ensure that all his employees and his Sub-contractor's employees working on the site are adequately trained in the type of work to be performed, are trained in relevant Procedures and have the appropriate Qualifications, Certificates and Tickets, and are under competent supervision. Records are to be maintained on site of appropriate training and qualifications of all employees by each *Contractor*.

The main *Contractor* and all Contract employees are holders of current Certificates or Licences, where the operation being performed requires such (for example, Crane Drivers Certificate, Riggers and Scaffolders Certificate, Welding Certificate etc.). All of these are to be in compliance with legislation.

Certificates of Training and/or a letter from 16 (2) certifying a person's competency and test of competency is submitted at the Induction Centre for each employee as well as a Man/Job Specification.

Proof of the following minimum Safety Training is required before any work may commence:

- Safety Officer – SAMTRAC (or equivalent – approved by Transnet Capital Projects) and at least 5 years construction safety experience
- Management and Supervisory personnel and Foreman (all 16.2 and 6.1 appointees) – Supervisor's Safety Course – (IRCON 24 hour course or equivalent approved by Transnet Capital Projects) and a Certificate of Competency as required by Regulations regarding Competency
- Workforce – (Basic Health and Safety Training)
- Trained, elected and appointed Safety Representatives per area in the following ratio: **(OH&S Act - Section 17 and 18)**
 - Up to 50 people on site = 1 Representative
 - And 1 for every 50 thereafter
- Trained and appointed First Aiders per area in the following ratio: **(OH&S Act – General Safety Regulation 3)** at least one First Aider to hold a Level 3 Certificate and be on site full-time
 - Up to 50 people on site = 1 First Aider

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- And 1 for every 50 thereafter

When teams are working in separated areas the Transnet Capital Projects Representative may instruct the *Contractor* to appoint First Aiders and Safety Representatives per Work Area regardless if less than fifty people are working in an area.

The *Contractor* is responsible for offloading all deliveries of materials, equipment etc. delivered to the Site, including the competence of transport and delivery *Contractors* entering the site.

Generally, all Equipment Operators will be required to be re-assessed, using the equipment provided and in the conditions existing on site, in relation to heavy vehicle/light vehicle operation and interactions.

The *Contractor* represents and warrants that its Supervisors are competent, and have been trained and advised in writing that they are responsible, and have accepted and acknowledged such responsibilities in writing, for ensuring that the work is performed in accordance with all applicable Laws, Rules and Regulations, Good Working Practices, and any additional Guidelines and/or Operating Standards provided to the *Contractor* by Transnet Capital Projects.

The *Contractor* must, develop a Personal Safety Action Plan for each key staff member that lists actions to be taken and responsibilities. These Plans are regularly audited by the *Contractor's Project Manager*. The *Contractor's Project Manager* will have his Personal Safety Action Plan audited by Transnet Capital Projects or Transnet Capital Projects nominated Representative.

The *Contractor* must at Transnet Capital Projects request, provide Transnet Capital Projects with organization charts, specifying the areas of safety responsibility of Supervisors. The *Contractor's* Supervisors must assess and assure themselves that employees under their control have adequate skills and training to carry out their tasks and will not be permitted to perform tasks for which they have not been adequately trained.

The *Contractor's* and/or Sub-contractor's employees must, where required by legislation, be the holders of current relevant Government Department Certificates or Permits where the operation being performed requires such certification, for example:

- Fitters
- Welders
- Boiler Makers
- Crane and Hoist Drivers
- Crane Chasers and Doggers
- Riggers

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Scaffolders
- Plant Operators
- Shot Firers
- Winch Drivers
- Explosive Tools Operation
- Demolisher
- Electricians
- Plumbers
- Gasfitters
- Trade Assistants
- Steel Fixers
- Carpenters
- Concrete Finishers etc.

The actual list will depend on applicable Regulations regarding Competency.

Contractors and Sub-contractor's employees carrying out the following designated tasks require specific authorisation by Transnet Capital Projects, i.e.:

- Operation of mobile equipment including cranes and work platforms
- Slinging of loads from, and the direction of movement of loads by, cranes and other lifting devices
- Erection and dismantling of scaffolding in excess of 4.5 metres in height
- Driving light vehicles, buses, trucks etc.
- Supervising Excavations deeper than 1.5m

The *Contractor* must request authorisation of persons nominated to perform these tasks, with 2 weeks notice, and must support that Request with copies of Competency Certificates, including Driving Licence, and relevant Medical Certification, copies of Log Books or work experience that can be verified, and a written statement attesting to the fact that the employee is competent to perform the nominated function. Copies of all such evidence of competence are logged in a Register maintained by the *Contractor*. The *Contractor* must provide electronic copies of such Register/s to Transnet Capital Projects upon request.

Transnet Capital Projects or Transnet Capital Projects nominated Representative may at any time conduct a Task Observation as to the ability of any Operator of equipment or person carrying out a nominated Specific Task, to carry out that Task in a safe and competent manner. If Transnet Capital Projects or Transnet Capital

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Projects nominated Representative is of the opinion that the person is not "currently competent", that person must cease work immediately, undergo the necessary re-training or be removed from that activity. Re-training is at the *Contractor's* expense.

4.5.2 Training

4.5.2.1 Induction in Health and Safety

Comply with: **OH&S Act - Section 8**

The *Contractor* must ensure that no employee of the *Contractor* or its Sub-contractors, including transport and delivery *Contractors* entering the site delivering materials and/or equipment, must proceed to enter the Site or any operations area until they have received all training required under applicable Laws and Regulations, including, but not limited to, Work Activity Inductions and Transnet Capital Projects Site-specific Induction. This Project Induction has a "life" of 12 months, after which Re-induction is required.

The *Contractor* must also prepare and present to all its employees its own *Contractor* Induction, explaining the *Contractor's* Safety Management Plan, the *Contractor's* Rules, the obligations imposed by the Occupational Health and Safety Act and Regulations, the Project Safety Booklet, as well as a Site-specific Induction, which must as a minimum consist of an introductory briefing explaining the nature of the work, the general hazards which may be encountered during the operation, and the particular hazards attached to their own function within the operation and how these hazards are identified and accounted for.

The *Contractor* must ensure that all its employees and the employees of its Sub-contractors working on-site are adequately trained in the type of work to be performed and are trained in relevant Procedures and have the appropriate Qualifications, Certificates and Tickets and are under competent supervision. Records are to be maintained of appropriate Training and Qualifications.

The *Contractor* must ensure that all its personnel and its Sub-contractor's personnel receive a copy of the *Contractor's* Health and Safety Training Manuals or Handbooks relevant to their jobs which must detail Health and Safety Code and Conduct, Personal Safety Protection, Emergency Health and Safety Response and Personal Health Conduct. The *Contractor* must provide Transnet Capital Projects with details of On-going Training Programs and must provide Transnet Capital Projects with all related revisions during the term of this Contract. The *Contractor* must provide programs for the above to overcome any language, literacy or comprehension impairments.

A full day is set-aside for Induction and badging of all employees.

Prior to Induction all employees must undergo a pre-employment medical examination (if required) and found fit for duty. A copy of the Certificate of Fitness is presented for permanent record at the Induction Centre and kept at site offices for

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Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

permanent record to be transferred to Transnet Capital Projects on project completion.

Employees must not have access to the site until they have completed this Induction. The *Contractor* must keep a record of all inducted personnel.

Before commencing work the following Induction-training Courses are attended:

- Site Induction **Transnet Capital Projects and Client**
- *Contractor's* Job Specific Induction Transnet Capital Projects Construction and *Client* Operational

Proof of Job Specific Induction signed by Inductor and Trainee is submitted at the Induction Centre before a badge is issued.

In addition to the Basic Safe Working Practices Induction, the *Contractor* must ensure that all his employees and those of his Sub-contractors are inducted in Site-specific Safety Issues.

The *Contractor* must ensure that badges and Exit Medical Certificates are submitted to the Transnet Capital Projects Site Representative when people are demobilised, failure must result in withholding of final payment until Exit Medical Certificates are received and or a penalty of R200-00 is paid for every badge not submitted.

Contractors should ensure Exit Medical Certificates and badges are received before final payment of employees.

4.5.2.2 Emergency Procedures

The *Contractor* must ensure that all personnel on the Site, including visitors, are properly instructed in the Site Emergency Response Procedures.

4.5.2.3 Isolation Procedure Training

The *Contractor* must comply with and train their employees in the Site Requirements in relation to Hazardous Energy Isolation. The level of training is dependent on the position and responsibilities of the employee.

No person who has not been properly trained and assessed as competent will be allowed to isolate any item of equipment or plant.

4.5.2.4 Contractor's Health and Safety Management Handbook

The *Contractor* must develop a Health and Safety Management Handbook that will summarise the requirements of the *Contractor's* Health and Safety Management Plan and *Contractor's* Rules. The document is in a format that can be issued to all employees at Inductions and prior to that employee commencing work on Site, and is maintained for reference by all employees. Transnet Capital Projects must approve the format and contents of the Handbook prior to its issue.

The *Contractor* must ensure that each employee acknowledges receipt of the *Contractor's* Health and Safety Management Handbook by way of signature. The

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Contractor is responsible for producing these records of signature and acknowledgement if audited.

Where reading skills and/or language is an issue with the workforce the *Contractor* must propose an alternative to the above, maintaining the intent of the above, for acceptance by Transnet Capital Projects.

4.6 Hazard and Risk Management

Prior to the commencement of the work, including mobilisation and site set-up activities, the *Contractor* must demonstrate to the satisfaction of Transnet Capital Projects that the *Contractor* has performed Hazard Identification and Risk Assessment of the Work, and of the associated equipment and facilities, to meet the requirements of the Contract. The *Contractor* is responsible and accountable for ensuring that effective Procedures and Assessment Systems are in place so as to control hazards and so mitigate risks to as low a level as is acceptable and to meet all the Health and Safety Management Requirements under this Contract.

4.6.1 Project Specific Hazards

The Transnet Capital Projects *Project Manager* will identify specific job-related hazards applicable to the Work under the Contract, and inform the *Contractor* thereof.

4.6.2 Hazard and Facility Review Studies (RAMBO)

The *Contractor* must ensure that Hazard Identification Studies are incorporated into the *Contractor's* Design Management Plan and scheduled at appropriate stages of the Design Process.

The *Contractor* must make available suitably qualified and experienced personnel to participate in these studies. Transnet Capital Projects and/or Transnet Capital Projects nominated Representative will also participate. The *Contractor* is required to provide all input data for the conduct of the studies.

The *Contractor* is responsible for the implementation of the study findings and must carry out any modifications to design or plant required by the outcomes of the studies.

Transnet Capital Projects has made all reasonable efforts to ensure that the safe and clean design input information provided is complete and correct. However, the *Contractor* must make its own assessment of the hazards and risks associated with the Work under the Contract, consistent with the requirements of the Contract and the obligations imposed by all applicable legislation.

4.6.3 Hazard Identification and Risk Assessment Workshops

The *Contractor* must conduct, with appropriate personnel, Construction Safety Studies to identify the detailed methodology and related hazardous activities, in particular those with potentially catastrophic consequences such as multiple and

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Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

single fatalities, of the *Contractor's* Site Installation Work Scope, for example crane operations and positions, lift sizes, work at height locations, confined spaces locations, work near operational plant, hot work, hazardous substances and dangerous goods being used etc.

The *Contractor* must also conduct, with appropriate personnel, Preliminary Hazard Assessment (PHA) Workshops to identify the work methodology and related hazardous activities, in particular those with potential for fatality or serious injury, of tasks and activities related to particular work packages or locations. In all circumstances the objective of these Risk Management Processes will be to eliminate hazards or otherwise reduce risks through the hierarchy of controls.

Where the PHA Workshop identifies that Administrative Controls (Procedural Controls) have to be used to reduce the risk to an acceptable level, then the *Contractor's* work crew or individual if it is a one person task, must carry out a Job Hazard Analysis (JHA) of the task or activity, which will result in a Work Instruction for routine tasks and activities or the documented JHA for non-routine, one-off or changing tasks and activities. JHA's will be reviewed by the *Contractor* prior to starting work each day or shift, and Work Instructions prior to starting work each week.

A Five Stage Hazard Identification (define job, identify hazards, assess risk, control risk, monitor) and Risk Assessment Process will be implemented by the *Contractor* for commissioning and start-up activities, conducted on all system commissioning and live testing operations, activities and tasks prior to introducing hazardous energy and/or materials.

The *Contractor's* Site Management Representatives, Supervisory Personnel, Technical Experts as required, and Workforce Personnel directly involved will participate in these Hazard and Risk Assessment Processes, and the findings documented. Transnet Capital Projects, and/or Transnet Capital Projects nominated Representative must attend the workshops/studies. At these workshops/studies the *Contractor's* Methodology may be reviewed task by task, potential hazards identified, and actions agreed on to mitigate risk.

4.6.4 Risk Assessment of Plant and Equipment

Risk Assessments of plant and equipment is undertaken and documented before arrival at site and after major service, after modification, and before use in an unusual operating mode. They are undertaken by a suitably qualified and experienced person and are reviewed and signed by the *Contractor Project Manager* or Equipment Supervisor.

Such Risk Assessments for equipment mobilising to Site are reviewed and accepted by Transnet Capital Projects, or Transnet Capital Projects nominated Representative prior to the equipment arriving at Site, and must consider, where applicable, potential for entanglement in moving parts, crushing or striking by moving or falling objects, cutting or stabbing by sharp objects, high pressure fluids, electrical shock or

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

burns, burns from hot or cold surfaces, slips, trips and falls, ergonomic design of access and egress (3 points of contact to be maintained), seating, vibration, noise, exhaust fumes etc. The identification of hazards should consider normal operations, abnormal or unusual operations, maintenance and servicing operations. Particular attention is given to fall protection attachment points when there is a requirement to work over 2 meters above the ground (servicing earthmoving equipment for example).

The *Contractor* must implement and comply with **OH&S Act - Electrical Machinery Regulation 9**.

The *Contractor* must ensure that all plant, equipment, power and hand tools brought onto the site by the *Contractor* or his Sub-contractors are:

- Appropriate for the type of work to be performed
- Approved, inspected, tested, numbered and tagged (if appropriate) in accordance with Occupational Health and Safety Statutory Regulations and Transnet Capital Projects rules, before importation onto the site
- Properly maintained in accordance with Manufacturer's Recommendations
- Placed on Register and checked at least monthly and or more frequent as required by legislation and or Transnet Capital Projects Rules.

Construction Plant and Equipment

The *Contractor* must implement and comply with **OH&S Act - Electrical Machinery Regulation 9, Driven Machinery Regulation 1 – 20, Electrical Machinery Regulations and Electrical Installation Regulations**.

The *Contractor* must supply, at his cost, all items of plant and equipment necessary to perform the work and must maintain all items in good order and condition.

Should any plant or equipment become inoperable for a period considered by Transnet Capital Projects Representative to be harmful to the progress of the work, the *Contractor*, on the Transnet Capital Projects Representative's instructions, must remove the unserviceable plant or equipment and replace it with similar serviceable plant or equipment at no cost to Transnet Capital Projects.

No item of plant or equipment delivered to site for this Contract is removed from the site prior to the completion of the Contract without the written approval of the Transnet Capital Projects Representative.

