

|                                                                                   |                              |          |                   |
|-----------------------------------------------------------------------------------|------------------------------|----------|-------------------|
|  | <b>Request for Quotation</b> | Doc. No  | SRS-MSh-RFQ-24004 |
|                                                                                   |                              | Revision | 1                 |

|                            |                                                                                                                                                                                                                                                                  |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RFQ Number                 | SRS-MSh-RFQ-24004                                                                                                                                                                                                                                                |
| Request for Quotation Date | 19 August 2024                                                                                                                                                                                                                                                   |
| RFQ Closing Date           | 12 September 2024                                                                                                                                                                                                                                                |
| RFQ Closing Time           | 16:00                                                                                                                                                                                                                                                            |
| Compulsory Site Briefing   | N/A                                                                                                                                                                                                                                                              |
| Contact Person             | <a href="mailto:Ursula.Gooding@necsa.co.za">Ursula.Gooding@necsa.co.za</a> ; <a href="mailto:Catherine.matima@necsa.co.za">Catherine.matima@necsa.co.za</a>                                                                                                      |
| Quotation Validity         | 90 Days from the closing date                                                                                                                                                                                                                                    |
| Submission Details         | RFQ Response must be sent to: <a href="mailto:Ursula.Gooding@necsa.co.za">Ursula.Gooding@necsa.co.za</a> ; <a href="mailto:Graham.Daniels@necsa.co.za">Graham.Daniels@necsa.co.za</a> <a href="mailto:Tankiso.modise@necsa.co.za">Tankiso.modise@necsa.co.za</a> |
| RFQ Description            | Request for Quotation for a design installation                                                                                                                                                                                                                  |

Dear Service Provider

Kindly provide a quotation for goods and or services as outlined in section 2 of this document.

## 1. Introduction

The South African Nuclear Energy Corporation Limited (Necsa) is a state-owned public company (SOC), registered in terms of the Companies Act, (Act No. 61 of 1973), registration number 2000/003735/06.

The Necsa Group engages in commercial business mainly through its wholly-owned commercial subsidiaries: NTP Radiolotopes SOC Ltd (NTP), which is responsible for a range of radiation-based products and services for healthcare, life sciences and industry, and Pelchem SOC Ltd (Pelchem), which supplies fluorine and fluorine-based products. Both subsidiaries, together with their subsidiaries, supply local and global markets, earning valuable foreign exchange for South Africa and are among the best in their field in their respective world markets.

Necsa's safety, health, environment and quality policies provides for top management commitment to compliance with regulatory requirements of ISO 14001, OHSAS 18001 and RD 0034 (Quality and Safety Management Requirements for Nuclear Installations), ISO 9001 and ISO 17025.

Necsa promotes the science, technology and engineering expertise of South Africa and improves the public understanding of these through regular communications at various forums and outreach programmes to the community. We are a proudly South African company continuously striving, and succeeding in many respects, to be at the edge of science, technology and engineering related to the safe use of nuclear knowledge to improve our world.

## 2. Project overview

Necsa intends to install a gantry system outside Gate 1 on its Pelindaba site. The structure and design of the gantry is attached. All the requirements as stated on the attached gantry structure drawings forms part of the scope of work. This also includes the BOQ which must be costed and the summary be provided in table 2.

## 3. Scope of Work

Supply of all installation material and services. This will include:

- a. The manufactured gantry will be supplied on site by Necsa.
- b. See attached BOQ for required civil works.
- c. Assemble the gantry.

|                                                                                  |                                |          |                   |
|----------------------------------------------------------------------------------|--------------------------------|----------|-------------------|
|  | <h1>Request for Quotation</h1> | Doc. No  | SRS-MSH-RFQ-24004 |
|                                                                                  |                                | Revision | 1                 |

- d. Sign off on the structural integrity of the installation.
- e. Removal of the gantry structure and making good of the area also forms part of the scope of work. It is anticipated that the removal will occur three (3) months after the installation. The details of restoring the area to its original status is included in the Waste Management Plan.
- f. The waste generated will be handled as per the attached waste management plan.

#### 4. Expected Deliverables

- 4.1. Installed gantry system (Installation certificate)
- 4.2. Restoration approval letter by Necsa Environmental Services.

#### 5. Attachments

| Ref # | Name                           | Description                                                                                                                    |
|-------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 5.1   | Acknowledgement of Receipt     | Acknowledgement of Receipt: Form used for access arrangement for compulsory site briefing (Appendix A - last page of this RFQ) |
| 5.2   | General conditions of purchase | Necsa's Terms and Conditions of Contract                                                                                       |
| 5.3   | Declaration of Interest        | Bidder's Disclosure                                                                                                            |
| 5.4   | FBD-SCM-2017-FRM-0024-Rev 7    | Request to register a supplier                                                                                                 |
| 5.5   | SBD1                           | Supplier Information                                                                                                           |
| 5.6   | Drawings                       | Assembly drawings                                                                                                              |
| 5.7   | BOQ                            | As per drawings                                                                                                                |
| 5.8   | SRS-MSH-PLN-23003              | Waste Management Plan                                                                                                          |
| 5.9   | SHEQ-INS-0825                  | Necsa Requirement for Construction                                                                                             |
| 5.10  | SHEQ-INS-2100                  | General Requirements for Statutory Equipment                                                                                   |
| 5.11  | SHEQ-INS-2141                  | Fall Protection Planning                                                                                                       |
| 5.12  | SHEQ-INS-5450                  | Safety, Health and Environmental Requirements for Contractors                                                                  |
| 5.13  | SHEQ-INS-5520                  | Work Permits                                                                                                                   |

|                                                                                  |                                                                                   |                              |  |          |                   |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------|--|----------|-------------------|
|  |  | <b>Request for Quotation</b> |  | Doc. No  | SRS-MSH-RFQ-24004 |
|                                                                                  |                                                                                   |                              |  | Revision | 1                 |

|      |               |                                                                  |
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| 5.14 | SHEQ-INS-8120 | Safe Work Procedures and Radiation Protection Work Permit System |
|------|---------------|------------------------------------------------------------------|

## 6. Instruction to Bidders

### 6.1. General

Bidders must familiarise themselves with and comply with the mandatory requirements and ensure their availability for site visits and presentations, as and when required, on the appropriate dates, to be advised.

### 6.2. Duration

The duration for the installation of the gantry must not exceed 4 weeks from the date of Necsa's instruction to start with the installation. The duration of the dismantling of the structure and restoration of the ground must not exceed 4 weeks from the date of Necsa's instruction to start the dismantling and restoration work.

### 6.3. Compulsory Information required

Bidders must also provide the following information and/or documentation in response to the RFQ. Failure to do so will disqualify the potential supplier:

6.3.1. CIDB certification for GB1 or C1

6.3.2. COIDA certification

For further information regarding this matter, please direct your enquiries in writing to the following email [ursula.gooding@necsa.co.za](mailto:ursula.gooding@necsa.co.za).

### 6.4. Compulsory Site Briefing

The potential suppliers must attend the mandatory briefing/site inspection taking place on **29 August 2024 from 12:00 to 14:00**. All arrangement in this regards must be communicated with Catherine Matima: [Catherine.matima@necsa.co.za](mailto:Catherine.matima@necsa.co.za). The service providers who intent to attend the compulsory site briefing must complete the attached acknowledge form (Annexure A) and ensure that they provide an ID copy of the organisational representatives who will attend the site briefing. For foreign nationals the acknowledge form must be submitted at least two weeks before the scheduled site briefing date.

## 6.5. Pricing

- Use table to itemize your offer, taking into account the scope of work as defined above.
- All price quoted to include all applicable taxes.
- Price must be fixed and firm.
- Price should include additional cost elements such as freight, insurance until acceptance, duty where applicable, disbursements etc.
- Quotation must be completed in full, incomplete quote could result in a quote being disqualified.
- Payment will be according to Necsa's General Conditions of Purchase.

Table 2: Costing table

| Reference Number | Item Description                           | Quantity | Total |
|------------------|--------------------------------------------|----------|-------|
| 1                | Induction (1 day)                          | 1        |       |
|                  | Preliminary and General                    | 1        |       |
| 2                | Safety file                                | 1        |       |
| 3                | Installation and other services as per SOW | 1        |       |
| 4                | Summary line of the BOQ                    | 1        |       |
| SUB-TOTAL (R)    |                                            |          |       |
| VAT (15%)        |                                            |          |       |
| TOTAL (R)        |                                            |          |       |

## 6.6. Required Documentation

- Tax Clearance Certificate ( Tax pin Issued by SARS)
- Declaration of interest ( SBD 4)
- BEE Certificate (from the approved accredited rating agency SANAS only) or alternatively complete the EME or QSE affidavit form / Applicable Affidavit If classified as EME
- Letter of Good Standing (COID) only if Applicable due to the nature of work required
- Any other document or certification that might have been requested on this RFQ
- Confirm bank detail on the suppliers letterhead

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|----------------------------------------------------------------------------------|--------------------------------|----------|-------------------|
|  | <h1>Request for Quotation</h1> | Doc. No  | SRS-MSH-RFQ-24004 |
|                                                                                  |                                | Revision | 1                 |

- Signed “general conditions of purchase”
- Should your company be awarded the bid, the following must be supplied to Necsa within 7 days:
  - a. Good standing letter from SARS (TAX clearance certificate) as well as the letter from SARS with PIN number issued for compliance status purposes;
  - b. Company registration documents or certification (Cipro);
  - c. Original cancelled cheque or stamped letter from bank verifying details. (No payments shall be made if originals are not received.);
  - d. Company profile (not mandatory);
  - e. Certificate of Good Standing (Compensation Commissioner) COIDA where applicable;
  - f. Quality Certification Certificate (where applicable) eg. ISO Certificate;
  - g. Credit application form from your company – only if required by you for us to open a 30 days account with you;
  - h. CIDB-for all construction related work (no exceptions will be made) indicate if applicable to you;
  - i. Proof of Registration on National Treasury Supplier’s Database (CSD Registration Report or MAAA number) and
  - j. Declaration of Interest.

## 6.7. General

- 6.7.1. Quotation must be submitted on or before the RFQ closing date and time stated above.
- 6.7.2. Orders above R 30 000 will be evaluated according to the PPPFA 80/20-point system and a functionality scorecard where applicable and the ones above R 1 Million will be subjected to the tender process.
- 6.7.3. This RFQ is subjected to the Necsa’s General Conditions of Purchase, Preferential Procurement Policy Framework Act 2000 and the Preferential Procurement Regulations, 2022, the General Conditions of Contract (GCC) and, if applicable, any other legislation or special conditions of contract
- 6.7.4. Failure on the part of a bidder to submit proof of B-BBEE Status level of contributor together with the bid, will be interpreted to mean that preference points for specific goals are not claimed.
- 6.7.5. The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to specific goals, in any manner required by the purchaser.

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|----------------------------------------------------------------------------------|------------------------------------------------------------|----------|-------------------|
|  | <h1 style="text-align: center;">Request for Quotation</h1> | Doc. No  | SRS-MSh-RFQ-24004 |
|                                                                                  |                                                            | Revision | 1                 |

- 6.7.6. For a Bidder to obtain clarity on any matter arising from or referred to in this document, please refer queries, in writing, to the contact details provided above. Under no circumstances may any other employee within Necsa be approached for any information. Any such action might result in a disqualification of a response submitted in competition to this RFQ.
- 6.7.7. No goods and/or services should be delivered to Necsa without an official Necsa Purchase order.
- 6.7.8. Necsa reserves the right to; cancel or reject any quote and not to award the RFQ to the lowest Bidder or award parts of the RFQ to different Bidders, or not to award the RFQ at all.
- 6.7.9. The supplier shall under no circumstances offer, promise or make any gift, payment, loan, reward, inducement, benefit or other advantage, which may be construed as being made to solicit any favour, to any Necsa employee or its representatives. Such an act shall constitute a material breach of the Agreement and the Necsa shall be entitled to terminate the Agreement forthwith, without prejudice to any of its rights
- 6.7.10. By responding to this request, it shall be construed that: the bidder, hereby acknowledge to be fully conversant with the details and conditions set out in the Necsa's General Conditions of Purchase, Preferential Procurement Policy Framework Act 2000 and the Preferential Procurement Regulations, 2022, the General Conditions of Contract (GCC), Technical Information and Specifications attached, and hereby agree to supply, render services or perform works in accordance therewith.

## 6.8. Clarification and Communication

For a potential service provider to obtain clarity on any matter arising from or referred to in this document, please refer queries, in writing, to Ursula Gooding: [ursula.gooding@necsa.co.za](mailto:ursula.gooding@necsa.co.za). Under no circumstances may any other employee within Necsa be approached for any information. Any such action might result in a disqualification of a response submitted in competition to this RFQ.

## 7. Evaluation

### 7.1. Phase 1 - Functionality Evaluation / Technical Evaluation

Where functional or technical evaluation criterion is applicable, assessment will be performed in terms of the criterion listed below and the criterion may include Technical, Performance, Quality and Risk.

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|----------------------------------------------------------------------------------|------------------------------|----------|-------------------|
|  | <b>Request for Quotation</b> | Doc. No  | SRS-MSh-RFQ-24004 |
|                                                                                  |                              | Revision | 1                 |

If the Bidder's response to the Technical templates does not indicate that the Bidder can support an acceptable technical solution, the Bidder's response will be rejected and not evaluated further.

Together the Technical, Performance & Quality and Risk criteria make up the functionality criterion and a Bidder's Proposal will be evaluated for functionality out of a possible 100 points. Only RFQ responses achieving an evaluation score of greater than the set threshold points out of the possible 100 points and which score a number of points for functionality that is greater than or equal to the set threshold points of the number of points achieved by the highest scoring Bid for functionality will be selected to progress to the second stage.

| Item         | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                         | Weight     | Points | Criteria                               |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------|----------------------------------------|
| 1            | <b>Company Experience</b><br><br>Provide references to previous similar projects executed in the past.<br><br>The reference letter must contain:<br><br>1. Project Name<br>2. Contact details of the Client<br>3. Project description<br>4. Project value<br>5. Project execution period<br><br>NOTE: A minimum of four (4) completed project will be considered for obtaining 100%.<br><br>References will be contacted to verify the information. | 100        | 100    | All Four required information provided |
|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            | 75     | Three required information provided    |
|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            | 50     | Two required information provided      |
|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            | 25     | One required information provided      |
|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            | 0      | No Information provided                |
| <b>Total</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>100</b> |        |                                        |

**IMPORTANT:** A bidder/s that scores less than 75 points out of 100 in respect of functionality will be regarded as submitting a non-responsive bid and will be disqualified. Should the relevant bidder/s

|                                                                                  |                              |          |                   |
|----------------------------------------------------------------------------------|------------------------------|----------|-------------------|
|  | <b>Request for Quotation</b> | Doc. No  | SRS-MSh-RFQ-24004 |
|                                                                                  |                              | Revision | 1                 |

meet the minimum required percentage or minimum points, they will be evaluated as per Phase 2 evaluation outlined below.

## 7.2. Phase 2 - Evaluation In Terms Of Preferential Procurement Policy Framework Act, 2022

This bid will be evaluated and adjudicated according to the 80/20 point system, in terms of which a maximum of 80 points will be awarded for price and 20 points will be allocated based on the specific goals (B-BBEE status level).

|                                                  | POINTS     |
|--------------------------------------------------|------------|
| <b>PRICE</b>                                     | <b>80</b>  |
| <b>SPECIFIC GOALS ( B-BBEE status level)</b>     | <b>20</b>  |
| <b>Total points for Price and SPECIFIC GOALS</b> | <b>100</b> |

Preference goal

B-BBEE status level contributor

| B-BBEE Status Level of Contributor | Number of points (80/20 system) |
|------------------------------------|---------------------------------|
| 1                                  | 20                              |
| 2                                  | 18                              |
| 3                                  | 14                              |
| 4                                  | 12                              |
| 5                                  | 8                               |
| 6                                  | 6                               |
| 7                                  | 4                               |
| 8                                  | 2                               |
| Non-compliant contributor          | 0                               |

|                                                                                  |                              |          |                   |
|----------------------------------------------------------------------------------|------------------------------|----------|-------------------|
|  | <b>Request for Quotation</b> | Doc. No  | SRS-MSh-RFQ-24004 |
|                                                                                  |                              | Revision | 1                 |

meet the minimum required percentage or minimum points, they will be evaluated as per Phase 2 evaluation outlined below.

## 7.2. Phase 2 - Evaluation In Terms Of Preferential Procurement Policy Framework Act, 2022

This bid will be evaluated and adjudicated according to the 80/20 point system, in terms of which a maximum of 80 points will be awarded for price and 20 points will be allocated based on the specific goals (B-BBEE status level).

|                                                  | POINTS     |
|--------------------------------------------------|------------|
| <b>PRICE</b>                                     | <b>80</b>  |
| <b>SPECIFIC GOALS ( B-BBEE status level)</b>     | <b>20</b>  |
| <b>Total points for Price and SPECIFIC GOALS</b> | <b>100</b> |

**Preference goal**

**B-BBEE status level contributor**

| B-BBEE Status Level of Contributor | Number of points (80/20 system) |
|------------------------------------|---------------------------------|
| <b>1</b>                           | <b>20</b>                       |
| <b>2</b>                           | <b>18</b>                       |
| <b>3</b>                           | <b>14</b>                       |
| <b>4</b>                           | <b>12</b>                       |
| <b>5</b>                           | <b>8</b>                        |
| <b>6</b>                           | <b>6</b>                        |
| <b>7</b>                           | <b>4</b>                        |
| <b>8</b>                           | <b>2</b>                        |
| <b>Non-compliant contributor</b>   | <b>0</b>                        |

## 1 GENERAL

To update Necsa's supplier database and to incorporate new legislative and other requirements all Necsa's suppliers are kindly requested to complete this questionnaire.

Any questions relating to the questionnaire can be addressed to Necsa's Supply Chain Management

Name: Zelna Webb

Tel: 012-305 6035

Street address: Elias Motsoaledi Street Extension (Church Street)

Fax: 012-305 6250

R 104 Broederstroom Pelindaba Brits Magisterial District

e-mail: [zelna.webb@necsa.co.za](mailto:zelna.webb@necsa.co.za)

Madibeng Municipality \*SOC State Owned Corporation

Please complete the questionnaire and return to Necsa's Supply Chain Management Administration Office.

Postal address: P O Box 582, Pretoria, 0001

Date: .....

All supplier information will be treated strictly confidential.