The Transnet Capital Projects Representative reserves the right to inspect items of plant or equipment brought to site by the *Contractor* for use on this Contract. Should the Transnet Capital Projects Representative form the opinion that any item is inadequate, faulty, unsafe or in any other way unsuitable for the safe and satisfactory execution of the work for which it is intended, the Transnet Capital Projects Representative must advise the *Contractor* in writing and the *Contractor*

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

must forthwith remove the item from the site and replace it with a safe and adequate substitute. In such cases, the *Contractor* must not be entitled to extra payments or extensions of time in respect of delay caused by the Transnet Capital Projects Representative's instructions.

Standard and Performa Registers

As Standard Project Procedures, the *Contractor* is expected to:

- Set up an initial set of Registers
- Complete the Registers for each piece of plant, tool and equipment brought onto site
- Maintain a complete, continuous and comprehensive Inspection and Service History in these Registers

Ensure at least Monthly Inspections are done and recorded for all plant, tools and equipment by a competent person.

4.6.5 Work Method Statement

Where required, the *Contractor* must submit Work Method Statements to Transnet Capital Projects. These are submitted 24 hours prior to the work commencing, or on request by Transnet Capital Projects or Transnet Capital Projects nominated Representative.

Acceptance of a Work Method Statement by Transnet Capital Projects must not relieve the *Contractor* of responsibility for ensuring full compliance with Contract Specifications and Conditions. Specific Work Method Statements may also be required by legislation.

4.6.6 Critical Hazard Management Plan

Where the *Contractor* identifies a Critical Hazard, that is one that has the potential to cause multiple fatalities and the exposure is not an isolated occurrence, it must develop a Critical Hazard Management Plan to control the risk. These Plans are submitted to Transnet Capital Projects for review and be entered in the Site Risk Register. Journey hazards to and from the Site should be included.

The Plans are periodically reviewed (every four months) for applicability and suitability.

4.6.7 Risk Assessment

As described above, prior to the commencement of each work activity, or as requested by Transnet Capital Projects or Transnet Capital Projects nominated Representative, a Risk Assessment (RA) or similar is completed and documented. The purpose of the RA is to identify all potential hazards associated with the Work and the Work environment, assess the risk these hazards present and then to provide risk control action that deals with those hazards, as well as providing to the

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

workforce involved in the particular work activity, details of any hazards and the proposed controls.

The *Contractor* must propose the RA Process and record format to be used, considering the requirements below. The documented RA and/or resulting Work Instruction is completed by the work crew and Job Supervisor, and at least one team member is skilled and experienced in the RA/Risk Assessment Process. Completed RA's are available for review by the work crew, Transnet Capital Projects and Transnet Capital Projects nominated Representative upon request.

The RA must:

- Describe the operation to be performed in the sequence of the basic job steps
- Identify the hazards or potential hazards at each step
- Identify the Site Rules apply
- Assess the risk the hazard presents
- Describe how the hazard is controlled such that the residual risk is as low as reasonably practicable (ALARP) and is acceptable to the work crew
- Identify the related Work Instruction if appropriate
- Be reviewed prior to each shift; and
- Be acknowledged by way of signature of all personnel involved in the work activity

4.6.8 Unsafe Operations

If the *Contractor* believes that the work cannot be safely undertaken or that continuance of the work may result in unsafe conditions, it must immediately cease the operation until a Safe Method of Work has been identified. The *Contractor* must at all times make every effort to control or overcome the cause, or minimize the effect of, any unsafe condition.

4.6.9 Work in Operating Areas

When the *Contractor* is working in close proximity to operating cranes, roads, access ways or other equipment and a safety hazard has been identified, the *Contractor* must provide Safety Watchers as necessary or as directed by Transnet Capital Projects or Transnet Capital Projects nominated Representative and must provide, erect and subsequently dismantle all the required barriers, flags, wheel stops, buffer stops, flashing lights or other safety equipment to enable its operations to proceed in a manner which satisfies Transnet Capital Projects or Transnet Capital Projects nominated Representative. At all times, defined access ways are kept clear of objects or obstructions which could cause injury to personnel or damage to equipment or plant.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

The *Contractor* warrants that the Contract rates and prices include for all Safety Watchers (Spotters or Look-outs), signs, lights, barriers, traffic barricades, protective shielding and the like required for the protection of personnel, plant and construction operations.

4.6.10 Hazardous Materials

The *Contractor* must set out its Policy for the use, transportation, handling and storage of fuel and hazardous materials taking into account the legislative requirements.

The *Contractor* must ensure that all hazardous materials and waste products are disposed of in accordance with applicable Laws and Regulations and any Procedures published by Transnet Capital Projects or in the absence of any relevant Law, Regulation or Procedures, in accordance with Sound Safe Practice.

4.6.11 Hierarchy of Control

The *Contractor* must ensure that all risk and hazard controls are applied in accordance with the 'Hierarchy of Control' Methodology.

Control measures to eliminate or minimise the risk are considered and implemented in the following order of priority:

1. **Elimination** of the hazard in the main objective;

If this is not possible, prevent or minimise exposure to the risk by one or a combination of:

2. **Substitution** - substituting a less hazardous material, process or equipment
3. **Isolation** - isolating the hazard from the person or the person from the hazard
4. **Engineering** - redesigning equipment or work processes
5. **Administration** - introduce administrative controls

As a last resort, when exposure to the risk is not (or can not be) minimised by other means:

6. **PPE** - identify and use appropriate personal protective equipment

4.6.12 Management of Change

The *Contractor* must develop a Procedure and System to manage the Change Process. This Procedure and System must address the required processes to ensure that proposed changes do not give rise to unacceptable risk to health, safety, assets and/or the environment.

The Change Management Process must aim to ensure the following:

- Changes are identified and recognised
- Careful consideration is given to managing the risks associated with any change

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Due diligence can be shown to have taken place
- A reduction in the number of unsatisfactory or unnecessary changes
- Involvement of the right people in the change process; and
- All Statutory Requirements are met

The Change Management Controls must apply having regard to the fact that change may be planned, sudden or gradual.

4.6.13 Construction Regulation

In addition to Transnet Capital Projects Risk Assessment Requirements above, the Contract must implement and ensure compliance with: Construction Regulation 7.

4.7 Occupational Health and Hygiene

4.7.1 Fitness for Duty

The *Contractor* must ensure that personnel under its control and authority comply with the requirements of the Fitness for Duty Policy and are bound by its Disciplinary Provisions, regarding the possible effects of:

- General level of personal fitness and/or medical conditions
- The consumption of alcohol
- The use of other drugs (prescription, pharmaceutical or illicit)
- Fatigue
- Stress

4.7.2 Alcohol and Other Drugs

The *Contractor* must ensure that personnel under its control and authority do not at any time, during the performance of the work, take or work under the influence of any alcoholic and/or other drug other than for bona fide medical reasons or other proper reasons that have been approved in advance and in writing by the Transnet Capital Projects *Project Manager*. The measures to be taken by the *Contractor* must include a drug test prior to such personnel starting work on the site. The *Contractor* must ensure that personnel under its control and authority comply with the Project Site Program of random testing for alcohol and other drugs.

4.7.3 Health Assessments and Health Monitoring

The *Contractor* must ensure that all the *Contractor's* personnel are healthy and medically fit for their respective assignments and must certify the same to Transnet Capital Projects if so requested. The *Contractor* is responsible for Pre-placement, Exit Medicals and On-going Health Assessments.

The *Contractor* must ensure that Operators of mobile equipment undergo "fit for work" medical examination every 1 year and Crane Operators engaged in lifting man

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Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

boxes every 5 years. This medical is to certify that the Medical Practitioner has examined the Operator and formed the opinion that the Operator is free from deafness, defective vision, epilepsy, heart disease, and any other infirmity likely to cause the Operator to lose control of the machine being operated.

The *Contractor* is responsible for the medical welfare of its own employees, servants or agents and their families.

4.7.4 Hygiene

The *Contractor* must ensure that its personnel and Sub-contractor's personnel must maintain high standards of hygiene in connection with the performance of the work.

The *Contractor* must maintain all work areas in a clean and tidy state and must promptly and appropriately dispose of waste material.

Meal rooms are kept in a clean and tidy manner to the satisfaction of Transnet Capital Projects or Transnet Capital Projects nominated Representative and any Statutory Requirements.

4.7.5 Cleaners, Solvents and Hazardous Materials

No chemical, which is potentially hazardous, is brought onto the Site without the prior acceptance of Transnet Capital Projects or Transnet Capital Projects nominated Representative.

The *Contractor* must submit to Transnet Capital Projects a Materials Safety Data Sheet (MSDS) with its request for acceptance of each hazardous substance the *Contractor* proposes to use at the Site.

The *Contractor* must ensure that all necessary transport, storage and usage precautions are taken and that safety equipment, including antidotes, if necessary, is available on the Site.

4.7.6 First Aid Services

The *Contractor* must implement and comply with OH&S Act - General Safety Regulation 3.

The *Contractor* must provide a person qualified to give First Aid attention on the Site at all times that the *Contractor* is carrying out work on the Site. The minimum qualification is that provided by the St John's Ambulance Brigade or as prescribed in the OH&S Act – General Safety Regulation 3.

The *Contractor* must provide and maintain First Aid equipment on the Site. The equipment is to a standard as laid down by the Statutory Regulations.

First Aid Boxes

To be provided with contents as per minimum legal requirements. Boxes are provided in all working areas and kept locked. Record to be kept, in an appropriate

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Register of all treatment done. (**SABS 1186** approved signs to indicate location of First Aid Boxes).

Emergency Numbers

Lists with emergency numbers to be posted at phones and in every office. Provide workers with stickers to place inside their hardhats with emergency numbers printed on stickers.

4.7.7 Smoking

The *Contractor* must not permit smoking at the Site except within designated smoking areas selected in accordance with applicable Laws, Rules, Regulations, and Policies.

4.7.8 Sun Protection

The *Contractor* must ensure that all personnel are protected in sunlight by the use of long sleeve shirts, long trousers; brims to safety helmets, UV factored sunscreen and shade structures.

The *Contractor* must conduct Training and Awareness Sessions with its workforce, advising on the risks of working in the heat and dehydration and the precautions to be taken including an acceptable fluid intake depending on conditions. The *Contractor* must ensure that adequate water is available to its workforce at all times.

4.7.9 Working Hours

The *Contractor* is responsible for the administration of the working hours of its employees and Sub-contractors. Maximum working hours per day and minimum rest times between shifts is specified in the *Contractor's* Health and Safety Management Plan and must comply with the requirements for the Project Site unless specifically approved by Transnet Capital Projects.

4.8 Safe Systems of Work

4.8.1 Typical Activities Requiring Safe Work Procedures (SWP's)

Guidelines of typical construction activities for which SWP's are provided before starting work on site by the *Contractor* (to be attached to Risk Assessments):

- Site establishment, fire fighting and evacuation, rubble and refuse removing, stacking and storing, housekeeping, loading and off-loading of vehicles etc.

PPE

- Issue and control, uses

General

- Work areas – benches, containing of sparks, barricading and handrails, safe access and egress, Evacuation and Emergency Procedures, backfilling and compacting, shuttering and form work, lifting and rigging, steel fixing, pouring of

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

concrete and floating, elevated work, use of ladders, roadwork and fuelling of machines

Scaffolding

- Erection, dismantling

Activities per Discipline

- Civil, Structural, Pipefitting, Mechanical, Electrical, Instrumentation, Bricklaying, Roofing and Cladding, Installation of Cable Racks, Cable Pulling, Work in Confined Spaces, Stock Keeping and Control, Grit Blasting, Demarcation

People activities like:

- Grinding, Welding, Using Jack Hammer, Operating of Machines, Cutting, Compacting, Crane Operating etc.

4.8.2 Personal Protection

The *Contractor* must implement and comply with **OH&S Act – General Safety Regulation 2**.

4.8.2.1 Standard PPE

All *Contractors'* personnel at the Site, including visitors, must use the following minimum personal safety equipment at all times:

- Safety head protection with chin strap (**SABS 1451** approved)
- Safety footwear with steel toe protection (Fram type or equivalent)
- Safety glasses with side shields (UVEX type or equivalent)
- Hand Protection as required
- Long trousers
- Long-sleeved shirts with cuffs and collars and reflective taping as required
- High visibility vests or shirts as required
- Hearing and respiratory, protection as required
- Suitable protective clothing (overalls for all employees conducting physical working)

Personnel exposed to noise levels exceeding 85dB (A) for any period of time or where signs indicate hearing protection is required to wear (**SABS 1451** approved) hearing protection.

Other personal protection items such as gloves, face shields, leather spats, safety harnesses, aprons or other such items may be specified for use by legislation, the Scope of Work or the Transnet Capital Projects Representative. Personal protective

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

equipment must also be worn, if recommended by Manufacturers or Suppliers of proprietary products or equipment.

All personnel engaged in maintenance and operational activities must use the minimum personal protection applicable at the site.

4.8.2.2 Specific PPE

The Contractor must provide and ensure usage and compliance with the following minimum PPE requirements for site work:

- SABS approved hard hats and hard hats with fixed side knobs for welding and grinding operations
- Approved and appropriate overalls
- Wearing of impact safety spectacles with side shields is compulsory on Site and in workshops at all times. Prescription glasses must comply with the same standard or cover impact safety spectacles are worn over them
- Front flip goggles to be used for gas cutting

Double Eye-Protection

- Welding – Impact Spectacles and Welding Hood
- Grinding – Impact Spectacles and Full Face Visor
- Cutting – Impact Spectacles and Full Face Visor
- Reaming – Impact Spectacles and Full Face Visor

Specific PPE

- Welding – Spats/apron/yoke/respirator (metal frame) - knee pads for welders in kneeling positions
- Grinding – Spats and apron
- Gas cutting - Spats and apron
- Boots/shoes – “Fram” safety boots or equivalent
- Gumboots – Steel cap toe
- Ear-plugs (SABS 1451 Approved) – Noise zones exceeding 85Db (including grinding/compacting etc.)
- Nuisance dust – Dust masks – 3M Standard
- Grit blasting – Airline hood
- Spray painting – Airline hood (confined spaces)/canister type mask

Applicable Gloves to be worn for all Hand Operations

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Termination of cables – Glass cutting gloves
- Using a Stanley knife - Glass cutting gloves
- Welding – Welding gloves etc.
- Gas/Argon – Cutting/welding
- Gloves for artisans and helpers
- Symbolic signs (to comply with SABS 1186) indicating the use of PPE is placed at entrance to the construction site

Issue, Replacement and Control of PPE

A dedicated person must:

- Control the issue and replacement of equipment
- Keep an up-to-date Register, with signatures of the recipients, as proof of having been issued with such equipment will be free charge

PPE and Related Safety Requirements are free issue by *Contractor*.

4.8.3 Working on Live Electrical Equipment/Sub-station

The *Contractor* may not allow any work on live electrical equipment!

4.8.4 Requirements when Off-loading Vehicles

The *Contractor* must ensure that Drivers and/or their Assistants, who are required to assist with the off-loading of material and/or equipment, are provided with the following minimum Personal Protective Equipment:

- Hard hat
- Safety boots/shoes
- Gloves
- Glasses

4.8.5 Elevated Work

The *Contractor* must implement and comply with Construction Regulation 8.