## 2 SUPPLIER INFORMATION

Registered name of supplier:

Name in which supplier trades:

Type of company \*:

Web page:

Main business (If intermediary provide details):

Contact person:

Designation:

Tel:

Fax:

E-mail

Cell:

Physical address of Business:

Number and street name: \_\_\_\_\_

Suburb: \_\_\_\_\_ City/Town: \_\_\_\_\_

Code: \_\_\_\_\_ Country: \_\_\_\_\_

Postal address: (This is the address to which an statement/payment/ enquiry and orders to be sent to)

P O Box/Private Bag: \_\_\_\_\_

Suburb: \_\_\_\_\_ City/Town: \_\_\_\_\_

Code: \_\_\_\_\_ Country: \_\_\_\_\_

\* (e.g. listed company, public company, private company, closed Corporation, joint venture, trust)

### 3 FINANCIAL INFORMATION **Necsa's payment terms is 30 days.**

Size of company (annual turnover):

Name of banker:

Name of account holder:

Branch:

Branch code No:

Account No:

VAT No:

Company external auditor/accounting officer:

Tel:

Company Financial Contact Person: \_\_\_\_\_ Tel: \_\_\_\_\_

E-mail: \_\_\_\_\_ Fax: \_\_\_\_\_

Trade references of three existing clients where enquiries may be made

| Name of company | Address | Contact Details         |
|-----------------|---------|-------------------------|
|                 |         | Name:<br>Tel:<br>E-mail |
|                 |         | Name:<br>Tel:<br>E-mail |
|                 |         | Name:<br>Tel:<br>E-mail |

### 4 PRODUCT

#### 4.1 General Information

Is your Business: An agent ☐ Manufacturer ☐ Distributor ☐ Consultant ☐ Contractor ☐

Mark appropriate (X)

(Note that products include services)

Products or product type supplied to Necsa

Over past 3 years:

To be supplied in future:

Date of last delivery (YYYYMM):

**\*\* E.g. specific product is a ballpoint pen but for a range of different pens, papers, etc. the product type would be stationary.**

Name of subcontractor:

Scope of subcontracting for product:

Complete parts 4.2, 4.3 and 5 for subcontractor and supplier

\* (e.g. subcontracting the machining and welding for a pressure vessel)

#### 4.2 Health Safety and Environment (HSE)

HSE certification/grading (e.g. to ISO 14001):

Workmen's compensation number (COLD):

|                                                                                   |                                                         |          |                       |
|-----------------------------------------------------------------------------------|---------------------------------------------------------|----------|-----------------------|
|  | <b>SUPPLIERS REGISTRATION QUESTIONNAIRE<br/>(LOCAL)</b> | Doc. No  | FBD-SCM-2017-FRM-0020 |
|                                                                                   |                                                         | Revision | 12                    |
|                                                                                   |                                                         | Page     | 3 of 4                |

If no certification/grading briefly outline level of HSE Implementation:

#### 4.3 QUALITY MANAGEMENT SYSTEM (QMS)

Certification/accreditation (e.g. ISO 9001, ISO 17025) covering products to be supplied to Necsa:

If no certification/accreditation briefly outline level of QMS Implementation:

External or internal QMS auditing performed:

#### 5 BEE INFORMATION

|                                                                                              |                          |                                                                           |
|----------------------------------------------------------------------------------------------|--------------------------|---------------------------------------------------------------------------|
| Current BEE Rating?(Y/N):                                                                    |                          | If "yes" please attach copy<br>If "no" please specify by when             |
| Current BEE Rating Level:                                                                    |                          |                                                                           |
| When does current BEE rating expire:                                                         |                          |                                                                           |
| Turnover:                                                                                    | √ one box beneath        |                                                                           |
| < R5m                                                                                        | <input type="checkbox"/> | If √ please provide proof                                                 |
| >R5m &< R35m                                                                                 | <input type="checkbox"/> | If √ please provide proof                                                 |
| >R35m                                                                                        | <input type="checkbox"/> |                                                                           |
| Is 50% or more of your business owned by South African black people? (Y/N):                  |                          | What %:<br>If yes please attach proof                                     |
| Is 30 % or more of your business owned by South African black women? (Y/N):                  |                          | What %:<br>If yes please attach proof                                     |
| Is your organisation an organ of state or public entity? (Y/N):                              |                          |                                                                           |
| Are you a "Value-Adding Supplier" (as defined legally)? (Y/N)                                |                          | I.e. your net profit plus total labour costs exceeds 25% of your revenue? |
| Are you a "startup organisation"? (Y/N) (as defined in the BEE Act - <12 months in business) |                          |                                                                           |

#### 6 RECORDS (Information below is compulsory, if not attached, the application shall not be considered for registration).

Supply\*/attach copy of:

- Good standing letter from SARS (TAX clearance certificate) as well as the letter from SARS with PIN number issued for compliance status purposes;
- Company registration documents or certification (Cipro);
- **Original** cancelled cheque or stamped letter from bank verifying details. **(No payments shall be made if originals are not received.);**
- Company profile (not mandatory);

OPEN

- BEE Certificate (from the approved accredited rating agency SANAS only) or alternatively complete the EME or QSE affidavit form;
- Certificate of Good Standing (Compensation Commissioner) COIDA where applicable;
- Quality Certification Certificate (where applicable) eg. ISO Certificate;
- Credit application form from your company – only if required by you for us to open a 30 days account with you;
- CIDB-for all construction related work (no exceptions will be made) indicate if applicable to you;
- Proof of Registration on National Treasury Supplier's Database (CSD Registration Report or MAAA number) and
- Declaration of Interest.

**\* Copies can be e-mailed or faxed except for the banking details.**

## 7 COMMENTS

Please provide comments for mutual beneficial relationships:

.....

.....

.....

Name of contact person at Necsa: .....

Completed by: ..... Date: .....  
Print name

Signature: .....

Company Stamp:

Prepared by: x

Date: Click here to enter a date.

## BIDDER'S DISCLOSURE

### 1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

### 2. Bidder's declaration

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest<sup>1</sup> in the enterprise, employed by the state? **YES/NO**

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

---

<sup>1</sup> the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

| Full Name | Identity Number | Name of State Institution |
|-----------|-----------------|---------------------------|
|           |                 |                           |
|           |                 |                           |
|           |                 |                           |
|           |                 |                           |
|           |                 |                           |
|           |                 |                           |
|           |                 |                           |
|           |                 |                           |
|           |                 |                           |
|           |                 |                           |

**2.2** Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES/NO**

**2.2.1** If so, furnish particulars:

.....  
.....

**2.3** Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? **YES/NO**

**2.3.1** If so, furnish particulars:

.....  
.....

### **3 DECLARATION**

I, \_\_\_\_\_ the \_\_\_\_\_ undersigned,  
(name)..... in  
submitting the accompanying bid, do hereby make the following  
statements that I certify to be true and complete in every respect:

- 3.1** I have read and I understand the contents of this disclosure;
- 3.2** I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
- 3.3** The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a

- joint venture or consortium<sup>2</sup> will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.
- 3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....  
**Signature**

.....  
**Date**

<sup>2</sup> Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

.....  
**Position**

.....  
**Name of bidder**



# SHEQ SYSTEM



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DOC NO. SHEQ-INS-0826

REV. 3.0

PAGE 1 OF 15

TITLE NECSA REQUIREMENTS FOR CONSTRUCTION

## 1 PURPOSE AND SCOPE

This document prescribes the management processes for the construction of new facilities or modifications to facilities. The processes are implemented to ensure that construction work performed on the Necsa site conforms to statutory and regulatory health and safety requirements. This includes construction work performed by Necsa for their on- and offsite clients. This document only addresses requirements for construction. Other project approval requirements are covered by SHEQ-INS-0800: SHEQ Approval of Projects.

The requirements of this document applies to nuclear, chemical and conventional installations to be constructed. This document only covers the construction stage of a facility (i.e. the preceding stages, design, procurement, manufacturing are completed and were approved by the regulator) and interfaces with preceding or post construction stages. This document addresses in general the construction requirements for HL 2 and 3 facilities (as defined in SHEQ-INS-0865).

No additional departmental documents to prescribe the control of Construction are required. However, documents are generated by the implementation of this procedure.

## 2 REFERENCES

2.1 This document complies with the requirements of the following documents which were consulted in the preparation of this document:

- IAEA Safety Guide No. GS-G-3.1: Application of the Management System for Facilities and Activities
- ISO 9001:2000: Quality Management Systems -- Requirements
- OHSAct, 1993 (Act 85, 1993): Construction Regulations, 2003
- RD-0034: Quality and Safety Management Requirements for Nuclear Installations
- ASME NQA-1-2004: Quality Assurance Requirements for Nuclear Facility Applications

2.2 This document refers to the following:

- SHEQ-INS-0205: Necsa Document Numbering Requirements
- SHEQ-INS-0206: Necsa Requirements for Document Control
- SHEQ-INS-0207: Necsa Drawing Numbering Requirements
- SHEQ-INS-0208: Necsa Requirements for Control of Records
- SHEQ-INS-0220: Necsa Requirements for Resource Management
- SHEQ-INS-0233: Design Control

|              | NAME                                                                             | SIGNATURE | DATE       |
|--------------|----------------------------------------------------------------------------------|-----------|------------|
| PREPARED     | S V Dhlomo<br>NSA: LD                                                            |           | 20/04/2012 |
| REVIEWED     | A L Visagie<br>SM: LD                                                            |           | 2012-04-20 |
| ACCEPTED     | I E Steyn<br>SM: SHEQD                                                           |           | 08/05/2012 |
| ACCEPTED     | L J Shayl<br>GE: NC&S                                                            |           | 07/05/2012 |
| APPROVED     | D G Robertson<br>ACTING CEO                                                      |           | 2012/05/14 |
| DISTRIBUTION | This document is available on SHAREPOINT - SHEQ SYSTEM DOCUMENTS<br>SHEQ Records |           |            |



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|         |                                     |      |     |      |   |    |    |
|---------|-------------------------------------|------|-----|------|---|----|----|
| DOC NO. | SHEQ-INS-0825                       | REV. | 3.0 | PAGE | 2 | OF | 15 |
| TITLE   | NECSA REQUIREMENTS FOR CONSTRUCTION |      |     |      |   |    |    |

- SHEQ-INS-0238: Control of Procurement
- SHEQ-INS-0241: Qualification of Special Processes
- SHEQ-INS-0252: Necsa Requirements for Audits
- SHEQ-INS-0260: Necsa Requirements for Control of Non-conformances
- SHEQ-INS-0800: SHEQ Approval of Projects
- SHEQ-INS-0811: SHE Categorisation of Projects
- SHEQ-INS-0830: Requirements for Building Emergency Plans
- SHEQ-INS-0865: Determining the Hazard Level of a Nuclear or Radiation Facility, or a Modification to such a Facility
- SHEQ-INS-0890: Safety Classification of Structures, Systems and Components
- SHEQ-INS-1110: Housekeeping and Demarcation
- SHEQ-INS-1140: Plant Hygiene and Facilities
- SHEQ-INS-1220: Stacking and Storage
- SHEQ-INS-2100: General Requirements for Statutory Equipment
- SHEQ-INS-2140: Ladders, Scaffolding, Steps and Passageways
- SHEQ-INS-2141: Fall Protection Planning
- SHEQ-INS-2150: Lifting Equipment
- SHEQ-INS-2230: Classification of Hazardous Areas and the Certification of Electrical Installations in General and Hazardous Areas
- SHEQ-INS-2310: Ergonomical Design Considerations and Surveys
- SHEQ-INS-2450: Respiratory Protective Equipment
- SHEQ-INS-2495: Requirements for Working in Confined Spaces
- SHEQ-INS-3010: Fire Prevention and Control Measures
- SHEQ-INS-3050: Handling and Storage of Flammable Liquids
- SHEQ-INS-4140: Categorisation and Notification of SHEQ Related Events
- SHEQ-INS-5100: Appointments
- SHEQ-INS-5130: Safety, Health, Environmental, Quality and Security Related Committees
- SHEQ-INS-5300: Written Safe Work Procedures, Instructions, Orientation and Task Training
- SHEQ-INS-5301: SHEQ Orientation and Training
- SHEQ-INS-5310: Health Risk Assessment
- SHEQ-INS-5330: Selection and Placement
- SHEQ-INS-5450: Health, Safety and Environmental Requirements for Contractors
- SHEQ-INS-7041: Asbestos Control Programme
- SHEQ-INS-8290: Decommissioning of Nuclear and Chemical Facilities
- SHEQ-INS-8910: Categorisation of and Guideline Security Measures for Necsa's Facilities
- SHEQ-INS-8929: Classification of Information
- SHEQ-INS-8930: Security Requirements for the Control of Classified Information
- SHEQ-INS-8950: Requirements for Security Screening

### 3 REVISION HISTORY

- Revision 0 – 2004/03/03 – First Issue (A C van der Bijl)
- Revision A – 2005/07/05 – Document reviewed to reflect the new SHEQ organisation (A C van der Bijl)
- Revision 2 – 2009/03/22 – Document reviewed to include references in 2.1. Previous content only addressed OHSAct requirements, which is shown in Appendix A. Main text of document expanded (by parts 5 to 17) to address requirements of the remaining references (A C van der Bijl)
- Revision 3.0 – Document reviewed to update references in 2.1. Minor changes in the main text of the document (S V Dhlomo)



# SHEQ SYSTEM

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|         |                                     |      |     |      |   |    |    |
|---------|-------------------------------------|------|-----|------|---|----|----|
| DOC NO. | SHEQ-INS-0825                       | REV. | 3.0 | PAGE | 3 | OF | 15 |
| TITLE   | NECSA REQUIREMENTS FOR CONSTRUCTION |      |     |      |   |    |    |

## 4 DEFINITIONS AND ABBREVIATIONS

- 4.1 Appointment - Written proof of authorisation or delegation including a description of responsibilities and limitations.
- 4.2 Client - Any person for whom construction work is performed (OHSAct).
- 4.3 Construction work - (a) The erection, maintenance, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure;  
(b) the installation, erection, dismantling or maintenance of a fixed plant where such work includes the risk of a person falling;  
(c) the construction, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system;  
(d) the moving of earth, clearing of land, the making of an excavation, piling, or any similar type of work (OHSAct).
- 4.4 Contractor - An employer, as defined in Section 1 of the Act, who performs construction work and includes principal contractors (OHSAct).
- 4.5 Facility - The nuclear, chemical or conventional installation (or a portion thereof or modification to an existing installation) to be constructed.
- 4.6 Fall protection plan - A documented plan of all risks relating to working from an elevated position, considering the nature of work undertaken, and setting out the procedures and methods to be applied in order to eliminate the risk (OHSAct).
- 4.7 Hazard identification - The identification and documenting of existing or expected hazards to the health and safety of persons, which are normally associated with the type of construction work being executed or to be executed (OHSAct).
- 4.8 Health and safety file - A file, or other record in permanent form, containing the information required as contemplated in the OHSAct's Construction Regulations (OHSAct).
- 4.9 Health and safety plan - A documented plan which addresses hazards identified and includes safe work procedures to mitigate, reduce or control the hazards identified (OHSAct).
- 4.10 Health and safety specification - A documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons (OHSAct).
- 4.11 Medical certificate of fitness - A certificate valid for one year issued by an occupational health practitioner, issued in terms of these regulations, whom shall be registered with the Health Professions Council of South Africa (OHSAct).
- 4.12 Necsa Responsible Manager - A Necsa personnel member authorised and responsible for concluding a contract and/or serving as liaison between Necsa and the Construction's Principal Contractor with responsibilities prescribed in this document.
- 4.13 Principal Contractor - An employer, as defined in Section 1 of the OHSAct, who performs construction work and is appointed by Necsa to be in overall control and management of a part of or the whole construction site (OHSAct).



# SHEQ SYSTEM



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DOC NO. SHEQ-INS-0825

REV. 3.0

PAGE 4 OF 15

TITLE **NECSA REQUIREMENTS FOR CONSTRUCTION**

- 4.14 Risk assessment - A programme to determine any risk associated with any hazard at a construction site, in order to identify the steps needed to be taken to remove, reduce or control such hazard (OHSAct).
- 4.15 Structure - (a) Any building, steel or reinforced concrete structure (not being a building), railway line or siding, bridge, waterworks, reservoir, pipe or pipeline, cable, sewer, sewage works, fixed vessels, road, drainage works, earthworks, dam, wall, mast, tower, tower crane, batching plants, pylon, surface and underground tanks, earth retaining structure or any structure designed to preserve or alter any natural feature, and any other similar structure;
- (b) any framework, false work, scaffold or other structure designed or used to provide support or means of access during construction work; or
- (c) any fixed plant in respect of work which includes the installation, commissioning, decommissioning or dismantling and where any such work involves a risk of a person falling two meters or more (OHSAct).

(See the Construction Regulations, 2003, or the International Atomic Energy Agency (IAEA) Safety Glossary for other definitions, where necessary.)

- 4.16 The following abbreviations are used in this document:

|          |                                                                             |
|----------|-----------------------------------------------------------------------------|
| - CR     | Construction Regulations                                                    |
| - FM     | Facility Manager                                                            |
| - HCS    | Hazardous Chemical Substances                                               |
| - HIRA   | Hazard Identification and Risk Assessment                                   |
| - HSF    | Health and Safety File                                                      |
| - HSP    | Health and Safety Plan                                                      |
| - HSS    | Health and Safety Specification                                             |
| - NCS    | Nuclear Compliance and Services                                             |
| - NE     | Nuclear Engineering Department of the National Nuclear Manufacturing Centre |
| - NNR    | National Nuclear Regulator                                                  |
| - OHSAct | Occupational Health and Safety Act 85 of 1993                               |
| - OREP   | Occupational Risk Exposure Profile                                          |
| - QMS    | Quality Management System                                                   |
| - RoD    | Record of Decision                                                          |
| - RPE    | Respiratory Protection Equipment                                            |
| - SAR    | Safety Assessment Report                                                    |
| - SHEQ   | Safety, Health, Environment and Quality                                     |
| - SQEP   | Suitably Qualified and Experienced Person                                   |
| - SSC    | Structures, Systems and Components                                          |
| - WASP   | Worker Allocated Surveillance Programme                                     |

## 5 RESPONSIBILITIES FOR CONSTRUCTION OF NEW FACILITIES AND IN EXISTING FACILITIES (e.g. MODIFICATIONS)

- 5.1 Construction in existing facilities shall be under the control of the FM and in full compliance with all requirements of the relevant processes of Necsa's SHEQ System. Contractor staff shall comply with SHEQ System requirements as if they were Necsa's own employees i.e. employee processes such as radiation protection, medical surveillance, training and registration as occupationally exposed workers (e.g. radiation workers), etc. A FM of a facility where workers have to be registered as Occupationally Exposed Workers, remains responsible for the Radiation Protection Programme of areas handed over to contractors (also see A-1.13).



# SHEQ SYSTEM

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|         |                                     |      |     |      |   |    |    |
|---------|-------------------------------------|------|-----|------|---|----|----|
| DOC NO. | SHEQ-INS-0825                       | REV. | 3.0 | PAGE | 5 | OF | 15 |
| TITLE   | NECSA REQUIREMENTS FOR CONSTRUCTION |      |     |      |   |    |    |

The FM (or his appointed designee) shall be responsible for the requirements indicated for the Principal Contractor/Contractor for facility modifications.