The *Contractor* must:

- Submit a Fall Protection and Rescue Plan to the Transnet Capital Projects *Project Manager* for approval, before any elevated work commences
- Issue parachute type harness with shock absorber and double lanyard to be provided for all elevated work.
- Ensure that:

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- ◆ All tools in elevated positions are attached to lanyards and be attached to either the person or structure
- ◆ Equipment in elevated positions are tied back to the structure
- ◆ No loose items in elevated positions e.g. bolts and nuts are in pouches, not paper boxes
- ◆ Overhead work allowed only if area below is barricaded in accordance with Transnet Capital Projects barricading requirements
- ◆ Competent riggers place lifelines on Register and check it daily before use and records findings in the said Register

Note: Employees are attached at all times when conducting elevated work

4.8.6 Structures

The *Contractor* must implement and comply with **Construction Regulation 9**.

4.8.7 Barricading Requirements

The *Contractor* must implement and comply with **OH&S Act – General Safety Regulation 13 (I)**.

The *Contractor* must ensure that:

- All openings and edges are barricaded with solid barricading to withstand an impact of at least 100kg
- Only solid barricading covered with Orange “Snow Netting” and or Transnet Capital Projects approved equivalent barricading is allowed to be used as barricade
- Solid barriers to prevent persons falling into them must protect openings in floors, stairwells, staircases, open-sided buildings and any structure in the course of erection, where dangerous openings exist
- *Contractors* must pre-plan the delivery of floor grating, stair treads, landings and handrails to ensure safe access and protection for persons working on structures
- Barricading is tagged, placed on Register, maintained and inspected daily – The owner of the barricade’s name and mobile number must appear on the Tag

All handrails and fencing must comply with Transnet Capital Projects Standards. They are provided around all holes or openings to prevent any person being injured as a result of a fall. A solid framework with plastic barricading netting attached to it is required.

Where it is impracticable to provide fixed guard railing, effective removable barriers are provided at all unguarded openings in guard railing or floors, and are maintained in position at all times until the hazard no longer applies.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Note: Danger tape must not be accepted as barricading!

4.8.8 Working in Existing Operations

Work carried out such that no interference is caused to other construction work being carried out on the Site and no claims for delays are brought about by the nature of the work is approved by the Transnet Capital Projects *Project Manager*.

Any work which requires section of the Plant to be taken out of operation with resultant interruption to production and/or other construction activities is carried out in the absolute minimum of time and be on the basis of the *Contractor* working around the clock (within legal parameters) for the duration of such work. The times when work of this nature can be carried out are as arranged with the Transnet Capital Projects Representative.

Permit to Work

The *Contractor* must obtain a Permit from the Permit Control Room/*Client* and necessary test done like testing for gases and vapour presence etc.

The Permit must list Specific Condition and Hazards involving the Specific Task.

4.8.9 Lock-out Procedures

In operating areas Lock-out Procedures must follow the Transnet Capital Projects Procedures. The *Contractor* is to coordinate with the Transnet Capital Projects Representative.

An entirely separate set of Procedures covers the requirements for Lock-out, Commissioning, Start-up and Handover of the completed works.

A Safety Clearance Certificate is necessary for commissioning of all machinery and equipment, together with a Permit to Work and Lock-out Procedure.

To ensure the safety of persons working in operating plant areas, the *Contractor's* Safety Coordinator is responsible to ensure compliance with:

- Lock-out Procedure
- Instructing all workmen concerned in its application and implementation
- Instructing the appointed *Contractor's* Supervisors in the issue of applicable Permits
- Daily checking of Permits; and
- Distributing information and communicating any other Permit System required, for example, for work to be carried out on HT equipment, roof work, excavation, demolition, hazardous areas etc.

The *Contractor* is required, but not limited, to comply with the Lock-out Procedures in the following circumstances:

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Executing tie-ins to existing Operating Plant
- Working near live equipment
- Start-up and Commissioning of electrical equipment and electrically driven machinery
- Working on live pipelines, confined spaces and hydraulic equipment

Electrical/Mechanical Lock-out Procedure

Appointment of a competent person and compliance with OH&S Act – Regulations regarding a Certificate of Competency

Purpose: To ensure that all plant and equipment being put into operation is done so in an orderly manner to safeguard all personnel involved in the Commissioning Process.

Procedure

- The *Contractor's* 16(2) Assignee must nominate and appoint a competent person as the responsible person for energising and isolating equipment in response to requests from holders of Work Permits
- The Transnet Capital Projects *Project Manager* must nominate and appoint a competent person for the duty of managing the "Permit to Work" system which must entail the stages of issue, revocation and completion
- All electrical control panels are to be locked by the *Contractor's* appointed person with padlocks having two keys for the series
- The *Contractor* must provide these padlocks
- The Construction Manager and the *Contractor's* appointed person would be the sole custodian of these keys
- The *Contractor* must provide a sufficient number of padlocks; each with a unique key, for his Artisans who are requesting Permits for working on equipment
- These padlocks and keys are numbered for the Permit Holder's Identification
- The *Contractor* must ensure that multi locks are available for his staff to cater for multiple lock-outs
- The *Contractor's* Construction Manager must provide a sufficient number of Tags that are to be attached to the padlocks at the point of isolation by the person working on that piece of equipment
- These Tags must indicate that the equipment is locked out and bears the name and Permit Number of the holder

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Permit to Work Books must contain three copies; first copy for retention by the person carrying out the work on equipment, second copy to be in the hands of the *Contractor's* responsible person and a fixed third copy for the records
- Permit holders are to enter the names of their Assistants in the Register and after briefing them on the nature of the work and the dangers involved, they are to sign the Register to this effect in the spaces provided

For the first stage of Commissioning, involving rotation testing of electric motors, the *Contractor's* responsible person must:

- Energise the motor on receipt of a Permit from the Electrical Technician
- Isolate and lock-out for adjustments to be made
- Re-energise for further testing, and
- Isolate and lock-out on completion

The Electrical Technician must maintain radio contact with his Assistant at the local isolator to ensure that no persons are in the immediate vicinity of the equipment to be test-run.

After making adjustments he must again test-run the unit and, if correct, sign off the Permit and remove his Tag and padlock

The second stage involves Cold Commissioning of the equipment, and the *Contractor's* responsible person must:

- Verify that it is the correct equipment as specified on the Permit
- Isolate the piece of equipment and ensure that it is de-energised
- Attach his lock and Tag to a multiple locking device
- The Permit holder, having witnessed the isolation, must
 - ◆ Physically test that the equipment is correctly isolated
 - ◆ Sign the Permit to this effect
 - ◆ Inform his workers of the nature of the work and hazards involved
 - ◆ Complete and sign the Workers Register and attach to the Permit
 - ◆ Attach his lock and Tag to the multiple locking device, and
 - ◆ Hand the second copy of the Permit and Worker's Register to the *Contractor's* responsible person
- After completion of the work, the Permit holder must remove all tools and equipment and leave the area in a neat and tidy condition
- The Permit holder must sign all copies of the Permit and Worker's Register to the effect that his work is complete, and remove his Tag and lock from the isolator

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- If work continues over more than one shift, a worker must remove his Tag and lock at the end of the shift
- If another person is to work on the machine he must follow the same Lock-out Procedure
- If a Permit holder does not remove his lock after the shift, and does not report to work the following day, the Construction Manager is the only person authorised to remove his lock and energise the equipment after ensuring that it is safe to do so
- At the first stage of Cold Commissioning the Transnet Capital Projects Commissioning Team takes over control of the plant and must follow a similar Lock-out Procedure but must utilise their own plant documentation, padlocks and tagging system

Note:

- Fire Extinguishers are available at all points of grinding, cutting and or welding!
- Welding earth clamps to be attached to the workface only
- The *Contractor* must provide shield and fire blankets for all welding activities

4.8.10 Alterations to Existing Facilities

All necessary alterations to existing details and connections between new and existing details are carried out by the *Contractor*, including the making good of existing details on the completion of the work.

Where openings are left, due to the removal of access platforms, hand rails, or steel work or where new details have not been installed, the *Contractor* must fabricate and install temporary solid handrails until the permanent structure is erected.

All temporary connections and the like are carried out in conformance with all regulations to ensure safe operation and passageway for all personnel.

Protection of Equipment

The *Contractor* is responsible for covering up any equipment placed in danger of damage from his operation, for example cables or other combustible equipment, with a flame-proof material before oxy-cutting, grinding and welding.

The *Contractor* must ensure that all equipment is properly protected against damage or deterioration during all phases of construction, in accordance with equipment Supplier's recommendations.

4.8.11 Work in Operating Areas

When the *Contractor* is working in close proximity to operating cranes, roads, railways or other equipment and a safety hazard exists, the *Contractor* must:

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Provide Safety Watchers as necessary or as directed by the Transnet Capital Projects Representative
- Provide, erect and maintain all the required barriers, flags, wheel stops, buffer stops, flashing lights or other safety equipment to enable his operations to proceed in a manner which satisfies the Transnet Capital Projects Safety Regulations
- Remove all such protective devices once the hazard has been removed or on completion of the work

The *Contractor* must at all times keep defined access ways clear of objects or obstructions which may endanger the health, safety or welfare of personnel or cause damage to equipment or plant.

The *Contractor* must provide any temporary protective shielding required for the protection of construction activities from nearby operations, at his expense.

The relevant Permits are obtained prior to undertaking any work. In addition to this, the *Contractor* must advise the Transnet Capital Projects Representative immediately prior to commencing work in the area.

Where the work is carried out in hazardous zones or where there is a danger of producing combustion in adjacent flammable materials, the *Contractor* must provide a dedicated fire watch for job site control, including management and implementation of preventative action.

Remember for all work done in a live plant *Contractor's* Supervisors must obtain a Permit to work from the *Client's* operational control with a Transnet Capital Projects Representative present.

4.8.12 Client Operations

Access to *Client* operations and operating plant and facilities is restricted.

All access to the construction site is through defined access roads and all personnel, *Contractors*, deliveries, visitors and the like must use only these defined access routes.

Unauthorised personnel found in restricted areas of the Plant are removed from the Site.

The *Contractor* must provide Watchers for activities adjacent to operating plant.

Personnel are required to move out of the Construction areas during periods when the overhead cranes are moving over the area.

Operations must cause interruption to or provide access for the construction activities, which is further, explained at the Site Meeting.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

All tools and equipment is kept in first-class condition. Examine all tools for faults before use and report all unsafe tools, equipment or conditions to the relevant Supervisor immediately.

4.8.13 Piling Operations

All piling machinery, core/dynamic drilling machinery and attachments must comply with legal requirements and a pre-inspection is done by the *Contractor's* Operational Manager and it must be reviewed by the Transnet Capital Projects Representative prior to commence doing any piling, soil test, dynamic compaction or ground improvement. Each piece of equipment must have a valid Operators Competency Certificate, latest Inspection Log Register, a copy Steel Cables Certificate. A copy of Risk Assessments and Safe Operating Procedures for each Specific Operation. And prove that every employee has been trained on Risk Assessment and Safe Operating Procedures. Special care is taken when working in the vicinity of pile driving equipment.

The Area must be properly barricaded according to Transnet Capital Projects Standards.

4.8.14 Plant Isolation Procedures

A strict Isolation and Permit System involving the use of Danger and Out-of-Service Tags and, in some circumstances, locks, applies on Transnet Capital Projects premises.

4.8.15 Working on Moving Equipment

Never work on a crane, conveyor table or other machinery without securing permission.

Work must not be started until the *Contractor's* personnel have placed Danger Tags and control access.

4.8.16 Compressed Air

Compressed air must **NOT** be used for any purpose other than that for which it is provided.

Do not use compressed air to remove dust from clothing.

NEVER direct a stream of compressed air at your body or that of any other person - it may enter the body and cause serious injury or death.

Locking wires or other suitable approved devices are to be used to prevent accidental uncoupling of compressed air hoses.

Do not disconnect air hoses until sure that the supply valve is closed and the pressure in the hose has been released.

Hoses to be orderly routed and elevated, if required, to prevent tripping hazards.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

4.8.17 Oxygen, Acetylene and LPG Cylinders

The *Contractor* must implement and comply with **OH&S Act - General Safety Regulation 9 and SABS 1548**.

Contractors must establish satisfactory storage areas (fenced, shaded, approved surface and all necessary signs posted) for oxygen, acetylene and LPG. Gas cylinders, oxygen, acetylene and LPG cylinders are stored (separate) and in an upright position.

When moving cylinders from place to place, keep them from being knocked over or falling. Before moving a cylinder without a suitable truck or trolley, close the cylinder valve and remove the regulator. Only use special approved cylinder crates/cradles. Do not transport cylinders with magnet cranes. Never use cylinders as rollers, even if they are marked 'empty'.

Make sure that cylinders do not come in contact with electrical circuits e.g. welding leads. Never strike an arc on a cylinder.

Do not store cylinders in hot places. If possible, do not use cylinders in hot places. Don't let cylinders get hot; avoid standing them in hot sunlight if possible. Before you begin a job in a hot area check to see that your cylinders are protected from overheating. Keep your cylinders far enough away from cutting work to stop sparks or hot slag reaching them. If it is necessary to work where cylinders become hot or warm, move them to a cool area as soon as you finish the job.

As with compressed air use oxygen **only** for the purpose for which it is provided. Do not use oxygen in pneumatic tools or tyres as an explosion may occur.

Flashback arrestors to be fitted on torch and cylinders.

Empty cylinders to be marked as such and removed daily to approved storage areas. Cylinders must only be allowed on site in an approved trolley, properly secured and with a 1,5 kg dry powder fire extinguisher attached to the trolley.

Storage of Gas Cylinders

- Storage areas should whenever possible be well clear of buildings
- A protective covering is provided
- Adequate ventilation is provided
- Storage areas are kept free from all combustible materials, no other materials are stored in cylinder enclosure
- Full cylinders are kept apart from empty cylinders so that it must not be necessary to open valves to check whether cylinders are empty or full. Mark empty cylinders clearly and store in space provided
- Cylinders must always stand upright, special stands are used for cylinders and the cylinders are chained separately in an upright position

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Cylinders are stored in rows with aisles in-between for easy removal in event of fire
- For security and ventilation purposes a wire mesh fence should surround the storage area. Keep the enclosure locked
- All danger signs are prominently displayed at storage area e.g.:
 - ◆ No Smoking
 - ◆ No naked flames
- Adequate fire fighting equipment is available
- Oxygen and acetylene should be stored separately
- The storage should be clearly marked
 - ◆ Oxygen - Full Oxygen - Empty
 - ◆ Acetylene - Full Acetylene - Empty
- Flammable and oxidising gasses must not be stored together, greases and oils must never be allowed to come in contact with Oxygen

If electrical lighting is required, it should be of an approved type and comply with **SABS Code 0108 – 1974**.

4.8.18 Recognised Walkways

When walking through the Site or to personal work area use recognised thoroughfare. Don't take short cuts.

4.8.19 Commissioning of New Installation

The *Contractor* must implement and comply with **OH&S Act – Electrical Installation, Driven Machinery, Electrical Machinery and General Machinery Regulations**.

Notice boards are erected clearly stating which items of plant have been made 'LIVE'. The information on these notice boards is for general guidance to persons working about the area and warns of increased hazards. As soon as any item of plant is notified as being 'LIVE' Commissioning Procedures must apply.

4.8.20 Explosive Powered Tools

The *Contractor* must implement and comply with **Construction Regulation 19**.

Explosive powered tools may only be used when prior written permission is granted by the Transnet Capital Projects *Project Manager*.

4.8.21 Welding, Cutting, Grinding and Heating

The *Contractor* must implement and comply with **OH&S Act - General Health and Safety Regulation 9**.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Contractors must instruct employees in the safe use of welding equipment. Cutting and welding work is carried out in accordance with **General Safety Regulation 9**.

Non-combustible or flameproof shields to protect employees from direct rays and air-borne particles must shield arc welding, cutting and grinding operations.

Electrode holders or welding guns are maintained in good order, and when they are to be left unattended, the electrodes are removed and the holders are placed or protected so that they cannot make electrical contact with employees or conducting objects.

All arc-welding cables are properly maintained and completely insulated. There are no repairs or splices within 3 metres of the electrode holders, except where splices are insulated equal to the cable. Defective cable is repaired or replaced. The earth cable is connected to the work place.

Fuel gas hose and oxygen hose is of an approved type, be easily distinguishable and must not be interchangeable. Hoses are inspected at the beginning of each day and are repaired or replaced if defective.

Hot Work

- Hot Work Permit to be obtained before job starts **Transnet Capital Projects /Plant**
- Falling sparks and/or hot cuttings to be contained
- Fire Blankets and Fire Extinguishers are at hand
- Ensure not to carry out any Hot Work, cutting and/or grinding in the vicinity of flammable liquids
- Protect rubber lined vessels/tanks etc.
- Combustible floors are wetted down, covered with damp sand or fire proof sheets
- All wall and floor openings covered
- Containers/pipes purged of flammable vapours
- Fire Watch is provided
- Area to be inspected after Hot Work has been completed
- Fire Watch to stay in place for at least 30 minutes after operation
- Warn all employees working under Hot Work Process

Ensure adequate mobile water supply with water spray/pressure available, at all times during Hot Work Operation.

Harmful gases are given off when doing certain types of welding work and the *Contractor* must provide a breathing apparatus when welding, cutting or heating:

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Zinc, lead, cadmium, mercury, or beryllium bearing based or coated materials in enclosed spaces
- Stainless steel with inert-gas equipment
- In confined spaces
- Galvanised steel
- Where an unusual condition can cause an unsafe accumulation of contaminants

Proper protective equipment to prevent exposure of personnel is provided.

No welding or cutting is undertaken where hot metal or sparks can fall onto walkways, work areas, cable ladders, electrical equipment etc. Before welding or cutting is started, fire retardant blankets are placed to arrest such hot metal or sparks. Particular attention is taken when working above cables that are not adequately covered.

Use an approved type flint gun for lighting of torches. Do not use matches, rope wicks or other smouldering materials.

Hoses are deflated before cutting torches are cleaned and nozzles not robbed against gloves

During welding operations, the earth lead is to be attached to the work area and never such that the earth is established through equipment bearings or through clearance gaps of any sort.

Welders and other people executing Hot Work must not wear any jewellery and or carry cigarette lighters on their person.

All welding machines are earthed, receive power through an approved earth leakage and fitted with an approved voltage reducer. A Certificate to be kept on Register.

4.8.22 Electrical Equipment

The *Contractor* must implement and comply with **Construction Regulation 22 and OH&S Act - Electrical Installation Regulations.**

Electrical Installations and Machinery on Construction

The *Contractor* must ensure that:

- All electrical installations carried out on the Site are in accordance with the Electrical Installation Regulations. For permanent or temporary installation, as appropriate. In addition, electrical installations must comply with Transnet Capital Projects Electrical Standard Specification
- Connections are not made to any power supply without the prior written approval of the Transnet Capital Projects Representative and Isolation Permit

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- All electrical installations are inspected by the Transnet Capital Projects Representative (or his nominee) to ensure that the installation complies with the Statutory Regulations applicable to the Site and Transnet Capital Projects Safety Regulations
- All electrical machines and appliances provided by the *Contractor* for his own use on the Site are in a serviceable condition
- Power tools used on the Site are protected by residual current devices approved by Transnet Capital Projects and are double insulated
- All extension cords, portable tools and electrical plant supplied at a voltage above 32 volts are inspected, tested and tagged by a Licensed Electrician at regular monthly intervals. Details of inspections and tests are kept in Log Books available for inspection by the Transnet Capital Projects Representative or any other authorised Officer of Transnet Capital Projects
- Where natural lighting is inadequate, artificial lighting is to be provided in all work areas, access ways and for rescue equipment. Compliance with OH&S Act - Environmental Regulation 3 and Annexure E to the Regulations.
- Portable lights have adequate stability and are fitted with a mechanical guard to protect the lamp
- Temporary festoon lighting is of the 'double insulated' type and is supported at least 2.5m above the floor, if possible
- Hand lamps are of the 'all insulated' type
- All temporary light fittings are supplied from more than one final sub-circuit, with the supply from a residual current device, extra low voltage source or an isolating transformer

Any installations deemed unsatisfactory by the Transnet Capital Projects Representative should be removed by the *Contractor* at his expense.

The *Contractor* must obtain approval from the Transnet Capital Projects Representative before any of his employees or Sub-contractors commence work within three (3) metres of conductor rails or high tension wires, or where there is a possibility of equipment coming close to and/or touching a power source, and must provide suitable protective insulating barriers. For the erection of scaffolding, the distance is five (5) metres.

Only authorised persons may enter Electrical Contactor Houses, Motor Rooms, Switch Rooms, Control Rooms or Cable Ducts. Should the *Contractor* require entering such places to carry out work, he must first obtain permission from the Transnet Capital Projects Representative and obtain a valid Permit to Work.

The *Contractor's* employees required to enter such electrical spaces "authorised persons", with the names entered in the Transnet Capital Projects Authorised

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Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Persons Register, after receiving approval from the Transnet Capital Projects Electrical Supervisor, or they are accompanied by an authorised person who must supervise the placement of Danger Tags and Out-of-Service Tags, as well as Electrical Isolation Permit.

Before commencing work on the Site, the *Contractor* must provide the following information to the Transnet Capital Projects Representative:

- Number of electrical machines and appliances to be placed in service on the Site
- Name plate data of each electrical machine and appliance
- Approximate total time the machines and appliances are in service to complete the Works
- The *Contractor* is responsible for the effective protection of his own electrical equipment from the weather and from possible mechanical damage

The *Contractor* is required to inspect electrical equipment as follows:

- Supply cabling distribution boards, fixed lighting and portable appliances on a monthly basis
- Extension leads, welding machines, compressors, pumps and hand portable tools on a weekly basis

Such inspection(s) are to be performed by an appropriately qualified Electrician and a report submitted to the Transnet Capital Projects Representative, in accordance with the following:

Frequency of Testing

The *Contractor* must test and Tag all the *Contractor's* and Sub-contractor's electrical equipment and leads on a monthly basis, as follows:

Colour Code

Contractors must ensure the tagging and colour coding of all tools and equipment.

Colour code a different colour for each month as follows:

- | | |
|------------------|-------------------|
| ♦ January - Red | July - Blue |
| ♦ February- Blue | August - Green |
| ♦ March - Orange | September - Red |
| ♦ April - Green | October - Yellow |
| ♦ May - White | November - Orange |
| ♦ June - Yellow | December - White |

Details of the Tag

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Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

The Tag is a plastic self-adhesive Tag unable to be re-used, as approved by the Construction Manager, and is capable of being marked with the following information:

- Test date, Inspection number, Testing Agent, Owner, Plant Number, Type of Equipment and Record Book

An up-to-date Record Book is maintained at all times and be available for inspection by the Transnet Capital Projects Representative.

The Record Book must contain full details, as identified in the Tag, and must list, in addition, the following:

- Licence Number and signature of the Electrician carrying out the test
- Comments on the results of the test and details of any repair work

Note: All electrical appliances must be fed through an approved and tested earth leakage device.

4.8.23 Rail Tracks and Roadways

The *Contractor* must implement and comply with **OH&S Act - General Safety Regulation 10.**

When a railway crossing exists on Site the *Contractor* must provide a trained Flagman.

4.8.24 Working at Heights on Platforms, Scaffolding and in Cradles

The *Contractor* must implement and comply with **OH&S Act - General Safety Regulation 6.**

Where personnel are required to work in any area not guarded for fall protection, which is 1.8 metres or more above ground level or platform, floor or surface below, permanent fall protection is utilised by the personnel. Fall protection includes:

- Safety harnesses and double lanyards
- Approved lifelines
- Other approved means

All harnesses must comply with **SABS** Standards.

This requirement also applies to Riggers erecting steelwork and Scaffolders erecting scaffolding. Riggers must at all times be permanently connected to adjacent steelwork through fall protection equipment. (Double lanyards to be used).

Note: To be implemented in conjunction with the requirements for Elevated Work

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Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

4.8.25 Work Platforms

The *Contractor* must ensure that all working platforms, be they permanent, temporary or portable, 1.5 metres or more in height, are fully decked, including toe boards, and fully hand railed. Where it is not practical to have handrails or there is a need to work outside handrails, the use of an approved safety harness, with lanyard attached to a secure anchorage is required.

4.8.26 Suspended Scaffold Platform

The *Contractor* must implement and comply with **OH&S Act - General Safety Regulation 15**.

Suspended platforms may only be used on Site with prior written approval from the Transnet Capital Projects Site Supervisor.

A *Contractor* must ensure that all suspended platform work operations are carried out under the supervision of a competent person who has been appointed in writing, and that all Suspended Platform Erectors, Operators and Inspectors are competent to carry out their work.

4.8.27 Crane Cradle (Man Cages)

The *Contractor* must implement and comply with **OH&S Act - Driven Machinery Regulation 18(8)**.

A Certificate of Approval is obtained from the Inspector (Department of Manpower) - For persons to be on or suspended from the hook of any crane. Only approved cradle may be used and the *Contractor* must strictly comply with written Procedures for their use.

Personnel in the cradle must have their feet on the floor at all times, and remain within the cradle.

Each employee within the cradle must wear approved safety harnesses and attached by a lifeline/sling to an anchorage point, which does not form part of the cradle.

Appropriate means of communication is provided for people in the cradle.

A tagline is used to stabilise the cradle.

Each cage is fitted with an information plate to indicate the maximum weight and number of persons to be lifted.

Cradles and cranes to be used are inspected every time before use and the findings recorded.

Copy of welding x-rays and approved engineering drawing to be kept on Site.

4.8.28 Scaffolding

The *Contractor* must implement and comply with **OH&S Act - SABS 085, General Safety Regulation 13D to G and Construction Regulation 14**.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Scaffolding may only be erected, dismantled and altered under the supervision of the *Contractor's* competent appointed person (approved Training Certificate to be submitted).

Guard rails and toe boards are provided on all outer edges and ends of all scaffolding where a person or an object can fall a distance of 1.5 metres or more.

Ladders to be staggered every 3.0m inside scaffold frame with safe landing platform and a trap door fitted on the working platform.

A Tagging Scaffolding Management System is used by the *Contractor* to ensure that scaffolding erected on Site complies with the provisions of Legal, SABS and Transnet Capital Projects rules.

Contractor's competent appointed Scaffold Inspectors (Training Certificate to be submitted), must carry out inspections of their scaffolding whenever the scaffolding has been modified, damaged or altered in any manner or form, and otherwise at least every 7 days during the period that the scaffolding is on Site and after inclement weather, to be captured on Register and the Tag.

The Transnet Capital Projects Representative must carry out random Compliance Audits. Such activities must in no way relieve the *Contractor* of his responsibility for ensuring that his scaffolding is safe for use.

Contractors must use SGB and or similar type Transnet Capital Projects approved Tags

4.8.29 Formwork and Support Work

The *Contractor* must implement and comply with **Construction Regulation 10**.

4.8.30 Ladders (Portable)

The *Contractor* must implement and comply with **OH&S Act - General Safety Regulation 13A**.

All ladders used on the site are constructed and used in compliance with the **OH&S Act and Regulations**.

Ladders, which provide access to a working platform, must extend one metre above the platform where it provides access, and is secured to prevent slipping.

Timber ladders must not be painted other than with clear preserving oils, clear varnishes or clear plastics.

Ladders, which are in a damaged condition, must not be used and are labelled accordingly and removed from the Premises.

All Ladders are numbered, logged in a Register, and inspected monthly.

A ladder in use is held by an Assistant and/or properly tied down.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

4.8.31 Overhead Cranes and Runways

The *Contractor* must implement and comply with **OH&S Act - General Machinery Regulations and Driven Machinery Regulations**.

Contractors and their employees must **NOT** go onto any operational overhead crane runway or crane for any purpose without a valid Permit to Work from Transnet Capital Projects or the *Client*.

When ascending to, or descending from, crane runways, always use the access provided for this purpose.

When crane runways are operational, prior to the commencement of any work being carried out on or near a crane runway, or in circumstances as necessary, the *Contractor* must arrange to isolate appropriate sections of the crane runway by fitting stops to the crane rail tracks.

If this is impracticable, the *Contractor* must provide a Watcher who must take up a position in the crane cab. In cases where there is more than one crane on the same runway, a Watcher is to be provided in the cab of each crane, which may approach the work area. The *Contractor* must note that the use of a Crane Watcher is not permitted for repairs or replacements of the crane rails.

The prime responsibility of the Watcher is to keep the employee, who may be in or move into a position of danger, constantly in view and warn the Crane Driver when necessary. It is important that Watchers are given clear and concise instructions in carrying out their responsibilities so as to ensure maximum safety. The Watcher must not engage in conversation with the Driver.

In cases where the Watcher stationed in the crane cab is unable at all times to view employees working on the runway, a second Watcher is placed in a position where there is a clear vision of both the employees working on the crane runway and the Watcher in the crane cabin.

When sections of runway are being replaced or repaired, arrangements are made to isolate the working position by fitting permanent rail stops to the crane rail tracks. If necessary, they are to be fitted on both sides of the section under repair. When the stops are fitted, they are at least three (3) metres clear of the area under repair.

When rail stops are fitted for this purpose, Danger Tags are fixed to the stops by each member of the group or groups working on the crane runway.

The *Contractor* must provide the Watcher with a hooter or suitable warning device.

4.8.32 Suspended Loads

The *Contractor* must implement and comply with **OH&S Act - Driven Machinery Regulation 18**.

Contractors and their employees must keep out from under suspended loads, including excavators, and must not stand between a load and a solid object where

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Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

they might be crushed if the load should swing. They must not pass or work under the boom or any crane or excavator.

Contractors and their employees must ensure that crane loads are not carried over the heads of any workmen.

When lifting concrete kibbles or containers with a hinged lifting bail, the crane hook is moused or the load suspended by means of a sling. This is to prevent disengagement of the bail from the hook on occasions when the weight of the kibble is accidentally taken on formwork etc.

Guide ropes to be used to prevent loads from swinging.