- 5.2 The manager of a facility (or his formally appointed designee e.g. NCS or NE project manager) shall do the following for construction of new facilities:
- Implement the Principal Contractor/Contractor selection process prescribed in part 6.
  - Ensure compliance with Necsa's financial and contractual requirements including compliance with the requirements of SHEQ-INS-5450.
  - Implement the physical security protection requirements for the construction site (see part 13)
  - Formal written hand-over of the demarcated construction site to the Principal Contractor.
  - Ensure that the construction is performed in compliance with the requirements of this document.
  - Prepare a construction HIRA and prescribe, in liaison with Medical Services, OREPs and WASPs for the different categories of contract workers (see SHEQ-INS-5310 and -5330).
  - Prepare an environmental protection plan in accordance with RoD conditions for the construction.
  - Ensure that contractors are established on site in allocated areas and provided, as appropriate, with site services, information and SHEQ relevant instructions/procedures.
  - Accept hand-over of the constructed facility on completion of construction and construction verification.

## 6 PRINCIPAL CONTRACTOR AND CONTRACTOR SELECTION PROCESS

- 6.1 The Project Leader or Necsa Responsible Manager shall comply with the requirements of SHEQ-INS-0238 i.r.o. the selection of the Principal Contractor/Contractor as construction supplier (e.g. management system requirements, audits, etc.) before appointment of a Principal Contractor/Contractor. Successful contractors shall be included in the qualified supplier list.
- 6.2 The Project Leader or Necsa Responsible Manager shall initiate and co-ordinate Audits on Principal Contractors/Contractors, to ensure continued compliance with supplier QMS requirements. These shall be scheduled and conducted in accordance with SHEQ-INS-0238 and -0252.

## 7 PRE-CONSTRUCTION REQUIREMENTS

- 7.1 Construction of a nuclear facility or modification thereof shall not commence without applicable NNR approval to construct. Necsa shall only request approval for construction if the request is supported by (based on):
- An NNR approved design (as appropriate) of the installation or modification.
  - NNR's approval to procure/manufacture SSC (as applicable).
  - Approval of the Construction Plan (see part 9).
  - Change Management Processes prescribed in this document (see part 12).

The requirements for approval of non-nuclear facilities shall be as determined during the implementation of the SHEQ-INS-0800 process.

- 7.2 Construction shall be preceded by the implementation of the Project Approval Process (SHEQ-INS-0800) to identify all construction relevant requirements. The result shall, for nuclear installations (depending on the project categorization according to SHEQ-INS-0811), be submitted to the NNR for information. A graded approach for construction planning shall be implemented as indicated by the SHEQ-INS-0800 process. A generic construction approval may be obtained.
- 7.3 The Principal Contractor shall prepare and submit the following documents for Necsa's approval:
- A construction plan (see part 9).
  - Change Management Process (see part 12).
  - Construction Health and Safety Plan (see Appendix A).



# SHEQ SYSTEM

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|         |                                     |      |     |      |   |    |    |
|---------|-------------------------------------|------|-----|------|---|----|----|
| DOC NO. | SHEQ-INS-0825                       | REV. | 3.0 | PAGE | 6 | OF | 15 |
| TITLE   | NECSA REQUIREMENTS FOR CONSTRUCTION |      |     |      |   |    |    |

- iv) Fall Protection Plan (see Appendix A).
- v) Construction Risk Assessment (See Appendix A).
- vi) Work planning process including job cards and work permits, lock-out system, confined space control, RPE control, etc. (various parts of Necsa SHEQ System's 2XXX series of documents could be used either directly or as guide in preparing work planning processes – also see part 2.2 above). Work planning should preferably be computer aided and indicate the activities, sequence of activities, its duration and resources required, procedures (including activities to ensure safe performance), special equipment, inspection, witness and holdpoints.
- vii) Training and orientation process (see SHEQ-INS-0220 and -5300). Training shall include re-training and training resulting from the implementation of the Change Management Process (see part 12).
- viii) Event (see SHEQ-INS-4140) and non-conformance (see SHEQ-INS-0260) management processes.
- ix) Construction verification process (see part 15).

It should be noted that the QMS of the Construction Contractor (as construction supplier) is audited in compliance with the requirements of SHEQ-INS-0238. All QMS processes, irrespective of it being mentioned above are important to construction.

- 7.4 The FM shall appoint in writing the Necsa Management Representative (Necsa Responsible Manager i.e. SHEQ-INS-5450) who shall be overall responsible for ensuring that the construction is performed in accordance with the requirements of the approved design, construction processes and Necsa's SHEQ System.
- 7.5 The Principal Contractor, Contractors, Sub-contractors and their staff performing construction work on the construction site shall comply with the following before they are allowed access to the construction site:
- i) Attendance of Necsa's SHEQ orientation programme and facility specific orientation (the latter in cases of construction in an existing facility) (see SHEQ-INS-5301).
  - ii) Security Vetting to the level prescribed by the Chief Security Officer (see SHEQ-INS-8950).
  - iii) Compliance with the prescribed medical fitness requirements (see part 5.2 above) – i.e. pre-construction medical examination.

The above requirements shall also be applicable to new staff (e.g. replacements) joining the contractors team during construction.

- 7.6 The Principal Contractor/Contractor shall train their personnel in the relevant construction management processes, and changes thereto (see 7.3 for examples of such processes) in accordance with the contractors approved training and orientation process.

## 8 INTERFACING AND OVERSIGHT

The Project Leader or the Necsa Responsible Manager shall in liaison with the Principal Contractor/Contractor establish a construction oversight committee to ensure proper interface management. The committee shall establish a Terms of Reference incorporating at least the following:

- i) Committee responsibilities and status, including progress reporting and monitoring, SHEQ statistics, event and non-conformance reporting, communication, etc., ensuring that members are up to speed with construction deliverables.
- ii) Members of the committee and their roles. Members shall include:
  - Principal Contractor
  - Necsa Responsible Manager and/or Project Leader
  - Necsa Corporate representatives for SHEQ, Maintenance, Utilities, Licensing, Finances, Design (as appropriate)



# SHEQ SYSTEM



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|         |                                     |      |     |      |   |    |    |
|---------|-------------------------------------|------|-----|------|---|----|----|
| DOC NO. | SHEQ-INS-0825                       | REV. | 3.0 | PAGE | 7 | OF | 15 |
| TITLE   | NECSA REQUIREMENTS FOR CONSTRUCTION |      |     |      |   |    |    |

- All contractors
- Chairperson of the SHEQ committee (see part 10)
- Any other individual or organisation involved with the construction
- iii) Administrative matters, e.g. frequency of meetings, venue, agenda and minutes.

The NNR shall receive notification of such meetings for construction of nuclear installations and shall have a standing invitation to such meetings.

## 9 CONSTRUCTION PLAN

The Principal Contractor/Contractor shall prepare and submit to Necsa for approval a Construction Plan including at least the following:

- i) Construction programme and schedule with an indication of construction verification holdpoints (see part 15).
- ii) Construction organisation structure including a description of responsibilities and individuals' names. This structure shall include interfaces e.g. with Necsa designer, SAR team, Property Management and the appointees required I.t.o. SHEQ-INS-5100.
- iii) Emergency Plan including escape routes, minimum lighting, assembly points, roll-call, fire drills, etc. (see SHEQ-INS-0830 for guidance). The contractor shall implement a clock-in and -out system for emergency control purposes in liaison with the Chief Security Officer and Necsa's Emergency Services.
- iv) The quality and safety management processes identified in 7.3 and elsewhere in this document shall be included in the Construction Plan or appended thereto. The Construction Plan shall include and address the relevant requirements of Appendix A.
- v) Identification of documents generated during construction which will be handed over to Necsa on completion of construction.
- vi) Testing programme for constructed SSC (excluding hot commissioning i.e. loading with nuclear material or HCS).
- vii) Maintenance and care processes of stored items and constructed parts before commissioning to ensure their condition and functionality until commissioning.
- viii) Fire protection and control plan.
- ix) Cleaning and cleanliness control plan (In accordance with the requirements of ASME NQA-1-2004 Sub-part 2.2 - this requirement is also relevant to chemical facilities). This plan shall address cleanliness verification before installation, cleanliness protection during construction and cleaning after construction.

## 10 CONSTRUCTION AND COMMUNICATION

The Principal Contractor/Contractor shall establish and implement sufficient communication processes acceptable to Necsa to ensure information is available and disseminated to Necsa and all construction workers as appropriate. The communication processes shall include:

- i) Establishing of a SHEQ committee in compliance with SHEQ-INS-5130 where worker representatives can communicate SHEQ problems and receive SHEQ relevant feedback.
- ii) Construction progress report in sufficient detail for the target audience - including workers.
- iii) Communication of changed procedures and work methods (also see part 12).
- iv) Event notification and communication of corrective actions to ensure learning opportunities.
- v) Communication channels between Contractors, Necsa and others including external communication with media and press.
- vi) A fraud and whistle blower hot-line.



# SHEQ SYSTEM

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|         |                                     |      |     |      |   |    |    |
|---------|-------------------------------------|------|-----|------|---|----|----|
| DOC NO. | SHEQ-INS-0825                       | REV. | 3.0 | PAGE | 8 | OF | 15 |
| TITLE   | NECSA REQUIREMENTS FOR CONSTRUCTION |      |     |      |   |    |    |

## 11 CONTROL OF ITEMS, MARKING, PACKING, STORAGE, HANDLING AND PRESERVATION

11.1 The Project Leader (I.t.o. SHEQ-INS-0800) or Necsa Responsible Manager shall ensure compliance with SHEQ-INS-0238 for the procurement of all SSC associated with the construction.

11.2 The marking, packing, storage, handling and preservation of items required for construction shall be as specified. The following requirements shall be specifically attended to:

- i) Marking of all construction items in correlation with (traceable to) the design.
- ii) Process of issuing of items from store.
- iii) Maintenance and care of stored items including pre-issue inspection as appropriate.
- iv) Protection (I.r.o. condition and security) of and access to high value items, and safety classified SSC.
- v) Storage of flammables and explosives (see SHEQ-INS-3050).
- vi) Fire protection in storage areas.

## 12 CHANGE MANAGEMENT

The Principal Contractor shall submit to Necsa for approval a document addressing the Change Management Process, which will be applied during construction.

This process shall comply with the following requirements:

- i) All changes shall be documented including requests (change proposals) with justification, proposal evaluation, rejection or approval of proposal with justification.
- ii) Change Management control including prescribed forms, individuals (i.e. not positions) authorised to evaluate, review, verify and approve change proposals.
- iii) Modifications to design shall be evaluated and accepted preferably by the original designer (and if not available by a technically qualified alternative with sufficient knowledge of the design) and the SAR preparation team. Modification proposals to Safety Classified SSC (see SHEQ-INS-0890) (Level 1 and 2) for nuclear facilities shall be submitted to the NNR for approval.
- iv) Change proposals shall be reviewed and approved by SQEPs, i.e. by individuals who have information and knowledge of the requirements, function of the SSC and the intent of the original design, process and practice.
- v) Design modification proposals shall be controlled in compliance with the requirements of SHEQ-INS-0233.
- vi) The process shall allow for temporary and permanent changes and communication of process outcomes with all relevant staff (including construction workers as appropriate).
- vii) The Change Management Process shall address the management of all potential changes including design, work procedures, quality management systems, instructions, etc.
- viii) The Change Management Process shall prescribe close-out only upon modification of the affected source documents (e.g. drawing).

## 13 PROTECTION (PHYSICAL SECURITY MEASURES) OF THE CONSTRUCTION AND CONSTRUCTION SITE

13.1 The Necsa's Chief Security and Information Security Officers shall assess the risks associated with the construction and determine or verify the:

- i) Security Categorisation of the completed installation, and
- ii) Information Security Classification

and prescribe physical security, and information security measures based on Necsa's SHEQ System requirements (see SHEQ-INS-8910, -8929 and -8930) for the construction site.



# SHEQ SYSTEM



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|         |                                     |      |     |      |   |    |    |
|---------|-------------------------------------|------|-----|------|---|----|----|
| DOC NO. | SHEQ-INS-0825                       | REV. | 3.0 | PAGE | 9 | OF | 15 |
| TITLE   | NECSA REQUIREMENTS FOR CONSTRUCTION |      |     |      |   |    |    |

13.2 The abovementioned security measures shall be based on the Categorisation and Classification requirements of the completed installation to effectively address the potential design base threats (see SHEQ-INS-8910) e.g. sabotage of a safety classified SSC during construction.

13.3 The Chief Security Officer and Information Security Officer shall implement a control process to ensure compliance before and during construction.

13.4 The above (including schedule for compliance verification audits) shall be documented and approved by the Project Leader or Necsa Responsible Manager.

13.5 The Chief Security Officer shall prescribe and implement a communication process with Security Services i.r.o. employees whose contracts are terminated or expired to ensure compliance with Necsa's and Construction site access control requirements.

## 14 DOCUMENTATION AND RECORDS GENERATED DURING CONSTRUCTION

14.1 The Principal Contractor/Contractor shall implement a process to ensure that documents generated during construction are retained as construction records. These documents shall be as identified in the processes prescribed in this document (see 7.3 for examples of such processes).

14.2 The requirements for numbering and control of documents, drawings and records shall be as prescribed in the Necsa SHEQ System (SHEQ-INS-0205, -0206, -0207 and -0208).

14.3 The Principal Contractor/Contractor shall be responsible for the hand-over of manufactures' or suppliers', construction and maintenance/operational manuals and certificates.

14.4 The construction documentation shall be retained as records as part of a facility's history (see SHEQ-INS-8290).

14.5 Construction documents (including buildings and alterations) shall as appropriate be submitted to the Draughting Section of the National Nuclear Manufacturing Centre.

## 15 CONSTRUCTION VERIFICATION

The Principal Contractor/Contractor and in liaison with the Necsa Project Leader or Necsa Responsible Manager shall prescribe the construction verification process which shall be accepted by the Licensing Department and SHEQD before construction commences. The construction verification process shall address/comply with the following:

- i) Confirmation that construction is performed in accordance with approved design.
- ii) Confirmation of competency of construction workers.
- iii) Intensified construction control of safety classified SSCs (Level 1 and 2 safety class SSCs).
- iv) Management and supervision of construction activities.
- v) Non-conformance, event and Change Management processes (see parts 7.3 and 12)
- vi) Testing and verification including certification.
- vii) Work planning and job-cards with identification of witness- and holdpoints for testing and verification activities before a task can continue.
- viii) Control of special construction processes (see SHEQ-INS-0241)
- ix) Third Party checks and verifications.
- x) Verifications that safety classified components are used in the intended positions.
- xi) Formal check sheet to verify and record that construction activity is complete and that the SSCs have been constructed and installed to specified requirements, in their correct locations.



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|         |                                     |      |     |      |    |    |    |
|---------|-------------------------------------|------|-----|------|----|----|----|
| DOC NO. | SHEQ-INS-0825                       | REV. | 3.0 | PAGE | 10 | OF | 15 |
| TITLE   | NECSA REQUIREMENTS FOR CONSTRUCTION |      |     |      |    |    |    |

## 16 POST-CONSTRUCTION (I.e. PRE-COMMISSIONING) REQUIREMENTS

### 16.1 Construction shall be deemed concluded when the following is completed:

- i) Close-out of Change Management Process proposals, non-conformance and events.
- ii) Completion of as-constructed drawings.
- iii) Hand-over of manuals, documents, records, certificates, etc.
- iv) Completion of construction verification process (see part 15).
- v) Cleaning of the construction site of rubble and waste, excess materials, temporary buildings, etc.
- vi) Acceptance by the Necsa Responsible Manager of the hand-over document of the constructed facility.

### 16.2 Some of the above may not be completed due to it being impacted by or required for the commissioning stage of the facility. The Non-conformance Process (see 7.3) shall be used to control such deviations.

### 16.3 All contractors and staff shall be subjected to a post-medical examination on termination of contractor employment and completion of construction (excluding staff retained for the commissioning stage).

## 17 CONSTRUCTION AND INTERFACING WITH THE NNR AND OTHER REGULATORS

### 17.1 Necsa shall remain the Single Point of Contact with and be responsible for communication and compliance processes prescribed by Regulators.

### 17.2 A Regulator has the prerogative to be involved in any of the above prescribed processes for auditing, inspection and compliance verification.

### 17.3 The Construction Programme and Schedule (see part 9) shall indicate specific regulatory interfaces.

## 18 RECORDS

The following records shall be kept:

| DESCRIPTION                                                                                                                   | RETENTION PERIOD                                                                                                                         | BY WHOM                        |
|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Documents generated by the processes prescribed in this document (see part 14.1) including documents prescribed in Appendix A | Documents generated shall be retained as facility history (SHEQ-INS-8290). The retention period shall be as prescribed by SHEQ-INS-8290. | As prescribed by SHEQ-INS-8290 |

## APPENDIX A - CONSTRUCTION RESPONSIBILITIES AND REQUIREMENTS

All references to regulations below are to the OHSAct Regulations. The regulations are referenced in brackets. Necsa requirements are shown.