4.8.33 Working Overhead

Articles falling from heights can cause serious injuries. Employees working overhead must ensure that materials and tools are properly secured to prevent articles falling.

"**MEN WORKING ABOVE**" signs are displayed in the appropriate places.

Where there is danger of falling material, fence off the area in danger.

Material must not be thrown from aloft but is lowered in a safe manner - use a securely fixed rope to lower it.

No overhead work is allowed.

4.8.34 Roofing and Cladding

The *Contractor* must implement and comply with **OH&S Act - General Safety Regulation 10**.

The *Contractor* must provide safe access for gaining access on to the roofs.

The *Contractor* must provide ladders, scaffolds or a man-cage for this purpose.

A life-line, consisting of a steel wire rope – the diameter calculated to suit the span and the number of persons attached to it – is to be erected on the ridge of the structure, using a mechanical device e.g. turnbuckle, for tensioning the wire rope. (To be erected and placed on Register and checked daily by a competent person.)

The crew working on the roof are tied with nylon rope to the lifeline via their safety harnesses to allow them freedom of movement for placing the roof sheets.

No work is permitted during rain or when wind speeds exceed 30 Kph. – **This is only a guide it must also depend on Risk Assessment and working conditions.**

The Responsible Person must enforce this with the delegated authority on Site.

Bundles of roof sheeting stacked on the roof must conform to the following:

- Only sufficient bundles to be stacked on the roof to meet immediate needs – other bundles to remain stacked on the ground until required

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Bundles of sheeting to be secured by means of 20mm steel strapping applied with a strapping tool
- Securely tied to the rafters so as to prevent sheets being blown from the roof during high winds
- No material may be stored on the roof over weekends and holiday periods
- Side and gable cladding to be erected by means of a swing scaffold attached to the roof truss extensions as specified by the Manufacturer – no makeshift arrangements are permitted

4.8.35 Pneumatic Tools and Compressed Air

The *Contractor* must implement and comply with **OH&S Act - Driven Machine Regulation 14**.

May only be used on Site with prior written approval from the Transnet Capital Projects Site Supervisor.

It is illegal for a pneumatic tool to be operated by using a compressed gas cylinder. Pneumatic equipment must only draw supply from mobile air compressors or from compressed air lines installed within the premises after gaining permission from the Transnet Capital Projects Representative.

When using the interlocking type of connection of an airline, connectors are secured with wire clips through holes provided to prevent accidental disconnection.

Compressed air must not be used for general cleaning purposes or be used to blow down dirty clothes on people.

4.8.36 Radio-active Sources

The *Contractor* must implement and comply with **Nuclear Energy Act 131 of 1993**.

May not be utilised on Site without written permission from the Engineer and all Statutory Requirements are adhered to.

- Radiation Operators must submit proof of Certification
- All x-ray personnel must wear meters and film badges
- Warning signs and lights to be posted at all x-ray activities
- Sources are stored according to legal requirements
- All *Contractors* are informed of x-ray activities
- X-ray work may only commence with a valid Permit to Work
- X-ray areas to be barricaded and flagged with radio-active identification markers as per legal requirements

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

4.8.37 Cradle (Man – cages)

The *Contractor* must implement and comply with **Driven Machinery Regulation 18, General Safety Regulation 13C, and Lift Escalator and Passenger Conveyor Regulations.**

- The *Contractor* must ensure that every man-cage or similar device is securely suspended and is constructed in such a manner so as to prevent any occupant from falling there from
- The *Contractor* must ensure that an inspection is carried out prior and a performance test immediately after, the boatswain chair has been erected and thereafter a visual inspection should be carried out on a daily basis prior to use"

No user of machinery must require or permit any person to be moved or supported by means of a lifting machine fitted with a cradle (man-cage) unless approved for that purpose by an Inspector from the local Department of Manpower.

Should the use of such equipment be necessary for reaching otherwise inaccessible places, the *Contractor* must advise the Safety Coordinator of the equipment required and produce a Certificate of Approval from the Chief Inspector from the local Department of Manpower.

Cradle must comply with the specifications of Health and Safety Act and the Design Engineer and approved by the Department of Labour and reviewed by the Transnet Capital Projects Site Supervisor on Site.

The Transnet Capital Projects Representative is advised **well beforehand** of the intention to use such equipment on Site so that the Representative can make arrangements for inspection.

The Transnet Capital Projects Site Supervisor must approve any cradle before use.

The *Contractor* must provide:

- A copy of the approved Design Engineers Drawing for the Department of Labour
- Copies of Cradle Specifications and Load Test Certificate
- Copy of Welding X-Rays
- Certifications Number and Load Displayed Board

4.8.38 Conveyors

The *Contractor* must ensure his employees and those of his Sub-contractors do not attempt to cross conveyors. They must use the safe crossover bridges or subways.

Riding on conveyor belts is forbidden.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

4.8.39 Riding On and Operating Equipment

The *Contractor* must ensure his employees and those of his Sub-contractor's do not ride upon or attempt to operate cars, elevators, cranes or other moving equipment unless authorised and licensed to do so.

4.8.40 Fire and Emergency Equipment (Site)

The *Contractor* must provide and maintain all fire and emergency equipment. The *Contractor* must ensure all personnel familiarise themselves with locations of fire equipment in the vicinity of their work site. Work areas are clear, at all times, of any material, which could fuel a fire. A thorough inspection is made of the area at the end of any working period to ensure that no material is left at the work site or any situation left in such a manner that a fire or accident could result (all machines to be turned off at main switches, and cylinders to be closed and hoses deflated).

Electric welding, oxy-welding or cutting, or any other fire hazardous equipment is not to be used inside or adjacent to electrical switch room, control room, cable duct, any electrical equipment or cables without the permission of the Transnet Capital Projects Representative

The *Contractor* must supply all fire extinguishers for his work as required on the Site during the construction phase. Fire extinguishers are not to be used for any purpose other than their intended use.

The *Contractor* must ensure that his personnel are trained in the use of fire extinguishers.

4.8.41 Confined Space Work

The *Contractor* must implement and comply with **OH& S Act - General Safety Regulation 5.**

Enclosed space work necessitates a Confined Space Permit. This may only be obtained from the authorised person nominated in writing and after approval by the Transnet Capital Projects Representative.

The responsibility for Safe Procedure, both at the time of entry and during the entire operation of entering and working in confined spaces, rests with the *Contractor*. The *Contractor* is sure that adequate steps have been taken to eliminate or control hazards. Before working in an area which contains dust, the area is to be ventilated and hosed down to settle and dampen the dust.

The *Contractor* must provide all necessary equipment to manage confined spaces, including all necessary monitoring and rescue equipment (such as tripods, breathing equipment and the like).

The *Contractor* must ensure all persons working in a confined space or managing entry to a confined space are appropriately trained.

Compulsory: Continuous monitoring, trained rescue teams, radio communication and adequate ventilation.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

4.8.42 Excavations, Trenches and Floor Openings

The *Contractor* must implement and comply with **Construction Regulation 11 OH&S Act - General Safety Regulation 13**.

The *Contractor* must ensure that all excavation work is carried out under the supervision of a competent person who has been appointed in writing.

All handrails and fencing must comply with Guidelines and legal requirements as set out in paragraph 5.10. Barricading is provided around all holes or openings to prevent any person being injured as a result of a fall.

Where it is impracticable to provide fixed guard railing, effective removable barriers are provided at all unguarded openings in guard railing or floors, and is maintained in position at all times until the hazard no longer applies.

When excavations are necessary across roadways, approval is sought from the Transnet Capital Projects Representative. Where necessary, "Detour" notices and "Detour Routes" are provided.

Warning signs and flashing warning lights at night are provided in suitable positions to warn any persons approaching the area of the location and extent of any excavation.

Personnel must report any unusual conditions that may be found, such as underground power lines, pipe lines, sewers or inconsistent materials, immediately to the Transnet Capital Projects Representative and, if a risk to personnel safety is involved, stop all work until approval to continue is granted by the Transnet Capital Projects Representative.

Safe access and egress to be provided and sides battered or shored to the satisfaction of the Transnet Capital Projects Representative.

All excavations must be on Register and inspected daily before work commences and after inclement weather by the *Contractor's* appointed competent person, declared safe and his findings noted in the said Register.

Note: No loose material to be within 3m of the excavation edges.

4.8.43 Noise

The *Contractor* must implement and comply with **OH&S Act - Environmental Regulation 7**.

Transnet Capital Projects needs to meet Statutory Requirements on limitation of noise emitted by machines and equipment. When *Contractor's* personnel are required to operate such equipment, noise levels at the Operator position must not exceed an equivalent level of 85-dB (A) during normal working conditions. Employees working in the vicinity must not be subjected to an equivalent continuous level of 85-dB (A) during normal operating conditions. Comply with time periods and PPE requirements where applicable.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

The sound level at any works boundary caused by mobile equipment must not exceed the night-time background level pre-existing the operation of the equipment. At no time must the noise emission of the equipment cause the sound level at the nearest residence to exceed 40-dB (A). Sound levels are measured in accordance with **SABS 083**, with due allowance being made for tonal or impulsive components. A Plot Plan of Project or Plant must use to identify the measuring points with date, time and frequency duration of measurement.

4.8.44 Abrasive Blasting and Spray Painting

The *Contractor* must implement and comply with **OH&S Act Hazardous Chemical Substances Regulation 11**.

The *Contractor*, prior to performing any shot or abrasive blasting operations on the Site, must:

- Obtain written permission from the Transnet Capital Projects Representative
- Comply with any direction from the Transnet Capital Projects Representative as to the suitability of proposed blasting site, prescribed times of blasting operations, wind conditions or other considerations that the Transnet Capital Projects Representative may deem appropriate

The *Contractor* must not commence any spray painting operation on the Site without the written approval of the Transnet Capital Projects Representative.

The Transnet Capital Projects Representative may conduct an Environmental Impact Audit of the *Contractor's* proposed operation and the *Contractor* must comply with any direction by the Transnet Capital Projects Representative in relation to the *Contractor's* spray painting operation.

Painting work is carried out in such a manner that airborne particles of paint are contained on the immediate work area.

Any damage caused by such paint particles to privately owned vehicles parked or passing adjacent to the Site is the *Contractor's* responsibility and all costs involved in repairing and making good such damage is to the *Contractor's* account.

4.8.45 Ventilation

The *Contractor* must implement and comply with **OH&S Act - Environmental Regulation 5**.

For any job, which generates excessive dust or fumes (for example welding), an effective exhaust system is used.

4.8.46 Lighting

The *Contractor* must implement and comply with **OH&S Act – Environmental Regulations and Schedule E of the Regulation**.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Where natural lighting is inadequate, artificial lighting is provided in all work areas, access ways and for rescue equipment.

Portable lights must have adequate stability and be fitted with a mechanical guard to protect the lamp.

Temporary festoon lighting is of the 'all insulated' type and to be supported at least 2.5m above the floor if possible.

Hand lamps are of the 'all insulated' type.

Illumination checks are to be performed for night time work to check conformance to minimum light requirements.

4.8.47 Stacking Material

The *Contractor* must implement and comply with **OH&S Act - General Safety Regulation 8**.

Stacking to be neat and safe.

Before stacking any material, the *Contractor*, Sub-contractor or their employees must consult the Transnet Capital Projects Representative for allocation of a stacking area.

4.8.48 Manual Handling of Materials

Contractors must ensure that no employee is required or permitted to lift or move by hand any heavy object that is likely to cause a risk of injury.

Adequate PPE is issued and used if required.

4.8.49 Heat Stress

The *Contractor* must implement and comply with **OH&S Act - Environmental Regulation 2 (4)**.

To prevent heat stress illness, the main *Contractor* must plan suitable rest breaks for all employees and Sub-contractors exposed to excessive ambient or radiant heat.

4.8.50 Explosives

Comply with: **Explosives Act 26 of 1956**.

Explosives must not be brought onto the Site or be used without the express permission of the Transnet Capital Projects Representative.

Explosives or detonators must not be stored on the Site.

Detonators and other explosives must never be carried in the same box.

The provisions of all relevant Acts and Regulations are strictly observed.

4.8.51 Earthwork Hauling Requirements

The *Contractor* must implement and comply with **Construction Regulation 21**.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

PPE requirements during Bulk Earth Work:

- Hard hat
- Overall (non-supervisory)
- Steel cap safety boots/shoes
- Dust masks (when required)
- Dust goggles
- Reflective vest

Traffic Control

- A Points-man/Controller is placed at all road intersections, with a Stop/Go sign to control traffic
- Ripple Strips are placed at all road intersections and railway crossings
- During night driving, flashing lights are placed at crossings and intersections
- Adherence to all traffic signs is of vital importance
- All Haul Trucks, LDV's and Excavation Equipment is operated with Headlights on at all times
- Following distances - 3 truck lengths is kept between the trucks at all times
- Speed limit on Site is 30 km's per hour
- Reversing of vehicles must only take place under the guidance of a Spotter
- Heavy vehicles/equipment must always have the right of way
- A signal system is in place between Driver of haul truck and Loader Operator
- To enter: 1 blow of hooter
- To stop: 2 blows of hooter
- To pull off: 3 blows of hooter
- No overtaking must take place on Site or roads by haul trucks
- In case of a vehicle break-down on a road or haul road the vehicle is removed ASAP
- Warning signs are placed (during day-time: Red Triangular), (During night-time : Flashing Lights)
- Traffic Controller in front and back of vehicle – for all loading and offloading activities

LDV's

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

All LDV's are fitted with:

- Flashing and rotating green lights
- Whip aerials (3 metres) with red flags
- No vehicles are parked within 50 (fifty) meters of an on-loading or off-loading point
- Two-man rule is enforced at all times (only Driver and one passenger in front of LDV)

Haul Roads

- No pedestrians are allowed on haul roads, all employees are transported into Site to a shift change area designated for this purpose
- Haul roads are wetted by water cart at regular intervals if and when required
- Any large rocks and or spillages are removed and cleaned from roads immediately
- Ground pollution such as oil, diesel and hydraulic fluid must not be tolerated. If it occurred on the haul road or any other portion of the Site the ground is dug out, back filled and compacted)

Vehicles/Equipment

All vehicles are roadworthy at all times.

Pre-use Check is done against any approved Checklist; all faulty items are attended to immediately. In the case of faulty:

- Brakes
- Lights
- Air/Hydraulic System
- Oil Leaks - the vehicles/equipment are withdrawn from service for repairs
- Brake testing is done every shift before use (Brake Testing Method to be submitted)
- No major repairs or services are carried out on Site.
- Vehicles and mobile equipment are equipped with: -
 - ◆ Fire extinguisher
 - ◆ Reflector's/reflecting tape
 - ◆ Sides
 - ◆ Front

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- ◆ Back
- ◆ Reversing hooter

Operator's/Drivers

- A Relief Driver is available for every 4 dump trucks and Operators/Drivers are rotated at a 1 (one) hourly basis
- A Supervisor or appointed person must drive around from on-loading to off-loading points and ensure that Drivers get out of the vehicle and walk around it for 5 minutes and if required allow the person to relieve himself or to drink water or cold drink which is available on the LDV
- Random alcohol/drug testing is done and results are to be submitted
- All Drivers/Operators are appointed in writing
- If Driver/Operator does not adhere to Rules and Regulations his appointment is cancelled and he must not be able to carry on with his duty
- No Driver/Operator is appointed without proof of Training, Drivers Licence or Letter of Competency
- No training of Drivers/Operators on Site
- No passengers on dump truck, loaders or excavators
- No eating or drinking allowed while operating equipment
- No vehicle is left unattended with engine running or key in ignition
- No cellular phones may be used by Drivers during operations

4.8.52 Crane Requirements

The *Contractor* must implement and comply with **Construction Regulation 20 regarding Tower Cranes and OHS Act Driver Machinery Regulation 18.**

All Contractors must adhere to the following before any crane is allowed to operate on Site:

No crane is used at arrival on Site before copies of all documentation have been handed over to the Transnet Capital Projects Safety Coordinator and the crane has been checked by the competent Transnet Capital Projects Site Supervisor.

Crane Test Certificate

The Certificate is no older than 3 (three) months, and must cover the following:

- Ropes
- Hooks
- Slew brakes

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Outriggers and pads
- Boom and guides
- Anti two-block device
- Load Indicating System
- Boom OH and Save Wheels Condition
- Crane brakes and Air System

Copies of all documentation are kept in the crane at all times.

All cranes are fitted with the following Safety Devices - as per the Machinery and Occupational Safety Act. No. 6 of 1983. (Driver Machinery Regulation 18) including Transnet Capital Projects revised Best Practice).

Regulation 18.2 (Revised to include additional Transnet Capital Projects requirements)

A brake or other device capable of holding the maximum mass should the power fail, or which is such that it must automatically prevent the uncontrolled downward movement of the load when the raising effort is interrupted; and

A limiting device which must automatically arrest the driving effort when:

- The hook or load attachment point of the power driven lifting machine reaches its highest safe position; and
- In the case of a winch operated lifting machine with a lifting capacity of 5000kg or more; the load is greater than the rated mass load of such machine

Regulation 18.2.9 (revised to include additional Transnet Capital Projects requirements)

No user must use or permit any person to use a jib-crane with a lifting capacity of 5000kg or more at a minimum jib radius, unless it is provided with:

- A Load Indicator that must indicate to the Operator of the jib-crane the mass of the load being lifted, provided that such a device must not require manual adjustment from the application of the load, to the jib-crane, until the release of the load
- A Limiting Device which must automatically arrest the driving effort whenever the load being lifted is greater than the rated mass load of the jib-crane

Regulation 18.2.11 (Revised to include additional Transnet Capital Projects requirements)

The user must ensure that every lifting machine is operated by an Operator specifically trained for a particular type of lifting machine; provided that in case of fork lift trucks with a lifting capacity of 750kg or more, and jib-cranes with a lifting

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Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

capacity of 5000kg or more at minimum jib-radius; the user must not require or permit a person to operate such lifting machine unless the Operator is in possession of a Certificate of Training, issued by a person or organisation approved for the purpose by the Chief Inspector.

Mobile Crane near Power Lines

No mobile cranes are to be used near overhead power lines until the Transnet Capital Projects Representative has been notified and provided safe access conditions and a valid Permit to Work is obtained.

Mobile cranes are effectively earthed when working in the vicinity of electrical wires.

Assume that all electrical equipment and wires are live and avoid them.

4.8.53 Usage of Skyjacks and Material Hoist (Builder's Lift)

- No Skyjack is used before the Jack has been inspected and passed by the Transnet Capital Projects Site Supervisor
- The Test Certificate, no older than three (3) months is produced
- The Safe Working Load is clearly displayed
- The Operators must make use of safety belts/harnesses at all times
- Only trained, competent and appointed persons must operate Skyjacks
- Proof of Training and Training program is submitted
- No person must stand on the handrails of a Skyjack
- When a Skyjack is not operational, it is stopped, not lower than three (3) meters above ground level. The Operator must make use of a ladder to get in and out of the Skyjack. The ladder is removed to safekeeping when stopped and not in use
- The power supply is disconnected when not in use thus preventing unauthorised use

4.8.54 Material Hoists

The *Contractor* must implement and comply with **Construction Regulation 17**.

4.8.55 Water Environments

The *Contractor* must implement and comply with **Construction Regulation 24**.

4.8.56 Motor Fuel and Flammable Liquids

The *Contractor* must implement and comply with **OH&S Act - General Safety Regulation 9 and Temporary storage of flammable liquids on construction sites Construction Regulation 23**.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Contractor's proposals to store fuel on Site must have written approval from the Transnet Capital Projects Representative. The amount of fuel allowed to be stored must depend on Site conditions and Statutory Regulations.

Storage areas to be provided with a bund wall to contain 110% of the maximum volume of the container. Drip trays of sufficient size to be provided at tap of points.

Storage tanks are to be clearly marked with a "Flammable Liquid, No Smoking and No naked Flame" signs and be clearly marked to indicate contents of the tank.

Adequate numbers of dry chemical fire extinguishers, each with a minimum capacity of 4.5kg, are provided, installed and maintained.

Before a machine is refuelled, the motor is stopped. Refuelling must take place at designated safe areas and appropriate warning signs installed.

Inform the Fire Chief of the local Authority for recommendations of storage facilities.

4.8.57 Diesel Storage

May only be on Site with prior written approval from the Transnet Capital Projects Site Supervisor.

The *Contractor* must ensure that:

- Storage should be well clear of buildings
- Storage areas are kept free from all combustible materials
- All danger signs are prominently displayed e.g.:
 - ◆ No Smoking
 - ◆ No Naked Flames
- Adequate fire fighting equipment is available
- Diesel tanks are installed in a bunded area; bunded area is able to contain 110% of tank capacity
- Bund walls are plastered on the inside
- Bunded area must have a solid concrete/cement floor
- Bunded area must have a functional drain valve
- Loading/fuelling bay is a solid concrete base with a spillage trench leading to a spillage sump to contain any spillages
- All equipment is bonded
- All electrical lighting and equipment is of an approved flameproof type
- No other material/equipment is stored in the bunded area

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Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

4.8.58 Hazardous Material

Flammable liquids

The *Contractor* must implement and comply with **Construction Regulation 23** regarding use and temporary storage of flammable liquids on construction sites

Hazardous substances

The *Contractor* must implement and comply with **OH&S Act - Hazard Chemical Substances Regulations 9**.

Hazardous substances are any substances or materials specified in Statutory Regulations as being hazardous.

Prior to any hazardous substances being brought onto the Site or produced on the Site, the *Contractor* must supply the Transnet Capital Projects Representative with the following:

- Material Safety Data sheets (MSDS) in accordance with the requirements of the **OH&S Act – Regulations for Hazardous Chemical Substances**
- Proposed arrangements for safe storage
- Purpose for bringing the hazardous substance onto the Site
- Proposed methods for handling/usage
- Proposed method of disposal
- Proposed method of transportation

The information is to be provided at least two (2) working days prior to the expected commencement on Site.

The Transnet Capital Projects Representative must only approve the use of any hazardous substance after receiving a copy of the Materials Safety Data Sheet for the substance from the *Contractor*. Such substances are not to be brought onto the Site until the Transnet Capital Projects Representative's approval is received.

The *Contractor* must ensure that all necessary usage and storage precautions are taken and that safety equipment, including antidotes, if necessary, is available on the Site.

Note: Cleaners, solvents and hazardous materials not to be stored with flammable liquids!

4.8.59 Batch plants

The *Contractor* must implement and comply with **Construction Regulation 18**.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

4.9 Incident Management

4.9.1 Incident Reporting System

The *Contractor* must implement and comply with **OH&S Act - General Administrative Regulations 6 and 8**.

The *Contractor* must notify the Transnet Capital Projects Representative immediately of any non-conformance to procedures or of any other incident within the *Contractor* and his Sub-contractor's areas of responsibility in writing.

The *Contractor* must have an Accident and Incident Reporting System that is compatible with the Transnet Capital Projects standards and all applicable Statutory Requirements. Any incident or "near miss" involving the Transnet Capital Projects, the Transnet Capital Projects nominated Representative, the *Contractor* and its Sub-contractor's or any Third Party's personnel, property, plant or equipment, is verbally reported immediately to Transnet Capital Projects or Transnet Capital Projects nominated Representative, whether or not injury to personnel or damage to property or equipment resulted. A brief Written Report stating the known facts and conditions and including a Preliminary Assessment of most likely consequence potential of the incident in the circumstances is provided to Transnet Capital Projects or Transnet Capital Projects nominated Representative by the end of the shift.

The *Contractor* is reminded that this Incident Reporting System does not exempt the *Contractor* from providing Accident Reports required by Statutory Authorities, in particular, the *Contractor's* responsibility for reporting accidents in accordance with the requirements of the **OH&S Act and Compensation of Injuries and Diseases Act**.

Contractors must complete and keep record of Annexure 2 as required by legislation.

4.9.2 Serious Incidents

For any serious incident involving a fatality, or permanent disability, the incident scene is left untouched until witnessed by a Representative of the Police. This requirement does not preclude immediate First Aid being administered and the scene made safe.

4.9.3 Incident Report and Close-out

The *Contractor* must investigate the causes of all work accidents and significant incidents and must provide Transnet Capital Projects or Transnet Capital Projects nominated Representative with the results of the investigation and recommendations on how to prevent a recurrence. A formal Root Cause Investigation Process for all high potential incidents is followed (Annexure 7 of this document is to be used to report incidents).

The Written Report must include:

- Date, time and place of non-conformance

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Description of non-conformance
- Type of injury (if any)
- Medical treatment provided (if any)
- Persons involved
- Corrective action to prevent recurrence

Transnet Capital Projects or Transnet Capital Projects nominated Representative must have the right to designate a Representative to participate in the investigation at Transnet Capital Projects or Transnet Capital Projects nominated Representative's sole discretion.

Where the results of any investigation are not completed and issued to Transnet Capital Projects or Transnet Capital Projects nominated Representative within 24 hours from the time of occurrence, the *Contractor* must supply to Transnet Capital Projects or Transnet Capital Projects nominated Representative a written update every 24 hours of the progress and results of the investigation until such time as the Incident Report has been fully completed and issued to Transnet Capital Projects.

Where required by Statutory Requirements the *Contractor* is responsible for incident reporting to the appropriate Authority.

4.9.4 Corrective Action

The *Contractor* must:

- Ensure all hazards, incidents and accidents, including near misses, are investigated fully and documented
- Take corrective action to eliminate the cause of the incident or accident to prevent recurrence; and
- Review Inspection and Audit Reports to identify areas of improvement

For the purposes of this specification, a Health and Safety incident is taken as an incident involving harm or potential harm to any employees of the *Contractor*, the community, Sub-contractor and/or the work environment, or where the physical well being of a person, the community or the work environment has been placed at risk e.g. a near miss.

4.9.5 Injury Management

The aim of Injury Management is to ensure appropriate and adequate medical treatment is provided to injured employees to enable a quick and efficient return to the workplace.

A local Doctor has been nominated for the Project to which the Project Medical Staff will refer all injured employees requiring medical assistance in the first instance. If the *Contractor* does not wish to utilise the services of the Project Doctor the

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Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Contractor must make alternative arrangements and Transnet Capital Projects is to be notified in writing of the Doctor to be used. The treatment of injured personnel will not be compromised and the immediate needs will be referred as required by the Project Paramedics.

The Doctor is briefed on the commitment by the *Contractor* to Injury Management, alternative duties, and early return to work programs and rehabilitation.

Effective Injury Management must commence immediately after the accident has occurred and is to include:

- Counselling of the patient
- Referral to the nominated Medical Practitioner via the Project First Aid Centre (where required)
- Follow-up, including personal off Site visits by the *Contractor* (where required)
- Provision of off Site personal, family and social assistance where required
- Formal Assessments of employee capabilities prior to return to work; and
- Provision of alternate meaningful duties, where appropriate

4.10 Site Management

To be read in conjunction with other **Sections of the Contract**.

4.10.1 Notices

The *Contractor* must provide to Transnet Capital Projects or Transnet Capital Projects nominated Representative copies of any notices, correspondence or directions of whatsoever nature issued by any relevant Government Authority concerning Health and Safety within 8 hours of the dispatch and/or receipt of such notice, correspondence or direction, and must immediately comply with same.

4.10.2 Incorporation of Documents into Contract

The *Contractor* must comply with all Site Rules/Site Instructions issued to it by Transnet Capital Projects, which are by this reference incorporated into and made part of this Contract.

4.10.3 Interpretation of Safe Working Instructions

The *Contractor* must implement and comply with **OH&S Act - Section 8 (2) (j)**.

If any Site personnel are in doubt as to the meaning of any Safe Working Instructions, they must consult their Supervisor who issued them or the Site Office of the Transnet Capital Projects Representative.

4.10.4 Emergency Response Manual

The *Contractor* must provide Transnet Capital Projects with both electronic and hard copies of the *Contractor's* Emergency Response Manual that sets out its procedures

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

for fire spill response, rescue from heights and other relevant Emergency Response Procedures. Those procedures are made compatible with Transnet Capital Projects Emergency Response Procedures for the Site prior to commencing Site activities. Unforeseen conflicts between Transnet Capital Projects Policies and those of the *Contractor* are addressed and resolved by a direction from Transnet Capital Projects or Transnet Capital Projects nominated Representative prior to the *Contractor* commencing the work.

4.10.4.1 Emergency Drills

The *Contractor* must conduct Emergency Response Drills (including, but not limited to, fire, rescue and spill drills) to test the effectiveness of its Emergency Procedures and equipment, and the knowledge and proficiency of all response personnel. The timing of such drills is agreed and it is the responsibility of the *Contractor* after consultation with Transnet Capital Projects or Transnet Capital Projects nominated Representative. The *Contractor* must report the test results to Transnet Capital Projects, or Transnet Capital Projects nominated Representative if requested and as required by any Regulatory Agency.

4.10.4.2 Fire Fighting

The *Contractor* must prominently publish, in all relevant languages for all areas of operation under its control, the Procedures to be carried out in the event of fire.

The *Contractor* must train all employees in the Procedures to be followed in the event of a fire and/or a fire alarm.

Contractors must familiarize themselves with locations of fire equipment in the vicinity of their work site. Work areas are clear, at all times, of any smouldering material which could fuel a fire. A thorough inspection is done of the area at the end of any working period to ensure that no smouldering material is left at the work site or any situation left in such a manner that a fire or accident could result.

Electric welding, oxy-welding or cutting, or any other fire hazardous equipment is not to be used inside electrical switch rooms, control rooms, cable ducts or adjacent to any electrical switch room, control room, cable duct or adjacent to any electrical equipment, cables or conveyor belts without the permission of Transnet Capital Projects or Transnet Capital Projects nominated Representative.

The *Contractor* must supply all fire extinguishers for its work as required by the Statutory Regulations governing the Site. Fire extinguishers are not to be used for any purpose other than their intended use.

Fire Precautions on Construction Sites

In addition to the Guidelines above the *Contractor* must implement and comply with **Construction Regulation 27**.