### A-1 CLIENT OR THE CLIENT'S APPOINTED AGENT

**CLIENT TO BE SATISFIED THAT AGENT IS COMPETENT AND HAS THE RESOURCES TO PERFORM THE DUTIES**

| NO    | RESPONSIBILITIES                                                                                    |
|-------|-----------------------------------------------------------------------------------------------------|
| A-1.1 | Comply with Necsa's SHEQ-INS-0800: SHEQ Approval of Projects.                                       |
| A-1.2 | Prepare a Health and Safety Specification (HSS) and provide it to prospective Principal Contractors |



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|         |                                     |      |     |      |    |    |    |
|---------|-------------------------------------|------|-----|------|----|----|----|
| DOC NO. | SHEQ-INS-0825                       | REV. | 3.0 | PAGE | 11 | OF | 15 |
| TITLE   | NECSA REQUIREMENTS FOR CONSTRUCTION |      |     |      |    |    |    |

| NO     | RESPONSIBILITIES                                                                                                                                                                                                         |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A-1.3  | (CR 4). The SHEQD to accept the HSS. The SHEQD could also be requested to prepare or assist in the preparation of an HSS.                                                                                                |
| A-1.4  | Provide the Principal Contractor with any information (general and facility specific), which might affect the health and safety of construction personnel (CR 4).                                                        |
| A-1.5  | Ensure that the Principal Contractor is registered and in good standing with the compensation fund or licensed insurer (CR 4). SHEQD to be provided with such proof.                                                     |
| A-1.6  | Ensure that potential Principal Contractors have made provision for the cost of health and safety measures during construction (CR 4).                                                                                   |
| A-1.7  | Discuss, negotiate and approve the Principal Contractor's HSP, and ensure that a copy is available on request (CR 4). The SHEQD to accept this HSP.                                                                      |
| A-1.8  | Ensure that a Principal Contractor is competent and has the resources to carry out the work safely (CR 4).                                                                                                               |
| A-1.9  | Appoint the Principal Contractor(-s) (CR 4). A copy of the appointment to be submitted to the SHEQD.                                                                                                                     |
| A-1.10 | Ensure that the Principal Contractor's HSP is implemented and maintained.                                                                                                                                                |
| A-1.11 | Perform periodic audits (at least monthly) of the construction (CR 4). The SHEQD may be requested to perform the audits. SHEQD to receive a copy of audit reports.                                                       |
| A-1.12 | Stop any work that is not in accordance with the HSP, or which poses a threat to the health and safety of persons (CR 4).                                                                                                |
| A-1.13 | Provide Health and Safety information and ensure resources are made available to the Principal Contractor to execute changes to the design or construction (CR 4).                                                       |
| A-1.14 | Hand over the construction site to the Principal Contractor. Please note that the Nuclear FM remains responsible for radiological areas I.r.o. radiation protection and the nuclear licence requirements. Also see A-11. |

## A-2 PRINCIPAL CONTRACTOR(-S) (OR CONTRACTOR FOR CONSTRUCTION PERFORMED BY A SINGLE CONTRACTOR)

| NO    | RESPONSIBILITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A-2.1 | Notify the Provincial Director (Department of Labour) before commencement of construction if it includes:<br>i) the demolition of a structure exceeding a height of 3 meters; <u>or</u><br>ii) the use of explosives to perform construction work; <u>or</u><br>iii) the dismantling of fixed plant at a height greater than 3 meters;<br><u>or</u> when the construction:<br>a) exceeds 30 days, or will involve more than 300 person days of construction work; <u>and</u><br>b) includes excavation work deeper than 1 meter; <u>or</u><br>c) includes working at a height greater than 3 meters above ground or a landing.<br>In the prescribed format and a copy kept on site for inspection (CR 3). A copy of this notification to be submitted to the SHEQD. |
| A-2.2 | Prepare and demonstrate (to the client) a suitable sufficiently documented HSP based on the HSS (CR 5). The SHEQD to accept the HSP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| A-2.3 | Keep and hand over to the client on construction completion a consolidated HSF including:<br>i) record of all drawings, designs and other similar information concerning the completed structure;<br>ii) a comprehensive and updated list of all Contractors; and<br>iii) the agreement between the Principal Contractor and Contractors, and the type of work being done (CR 5(8)).                                                                                                                                                                                                                                                                                                                                                                                |
| A-2.4 | Ensure that all Contractors are informed regarding the hazards identified in the risk assessment (see A-7) before and during construction (frequency determined in risk assessment) (CR 7(5)).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |



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DOC NO. SHEQ-INS-0825

REV. 3.0

PAGE 12 OF 15

TITLE **NECSA REQUIREMENTS FOR CONSTRUCTION**

## **A-3 PRINCIPAL CONTRACTOR OR CONTRACTOR WHO SUB-CONTRACTS DIRECTLY WITH ANOTHER CONTRACTOR(-S)**

| NO    | RESPONSIBILITIES                                                                                                  |
|-------|-------------------------------------------------------------------------------------------------------------------|
| A-3.1 | Ensure co-operation between all Contractors to enable each to comply with the Construction Regulations (CR 5(2)). |
| A-3.2 | Provide potential Contractors with the relevant portions of the HSS (CR 5(2)).                                    |
| A-3.3 | Same as A-1.4 to A-1.12 above (substitute Principal Contractor with Contractor).                                  |

## **A-4 CONTRACTOR(-S)**

| NO     | RESPONSIBILITIES                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A-4.1  | Prepare and demonstrate (to the Principal Contractor) a suitable sufficiently documented HSP based on the Principal Contractor's HSS or HSP (CR 5(4)) and have it available on site, the HSP to include the risk assessment (see A-7) (CR 7). The SHEQD shall accept all Contractor HSPs.                                                                                                                                  |
| A-4.2  | Open and keep on site and make available on request an HSF containing all documentation required by OHSAct, and the Construction Regulations (CR 5(7)) including the Safety Officer's input into the HSP (CR 6(7)).                                                                                                                                                                                                        |
| A-4.3  | Co-operate with the Principal Contractor to enable each to comply with the OHSAct (CR 5(13)).                                                                                                                                                                                                                                                                                                                              |
| A-4.4  | Provide the Principal Contractor with any information, which might affect the health and safety of any person or which may justify a review of the HSP (CR 5(14)).                                                                                                                                                                                                                                                         |
| A-4.5  | Appoint a full-time competent employee as construction supervisor, and assistants, if required, with clearly defined responsibilities in the letters of appointment. The appointment may only cover more than one site if assistants have been appointed for each site (CR 6).                                                                                                                                             |
| A-4.6  | Appoint a full- or part-time construction safety officer with the necessary competencies and resources if the size of the project or the associated hazards or risks requires it. (The Inspector may instruct such an appointment.) (CR 6). A copy of this appointment to be submitted to the SHEQD.                                                                                                                       |
| A-4.7  | Appoint a competent person to perform, before and during construction, a risk assessment (i.e. risk assessor) and consult with the Health and Safety Committee or representative group of employees the development, monitoring and review of the risk assessment. Ensure that the risk assessment includes ergonomic related hazards (CR 7 and SHEQ-INS-2310). A copy of this appointment to be submitted to the SHEQD.   |
| A-4.8  | Ensure that all Contractors' employees are informed, instructed and trained by a competent person i.r.o. hazards and related work procedures before commencement of work and at such times as determined in the risk assessment (CR 7(4)). Issue proof to the employee of the above (CR 7(9)).                                                                                                                             |
| A-4.9  | Ensure that no person (employee or visitor) enters the construction site unless such a person has undergone health and safety induction training <u>pertaining to the hazards on the construction site at the time of entry</u> . Persons shall be provided with the necessary PPE (CR 7). The Contractor and his/her employees are obliged to attend Necsa's general SHEQ orientation programme.                          |
| A-4.10 | Fall protection (CR 8 and SHEQ-INS-2141):<br>i) Appoint a competent person to prepare a fall protection plan. The plan shall be submitted to the SHEQD for acceptance.<br>ii) Provide notices, guards, fences or barricades to prevent persons from falling through any unprotected opening.<br>iii) Ensure that:<br>a) fall prevention or arrest equipment complies with CR 8(4)(d)<br>b) roof work complies with CR 8(5) |
| A-4.11 | Structures:<br>i) Take steps to prevent the uncontrolled collapse of any new or existing structure.<br>ii) Ensure that no structure is overloaded.<br>iii) Ensure that all structure design drawings are available on site and available on request.                                                                                                                                                                       |



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|         |                                     |      |     |      |    |    |    |
|---------|-------------------------------------|------|-----|------|----|----|----|
| DOC NO. | SHEQ-INS-0825                       | REV. | 3.0 | PAGE | 13 | OF | 15 |
| TITLE   | NECSA REQUIREMENTS FOR CONSTRUCTION |      |     |      |    |    |    |

| NO     | RESPONSIBILITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A-4.12 | <p>Comply, or ensure compliance, with the relevant CR requirements (as indicated) including the following as relevant to work identified in A-4.13 below:</p> <ul style="list-style-type: none"> <li>i) Steps to prevent adjoining structures to be affected.</li> <li>ii) Appointment of competent supervisors/controllers.</li> <li>iii) Permission by competent persons to proceed with work upon the latter's evaluation/assessment.</li> <li>iv) The use of professional engineers/technologists in case of uncertainty and recording of their findings.</li> <li>v) Ascertaining the location, and making safe of utility services (electricity, water, etc.) before commencing work.</li> <li>vi) Ensure adequate design, erection, support, bracing, fencing, barricading, notices and maintenance, and prevent overloading/collapse.</li> <li>vii) Referencing to and liaison with structural design/designer.</li> <li>viii) Drawings kept on site and available on request.</li> <li>ix) Periodic inspection and checking of equipment at frequencies specified in the CR by competent persons before, during and after use or placement and recording of such inspections.</li> <li>x) Removal, reinforcement or maintenance if found to be damaged.</li> <li>xi) Safe access.</li> <li>xii) Preparation of work methods/procedures and training, providing information and instructions to perform operations safely.</li> <li>xiii) Provision of adequate illumination.</li> <li>xiv) etc.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| A-4.13 | <p>The above A-4.12 requirement shall be implemented for the following:</p> <ul style="list-style-type: none"> <li>i) Form work and support work (CR 10).</li> <li>ii) Excavation work (CR 11 and General Safety Regulations 2, 5 and 7 for confined spaces and SHEQ-INS-2450 and -2495) including requirements for working with explosives (Explosive Regulations). Permission to be obtained from Necsa's Security Services to use explosives.</li> <li>iii) Demolition work (CR 12) including: <ul style="list-style-type: none"> <li>a) handling of waste and debris.</li> <li>b) presence of asbestos (Asbestos Regulations and SHEQ-INS-7041)</li> <li>c) Presence of lead (Lead Regulations)</li> <li>d) Work with explosives (Explosive Regulations)</li> </ul> </li> <li>iv) Tunneling (CR 13 and requirements of Tunneling Regulations of Mine Health and Safety Act, 1996).</li> <li>v) Scaffolding (CR 14 and SHEQ-INS-2100 and -2140).</li> <li>vi) Suspended platforms (CR 15 and SHEQ-INS-2100 and SHEQ-INS-2150).</li> <li>vii) Boatswain's Chairs (CR 16 and SHEQ-INS-2100 and SHEQ-INS-2150).</li> <li>viii) Material hoists (CR 17 and SHEQ-INS-2100 and SHEQ-INS-2150).</li> <li>ix) Batch plants (CR 18 and General Safety Regulations 2, 5 and 7 for working in silos (SHEQ-INS-2495) and Driven Machinery Regulations 17, 18 and 19 for lifting equipment (SHEQ-INS-2150), and Electrical Machinery Regulations for use of electrical equipment in explosive atmospheres when entering a silo (SHEQ-INS-2230). The SHEQD Emergency Services to classify hazardous areas.</li> <li>x) Explosive power tools (CR 19).</li> <li>xi) Tower cranes (CR 20 and Driven Machinery Regulations 17, 18 and 19, and SHEQ-INS-2100 and SHEQ-INS-2150).</li> <li>xii) Construction vehicles and mobile plant (CR 21).</li> <li>xiii) Electrical installations and machinery on construction sites (CR 22 and the Electrical Installation Regulations, and SHEQ-INS-2230). The SHEQD to certify electrical installations and electrical equipment used in hazardous areas.</li> </ul> |



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|---------|-------------------------------------|------|-----|------|----|----|----|
| DOC NO. | SHEQ-INS-0826                       | REV. | 3.0 | PAGE | 14 | OF | 15 |
| TITLE   | NECSA REQUIREMENTS FOR CONSTRUCTION |      |     |      |    |    |    |

| NO     | RESPONSIBILITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A-4.14 | <p>xiv) Use and temporary storage of flammable liquids on construction sites (the SHEQD Emergency Services to approve such storage areas) (CR 23 and General Safety Regulations 4, and SHEQ-INS-3050).</p> <p>v) Construction in close proximity to water (CR 24).</p> <p>vi) Housekeeping on construction sites (CR 25, Environmental Regulations for Workplaces 6 and 9, and SHEQ-INS-1110).</p> <p>vii) Stacking and storage on construction sites (CR 26 and General Safety Regulation 8 and SHEQ-INS-1220).</p> <p>viii) Fire precautions on construction sites (CR 27 and Environmental Regulations for Workplaces, and SHEQ-INS-3010). The SHEQD Emergency Services to evaluate hazards, prescribe and accept precautionary measures and fire fighting equipment.</p> <p>vix) Ablution facilities (CR 28 and Facilities Regulations 2 to 7 and 9, and SHEQ-INS-1140).</p> <p>Ensure that the above plans, measures, etc. are issued to supervisors, etc., are adhered to, implemented, amended and maintained (CR 8(1)).</p> |

## A-5 CONSTRUCTION SUPERVISOR(-S)

| NO    | RESPONSIBILITIES                                                                                                                     |
|-------|--------------------------------------------------------------------------------------------------------------------------------------|
| A-5.1 | Supervise the construction work and be accountable for supervisory duties for only the site he/she has been appointed for (CR 6(2)). |

## A-6 CONSTRUCTION SAFETY OFFICER

| NO    | RESPONSIBILITIES                                                                                                                                                                                              |
|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A-6.1 | Assist in the control of all safety related aspects on the construction site (CR 6(6)).                                                                                                                       |
| A-6.2 | As far as reasonable practicable give input at the early structure design stage, and when not appointed at this stage, be given the opportunity to provide input into the HSPs and record such input CR 6(7)) |

## A-7 RISK ASSESSOR

| NO    | RESPONSIBILITIES                                                                                                                                                                                                                                                                                                                                                                  |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A-7.1 | Perform a risk assessment of the risks/hazards before and during the construction work including at least the aspects covered in CR 7(1)(a) to (e) and 7(6) i.e. identification, evaluation, mitigation, control of hazards and risks, and preparation of a monitoring plan and review of plan (CR 7). A copy of the risk assessment to be submitted to the SHEQD for acceptance. |
| A-7.2 | Prescribe training and re-training requirements l.r.o. the risks/hazards (CR 7)).                                                                                                                                                                                                                                                                                                 |

## A-8 CONTRACTOR'S EMPLOYEES

| NO    | RESPONSIBILITIES                                                                                                |
|-------|-----------------------------------------------------------------------------------------------------------------|
| A-8.1 | Comply with requirements of OHSAct section 14 including construction procedures, instructions and training.     |
| A-8.2 | Carry proof for the duration of the construction project of health and safety induction and training (CR 7(9)). |



# SHEQ SYSTEM



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DOC NO. SHEQ-INS-0825

REV. 3.0

PAGE 15 OF 15

TITLE NECSA REQUIREMENTS FOR CONSTRUCTION

## A-9 FALL PROTECTION PLANNER

| NO  | RESPONSIBILITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A-9 | <p>Prepare a fall protection plan covering the requirements of CR 8(2) e.g.:</p> <ul style="list-style-type: none"><li>i) risk assessment, procedure, methods (per location)</li><li>ii) employees' fitness, psychological fitness evaluation</li><li>iii) employee training and recording of training</li><li>iv) inspection, testing and maintenance of fall protection equipment</li></ul> <p>The SHEQD's Medical Services shall be requested to evaluate employees' fitness. The fall protection plan to be accepted by the SHEQD (SHEQ-INS-2141).</p> |

## A-10 STRUCTURE DESIGNER

| NO     | RESPONSIBILITIES                                                                                                                                                                          |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A-10.1 | Design the structure.                                                                                                                                                                     |
| A-10.2 | Make the relevant design information available to the client that may affect pricing. Any design of civil work, buildings, structures, etc. shall be accepted by Property Management.     |
| A-10.3 | Inform the Contractor in writing of all anticipated construction hazards and provide information required for the safe execution of the work with the design or alteration to the design. |
| A-10.4 | Ensure that design complies with the requirements of CR 9(2)(c) to (e).                                                                                                                   |
| A-10.5 | Carry out, and record inspections to ensure compliance with design and stop work not in compliance.                                                                                       |
| A-10.6 | Conduct final inspection and issue completion certificate to the Contractor.                                                                                                              |
| A-10.7 | Ensure that ergonomic design principles are taken into account during commissioning to minimise related hazards (CR 9(2) and SHEQ-INS-2310).                                              |

## A-11 OWNER OF THE STRUCTURE (CLIENT AND/OR PROPERTY MANAGEMENT AND PLANT MANAGER)

| NO     | RESPONSIBILITIES                                                                                                                                                                                                                          |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A-11.1 | Ensure that periodic inspections are carried out (and recorded) of the structure upon completion, by competent persons to render it safe for continued use (at least 6 monthly for first two years; thereafter yearly) (CR 9(4) and (5)). |
| A-11.2 | Maintain the structure to ensure its continued safety (and record the maintenance).                                                                                                                                                       |





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|         |                                              |      |     |      |   |    |   |
|---------|----------------------------------------------|------|-----|------|---|----|---|
| DOC NO. | SHEQ-INS-2100                                | REV. | 5.0 | PAGE | 1 | OF | 8 |
| TITLE   | GENERAL REQUIREMENTS FOR STATUTORY EQUIPMENT |      |     |      |   |    |   |

## 1. PURPOSE AND SCOPE

- 1.1. To prescribe the Inputs of the SHEQD and the Competent Person Machinery in respect of the design, purchase, manufacture, installation, construction, inspection, testing, modification, selling or scrapping of statutory machinery/equipment.
- 1.2. To list the requirements in respect of documentation, maintenance, inspection and testing required by legislation for identified equipment.
- 1.3. Requirements for Pressure Equipment are excluded from this instruction. See SHEQ-INS-2160 for pressure equipment requirements.

## 2. REFERENCES

- 2.1. This instruction meets the requirements of:
  - Act 85 of 1993: Occupational Health and Safety Act (OHS Act). All regulations promulgated under the Act, and in particular the following:
    - Sections 8, 10 and 22
    - Construction Regulations 8(2)(d), 10(f), 14 to 17 and 20
    - Environmental Regulations for Workplaces (1987) 3(5)
    - General Safety Regulations (GSR) 13 A and B
    - Driven Machinery Regulations (DMR) 17 and 18
    - General Machinery Regulations (GMR) 2 and 4
    - Electrical Machinery Regulations (EMR) 8 and 9
    - Lift, Escalator and Passenger Conveyor Regulations (LEP) 2 to 7
  - Government Gazette 27305 dated 2005/02/18 for the registration of entities performing load testing on lifting machines and Lifting Machinery Inspectors with DOL and ECSA
- 2.2. The following documents are referred to:
  - SHEQ-FRM-5300 Authorisation Certificate
  - SHEQ-INS-0800 SHEQ Approval of Projects
  - SHEQ-INS-0825 Requirements for Construction
  - SHEQ-INS-2150 Lifting Equipment
  - SHEQ-INS-2160 Control over the Use of Motorised Equipment and Training of Lifting Machine/Equipment Operators
  - SHEQ-INS-2230 Classification of Hazardous Areas and the Certification of Electrical Installations in General and Hazardous Areas
  - SHEQ-INS-5300 Written Safe Work Procedures, Instructions, Orientation and Task Training
  - SHEQ-LST-2101 SHEQ Department: List of Exemptions in terms of the OHS Act (Act 85 of 1993)

|              | NAME                                                                                    | SIGNATURE           | DATE       |
|--------------|-----------------------------------------------------------------------------------------|---------------------|------------|
| PREPARED     | W D le Roux<br>CONSULTANT                                                               | <i>W D le Roux</i>  | 2012/11/28 |
| CHECKED      | I E Styn<br>SM: SHEQD                                                                   | <i>I E Styn</i>     | 01/12/2012 |
| ACCEPTED     | J Shayl<br>GE: NCS                                                                      | <i>J Shayl</i>      | 06/12/2012 |
| APPROVED     | G P Tshelane<br>CEO                                                                     | <i>G P Tshelane</i> | 13/05/2013 |
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|         |                                              |      |     |      |   |    |   |
|---------|----------------------------------------------|------|-----|------|---|----|---|
| DOC NO. | SHEQ-INS-2100                                | REV. | 5.0 | PAGE | 2 | OF | 8 |
| TITLE   | GENERAL REQUIREMENTS FOR STATUTORY EQUIPMENT |      |     |      |   |    |   |

### 3. REVISION HISTORY

- Revision 0 – 1993/07/26 – First Issue (A C van der Bijl)
- Revision A – 2003/03/11 – Document reviewed to include new legislation and to change its number (A C van der Bijl)
- Revision B – 2003/06/13 – Parts 5.9, B-1 and B-2 changed to address new VUPR requirements and to reflect Necsa's new organisation (A C van der Bijl)
- Revision C – 2005/07/29 – Document reviewed to include new legislation (parts 2.1, 3, 5.6, B-5 to B-8, B-16 to B-19) and to change HSE to SHEQ to include the Corporate Quality function (A C van der Bijl)
- Revision 4 – 2007/11/23 – Document reviewed to reflect Necsa's new organisation and to comply with quality requirements for documents (A C van der Bijl)
- Revision 5.0 – Scheduled revision. All requirements with respect to Pressure Equipment (OHS Act Pressure Equipment Regulations) are removed from this document. Pressure Equipment is now addressed in SHEQ-INS-2160 (W D le Roux)

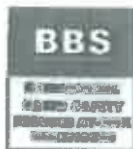
### 4. DEFINITIONS AND ABBREVIATIONS

- 4.1. Competent Person Machinery – The person appointed by Necsa in terms of the OHS Act's General Machinery Regulations 2(1) to ensure that machinery complies with the provisions of the OHS Act and Regulations.
- 4.2. Statutory equipment – Machinery/equipment of which the design, purchase, manufacture, construction, use, operation, maintenance, selling or scrapping are specifically prescribed by the OHS Act. Examples of such equipment are covered in Appendix A. Except for the specific requirements for statutory equipment, general requirements with which all machinery shall comply, are prescribed in the OHS Act and Regulations.
- 4.3. In this document any expression has the same meaning as that described in the OHS Act unless otherwise indicated. The references in this document are throughout to the OHS Act.
- 4.4. The following abbreviations are used:

|         |                                                     |
|---------|-----------------------------------------------------|
| AIA     | Approved Inspection Authority                       |
| CR      | Construction Regulations                            |
| DMR     | Driven Machinery Regulations                        |
| DOL     | Department of Labour                                |
| ECSA    | Engineering Council of South Africa                 |
| EIR     | Electrical Installation Regulations                 |
| EMR     | Electrical Machinery Regulations                    |
| ERW     | Environmental Regulations for Workplaces            |
| GAR     | General Administrative Regulations                  |
| GMR     | General Machinery Regulations                       |
| GSR     | General Safety Regulations                          |
| LEP     | Lifts, Escalator and Passenger Conveyor Regulations |
| NNMC    | National Nuclear Manufacturing Centre               |
| OHS Act | Occupational Health and Safety Act                  |
| SHEQD   | Safety, Health, Environment and Quality Department  |

### 5. RESPONSIBILITIES

The manager shall ensure that the requirements of this document are observed for his/her group and in the manager's area of responsibility.



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|         |                                              |      |     |      |   |    |   |
|---------|----------------------------------------------|------|-----|------|---|----|---|
| DOC NO. | SHEQ-INS-2100                                | REV. | 5.0 | PAGE | 3 | OF | 8 |
| TITLE   | GENERAL REQUIREMENTS FOR STATUTORY EQUIPMENT |      |     |      |   |    |   |

## 6. INSTRUCTIONS

- 6.1. To ensure that the requirements of the OHS Act in respect of equipment and machinery in general are observed, the inputs of the SHEQD shall be obtained. The process prescribed in SHEQ-INS-0800 (SHEQ Approval of Projects) shall be used for this purpose.
- 6.2. All equipment purchased, manufactured or acquired in any other way, shall comply with the requirements of the OHS Act.
- 6.3. No repairs on and/or modifications to the load-carrying parts of lifting equipment shall be allowed without notification to the Competent Person Machinery. In some cases permission for this shall be obtained from an AIA. The NNMC's Quality Control Group may be approached in this regard.
- 6.4. Documentation shall be updated and maintenance jobs, inspections and tests shall be scheduled as required by the OHS Act (see Appendix B). Registered competent persons or firms having knowledge of and experience in the maintenance, inspection and testing of statutory equipment (listed in Appendix A) shall be appointed in writing or authorised for the inspection and testing of each type of equipment. Form SHEQ-FRM-5300 (see SHEQ-INS-5300: Written Safe Work Procedures, Instructions, Orientation and Task Training) may be used as certificate of authorization. The SHEQD shall see to it that the requirements are observed.
- 6.5. Copies of Registration Certificates (for lifts) shall be forwarded to the SHEQD.
- 6.6. A list of statutory equipment (as listed in Appendix A) shall be maintained by the manager. Lists shall be updated and certified at least annually.
- 6.7. All statutory equipment shall have unique numbers. Asset and serial numbers are regarded as suitable for this purpose.
- 6.8. The required inspections and tests during and after construction, and during commissioning and on recommissioning, shall be carried out. Inspection and test frequencies are indicated in Appendix B.
- 6.9. Liaison/correspondence (such as requesting exemption from the Inspector of DOL with regard to the machinery) shall be effected by and under the signature of the Competent Person Machinery. The Competent Person Machinery shall keep a list (SHEQ-LST-2101) of exemptions I.r.o. the OHS Act.
- 6.10. The Competent Person Machinery shall forward copies of correspondence with the Inspector to the manager concerned. The manager or CPM shall forward copies of correspondence with an AIA to the SHEQD and Competent Person Machinery.
- 6.11. The Competent Person Machinery shall be notified of:
  - any defect or weakness of any machine or equipment and
  - any event (injury or otherwise) involving machinery or equipment whereby persons were injured or may be endangered.
- 6.12. Examples of record books referred to in Appendix B are available at the SHEQD.

## 7. RECORDS

The following records shall be kept:

| DESCRIPTION                                                 | RETENTION PERIOD                                                                 | BY WHOM                                                          |
|-------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------|
| Documentation prescribed in Appendix B.                     | For the machine's or equipment's life time. At least 10 years for lifts.         | Manager (user of the machines or equipment) and SHEQD (see 6.5). |
| List of statutory equipment (see Appendix A and 6.6 above). | An updated list of statutory equipment for the life of the machine or equipment. | Manager (user of the machine or equipment).                      |



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|         |               |      |     |      |   |    |   |
|---------|---------------|------|-----|------|---|----|---|
| DOC NO. | SHEQ-INS-2100 | REV. | 5.0 | PAGE | 4 | OF | 8 |
|---------|---------------|------|-----|------|---|----|---|

TITLE      **GENERAL REQUIREMENTS FOR STATUTORY EQUIPMENT**

| DESCRIPTION                                                                                          | RETENTION PERIOD                                                                                         | BY WHOM                                                    |
|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| Exemptions and permission of Inspector or AIA (8.3 and 8.9 above).                                   | For the life of the machine or equipment concerned.                                                      | Manager (user of the machine or equipment), SHEQD and CPM. |
| Letters of appointment and Certificates of Authorisation (SHEQ-FRM-5300 or similar - see 8.4 above). | For the life of the machine or equipment concerned, and for as long as the person or firm is authorised. | Manager (user of the machine or equipment) and the CPM.    |

**Note:**      The CPM shall, for the duration of his appointment, keep a register of all notifications to the DOL, exemption and permissions of the Inspector or AIA as contemplated in this document. This register shall be made available at all times for checking/audit requirements. The register shall be formally handed over to a succeeding CPM.

## APPENDIX A – LIST OF EXAMPLES OF STATUTORY EQUIPMENT

| EQUIPMENT |                                                                                                                                           | APPENDIX B<br>REFERENCE |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| A-1       | Air compressors                                                                                                                           | Refer to SHEQ-INS-2100  |
| A-2       | Anchor points                                                                                                                             | B-4                     |
| A-3       | Boatswain's chair (personnel cradle, hoist cradle)                                                                                        | B-6                     |
| A-4       | Boilers                                                                                                                                   | Refer to SHEQ-INS-2100  |
| A-5       |                                                                                                                                           |                         |
| A-6       | Cranes (mobile and overhead)                                                                                                              | B-3                     |
| A-7       | Emergency Lighting                                                                                                                        | B-14                    |
| A-8       | Flameproof electrical equipment                                                                                                           | B-9                     |
| A-9       | Forklifts                                                                                                                                 | B-3                     |
| A-10      | Form work and support work structures                                                                                                     | B-16                    |
| A-11      | Gas-welding equipment                                                                                                                     | B-12                    |
| A-12      | Goods hoists, goods lifts                                                                                                                 | B-2                     |
| A-13      | Ladders (including fixed ladders)                                                                                                         | B-11                    |
| A-14      | Lifting equipment (e.g. air hoist; sheave block; trolley; cable puller; crawl beam; chain block; plate clamp; rope block, lifting tackle) | B-4                     |
| A-15      | Lifts (personnel)                                                                                                                         | B-1                     |
| A-16      | Material hoists                                                                                                                           | B-5                     |
| A-17      | Overhead transportation plants                                                                                                            | B-15                    |
| A-18      | Pneumatic equipment                                                                                                                       | B-13                    |
| A-19      | Polyprop ropes                                                                                                                            | B-4                     |
| A-20      | Portable transformers                                                                                                                     | B-10                    |



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|         |               |                                              |     |      |   |    |   |
|---------|---------------|----------------------------------------------|-----|------|---|----|---|
| DOC NO. | SHEQ-INS-2100 | REV.                                         | 5.0 | PAGE | 5 | OF | 8 |
| TITLE   |               | GENERAL REQUIREMENTS FOR STATUTORY EQUIPMENT |     |      |   |    |   |

| EQUIPMENT |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | APPENDIX B<br>REFERENCE |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| A-21      | Pressure Vessels                                                                                                                                                                                                                                                                                                                                                                                                                                                | Refer to SHEQ-INS-2100  |
| A-22      | Refrigeration & air-conditioning installations                                                                                                                                                                                                                                                                                                                                                                                                                  | B-7                     |
| A-23      | Safety belts (harnesses)                                                                                                                                                                                                                                                                                                                                                                                                                                        | B-4                     |
| A-24      | Scaffolding (trestle scaffolds, suspended scaffolds, ramps, scaffold platforms, scaffold framework)                                                                                                                                                                                                                                                                                                                                                             | B-8                     |
| A-25      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                         |
| A-26      | Steel slings                                                                                                                                                                                                                                                                                                                                                                                                                                                    | B-4                     |
| A-27      | Suspended platforms                                                                                                                                                                                                                                                                                                                                                                                                                                             | B-17                    |
| A-28      | Webbing                                                                                                                                                                                                                                                                                                                                                                                                                                                         | B-4                     |
| A-29      | Welding equipment (electric and gas)                                                                                                                                                                                                                                                                                                                                                                                                                            | B-12                    |
| A-30      | Electrical equipment (e.g. angle grinder; belt sander; centrifugal extractor; circular saw; drilling machine; electric screwdriver; engraver; explosive power tool; extension lead (220 V); extension lead (380 V); grinding machine; lead light; mixing, agitating & similar machines; nibbler; orbital sander; planer; plate shear; router; sanding machine; shear; guillotine & press; slitting machine; surface grinder; wood-moulding & mortising machine) | B-10                    |



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|         |               |                                              |     |      |   |    |   |
|---------|---------------|----------------------------------------------|-----|------|---|----|---|
| DOC NO. | SHEQ-INS-2100 | REV.                                         | 5.0 | PAGE | 6 | OF | 8 |
| TITLE   |               | GENERAL REQUIREMENTS FOR STATUTORY EQUIPMENT |     |      |   |    |   |

## APPENDIX B – REQUIREMENTS IN RESPECT OF DOCUMENTATION, INSPECTION AND TEST FREQUENCIES FOR CERTAIN STATUTORY EQUIPMENT

| STATUTORY ITEM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                        | DOCUMENTATION REQUIRED                                                                                                                                                                             | INSPECTION/TEST FREQUENCY                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Lifts-Personnel                                                                                                        | Registration certificates<br>Inspection register<br>Report of registered person (LEP 2(2) and 5(1))<br>Record book (LEP 7(1))<br>Rope certificate<br>Wiring diagram<br>Copies of reports of events | Prior to commissioning<br>Monthly investigation (LEP 6(1))<br>Monthly inspection of lift ropes (LEP 6(2))<br>36 monthly report (LEP 5(1))                                                 |
| <b>NOTES</b> <ul style="list-style-type: none"><li>- Registration certificate shall be displayed in machine room.</li><li>- The Competent Person Machinery shall appoint a person or firm in writing to carry out the 36 monthly inspection and tests, and monthly inspections (LEP 5(1) and 6(1)).</li><li>- Copies of certificates shall be forwarded to the SHEQD.</li><li>- A new report shall be compiled by a registered person after each modification to or failure of a lift, or when there is a change in the appointed competent person or firm designated to inspect and maintain a lift (LEP 2(2) and 2(3)).</li><li>- The name of the manufacturer, the year of installation, the lift's official number, the rated speed and the rated load in kilogram shall be displayed in the machine room (LEP 4(1)).</li><li>- The above mentioned documentation to be kept in the machine room of the lift (LEP 7(1)).</li><li>- The Competent Person Machinery to be notified of any defect or weakness whereby persons are endangered.</li><li>- The Competent Person Machinery shall report it to the Department of Labour (LEP 6(3)).</li><li>- See SHEQ-INS-2150 (Lifting Equipment) for other requirements.</li></ul> |                                                                                                                        |                                                                                                                                                                                                    |                                                                                                                                                                                           |
| B-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Goods hoists, goods lifts (DMR 17)                                                                                     | Record book<br>Training certificates                                                                                                                                                               | 3 monthly                                                                                                                                                                                 |
| B-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Lifting machines and –frames (including cranes, forklifts etc.) (DMR 18) (GG 27305)                                    | Record book<br>ECSA Registration Certificate of Lifting Machinery Inspector                                                                                                                        | The whole installation shall be subjected annually to an investigation and performance test<br>Ropes, chains, hooks, attaching devices, pulley wheels, pins and safety devices: 6 monthly |
| <b>NOTES</b> <ul style="list-style-type: none"><li>- Entities and Lifting Machine Inspectors performing load testing on all lifting machinery shall be registered with DOL and ECSA. The CPM shall maintain a list of registered lifting machine inspectors.</li><li>- Operators of jib cranes (capacity <math>\geq 750</math> kg) shall be in possession of a training certificate issued by an accredited institution (see SHEQ-INS-2180).</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                        |                                                                                                                                                                                                    |                                                                                                                                                                                           |
| B-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Lifting tackle (chains, slings, rings, hooks, safety belts, ropes, etc.) and anchor points (DMR 18(10) and CR 8(2)(d)) | Record book<br>Procedure addressing the inspection, testing and maintenance of fall protection equipment                                                                                           | 3 monthly                                                                                                                                                                                 |
| B-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Material hoists (CR 17)                                                                                                | Record book<br>Appointment letter (or form of a competent person to perform the inspection)                                                                                                        | Daily inspection to determine serviceability of entire hoist                                                                                                                              |



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|         |               |                                              |     |      |   |    |   |
|---------|---------------|----------------------------------------------|-----|------|---|----|---|
| DOC NO. | SHEQ-INS-2100 | REV.                                         | 5.0 | PAGE | 7 | OF | 8 |
| TITLE   |               | GENERAL REQUIREMENTS FOR STATUTORY EQUIPMENT |     |      |   |    |   |

| STATUTORY ITEM                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                               | DOCUMENTATION REQUIRED                       | INSPECTION/TEST FREQUENCY                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B-6                                                                                                                                                                                                                                                                                                                                                                                                                         | Holst cradle (Boatswain's chair)<br>(DMR 18(8) and CR 16)                                                                                                     | Inspector's approval document<br>Record book | <ul style="list-style-type: none"><li>- Inspection prior and a performance test immediately after cradle/chair has been erected</li><li>- Daily visual inspection</li><li>- As indicated by the Inspector in the relevant approval document – also see SHEQ-INS-2150</li></ul>                 |
| B-7                                                                                                                                                                                                                                                                                                                                                                                                                         | Cooling and airconditioning installation<br>(DMR15 and SABS 0147 – 1978 part 7.4)                                                                             | Logbook (>20 kW)<br>SABS 0147 7.4(b)         | <ul style="list-style-type: none"><li>- Installations &gt;20 kW:<ul style="list-style-type: none"><li>• 3 monthly (7.4(a))</li><li>• other further requirements for group 2 or 3 coolant – contact Competent Person Machinery in such a case (R12 and R22 fall in group 1)</li></ul></li></ul> |
| B-8                                                                                                                                                                                                                                                                                                                                                                                                                         | Scaffolding (CR 14)                                                                                                                                           | Logbook                                      | <ul style="list-style-type: none"><li>- Weekly or after bad weather, while erected</li></ul>                                                                                                                                                                                                   |
| <b>NOTE</b> <ul style="list-style-type: none"><li>- The manager (or the Competent Person Machinery if requested) shall authorise a SQEP in writing (form SHEQ-FRM-5300 may be used for this purpose) to erect, change, dismantle and inspect scaffolding.</li></ul>                                                                                                                                                         |                                                                                                                                                               |                                              |                                                                                                                                                                                                                                                                                                |
| B-9                                                                                                                                                                                                                                                                                                                                                                                                                         | Electrical machinery in hazardous locations (hazardous i.r.o. fire and explosions – this may include battery rooms) – Flameproof electrical equipment (EMR 8) | Certificate of AIA<br>Logbook                | <ul style="list-style-type: none"><li>- At least once every 2 years; or</li><li>- yearly if machinery is subjected to adverse climatic or physical conditions</li></ul>                                                                                                                        |
| <b>NOTE</b> <ul style="list-style-type: none"><li>- SHEQD (Emergency Services) shall classify hazardous places on request.</li><li>- Only a master installation electrician is qualified to carry out these inspections and tests (EIR).</li><li>- See SHEQ-INS-2230 (Classification of Hazardous Areas and the Certification of Electrical Installations in General and Hazardous Areas) for other requirements.</li></ul> |                                                                                                                                                               |                                              |                                                                                                                                                                                                                                                                                                |
| B-10                                                                                                                                                                                                                                                                                                                                                                                                                        | Portable electric tools and welding machines<br>(GSR 9 and EMR 9)                                                                                             | Logbook                                      | <ul style="list-style-type: none"><li>- Shall be kept in serviceable condition</li><li>- Frequency is determined on merit in consultation with the SHEQD (preferably 3-monthly)</li></ul>                                                                                                      |
| B-11                                                                                                                                                                                                                                                                                                                                                                                                                        | Ladders (including fixed ladders)<br>(GSR 13A(1-6))                                                                                                           | Logbook                                      | <ul style="list-style-type: none"><li>- Fixed ladders – yearly</li><li>- Others – 3 monthly</li></ul>                                                                                                                                                                                          |
| B-12                                                                                                                                                                                                                                                                                                                                                                                                                        | Welding equipment Electric and Gas<br>(GSR 9 and EMR 9)                                                                                                       | Logbook                                      | <ul style="list-style-type: none"><li>- 3-monthly</li></ul>                                                                                                                                                                                                                                    |
| B-13                                                                                                                                                                                                                                                                                                                                                                                                                        | Pneumatic equipment                                                                                                                                           | Logbook                                      | <ul style="list-style-type: none"><li>- 6-monthly</li></ul>                                                                                                                                                                                                                                    |
| B-14                                                                                                                                                                                                                                                                                                                                                                                                                        | Emergency Lighting<br>(ERW 3(5))                                                                                                                              | Logbook                                      | <ul style="list-style-type: none"><li>- 3 monthly functional test</li><li>- 6 monthly battery capacity</li></ul>                                                                                                                                                                               |