Good Housekeeping plays a major role in Fire Prevention

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

The Contractor must ensure that:

- All flammable/combustible material is removed on a daily basis
- The minimum amount of flammable liquids (petrol, thinners and paint) are brought on to Site.
- All required safety signs are posted if any work is carried out with any flammable/combustible materials i.e. NO SMOKING, NO NAKED FLAMES and NO UNAUTHORISED ENTRY
- That Supervisors are to do constant and regular inspections to ensure adherence of Procedures

Fire Fighting and Training

It is the responsibility of the *Contractor* to ensure that Supervisory Staff and all persons involved in grinding, cutting or welding are familiar with Fire Fighting Procedures and the use of fire fighting equipment.

Maintenance

All fire extinguishers must be:

- Conspicuously numbered
- Entered in a Register
- Visibly inspected monthly by a competent person
- Inspected at least every six (6) months by an Accredited Supplier
- Results entered in the Register and signed

Damaged Equipment

Fire extinguishers with damaged or broken seals are to be returned to an Accredited Supplier for re-charge/repair. Details are entered in the Register.

High Fire Risk Areas

Cognisance is taken of the fact that certain areas might be designated as High Fire Risk Areas on account of the large number of rubber-lined, polyurethane and fiberglass components etc. present. As such, additional precautions have been instituted to ensure that strict control is exercised over all grinding, cutting and welding operations being carried out in these areas.

4.10.5 Safety Equipment

The *Contractor* must ensure that all its safety equipment is regularly maintained and tested, that it is always in a serviceable condition, and that the *Contractor's* personnel and its Sub-contractor's personnel are instructed, trained, competent and, where required, certified in the use of such safety equipment. The safety equipment must comply with all applicable Laws, Rules, and Regulations.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

4.10.6 Weather Precautions

The *Contractor's* Emergency Response Manual must include Procedures for adverse weather conditions (high winds, flooding, storm surge, lightning etc). In the event of impending adverse weather or other conditions, the *Contractor*, in consultation with Transnet Capital Projects and Transnet Capital Projects nominated Representative must decide whether to institute such precautionary measures in connection with the carrying out of the work, for example emergency temporary bunding, tie down of cranes and partly installed structures etc.

4.10.7 Vehicles

Access to Site

The *Contractor* must coordinate his intra-premises vehicles (limited to valid Permit Holders issued by the Transnet Capital Projects Representative only).

Gates may be used by light vehicles with valid Permits and must only be used for heavy vehicle movements with the prior written consent of the Transnet Capital Projects Representative.

Vehicles and mobile equipment must not be permitted entry to the premises without the written approval of Transnet Capital Projects Security personnel.

Upon written application to the Transnet Capital Projects Representative, the *Contractor's* Senior Supervisory Personnel may be issued with gate passes permitting access to the premises for nominated private vehicles.

Transnet Capital Projects reserves the right to search any vehicle on the premises or when entering or leaving the premises, whether privately owned or otherwise.

The *Contractor* is solely responsible for the safety and security of any of his vehicles (including private vehicles) on the premises.

Transnet Capital Projects must deny access to the premises of any Driver and/or vehicle not issued with a Gate Pass and/or failing to comply with Transnet Capital Projects Safety Requirements.

The *Contractor* must attach Identification Markers provided by Transnet Capital Projects to all of his vehicles permitted to enter the Site.

A Current Maintenance Log Book is required for all cranes and large plant equipment, and is available for inspection at any time by the Transnet Capital Projects Representative. The Log Book is located in the cabin of the said crane or plant equipment. Cranes may only enter Site after submission of relevant documents and when tested and approved by the Transnet Capital Projects Representative and relevant authorisation is issued.

Drivers of all construction self-propelled mobile equipment must carry a valid appointment with them at all times.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Whenever entering the works, the *Contractor* is to supply to the Main Gate, a list of all equipment and materials being brought on Site, which is checked prior to entry being permitted. The List is retained and used for checking the equipment and materials being taken out of the gate when the *Contractor* is leaving the works.

Vehicle Drivers

The *Contractor's* Vehicle Drivers must:

- Comply with all safety, direction and speed signs and drive in accordance with the provisions of Transnet Capital Projects Site Traffic Rules
- Ensure that vehicle loads are properly secured and loaded onto vehicles
- Not divert from designated routes or travel on unsealed roads/areas without the prior written approval of the Transnet Capital Projects Representative
- Obey all instructions given by Transnet Capital Projects Security/Emergency Services Officers
- Ensure that vehicles are not overloaded

Licensing of Vehicle Drivers

Unlicensed persons must not be permitted to control vehicles on the premises.

The *Contractor* must not permit his employees or employees of his Sub-contractors to operate equipment or mobile plant without appropriate appointment. (To be carried by Driver at all times).

Registration of Vehicles

All vehicles used by the *Contractor* on the premises are roadworthy and registered by the appropriate Traffic Authority.

All vehicles used by the *Contractor* on the premises are maintained to standards of the **Road Traffic Act 29/1989**.

The *Contractor* must provide evidence to the Transnet Capital Projects Representative that all mobile cranes, fork lifts, front-end loaders, back hoes, elevated platforms, road vehicles or mechanical equipment of any kind, which is used in complying with the *Contractor's* obligations under this Contract, comply with the requirements of the **Occupational Health and Safety Act 85/1993 and Regulations and of the Road Traffic Act 29/1989** prior to that equipment being brought onto the premises.

In the event the equipment is not owned by the *Contractor*, the *Contractor* is still responsible for ensuring all conditions are complied with by all of his Sub-contractors or hire companies.

On-site Vehicles

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Owing to heavy traffic operating in and through the construction site and in the interest of general safety only the minimum necessary number of *Contractor's* vehicles are permitted on site.

When not travelling through the Site the *Contractor's* haulage vehicles or cranes are parked within his site lay down area. Only the Site Manager's personal vehicle is permitted to park in the Site Offices area.

All cars that are parked on Site are parked at the owner's/*Contractor's* own risk!

Accidents

In the event of an accident on Site in which the *Contractor's* employee or Sub-contractor is involved, the Driver must remain at the scene until the accident is attended by the Transnet Capital Projects Representative, or the *Contractor* has received approval from the Transnet Capital Projects Representative, to leave the scene, unless medical attention is required.

Vehicle Safety

In order to maintain a "Zero Tolerance" Policy in the use of self-propelled equipment the following rules are adhered to at all times on Site or any other plant.

As far as driving/operating of any self-propelled vehicle/equipment on Site Transnet Capital Projects requires that the Driver/Operator of such equipment is appointed in writing by the *Contractor's* Construction Manager and confirm that the person has attained the age of 18 years and:

- Does not suffer from defective sight or hearing or any other infirmity, mental or physical, likely to interfere with the efficient discharge of his duties
- Has completed a satisfactory Course of Training; and has been found competent or in possession of a Drivers License issued by a Provincial Authority for which authorisation is granted

Rules

Traffic Rules and Signs such as speed signs and stop signs are obeyed at all times.

As a result of the large amount of heavy equipment and other vehicles in operation on Site all vehicles/equipment, Drivers/Operators must adhere strictly to all Rules and Regulations.

Should any person be stopped for not adhering to Regulations, his Permit is withdrawn and he must not be able to carry on with his normal duties. The Driver of the vehicle is responsible for the safety of his passengers in or on the vehicle.

- No passengers are allowed to be on the back of any vehicle in motion or sit on the sides of the vehicle or having any part of his body hanging over the side of the vehicle whilst in motion
- No passengers are allowed in or on the back of a vehicle with any unsecured load

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Under no circumstances must any person try to secure any load manually whilst the vehicle is in motion. Loads on the vehicle are properly secured before the vehicle is allowed to move
- No passengers are allowed to sit on top of the load, if the load is higher than the sides
- The 2-man rule is always applied. Only 2 persons (the Driver and one passenger) are allowed in front of an LDV
- No passengers are allowed on mobi-lifts, mobile cranes, tractors, fork trucks or dumpers or on trailers behind vehicles
- No vehicles are left with the engine running or the keys in the ignition, if the Drivers leave the vehicle unattended
- Should the load be moved and transported by means of a mobi-lift, guide ropes must always be in use. Persons guiding the load are not allowed between the lift and load, and the load must, under no circumstances obscure the view of the Driver. The mobi-lift must travel at a slow walking speed

In the event of an accident in which the *Contractor's* employee is involved, the employee must remain at the scene until Transnet Capital Projects or Transnet Capital Projects nominated Representative or the Police arrive on the scene or until Transnet Capital Projects or Transnet Capital Projects nominated Representative, or the Police authorises the employee to leave the scene, unless the employee needs medical attention.

Transportation and Securing of Loads

Long and Wide Loads

When transporting long and wide loads, the *Contractor* must ensure compliance with the Road Traffic Regulations. The Transnet Capital Projects Representative is notified so those necessary requirements can be made where an escort may be necessary and so that the appropriate entrance can be arranged.

Securing of Loads on Vehicles

It is unacceptable that a person is injured or property damaged as a result of loads being transported on Site without appropriate securing.

Principles

- Any load-carrying vehicle is loaded, secured and driven in such a way so as to prevent injury to any person, or damage to any property
- The vehicle should be suitable for the type and size of the load
- The load is correctly positioned on the vehicle

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- The load-securing equipment and vehicle restraint structures are strong enough for their intended purpose and are functional
- Loads are restrained to prevent unacceptable movement
- The Driver must take into account the changes in the vehicle's stability, steering and braking characteristics influenced by the load

What Truck Drivers must do:

- Secure the loads according to the principles
- If unsure, seek advice before proceeding

What Dispatch Points must do:

- Check that the load has been restrained correctly before the truck is allowed to leave

Note: Nobody may ride on the back of any loaded vehicle.

4.10.8 Commencement of Work

Prior to the commencement of any Site work, the *Contractor* must consult with Transnet Capital Projects or Transnet Capital Projects nominated Representative regarding the availability of and access to the item or area of the plant to be worked on and regarding instructions relating to any special or unusual Safety Procedures that are to be followed.

The *Contractor* must not commence work on a particular item or area of the Site until Transnet Capital Projects or Transnet Capital Projects nominated Representative has provided the appropriate "Authority to Commence Work".

4.10.9 Notifications

4.10.9.1 Electrical Work (Power Supply)

The *Contractor* must submit to Transnet Capital Projects or Transnet Capital Projects nominated Representative and the Power Authority, in writing, notification of completion of any power supply system electrical work prior to power being supplied. No further work is undertaken without the written acceptance of Transnet Capital Projects or Transnet Capital Projects nominated Representative and the Power Authority. All electrical work is carried out in accordance with the relevant Statutory Requirements. The Site Construction Manager and the Power Authority must approve all electrical work before being energised.

4.10.9.2 Plumbing Work

The *Contractor* must submit to Transnet Capital Projects or Transnet Capital Projects nominated Representative, in writing, notification of completion of any plumbing work prior to water being supplied. No further work is undertaken without the written acceptance of Transnet Capital Projects or Transnet Capital Projects

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

nominated Representative. All plumbing work is carried out in accordance with the relevant Statutory Requirements.

4.10.10 Completion Inspection

On completion of any work on Site the *Contractor* must notify Transnet Capital Projects or Transnet Capital Projects nominated Representative, and conduct a final inspection to ensure that all items and areas of plant are left in a safe, clean and operational condition.

4.10.11 Housekeeping

The *Contractor* must implement and comply with Construction **Regulation 25**.

The *Contractor* must maintain all work areas in a tidy state, free of debris and rubbish. Unless directed otherwise, the *Contractor* must dispose of all debris, rubbish, spoil and hazardous waste off site, outside Transnet Capital Projects property in a designated and authorised area or facility. The *Contractor* should make itself aware of the Transnet Capital Projects Waste Management Plan and collection and disposal arrangements and align its Waste Management Program accordingly.

In cases where an inadequate standard of housekeeping has developed and compromised safety and cleanliness, the Transnet Capital Projects Representative has the right to instruct the *Contractor* to cease work until the area has been tidied up and made safe. Neither additional costs nor extension of time to the Contract is allowed as a result of such a stoppage. Failure to comply must result in site cleaning by another *Contractor* at the cost of the non-complying *Contractor*.

The *Contractor* must carry out regular Safety/Housekeeping Inspections at least weekly to ensure maintenance of satisfactory standards. The *Contractor* must document the results of each Inspection and must maintain records for viewing by the Transnet Capital Projects Representative.

At the time that the *Contractor* establishes site facilities and permanently mans the Site, or at an alternative time agreed between Transnet Capital Projects and the *Contractor*, the *Contractor* must assign dedicated Housekeeping Crews.

These Crews must assist in maintaining a clean and safe working environment by patrolling the *Contractor's* work area (including Transnet Capital Projects site offices, lay down areas and construction site) and performing such duties as ensuring that scrap material, general refuse, rubble and other forms of unwanted materials are removed from the Site within four (4) hours of generation.

Housekeeping Crews must also actively assist in creating and maintaining a safe work environment by being aware of unsafe conditions, bringing these conditions to the attention of appropriate personnel, and by direct intervention through tasks such as ensuring leads and hoses are placed in a manner which avoids the creation of trip hazards or potentially unsafe conditions.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Note: No shift may commence without and/or before proper housekeeping is in place.

4.10.12 Maintenance

All equipment and structures both fixed and temporary are to receive regular maintenance, at intervals no longer than that recommended by the Manufacturer, under a planned Maintenance System to ensure the safety of personnel who are responsible for operating the equipment.

The *Contractor* must maintain copies of all current tests and Maintenance Certificates relating to cranes, lifting beams, pulley blocks, lifting gear and slings, and must make them available to Transnet Capital Projects or Transnet Capital Projects nominated Representative upon request. No lifting beam or spreader bar is used unless a current Certificate of Inspection is available and the SWL is stamped on the equipment.

4.10.13 Defect Reporting and Correction

Where defects are identified during any routine Inspection, Pre-start Check or during operation or use of any tools, equipment, motor vehicle, structure etc. it is immediately reported for repair and the tools, equipment etc. appropriately tagged to identify the defect and to limit further use until repairs have been completed and re-inspection carried out. Such defect reports are in writing.

4.10.14 Contractor Health and Safety Documentation

The *Contractor* is required to supply to Transnet Capital Projects Health and Safety documentation as indicated in this Specification and as directed by Transnet Capital Projects throughout the Contract.

4.10.15 Electricity

The *Contractor* must implement and comply with **OH&S Act Electrical Installation Regulations OH&S Act Construction Regulation 22.**

All electrical installation is carried out by an appointed and qualified Ticketed Electrical Installation Electrician the *Contractor* must keep a record of his approval of the installation.

4.10.16 Wearing of Short Trousers/Pants on Site (Prohibited)

Long trousers/pants are worn in the construction areas or in any workshop in the lay down area.

4.10.17 Intoxicating Liquor or Drugs

The *Contractor* must implement and comply with **OH&S Act – General Administrative Regulation 10.**

Any person found on the Site or attempting to enter Site, in possession of or consuming intoxicating liquor or illegal drugs, or considered unfit for work from the

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Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

apparent influence of intoxicating liquor or illegal drugs or prescription drugs, is removed from the Site.

4.10.18 Access Control

The *Contractor* must comply with Transnet Capital Projects Access Control Systems applicable to the Plant as well as specific to the construction site.

Failure to comply with these requirements is viewed as a major safety breach requiring disciplinary action of removal from Site and/or suspension without payment.