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|----------------------------------------------------|---------------|------|-----|------|---|----|---|
| DOC NO.                                            | SHEQ-INS-2100 | REV. | 5.0 | PAGE | 8 | OF | 8 |
| TITLE GENERAL REQUIREMENTS FOR STATUTORY EQUIPMENT |               |      |     |      |   |    |   |

| STATUTORY ITEM |                                               | DOCUMENTATION REQUIRED                                                                                                    | INSPECTION/TEST FREQUENCY                                                                                                                                                                                                           |
|----------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B-16           | Overhead transportation plants (DMR 16)       | <ul style="list-style-type: none"> <li>- Written authorisation from an Inspector of DOL</li> <li>- Record book</li> </ul> | <ul style="list-style-type: none"> <li>- Inspection and testing before use or re-erection; thereafter 12 monthly. Load testing at 120% of rated mass load</li> <li>- Ropes, hooks and load attaching devices - 6 monthly</li> </ul> |
| B-16           | Form Work and Support Work Structures (CR 10) | <ul style="list-style-type: none"> <li>- Framework and support work register to record inspection results</li> </ul>      | <ul style="list-style-type: none"> <li>- Inspection immediately before, during and after the placement of concrete (or other load); thereafter daily until removed</li> </ul>                                                       |

## NOTE

- Design drawings of form work and/or support work shall be kept on the construction site.
- Competent person (to perform inspection) to be authorised by contractor (also see SHEQ-INS-0825).

|      |                             |                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B-17 | Suspended Platforms (CR 15) | <ul style="list-style-type: none"> <li>- Appointment of competent supervisor (see Note below)</li> <li>- Certificate of Suspended Platform System Design</li> <li>- Operational Compliance Plan (including prescribed documentation)</li> <li>- Record of performance tests</li> <li>- Record of inspection and maintenance</li> </ul> | <ul style="list-style-type: none"> <li>- Initial examination and performance test in accordance with manufacturer's specification</li> <li>- Performance test, inspection and determine serviceability of components before use every time platform is erected</li> <li>- Performance testing to 110% of rated mass load at 12 monthly intervals</li> <li>- Inspection of hoisting ropes, hooks or load attaching devices before use after each assembly and thereafter 3 monthly</li> <li>- Daily inspection of certified items (CR 15(10))</li> </ul> |
|------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## NOTE

- All suspended platform operations shall be carried out under the supervision of an appointed competent person (form SHEQ-FRM-5300 may be used for this purpose).
- Copy of Certificate of System Design and design calculations, sketches and test results to be submitted to Provincial Director of DOL prior to use.
- Suspended platform to be marked with maximum mass load.
- Performance test to be performed by an appointed competent person.



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|         |                          |      |   |      |   |    |   |
|---------|--------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-2141            | REV. | 1 | PAGE | 1 | OF | 4 |
| TITLE   | FALL PROTECTION PLANNING |      |   |      |   |    |   |

## 1 PURPOSE AND SCOPE

The purpose of this document is to prescribe requirements for fall protection planning and to provide a generic fall protection plan to ensure compliance with the OHSAct's requirements. The requirements in this document are applicable to all activities or work (operational, maintenance, construction, etc) from elevated positions with a risk of falling. For construction work, where a contractor is appointed, the requirements of SHEQ-INS-0825 shall additionally be complied with.

## 2 REFERENCES

### 2.1 This document meets the requirements of the following:

- OHSAct, Act 85 of 1993: Construction Regulations, 2003
- SANS 10085-1:2004: The Design, Erection, Use and Inspection of Access Scaffolding
- SANS 1903:2007: Safety Requirements on Suspended Access Equipment - Design calculations, stability criteria, construction tests
- SANS 50363:2003: Personal Protective Equipment against fall from a height - Fall arrest systems

### 2.2 This document refers to or shall be used together with:

- SHEQ-INS-0825: Requirements for Construction
- SHEQ-INS-2100: General Requirements for Statutory Equipment
- SHEQ-INS-2140: Ladders, Scaffolding, Steps and Passageways
- SHEQ-INS-2150: Lifting Equipment
- SHEQ-INS-2180: Control over the Use of Motorised Equipment and Training of Lifting Machine/Equipment Operators
- SHEQ-INS-2400: General Requirements for Prescribing Personal Protective Equipment
- SHEQ-INS-5520: Work Permits

### 2.3 This document supersedes HSE-INS-2141.

## 3 REVISION HISTORY

- Revision 0 - 2004/07/08 - First issue (E Fourie)
- Revision 1 - Document reviewed to comply with quality requirements for documents and to change the number from HSE-INS-2141 to SHEQ-INS-2141 (A C van der Bijl)

|              | NAME                                                                                                                   | SIGNATURE | DATE       |
|--------------|------------------------------------------------------------------------------------------------------------------------|-----------|------------|
| PREPARED     | A C van der Bijl<br>GM: ETI                                                                                            |           | 2008/07/07 |
| CHECKED      | I E Steyn<br>SM: SHEQD                                                                                                 |           | 10/07/2008 |
| APPROVED     | R M Adam<br>CEO                                                                                                        |           | 14/7/2008  |
| DISTRIBUTION | Document listed in <a href="http://necfs003/sheqd/ist0003.aspx">http://necfs003/sheqd/ist0003.aspx</a><br>SHEQ Records |           |            |



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|         |                          |      |   |      |   |    |   |
|---------|--------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-2141            | REV. | 1 | PAGE | 2 | OF | 4 |
| TITLE   | FALL PROTECTION PLANNING |      |   |      |   |    |   |

## 4 DEFINITIONS AND ABBREVIATIONS

- 4.1 Competent person : A person with the required knowledge, training, experience and qualifications specific to the work or task being performed and as delegated by the manager or supervisor.
- 4.2 Construction work : Any work in connection with:
- a) the erection, maintenance, alteration, renovation, repair, demolition or dismantling of, or addition to, a building or any similar structure;
  - b) the installation, erection, dismantling or maintenance of a fixed plant where such work includes the risk of a person falling;
  - c) the construction, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer, tower, mast or water reticulation system or any similar civil engineering structure; and
  - d) the moving of earth, clearing of land, the making of an excavation, piling, or any similar type of work.
- 4.3 Fall prevention equipment : Equipment used to prevent persons from falling from an elevated position, including personal equipment, body harness, body belts, lanyards, lifelines or physical equipment, guardrails, screens, barricades, anchorages or similar equipment.
- 4.4 Fall arrest equipment : Equipment used to arrest the person in a fall from an elevated position, including personal equipment, body harness, lanyards, deceleration devices, lifelines or similar equipment but excludes body belts.
- 4.5 Fall protection plan : A documented plan, of all risks relating to working from an elevated position, considering the nature of work undertaken, and setting out the procedures and methods to be applied in order to eliminate the risk.
- 4.6 Risk assessment : A program to determine any risk associated with any hazard at a construction or work site, in order to identify the steps needed to be taken to remove, reduce or control such hazard.
- 4.7 Scaffold : Any temporary elevated platform and supporting structure used for providing access to and supporting workmen or materials or both.
- 4.8 Structure : A structure is:
- a) Any building, steel or reinforced concrete structure (not being a building), railway line or siding, bridge, waterworks, reservoir, pipe or pipeline, cable, sewer, sewer works, fixed vessels, road, drainage works, earthworks, dam, wall, mast, tower, tower crane, batching plants, pylon, surface and underground tanks, earth retaining structure or any structure designed to preserve or alter any natural feature, and any other similar structure;
  - b) Any formwork, false work, scaffold or other structure designed or used to provide support or means of access during construction work; or
  - c) Any fixed plant in respect of work which includes the installation, commissioning, decommissioning or dismantling and where any such work involves a risk of a person falling two meters or more.
- 4.9 Suspended scaffold : A working platform suspended from supports by means of one or more separate ropes from each support.

(The above definitions were extracted from the OHSAct's Construction Regulations, 2003.)



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|         |                          |      |   |      |   |    |   |
|---------|--------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-2141            | REV. | 1 | PAGE | 3 | OF | 4 |
| TITLE   | FALL PROTECTION PLANNING |      |   |      |   |    |   |

## 4.10 The following abbreviations are used in this document:

|        |                                                    |
|--------|----------------------------------------------------|
| DOL    | Department of Labour                               |
| OHSAct | Occupational Health and Safety Act                 |
| OREP   | Occupational Risk Exposure Profile                 |
| PPE    | Personal Protective Equipment                      |
| SHEQD  | Safety, Health, Environment and Quality Department |

## 5 FALL PROTECTION PLANNING REQUIREMENTS

- 5.1 The manager shall appoint a competent person, to prepare fall protection plans based on a formal fall risk assessment for work areas where falling from elevated heights is a hazard (the generic fall protection plan may be used for this purpose - see Exhibit 1).
- 5.2 The manager shall ensure that special requirements prescribed by the OHSAct are met for employees who have to work at elevated positions, with regards to medical (physical and psychological) fitness and training. This is intended for work at elevated positions where physical and psychological medical fitness would be required (e.g. climbing a chimney) and not for all elevated positions. The manager shall indicate routine work at elevated heights on the worker's OREP. Use of employees for ad hoc cases (where work at elevated positions is not included in the OREP) shall be evaluated and approved by Medical Services.
- 5.3 The hazards associated with the work shall be noted on the work permit (see SHEQ-INS-5520). If a falling hazard (e.g. falling from elevated position or through openings) is identified, the competent person shall visit the location, and perform a risk assessment on the falling hazards.
- 5.4 The risk assessment shall include:
- An evaluation to determine the potential for the falling hazard to be eliminated in a reasonably practical way;
  - An evaluation of the potential of collapsing of structures, which is used to work on or from (e.g. due to overloading). The strength of the structure, including the loading of the structure due to workers, their tools and equipment, as well as loads caused by falling items or placement of dismantled items or spares on the structure, as applicable, shall be evaluated;
  - An evaluation of the surrounding area to ensure that the surrounding area is safe and shall not cause injuries to the person in the event of a fall;
  - An evaluation of the potential of objects falling and injuring others, e.g. tools falling from scaffolding; and
  - The identification of work to be performed on a ceiling. (No work shall be performed directly on a ceiling unless the ceiling is sufficiently supported from underneath or other measures are implemented to ensure the structure is able to carry the total workload).
- The procedures and methods used to assess the risks shall be recorded.
- 5.5 The risk assessment information shall be used by the competent person to prescribe the most effective and efficient fall prevention and arresting equipment to be used during the performance of the task. Methods for eliminating or mitigating fall hazards are listed in the generic fall protection plan (see Exhibit 1). The competent person shall complete the generic fall protection plan, shown in Exhibit 1, or similar.
- 5.6 The competent person shall compile a fall protection plan (see Exhibit 1) based on the fall risk assessment. The fall protection plan shall include inspection, testing and maintenance requirements for all fall protection equipment (See SHEQ-INS-2100).



# SHEQ SYSTEM

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|         |                          |      |   |      |   |    |   |
|---------|--------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-2141            | REV. | 1 | PAGE | 4 | OF | 4 |
| TITLE   | FALL PROTECTION PLANNING |      |   |      |   |    |   |

- 5.7 The fall protection plan shall be implemented, amended where and when necessary and maintained as required. Steps shall be taken to ensure the continued implementation of and adherence to the fall protection plan's requirements.

## 6 RECORDS

The following records shall be kept:

| DESCRIPTION          | RETENTION PERIOD                  | BY WHOM |
|----------------------|-----------------------------------|---------|
| Risk assessment      | One year after completion of task | Manager |
| Fall protection plan | One year after completion of task | Manager |

Other relevant records are prescribed by SHEQ-INS-2100 and -5520.



# FALL PROTECTION PLAN

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|                                                                                  |                          |
|----------------------------------------------------------------------------------|--------------------------|
| <b>A:</b>                                                                        | <b>Task information:</b> |
| Task description:                                                                |                          |
| Work permit reference:                                                           |                          |
| Building:                                                                        |                          |
| Area:                                                                            |                          |
| Name:<br><small>(Person responsible for the implementation of this plan)</small> |                          |

|                                                                                  |     |    |                                       |
|----------------------------------------------------------------------------------|-----|----|---------------------------------------|
| <b>B: Identification of falling hazard (risk assessment to be attached):</b>     |     |    |                                       |
| The following hazards have been identified:                                      | Yes | No | Requirements if Yes                   |
| Fall from heights.                                                               |     |    | Complete Section C and D below.       |
| Work on structures that might collapse.                                          |     |    | Complete Section C, D, H and J below. |
| Work on ladders.                                                                 |     |    | Complete Section D and E below.       |
| Work on scaffolding.                                                             |     |    | Complete Section D and F below.       |
| Work around openings.                                                            |     |    | Complete Section G below.             |
| Work on platforms.                                                               |     |    | Complete Section H below.             |
| Doing demolition work.                                                           |     |    | Complete Section I below.             |
| Work on roofs/ceilings.                                                          |     |    | Complete Section J below.             |
| Using lifting equipment such as overhead cranes or forklift to transport people. |     |    | Complete Section D and K below.       |

|                                                            |     |    |                    |                  |
|------------------------------------------------------------|-----|----|--------------------|------------------|
| <b>C: Man job requirements:</b>                            |     |    |                    |                  |
|                                                            | Yes | No | Requirements       | Comments/Actions |
| OREP specifies work at elevated heights/positions.         |     |    | Indicated on OREP. |                  |
| Employees are declared medically fit.                      |     |    |                    |                  |
| Training for working from elevated positions is completed. |     |    |                    |                  |
| Training is valid.                                         |     |    |                    |                  |

|                                                                         | NAME | SIGNATURE | DATE |
|-------------------------------------------------------------------------|------|-----------|------|
| <b>PREPARED</b><br><small>(By competent person)</small>                 |      |           |      |
| <b>ACCEPTED</b><br><small>(By worker)</small>                           |      |           |      |
| <b>APPROVED</b><br><small>(By supervisor prior to task)</small>         |      |           |      |
| <b>SIGN-OFF</b><br><small>(By supervisor on completion of task)</small> |      |           |      |
| <b>DISTRIBUTION</b>                                                     |      |           |      |



# FALL PROTECTION PLAN

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| D: Equipment prescribed:                              |     |    |                                                                                                                                                                                                                                                                                                                                                                             |                  |
|-------------------------------------------------------|-----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| The following fall prevention equipment will be used: | Yes | No | Requirements                                                                                                                                                                                                                                                                                                                                                                | Comments/Actions |
| • Body harness                                        |     |    | <ul style="list-style-type: none"> <li>SHEQ-INS-2100 and -2400 shall be complied with.</li> <li>Equipment shall be of sufficient strength. Calculations to be appended to this form.</li> <li>Equipment shall be correctly attached to the structure.</li> <li>Surrounding area shall be safe and shall not cause injuries to the person in the event of a fall.</li> </ul> |                  |
| • Body belts                                          |     |    |                                                                                                                                                                                                                                                                                                                                                                             |                  |
| • Screens                                             |     |    |                                                                                                                                                                                                                                                                                                                                                                             |                  |
| • Guardrails                                          |     |    |                                                                                                                                                                                                                                                                                                                                                                             |                  |
| • Barricades                                          |     |    |                                                                                                                                                                                                                                                                                                                                                                             |                  |
| • Anchorages or similar equipment                     |     |    |                                                                                                                                                                                                                                                                                                                                                                             |                  |
| The following fall arresting equipment will be used:  | Yes | No | Requirements                                                                                                                                                                                                                                                                                                                                                                |                  |
| • Body harness                                        |     |    | <ul style="list-style-type: none"> <li>SHEQ-INS-2100 and -2400 to be complied with.</li> <li>Equipment shall be of sufficient strength. Calculations to be appended to this form.</li> <li>Equipment shall be correctly attached to the structure.</li> <li>Surrounding area shall be safe and shall not cause injuries to the person in the event of a fall.</li> </ul>    |                  |
| • Deceleration devices                                |     |    |                                                                                                                                                                                                                                                                                                                                                                             |                  |
| • Lanyards                                            |     |    |                                                                                                                                                                                                                                                                                                                                                                             |                  |
| • Lifelines or other equipment attached to the worker |     |    |                                                                                                                                                                                                                                                                                                                                                                             |                  |
| The following equipment will be used:                 | Yes | No | Requirements                                                                                                                                                                                                                                                                                                                                                                |                  |
| Ladders                                               |     |    | <ul style="list-style-type: none"> <li>Complete section E below.</li> <li>SHEQ-INS-2140 shall be complied with.</li> </ul>                                                                                                                                                                                                                                                  |                  |
| Scaffolding                                           |     |    |                                                                                                                                                                                                                                                                                                                                                                             |                  |
|                                                       |     |    | <ul style="list-style-type: none"> <li>Complete section F below.</li> <li>SHEQ-INS-2140 shall be complied with.</li> </ul>                                                                                                                                                                                                                                                  |                  |
| The following lifting equipment will be used:         | Yes | No | Requirements                                                                                                                                                                                                                                                                                                                                                                |                  |
| Fork lift                                             |     |    | <ul style="list-style-type: none"> <li>Complete section K below.</li> <li>SHEQ-INS-2150 and -2180 shall be complied with.</li> </ul>                                                                                                                                                                                                                                        |                  |
| Overhead crane                                        |     |    |                                                                                                                                                                                                                                                                                                                                                                             |                  |
| A hoist cradle.                                       |     |    | <ul style="list-style-type: none"> <li>SHEQ-INS-2150 Appendix B shall be complied with.</li> </ul>                                                                                                                                                                                                                                                                          |                  |

| E: Work from ladders:                                                             |     |    |                                                                                                                                                                                                                                                  |                  |
|-----------------------------------------------------------------------------------|-----|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
|                                                                                   | Yes | No | Requirements                                                                                                                                                                                                                                     | Comments/Actions |
| The physical conditions of the ladders meet the standards.                        |     |    | SHEQ-INS-2140 shall be complied with.                                                                                                                                                                                                            |                  |
| The ladders are on a register.                                                    |     |    | NOSA PMR 010 Ladder Register.                                                                                                                                                                                                                    |                  |
| Stepladder (platform stepladder, normal stepladder or double stepladder) is used. |     |    | <ul style="list-style-type: none"> <li>SHEQ-INS-2100 and -2400 shall be complied with.</li> <li>The ladder shall be placed at an angle of more or less 75°.</li> <li>Ladders shall be inspected regularly as specified or before use.</li> </ul> |                  |



# FALL PROTECTION PLAN

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|                                                                                                         |  |  |                                                                                                                                                                                                                                                                                                                                                                                                          |  |
|---------------------------------------------------------------------------------------------------------|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Extension ladder.                                                                                       |  |  | <ul style="list-style-type: none"> <li>The ladder shall be secured at the top and bottom.</li> <li>Ladder shall extend at least 910 to 1070 mm above the landing.</li> <li>Roof or cornice hooks shall be firmly anchored.</li> <li>The locking devices shall be fully secured after adjusting the length of the extension ladder.</li> <li>The ladder shall be fitted with non-skid devices.</li> </ul> |  |
| Ladder used to perform electrical work.                                                                 |  |  | Ladder shall be of non-conductive material or fitted with non-conductive, non-skid devices.                                                                                                                                                                                                                                                                                                              |  |
| Ladders used permanently inside chemical facilities where the ladder is exposed to corrosive chemicals. |  |  | Ladder shall be of chemical resistant material or protected against corrosion.                                                                                                                                                                                                                                                                                                                           |  |

## F: Work from scaffolding:

|                                                                           | Yes | No | Requirements                          | Comments/Actions |
|---------------------------------------------------------------------------|-----|----|---------------------------------------|------------------|
| A competent person erected the scaffolding.                               |     |    | SHEQ-INS-2140 shall be complied with. |                  |
| All the necessary checks were carried out during erection.                |     |    | SHEQ-INS-2140 shall be complied with. |                  |
| Legal requirements as specified in the OHSAct are met.                    |     |    | SHEQ-INS-2140 shall be complied with. |                  |
| Suitable and sufficient guardrails or barriers and toe-boards are fitted. |     |    | SHEQ-INS-2140 shall be complied with. |                  |

## G: Requirements w.r.t. openings:

|                                                | Yes | No | Requirements                                                                                                                                                                                                                                                                                                                                                                    | Comments/Actions |
|------------------------------------------------|-----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Openings made safe.                            |     |    | All unprotected openings in floors, edges, slabs, hatchways and stairways shall be adequately guarded, fenced or barricaded.                                                                                                                                                                                                                                                    |                  |
|                                                | Yes | No | Requirements                                                                                                                                                                                                                                                                                                                                                                    | Comments/Actions |
|                                                |     |    | <ul style="list-style-type: none"> <li>All unprotected openings in floors, edges, slabs, hatchways and stairways shall be adequately guarded, fenced or barricaded.</li> <li>Handrails/guardrails or barriers and toe-boards shall be fixed around the openings.</li> <li>Opening covers shall be of sufficient strength to bear the potential load passing over it.</li> </ul> |                  |
| Danger tape is used to barricade the openings. |     |    | Danger tape shall be placed at a safe distance from the opening, allowing enough space to prevent falling should the tape break if leaned against.                                                                                                                                                                                                                              |                  |

|                                                                                                                                                       |                                                                                                                                                                                                                                      |                                                                                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
|  <p><b>BBS</b><br/>BEHAVIOURAL<br/>BASED SAFETY<br/>REDUCES RISK</p> | <h1 style="margin: 0;">FALL PROTECTION PLAN</h1> <p style="font-size: small; margin: 5px 0;">This document is the property of Necsa and shall not be used, reproduced, transmitted or disclosed without prior written permission</p> |  <p><b>necsa</b><br/>We're in your world</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|

| <b>H: Work from platforms:</b>                                        |     |    |                                                                                                                                                                                                                                                                                      |                  |
|-----------------------------------------------------------------------|-----|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
|                                                                       | Yes | No | Requirements                                                                                                                                                                                                                                                                         | Comments/Actions |
| Workers are protected from falling from the platform.                 |     |    | Handrails/guardrails, barriers and toe-boards shall be provided.                                                                                                                                                                                                                     |                  |
| The platform's safe working load is sufficient to prevent collapsing. |     |    | <ul style="list-style-type: none"> <li>Platform supporting structures shall be sufficient to carry the loading of the platform, personnel, tools and equipment. Calculations shall be appended to this plan.</li> <li>Platforms shall be properly supported and anchored.</li> </ul> |                  |

| <b>I: Demolition work:</b>                                                           |     |    |                                                                                                                  |                  |
|--------------------------------------------------------------------------------------|-----|----|------------------------------------------------------------------------------------------------------------------|------------------|
|                                                                                      | Yes | No | Requirements                                                                                                     | Comments/Actions |
| Workers are protected against collapsing of structures or material being demolished. |     |    | Safety harnesses shall be hooked/fastened independent from the structure/material being demolished.              |                  |
| Workers are protected against falling demolished material.                           |     |    | Head, eye, foot and body protection shall be prescribed as assessed by the competent person (see SHEQ-INS-2400). |                  |

| <b>J: Roof and ceiling work:</b>       |     |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                  |
|----------------------------------------|-----|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
|                                        | Yes | No | Requirements                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Comments/Actions |
| Proper planning for the work is done.  |     |    | <ul style="list-style-type: none"> <li>Work plan shall be appended to this plan.</li> <li>Weather conditions shall be evaluated. It shall be safe to perform work, or conditions shall be prescribed for work to go ahead.</li> <li>Workers shall be protected against falling when working on a slope (e.g. roof work).</li> <li>Roof workers shall be competent to carry out the work.</li> <li>Prominent warning notices and barricading shall be placed near fragile structures or material to warn persons not to stand on such structures/material (e.g. sky lights).</li> </ul> |                  |
| The workload on the roof is evaluated. |     |    | Roof shall be able to carry loading caused by personnel, tools and equipment. Calculations shall be appended to this plan.                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |
| Ceilings are supported.                |     |    | Ceiling shall be adequately supported form underneath to be able to carry loading caused by personnel, tools and equipment. Calculations shall be appended to this plan.                                                                                                                                                                                                                                                                                                                                                                                                               |                  |

BBS

 OSHA/OSHA-  
 OSHA SAFETY  
 TRAINING CENTER

# FALL PROTECTION PLAN

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K:

## Lifting Equipment:

|               | Yes | No | Requirements                                                                                                                                                                                                                                                                                                                                            | Comments/Actions |
|---------------|-----|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Holst cradle. |     |    | <ul style="list-style-type: none"> <li>SHEQ-INS-2150 Appendix B shall be complied with.</li> <li>No person shall be lifted directly by a forklift or any other lifting equipment. They shall be transported and perform work only from a holst cradle properly fixed, lifted by a crane, forklift or any other suitable motorized equipment.</li> </ul> |                  |



# SHEQ SYSTEM



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|         |                                                               |      |   |      |   |    |   |
|---------|---------------------------------------------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-5450                                                 | REV. | 5 | PAGE | 1 | OF | 3 |
| TITLE   | SAFETY, HEALTH AND ENVIRONMENTAL REQUIREMENTS FOR CONTRACTORS |      |   |      |   |    |   |

## 1 PURPOSE

This document prescribes the requirements for the control of the activities of Contractors, and their Sub-Contractors, from a SHEQ point of view, whilst they are on Necsa sites or perform work on Necsa's behalf.

## 2 REFERENCES

2.1 This document complies with the requirements of:

- Act 85 of 1993: Occupational Health and Safety Act
  - Construction Regulations, 2003

2.2 This document refers to the following:

SHEQ-INS-0800: SHEQ Approval of Projects  
SHEQ-INS-5520: Work Permits  
SHEQ-INS-0300 Series: Information Security  
SHEQ-INS-8900 Series: Facility Security

## 3 REVISION HISTORY

- Revision 0 – 1998/03/29 – First issue (A C van der Bijl)
- Revision A – 2000/06/27 – Scheduled review of document (A C van der Bijl)
- Revision B – 2002/03/13 – Scheduled review of document (A C van der Bijl)
- Revision C – 2004/02/25 – Document reviewed to reflect Necsa's organisation (A C van der Bijl)
- Revision 4 – 2008/04/08 – Document reviewed to prescribe additional requirements (section 5.5, the use of work permits, and section 11.3 of Exhibit 1), and to comply with quality requirements for documents. Number changed from RM-VSK-5450 to SHEQ-INS-5450 (A C van der Bijl)
- Revision 5 – Scheduled revision and minor changes to text and to include the use of reflective clothing (W D le Roux)

|              | NAME                                                                                             | SIGNATURE          | DATE       |
|--------------|--------------------------------------------------------------------------------------------------|--------------------|------------|
| PREPARED     | W D le Roux<br>CONSULTANT                                                                        | <i>W D le Roux</i> | 2011/07/13 |
| CHECKED      | I E Steyn<br>SM: SHEQD                                                                           | <i>I E Steyn</i>   | 25/07/2011 |
| ACCEPTED     | R Masango<br>GE: NC                                                                              | <i>R Masango</i>   | 28/07/2011 |
| APPROVED     | R M Adam<br>CEO                                                                                  | <i>R M Adam</i>    | 29-07-2011 |
| DISTRIBUTION | This document is available on SHAREPOINT – <a href="#">SHEQ SYSTEM DOCUMENTS</a><br>SHEQ Records |                    |            |



# SHEQ SYSTEM



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|---------|---------------------------------------------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-5450                                                 | REV. | 5 | PAGE | 2 | OF | 3 |
| TITLE   | SAFETY, HEALTH AND ENVIRONMENTAL REQUIREMENTS FOR CONTRACTORS |      |   |      |   |    |   |

## 4 DEFINITIONS AND ABBREVIATIONS

- 4.1 Contractor - An organisation (or person) on which (whom) an order has been placed or with which (whom) a formal contract is concluded to render/carry out services, jobs or projects (on an ad hoc, short or longer term basis). These may be services/projects on or off the site, but in this document only those taking place in areas under control of Necsa are addressed. Contracted-out (out-sourced) services also fall under Contractors.
- 4.2 Responsible Necsa Manager - A Necsa personnel member authorised and responsible for concluding a contract and/or serving as liaison between Necsa and the Contractor.
- 4.3 Sub-Contractor - A person or organisation named in a contract with a Contractor for the execution of any activities of the contract or a person (or organisation) to whom the contract or activities have been subcontracted with the written approval of Necsa.
- 4.4 The following abbreviations are used in this document:
- |       |                                                    |
|-------|----------------------------------------------------|
| SHEQ  | Safety, Health, Environment and Quality            |
| SHEQD | Safety, Health, Environment and Quality Department |

## 5 REQUIREMENTS

- 5.1 Prior to the start of work the Responsible Necsa Manager shall ensure that the Contractor complies with the following:
- The Contractor shall, whenever requested to do so, provide proof of registration and good standing with the Compensation Commissioner.
  - The Contractor, or the supervisor used by the Contractor for the specific task, shall be in possession of a copy of the "Safety, Health and Environmental Regulations for Contractors" shown in Exhibit 1, signed by the Contractor, or alternatively;
  - The Contractor shall be in possession of a written agreement, that the Responsible Necsa Manager has entered into with the Contractor, which covers the requirements of Exhibit 1.
  - The Contractor shall be required to sign an "at own risk" indemnity in favour of Necsa. (An example of such an indemnity is shown in Exhibit 2.)
- 5.2 For the duration of work carried out by the Contractor, the Responsible Necsa Manager shall ensure the following:
- The Contractor shall comply with the rules in Exhibit 1 or alternatively, with the rules contained in the written agreement referred to in 5.1(III).
  - The Contractor shall be aware of the specific hazards of the plant or part of the plant in which the Contractor's personnel are working, or of activities that have to be carried out, or of services which have to be rendered by the Contractor on or off the site (e.g. transport of HF) or any other hazards that the Contractor or his personnel may be exposed to. Examples of specific hazards are radiological hazards, toxic releases, high-voltage electrical equipment, etc.
- 5.3 Apart from the above, the Responsible Necsa Manager shall also bring to the notice of his/her own personnel that claims may originate in respect of giving advice to Contractors which later may prove to have been ill-considered.
- 5.4 The SHEQD shall, on request, assist to obtain and supply the information (see 5.1), should organisations to which Necsa renders a service wish to have the above documentation and other SHEQ related information.



# SHEQ SYSTEM



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|---------|---------------------------------------------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-5450                                                 | REV. | 5 | PAGE | 3 | OF | 3 |
| TITLE   | SAFETY, HEALTH AND ENVIRONMENTAL REQUIREMENTS FOR CONTRACTORS |      |   |      |   |    |   |

5.5 The Responsible Necsa Manager shall ensure compliance with project approval requirements (SHEQ-INS-0800). The work permit requirements referred to in Exhibit 1 are addressed in SHEQ-INS-5520.

## 6 RECORDS

The following record shall be kept:

| DESCRIPTION                                                                                                                                                | RETENTION PERIOD                          | BY WHOM                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------------------------------------------------------------------------|
| Copy of Health, Safety and Environmental Regulations for Contractors (Exhibit 1) signed by the Contractor or the alternative agreement covered in 5.1(iii) | One year after completion of the contract | Responsible Necsa Manager in the Health and Safety File of the contractor |
| Copy of Indemnity (Loan of Equipment/Tools) (Exhibit 2)                                                                                                    | One year after completion of the contract | Responsible Necsa Manager in the Health and Safety File of the contractor |



# SHEQ SYSTEM



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**TITLE**      **HEALTH, SAFETY AND ENVIRONMENTAL REQUIREMENTS FOR CONTRACTORS**

**CONTRACT NUMBER:** .....

**NAME OF CONTRACTOR:** .....

**ADDRESS:** .....

**SHORT DESCRIPTION OF WORK TO BE DONE:** .....

**IDENTIFICATION OF THE AREA OR THE PLANT IN WHICH THE WORK IS TO BE DONE:** .....

**RESPONSIBLE NECSA MANAGER:** .....

## 1 INTRODUCTION

To ensure that Contractors adhere to Necsa's safety, health and environmental requirements, the requirements contained in this document have been drawn up for Contractors, Sub-Contractors and their employees to comply with whilst they are on Necsa's property (or off-site if related to a transport contract).

All Main/Principal Contractors shall ensure that any Sub-Contractor employed by them receives a set of these requirements, understand them and adhere to them. Contractors will be held responsible for any breaches of the rules during such time that the contract work is being undertaken.

## 2 PREREQUISITES (PRIOR TO START OF WORK)

- 2.1 The Contractor shall make himself and his and sub-contractor's personnel available for attending the Necsa SHEQ orientation session for Contractors. The orientation remains valid for a period agreed upon with the Contractor whereafter it shall be repeated.
- 2.2 All personnel used by the Contractor for a specific contracted task on site shall be in possession of his personal copy of the booklet "Safety, Health and Environment at Pelindaba" which is issued during the above orientation sessions.
- 2.3 The Contractor shall ensure by means of adequate supervision and control, that his/her workers obey these regulations and all other applicable Necsa SHEQ Instructions.
- 2.4 The contract work shall be conducted strictly in accordance with that agreed upon and in a safe and responsible manner. To this end, the Contractor certifies that he is fully conversant with the provisions of the Occupational Health and Safety Act, Act No 85 of 1993 (the "Act") and that his employees, agents, Sub-Contractors and mandatories have similar knowledge.
- 2.5 No Contractor shall commence work on Necsa's property unless and until he has received written permission to do so from Necsa either by means of a letter to hand over the contractors work site or appropriate and duly authorised work permit and has produced to Necsa:
  - i) the registration number with the Compensation Commissioner;
  - ii) proof that his fees in terms of the Compensation for Occupational Injuries and Diseases Act are fully paid up; and
  - iii) a list of Contractor and Sub-Contractor personnel giving full names, address and contract details (this shall be submitted to the SHEQD for Emergency Services and Security Services purposes).



# SHEQ SYSTEM



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## TITLE 'HEALTH, SAFETY AND ENVIRONMENTAL REQUIREMENTS FOR CONTRACTORS

- 2.6 The Contractor hereby certifies that all electrical or mechanical equipment which will be brought onto the site and used during the course of the contract, conforms with the regulations and is safe to use. Further, the Contractor understands that, should it come to the attention of Necsa officials/representatives that such equipment does not meet the required standards, Necsa may order cessation of work until such time as the equipment is repaired satisfactorily.
- 2.7 No excavations of any sort shall be commenced with at any time during the contract work, or stakes driven into the ground, unless and until written permission is granted by Necsa's Property and Support Services who will issue the appropriate work permit.
- 2.8 Before any welding operation or hot work is commenced, permission shall be sought from the manager of the applicable Necsa plant (the plant manager) who will issue the appropriate work permit.
- 2.9 No work shall be undertaken unless it is done by a competent person (in terms of the Act) or one who is supervised by a competent person.
- 2.10 During the term of contract, the Contractor shall take all steps to ensure that the site on which the contract work is carried out (the "site"), remains reasonably clear of waste and any hazardous material or substances and on completion of such work, the Contractor shall make good and leave the site clean and tidy. Any costs for removal of such waste etc. by Necsa, shall be borne by the Contractor.
- 2.11 If requested by Necsa, the Contractor shall supply a statement in which the effluent, waste, releases, etc. caused by the Contractor's activities, are indicated, as well as the method envisaged for the limitation, handling, treatment and disposal of the effluent, waste, releases, etc. Where necessary, an environmental impact report shall be submitted to the responsible Necsa manager before activities commence.
- 2.12 The Contractor and any person engaged in the contract shall at all times comply with Necsa's security and information security requirements.

### 3 TOOLS AND EQUIPMENT

- 3.1 The Contractor shall provide his own tools and equipment and these shall remain under lock and key when not in use and Necsa shall not be liable for any loss thereof or damage thereto, however caused. All items brought onto site or removed from site shall be declared and cleared by Necsa's security personnel.
- 3.2 The Contractor shall not be permitted use of Necsa's tools or equipment save in exceptional circumstances (e.g. a probability exists that the Contractor's tools may be contaminated) when the intended user thereof may use Necsa's tools and equipment with the permission of Necsa and at own risk. The Contractor will be required to sign an "at own risk" indemnity in favour of Necsa. (An example of such an indemnity is shown in Exhibit 2.)