4.10.19 Trespass

The *Contractor* and his employees must not trespass on any land outside the limits of the Site, as determined by the Transnet Capital Projects Representative, and must ensure that all fences are maintained during the Contract. If instructed by the Transnet Capital Projects Representative, the *Contractor* must remove from the Site any employee who offends against the provision of this clause.

The *Contractor* and his employees are required to work only in the specified construction areas and access to these areas is only by routes specified by the Transnet Capital Projects Representative.

4.10.20 Visitors to Site

Visitors to the Site are required to comply with Site-specific Safety Induction prior to being allowed access to Site.

The *Contractor* must refer all applications for Site Inspections to the Transnet Capital Projects Representative. The *Contractor* must not arrange inspections by visitors to the Site without the prior approval of the Transnet Capital Projects Representative.

The *Contractor*, at the Transnet Capital Projects Representative's direction, may allow casual visitors, who will be on site for less than one (1) day, access to the site without attending an induction, providing that, for the full period the visitor is on site, the visitor remains in the care and custody of a person who has been properly inducted.

4.10.21 Construction Welfare Facilities

The *Contractor* must implement and comply with **Construction Regulation 28**.

4.10.22 Emergency Evacuation

The *Contractor* must implement and comply with **OH&S Act – Environmental Regulation 9**.

The *Contractor* must establish and implement an Emergency Evacuation Procedure. Ensure that in the event of fire, explosion, flooding etc. all staff leave their place of work at the sound of the fire gong or siren and proceed to a safe area demarcated

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

for the purpose, away from offices and store buildings. The *Contractor* must provide a siren markedly different from that of the operating plant area.

The area so selected is demarcated and the relevant "Assembly Point" sign displayed. An evacuation Route Diagram is visibly displayed in all buildings.

An Emergency Evacuation Procedure is drawn up; all staff members and *Contractors* given Awareness Training and participate in regular evacuation drills.

The Procedure must be submitted to the Transnet Capital Projects *Project Manager*.

4.10.23 Officer Health and Safety Roles and Responsibilities

Contractor's Site Safety Officer

- Implement and maintain the Transnet Capital Projects Safety Management Plan on Site for all *Contractors*
- Advise the Site Management Team on safety issues and suggested solutions
- Report directly to the *Contractor's* Construction Manager and act on his authority regarding safety issues
- Promote a culture in which safety is the prime concern and must never be compromised
- Promote the involvement of all employees and *Contractors* in improving safety
- Focus on and establish a culture of the elimination of unsafe acts, and rectification of unsafe conditions quickly, by Management and supervision
- Ensure self and others safety awareness at all times
- Facilitate and participate in all *Contractors'* Accident/Incident Investigations. Ensure that all incidents are thoroughly investigated to avoid re-occurrence
- Participate in and contribute to the Transnet Capital Projects Management Team Safety Plan
- Ensure that all involved, Transnet Capital Projects and *Contractor's* personnel, prior to commencement of any work complete Risk Assessments (RA) and Daily Safety Task Instruction (DSTI). Then, by a Review Process, verifying that the development process is appropriate, communicated and understood by the users and subsequently complied with by means of at least two Daily Site Inspections
- Ensure SMI boards are erected in each working area, and the following minimum information is displayed – Method Statement, Risk Assessment, DSTI, Supervisor, First Aider and Safety Representative
- Coordinate all Safety Induction Training Requirements and conduct Transnet Capital Projects Specific Induction for Transnet Capital Projects and *Contractor* supervision

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Coordinate site accesses and security
- Coordinate and implement comprehensive Daily Incident Reporting by Management, supervision, Foremen and Safety Officers
- Compile and present a Weekly Safety Report to include; Incident Trend Analyses and Preventative Measures. *Contractor's* Planned Tasked Observations for week ahead. DSTI quality and effectiveness. Management Walkabouts including participation and findings. High risk activities for the week ahead. Risk Assessment Plan for week ahead, based on the Construction Plan. Statistics for previous week regarding man-hours, complement, RA's completed, Induction and Medicals (entry and exit). Estimates for week ahead regarding, complement, RA's, Induction and Medicals (entry and exit)
- Conduct a Bi-weekly Internal *Contractor's* Audit to ensure implementation and continuous compliance with the Safety Management Plan. Record findings and issue action sheets for deviations to include an Action Close-out Plan and Report
- Accompany injured people to Doctor/hospital and ensure prompt treatment and return to work. Report all medical treatment cases immediately (telephonic) to the Transnet Capital Projects Health and Safety Programme Manager and follow it up with a initial Significant Safety Occurrence Report before the end of shift and a complete investigation within 24 hours
- Coordinate and ensure the pre-check and recording thereof for all tools, plant and equipment
- Final check and sign of RA's before submitting to the Transnet Capital Projects *Project Manager* for approval
- Implement and maintain the Construction Regulations

4.10.24 **Risk Assessments (RA's)**

- To be completed one week before the execution of a job, and submitted to the Transnet Capital Projects *Project Manager* for approval, to avoid delays. (See Annexure 1 for the required document)
- Each *Contractor* must submit a RA Plan that will also include a Monitoring and Review Plan
- Attach Safe Work Procedures (See Annexure 2 for the required document) and Method Statements (See Annexure 3 for the required document) to Risk Assessments
- Each Supervisor to communicate Job Specific Risk Assessments to every person involved on the job, and Workmen must sign acknowledgment the communication of and understanding the risks related to the job and preventative measures and controls
- General Risk Assessments will not be accepted

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- RA Team to consist of the *Contractor's* Construction Manager, Specific Task Supervisor, and Specialists executing the job, Safety Officer and the Transnet Capital Projects Supervisor and or *Project Manager*.

4.10.25 Daily Safe Task Instructions (DSTI's)

- Each *Contractor's* Supervisor and Foreman must, on a daily basis before work commences, inspect his work area and complete the Checklist part of the DSTI. (See Annexure 4 for the required document)
- Complete the DSTI regarding tasks for the shift, specific hazards and specific precautions and also refer to and discuss the precautions and controls of the relevant Risk Assessments
- Discuss the DSTI with his team
- The Supervisor and his team must then sign the DSTI acknowledging communication thereof

If the scope of work or job changes, the DSTI is revised and communicated before commencing with changed job.

4.10.26 Planned Task Observations (PTO)

- Each *Contractor's* Supervisor and Foreman will complete and submit at least one PTO daily. (See Annexure 5 for the required document)
- When sub-standards are identified RA's are revised and communicated again
- Discuss and rectify non-standard actions with employee

4.10.27 Management - Visible Felt Leadership

The *Contractor's* Construction Manager, Safety Officer, Supervisor and Foreman per area, must conduct and record a Daily Visible Felt Leadership Checklist. (See Annexure 6 for the required document)

The Transnet Capital Projects Site Supervisor must participate at least twice a week in the Walkabout.

4.10.28 Health and Safety Experience Board

The *Contractor* must provide a Health and Safety Experience Board, to be approved by the Transnet Capital Projects Manager, displaying:

- Contractor's Logo
- Transnet Capital Projects Logo
- Manpower
- Lost Time Injury Frequency Rate -LTIFR
- Man-hours

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- Incidents and injuries

4.10.29 Safety Management Information Notice Boards

The *Contractor* must provide Safety Management Information Notice Boards (SMI Boards) in work areas per Foreman, with the following posted:

- Relevant RA
- DSTI
- Method Statement
- Weekly Safety Report
- Emergency Procedure; and the
- Supervisor's photo and contact details

4.10.30 Site Specific Health and Safety Rules and Requirements

The *Contractor* must provide, ensure implementation and comply with the following Site Specific Health and Safety Rules and Requirements:

- Safe **access and egress** to and from work areas
- Good **Housekeeping** and Stacking Practices – continuous cleaning and clearing of work platforms after every shift. No work to commence before complying
- Safe and orderly routing of **welding cables, electrical extensions and air hoses**. Elevated out of walk ways on temporary hooks/racks
- **Rigging Studies** for all heavy and/or difficult lifts
- No lifting in **windy conditions** exceeding 30 km/h. (This is only a guide - it will also depend on Risk Assessment/Rigging Study/Shape Mass and Size of Load and the capability of the Crane to be used!)
- Prohibiting certain work in **wet conditions** – elevated work, sheeting etc.
- People may not be **transported** on the back of a bakkie and or truck. Never on top of material!
- **Elevated work** - Compulsory use of **lifelines, safety harnesses and fall arrestors** including a Height Rescue System and training of rescuers. To comply with SABS-EN –353-355, 358, 360-365, 795, 813 and SABS 033, 1833, 341, 564-567, 892, 1891, 12277 and 4878 - Fall Right SA Standards or equivalent - Attached at all times in elevated positions and use of double lanyards
- **Scaffolding** to comply with Legal, SABS 085 - 1998 and Transnet Capital Projects Standards – Tagged to SGB Standards:
 - ◆ Ladders on inside of frames, staggered every two meters with a safe landing platform

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- ◆ Trap door fitted on working platform
- **Work benches** to be provided for on site work
- Riggers to be identified by means of **illuminating vests**
- **Solid barricading** – Solid frame covered with orange netting – excavations, overhead work, walkways and all openings
- Attaching of tools and equipment at heights – **use lanyards**
- Wearing of **gloves** applicable to task and approved eye protection for all activities
- Use of **spacers/wedges** when fitting equipment
- **Shields and fire blankets** to be used for grinding, welding and gas cutting operations to contain sparks
- **Fire extinguishers** – With people when doing hot work, on self propelled mobile machines and at all fuel driven machines
- **Guide ropes** to be used for all lifts
- **Firewatchers** to be posted when commencing hot work in hazard prone areas
- **Permits** to be obtained and adhered to
- **Excavations:** Provide for shoring, battering back, soil and loose rocks to be 2 meters from edge and approved barricading
- **Dedicated Flagmen** with illuminating vests to be in control of movement of heavy mobile and earth moving equipment
- Submit a **Safety Incentive Scheme** for approval, and provide for the cost for it
- Equipment Safety Officer must have a **Computer with CD Rom and stiffy drive and cell phone**
- The **cradle to grave** principle is implemented and adhered to regarding spillage of hazardous and flammable substances
- **Voltage reducers** fitted to all welding machines
- **Concrete buckets** to be fitted with safety chains and opening wheels
- **Earth leakage** units to be fitted to all portable generator sets and welding machines with electrical outlets
- **Earth moving vehicles** to be fitted with prescribed rotating lights and operated with headlights on. Site vehicles to be fitted with whip aerials and rotating lights. Reverse hooters/back-up alarms to be functional at all times
- **Weatherproof caravan type connections** fitted to all electrical equipment and extensions

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- **Nine inch grinders** not to be used, unless fitted with backing plate
- **All cranes** are fitted with: Anti two block cut out devices/automatic load arrest systems/ automatic load limit devices and indicators/gear lock on neutral and a waist safety belt
- **All self propelled mobile machines** are fitted with fire extinguishers and reverse hooters/back-up alarms
- **Flashback arrestors** at cylinders and torches and proper clamps (gas cutting equipment)
- Correct and safe **manual lifting** operations
- **Supervision ratio** of Foreman to Workers - Not > 1:15
- Two new **long sleeve overalls** with company logo on back to be provided every six months. (or more frequently, if required due to specific task)

Hard Hat Identification:

- Supervisors and Foreman = White
- Safety Officers = Orange
- First Aiders = Green
- Safety Representatives = Yellow
- Riggers and Banksmen = Red
- Any other colour for rest of workforce provided that it is different per *Contractor* and approved by the Transnet Capital Projects *Project Manager*

Shaded eating areas with:

- Tables and chairs
- Hand washing facilities
- Adequate potable water provided

Portable Toilets

- At a ratio of 1:10
- To be cleaned daily and maintained weekly as minimum requirement
- Running water to be available at toilets.

4.10.31 Fundamental Health and Safety Requirements

Before any work commences, proof of and the following non-negotiable deliverables are required:

- Legal Liability Training of all Supervisors and Construction Managers

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

- IRCON or equivalent approved course for all Supervisors, Foremen and Construction Managers
- Incident Investigation Training by Construction Manager and or Safety Officer
- Letter of Good Standing with the Workman's Compensation Commissioner
- Public Liability Insurance
- Competency Training Certificates of people to execute the job
- Method Statements for work to be conducted
- A Baseline Risk Assessment
- Risk Assessments for every job
- A Construction Plan detailing each activity per job
- Signed Legal Appointments as required by legislation
- *Contractor's* Safety Officer - to be interviewed and approved by the Transnet Capital Projects Health and Safety Programme Manager
- All equipment to be on a current Register, backed up by relevant Test Certificates
- A Medical Fitness Certificate for each employee
- Attending of Transnet Capital Projects and *Contractor's* Job Specific Induction

4.11 Termination and Suspension for Breach of Health and Safety Conditions

Transnet Capital Projects and the *Contractor* agree that the provisions of this clause are of the utmost importance, and any relevant violation of them is considered to be a material and substantial breach of this Contract.

The *Contractor* must not cause, permit, or tolerate a hazardous, unsafe, unhealthy or environmentally unsound condition or activity over which he has control at the Site. If the *Contractor* becomes aware of any hazardous, unsafe, unhealthy or environmentally unsound conditions, including a violation of any of the Health and Safety Requirements, he must immediately notify Transnet Capital Projects or Transnet Capital Projects nominated Representative and take whatever steps are necessary and as is agreed between Transnet Capital Projects and the *Contractor* to remove from Site, eliminate, terminate, mitigate, and rectify the condition. If remedial action is not implemented within the agreed term, Transnet Capital Projects or Transnet Capital Projects nominated Representative has the right to stop work forthwith.

If the *Contractor* fails to take the necessary steps to cure that breach or violation promptly or to otherwise comply with this clause, Transnet Capital Projects may exercise its rights of termination according to the default provisions of this Contract.

Note: If hardcopy, check electronic system for latest revision

Transnet Capital Projects Health and Safety Management
Health and Safety Plan and Specification
12 March 2008

Should Transnet Capital Projects or Transnet Capital Projects nominated Representative observe an unsafe act or become aware of a planned unsafe act, Transnet Capital Projects or Transnet Capital Projects nominated Representative may direct the *Contractor* to cease, or not to proceed with, the unsafe work. The *Contractor* must, at the *Contractor's* own cost and risk, modify its Method of Work in order to work safely.

4.12 Safety Conflict

Where any conflict exists between the requirements of this Annexure, the Site Rules or Statutory Requirements/Regulations the higher standard must apply unless such conflict is brought to the attention of Transnet Capital Projects or Transnet Capital Projects nominated Representative and a direction provided. The *Contractor* is deemed to have allowed for the higher standard.

The *Contractor* is legally responsible for ensuring that he conforms to all applicable aspects of the Occupational Health and Safety Act 85/1993 and Regulations (OH&S Act) and other relevant Acts and Regulations. If in dispute with *Client* Specification and or foreign legislation, the most stringent requirement must apply for all Transnet Capital Projects controlled project/sites.

5. Annexures

To be advised

6. Records

All documents generated during the life of the contract will be retained in terms of the Document Management Procedure for records retention Archiving of Hard Copy Documentation – DOC-P-0013.