### 4 ADHERENCE TO GENERAL NECSA SHEQ RULES

The Contractor and any person engaged in the contract work shall adhere to Necsa's rules as explained during the Necsa SHEQ orientation session for Contractors, and summarised in the booklet "Safety, Health and Environment at Necsa", in respect of the following:

- Bringing of property onto and removing of property from site;
- Access control measures, including those that apply to various hazardous areas;
- Handling and storage of Hazardous Chemical Substances;
- Flammable and combustible materials;
- Liquor, drugs, weapons and firearms; and
- Caring for the environment. (No damage or removal of flora, fauna, rocks or other natural materials.)

### 5 CLOTHING AND SAFETY APPARATUS/EQUIPMENT

Appropriate clothing (including personal protective equipment - appropriate to ensure protection from the hazard) shall at all times be worn on site, and other applicable safety apparatus and equipment shall be used. The Contractor shall be obliged to consult with Necsa's SHEQD on particular requirements. (Also see 10.8.)

All personnel of the contractor including supervisory personnel such as Site Engineers, Site Agents, Foreman, etc shall wear, when on site suitable reflective clothing (bib or jacket) with the Company Logo clearly visible.



# SHEQ SYSTEM



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|              |                                                                      |
|--------------|----------------------------------------------------------------------|
| <b>TITLE</b> | <b>HEALTH, SAFETY AND ENVIRONMENTAL REQUIREMENTS FOR CONTRACTORS</b> |
|--------------|----------------------------------------------------------------------|

## **6 COMBUSTIBLES AND FLAMMABLES**

- 6.1 No combustibles and/or flammable material shall be permitted on or stored on site without written permission of Necsa's Emergency Services.
- 6.2 Should the Contractor engage in some work that could cause a fire, he/she shall first report same to Necsa's Emergency Services.

## **7 DAMAGE TO PROPERTY**

- 7.1 Should any property belonging to Necsa be damaged, such damage shall immediately be reported to the plant manager or Necsa's SHEQD. The Contractor shall be liable to compensate Necsa, should the loss of or damage to the said property be as a result of the negligence or otherwise of any person engaged in the contract work.
- 7.2 Should any property belonging to, or in the care of, the Contractor or any person engaged in the contract work, be damaged, Necsa shall not be liable for same, however caused, and the Contractor fully indemnifies Necsa in respect thereof.
- 7.3 Where a substantial consequential damage may originate from the Contractor's activity, the Contractor shall take measures to prevent or minimise such damage.
- 7.4 Should any property of any other party be damaged through and by way of the contract work, Necsa shall not be responsible therefore, and the Contractor indemnifies Necsa accordingly.

## **8 EVENTS/ACCIDENTS / INJURIES**

Any event, accident or injury shall be reported immediately to Emergency Services (X3333) and if reportable in terms of the Act, same shall be reported by the Contractor to the Department of Labour, and proof of such report shall be given to Necsa's SHEQD.

## **9 SEARCHES**

Vehicles, packages, suitcases, etc. of the Contractor and any person engaged in the contract work, may at any time be searched by Necsa's security personnel. Packages, suitcases, etc. shall on request be presented to the access control point for examination prior to being brought onto or taken off Necsa's property.

## **10 OCCUPATIONAL HEALTH AND SAFETY ACT RESPONSIBILITIES**

Further, in terms of Section 37(2) of the Act, it is hereby agreed that:

- 10.1 In terms of this Section, the Contractor shall be responsible for the full and proper implementation of the terms and provisions of the Act and its Regulations in the area of the site in which the work is to be undertaken for Necsa by the Contractor.
- 10.2 Whenever so instructed, the Contractor's working area shall be clearly demarcated and the Contractor shall accept responsibility for safety, health and the environment within the demarcated area. The responsibility for the area shall be handed over formally to the Contractor and again formally handed back to the Responsible Necsa Manager. Necsa personnel working in or in the vicinity of the area, shall be made aware of these arrangements.
- 10.3 The Contractor shall be responsible for the health and safety, of all persons coming upon/into such area in accordance with that legislation, subject to any directives issued by the management of Necsa.
- 10.4 The Contractor undertakes to report to the management of the plant any hazard to safety, health and environment that exists or arises during the contract work in the area concerned.
- 10.5 The Contractor shall discontinue activities where these pose a threat to the health or safety of any person (e.g. Necsa or the Contractor's own personnel) or to the environment, or where it is obvious that a Contractor's workers are not competent. Necsa's SHEQ officials and Responsible Necsa Manager have the prerogative to stop any work which may compromise SHEQ.
- 10.6 For electrical installations an installation certificate shall be issued by the contractor.



# SHEQ SYSTEM



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**TITLE HEALTH, SAFETY AND ENVIRONMENTAL REQUIREMENTS FOR CONTRACTORS**

**10.7** Where necessary, the Contractor shall supply to Necsa a certificate to certify that machinery/equipment/areas are safe to use, and to list defects which must be attended to, after the Contractor has carried out his tasks (or contract).

**10.8** All necessary and appropriate health and safety equipment including personal protective equipment shall be issued by the Contractor to all persons working or coming into the area, unless specifically agreed otherwise in a written contract/agreement with the Responsible Necsa Manager.

## **11 INDEMNIFICATION**

The Contractor hereby certifies that all contracting workmen recognise the inherent hazards that exist on the property of Necsa and that the Contractor:

**11.1** enters the property entirely at his own risk and therefore the Contractor waives any claims of whatsoever nature against Necsa, its employees, agents and/or mandatories in respect of any loss, damage and/or injury, unless same is as a result of gross negligence on the part of Necsa, its employees, agents and/or mandatories; and

**11.2** Herewith indemnifies Necsa, its employees, agents and/or mandatories against any claims from the Contractors employees and/or from any other persons arising and being caused in the manner set out in 11.1 as aforesaid.

**11.3** This indemnification excludes nuclear damage caused by Necsa's nuclear installations and activities for which Necsa is strictly liable i.t.o. the NNR Act (Act 47 of 1999).

I, ..... being the person who is duly authorised to bind the Contractor, hereby acknowledge and accept the above regulations and its terms and agree that the Contractor and all persons engaged on the said contract work, shall adhere thereto.

.....  
**SIGNATURE OF CONTRACTOR**

.....  
**SIGNATURE OF NECSA'S OFFICIAL**

**DATE:** .....

**DATE:** .....

**WITNESSES:**

**WITNESSES:**

.....

.....

.....

.....



# SHEQ SYSTEM



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## INDEMNITY

### LOAN OF EQUIPMENT/TOOLS

Necsa hereby agrees to loan to ..... (hereinafter referred to as the Contractor) the following equipment/tools:

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

The Contractor herewith:

- confirms that he/she or his/her employees will use the abovementioned equipment/tools entirely at his/her own risk and therefore the Contractor waives any claims of whatsoever nature against Necsa, its employees, agents and/or mandatories in respect of any loss, damage and/or injury arising out of the use of the equipment/tools whether same is as a result of the non-functioning, unsafe condition or any other mechanical defect nothing at all excepted of the abovementioned equipment/tools;
- indemnifies Necsa, its employees, agents and/or mandatories against any claims from the Contractor's employees and/or from any other persons arising and being caused in the manner set out above nothing at all excepted; and
- undertakes to hand back the abovementioned equipment/tools in good safe working condition and to bear the cost of any repairs or replacement of the equipment/tools resulting from loss of or damage to the equipment/tools.

I, ....., being the person who is duly authorised to bind the Contractor, hereby acknowledge and accept the above terms.

SIGNED AT ..... ON THIS ..... DAY OF .....

.....  
 SIGNATURE OF CONTRACTOR

.....  
 SIGNATURE OF NECSA OFFICIAL

.....  
 WITNESS

.....  
 WITNESS



# SHEQ SYSTEM

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|         |               |      |   |      |   |    |   |
|---------|---------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-5520 | REV. | 3 | PAGE | 1 | OF | 5 |
| TITLE   | WORK PERMITS  |      |   |      |   |    |   |

## 1 PURPOSE AND SCOPE

### 1.1 To ensure, by means of work permits, that:

- the work to be performed (and its extent) in a hazardous area is prescribed and boundaries or limitations of the work are identified;
- persons (who are competent) have the necessary authorisation to work in a hazardous area;
- an area is made safe, as far as reasonably possible, before work is done in that area;
- the necessary protective clothing and equipment are issued to personnel to protect them against hazards;
- a task risk assessment has been done and the necessary precautionary measures and controls have been indicated on the work permit;
- the work is completed before the plant is re-commissioned;
- the minimum requirements for a work permit (to indicate and control the risk associated with the task to be performed in a hazardous area) are prescribed;
- the different responsibilities for persons involved with the tasks are identified/prescribed; and
- the facility / line manager or authorized person is aware of all hazardous work being in the facility.

### 1.2 This procedure must be used where applicable in conjunction with the Radiation Protection Work Permit System used to conduct work in radiological areas.

## 2 REFERENCES

### 2.1 This procedure meets the requirements of the following:

- OHS Act, Act 85 of 1993: Sections 8, 13, 14 and 15
  - General Machinery Regulations 3, 4, 5 and 6
  - Electrical Machinery Regulation 3
  - General Safety Regulations 2C

|              | NAME                                                                                             | SIGNATURE | DATE        |
|--------------|--------------------------------------------------------------------------------------------------|-----------|-------------|
| PREPARED     | I.A Mothamme<br>OH: MS                                                                           |           | 03/04/2011  |
| CHECKED      | S E van Niekerk<br>RPS                                                                           |           | 20/11/04/05 |
| ACCEPTED     | I E Steyn<br>SM: SHEQD                                                                           |           | 04/04/2011  |
| ACCEPTED     | R Masango<br>GE: NC                                                                              |           | 11/05/2011  |
| APPROVED     | R M Adam<br>CEO                                                                                  |           | 13/00/2011  |
| DISTRIBUTION | This document is available on SHAREPOINT – <a href="#">SHEQ SYSTEM DOCUMENTS</a><br>SHEQ Records |           |             |



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|         |               |      |   |      |   |    |   |
|---------|---------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-5520 | REV. | 3 | PAGE | 2 | OF | 5 |
| TITLE   | WORK PERMITS  |      |   |      |   |    |   |

## 2.2 This document shall be used together with:

- SHEQ-INS-2120: Lock-out Systems
- SHEQ-INS-2141: Fall Protection Planning
- SHEQ-INS-2400: General Requirements for Prescribed Personal Protective Equipment
- SHEQ-INS-5300: Written Safe Work Procedures, Instructions, Orientation and Task Training
- SHEQ-INS-7020: Access and Activity Control for Facilities with HCS
- SHEQ-INS-8120: Radiation Protection Work Permit System
- SHEQ-INS-8150: Access and Egress Control for Radiological Areas
- SHEQ-INS-2495: Requirements for Confined Spaces
- SHEQ-FRM-5520: Work Permit - Work in a Process Area
- SHEQ-FRM-5521: Work Permit - Work Outside Process Areas
- SHEQ-FRM-5300: Authorisation Certificate

## 3 REVISION HISTORY

- Revision 0 – First Issue (A C van der Bijl)
- Revision A – 2004/07/08 – General revision of document to comply with quality requirements. Document extended to include an example of a work permit (Exhibits 1 and 2) (E Fourie)
- Revision 2 – 2007/11/12 – Document reviewed to reflect Necsa's new organisation and to comply with document quality requirements. Document number changed from HSE- to SHEQ-INS-5520 (A C van der Bijl)
- Revision 3 – Document reviewed to specify minor changes in text and to reflect new departmental names and responsibilities (I Motlhamme)

## 4 DEFINITIONS AND ABBREVIATIONS

- 4.1 Task risk assessment: An assessment conducted by authorized person to qualify and or quantify a person's exposure to hazards in a workplace and to enable the authorized person to establish control measures so that a task can be performed in a safe manner and to remove risks or reduce it to an acceptable level.
- 4.2 Hazardous area: A workplace where occupational hazards may pose an unacceptable safety or health risk to workers e.g. areas where noise, lasers, lead, asbestos, chemical substances, radioactive materials, heat, cold, etc may be present or encountered.
- 4.3 Occupationally Exposed Workers (OEW): Workers who are or may be occupationally exposed to hazards encountered in a hazardous area e.g. Noise Workers, Radiation Workers, Chemical Workers, etc.
- 4.4 Authorized person: A person authorized by the facility / line manager to perform work. In this document, the authorized person is the person approving a work permit.
- 4.5 The following abbreviations are used in this document:

- |         |                                                      |
|---------|------------------------------------------------------|
| DOL     | - Department of Labour                               |
| HCS     | - Hazardous Chemical Substances                      |
| OHS Act | - Occupational Health and Safety Act                 |
| OEW     | - Occupational Exposed Worker                        |
| PPE     | - Personal Protective Equipment                      |
| SHEQ    | - Safety, Health, Environment and Quality            |
| SHEQD   | - Safety, Health, Environment and Quality Department |



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|         |               |      |   |      |   |    |   |
|---------|---------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-5520 | REV. | 3 | PAGE | 3 | OF | 5 |
| TITLE   | WORK PERMITS  |      |   |      |   |    |   |

## 6 ESTABLISHMENT OF A WORK PERMIT SYSTEM

The facility/line manager shall ensure the following:

- 6.1 A work permit system shall be implemented for identified hazardous activities and areas where the facility / line manager is of the opinion that, as a safety measure, a work permit system is necessary. These work permits may be general or activity or facility specific e.g. for radiation work, for hot or for cold work. (See Exhibit 1 – SHEQ-FRM-5520 - for an example of a work permit). For any activity outside buildings, (such as excavations), the permit SHEQ-FRM-5521 (see Exhibit 2) or similar shall be used. The work permit system (and therefore also the permit used) shall cover the aspects included in Exhibit 1 and 2, as applicable, and shall meet the requirements prescribed for a work permit in Appendix A.
- 6.2 Personnel shall be authorised in writing to approve work permits. Form SHEQ-FRM-5300 (see SHEQ-INS-5300) may be used for this purpose. The authorisation may be a personal authorisation or a post authorisation or as per facility specific work procedure. The authorised person's post level, and the number of different authorisations required, shall depend on the hazards, complexity, and scope of the task. Authorised personnel shall be conversant with the area, and activity to be performed, to be able to comply with the requirements of the work permit system (Appendix A).
- 6.3 All maintenance tasks in a facility shall be performed with a work permit.

## 6 GENERAL AND AD-HOC ASSESSMENT OF WORK AREAS AND ACTIVITIES

The facility/line manager shall ensure the following:

- 6.1 The activities and areas for which the facility/line manager are responsible shall be evaluated by the facility/line manager or a SQEP, in order to identify the hazardous areas or activities in such areas, or activities in which inherent hazards exist that may cause injury to personnel or that may be prejudicial to their health or that may be detrimental to the environment. The evaluation shall include all activities e.g. operational and maintenance.
- 6.2 The work permit system shall enforce the evaluation of each hazardous activity and/or area to determine if the hazards cannot be removed or the risk involved reduced. Where feasible the hazards shall be removed. If the hazards cannot be removed, the work permit system shall be used to prescribe measures to reduce the risk of exposure to the hazards.
- 6.3 A list of hazardous areas and activities shall be prepared and maintained. A copy of the list shall be sent to the SHEQD.
- 6.4 Preparatory/preventive measures and work to be done shall be clearly described before a work permit can be issued and workers authorized to perform a task.

## 7 IMPLEMENTATION OF WORK PERMIT SYSTEM

The facility/line manager or the authorized person approving the work permit shall ensure the following:

- 7.1 No hazardous or potentially hazardous work shall be carried out without an assessment of the associated hazards and the issuing of a work permit. A Radiation Protection Work Permit shall be issued in addition to the work permit, as applicable (see SHEQ-INS-8120).
- 7.2 The hazards associated with each task, and of the process or operations area and the controls in place to limit or prevent exposures shall be explained to the person to whom the permit is issued.



# SHEQ SYSTEM

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|         |               |      |   |      |   |    |   |
|---------|---------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-5520 | REV. | 3 | PAGE | 4 | OF | 5 |
| TITLE   | WORK PERMITS  |      |   |      |   |    |   |

- 7.3 In the case where the authorisation extends over more than one shift, the scope of the job and the authorisation shall be communicated to all shift teams.
- 7.4 The necessary protective clothing/equipment/facilities (also see SHEQ-INS-2400) to be able to work safely in the identified area or to carry out the activity with the desired degree of safety shall be provided to the workers.
- 7.5 The PPE issued shall be in good working condition. Equipment that will need regular testing, during the execution of the task shall be specified and tested in accordance with the requirements and the appropriate register shall be updated.
- 7.6 The identified area shall be inspected for hand-over readiness before the permit is issued. The work performed shall be inspected to ensure quality and completion and certified completed before re-commissioning of the equipment/process. The inspection shall include the following:
- that the work has been completed;
  - any temporary arrangements/installation such as barricades, excavation holes etc. have been removed;
  - all personnel and equipment are accounted for;
  - the work permit has been signed-off; and
  - all related equipment and facilities are operational and have been inspected and tested appropriately.

## 8 TRAINING

The facility/line manager shall ensure the following:

- 8.1 All personnel involved in the work to be performed shall be trained to work in the identified area or to carry out an identified activity.
- 8.2 The abovementioned personnel shall maintain their expertise and skills (regularly performing the work) or shall be retrained before performing a particular task.
- 8.3 Personnel required approving work permits shall be trained to do so. (Training can be provided by SHEQD).
- 8.4 Workers, who will perform the tasks, shall be trained in the proper use of all safety equipment and in emergency procedures. The workers shall also be familiar with and trained in the correct use of the prescribed PPE, see SHEQ-INS-2400.
- 8.5 The workers shall be aware of the areas or activities for which work permits are required (e.g. by means of an appropriate notice or awareness session).

## 9 RECORDS

The following records shall be kept:

| DESCRIPTION                                 | RETENTION PERIOD                                                                                                                                                                      | BY WHOM |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| List of hazardous activities or areas (6.3) | As prescribed by the manager (e.g. in the manager's quality management system)                                                                                                        | Manager |
| Completed work permits                      | The longer period of: <ul style="list-style-type: none"><li>• one year, or</li><li>• after an event has been investigated, corrective action taken and the event closed out</li></ul> | Manager |



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|         |               |      |   |      |   |    |   |
|---------|---------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-5520 | REV. | 3 | PAGE | 5 | OF | 5 |
| TITLE   | WORK PERMITS  |      |   |      |   |    |   |

| DESCRIPTION                                                             | RETENTION PERIOD                        | BY WHOM |
|-------------------------------------------------------------------------|-----------------------------------------|---------|
| Authorisation to approve a work permit (SHEQ-FRM-5300 or similar) (5.2) | For as long as the person is authorised | Manager |

## APPENDIX A: WORK PERMIT REQUIREMENTS

### A-1 Work permits shall be used:

- i) to authorise personnel in writing to enter the area or to carry out the activity. The person being authorised, shall also sign the work permit acknowledging that he/she is familiar with the hazards associated with the task and the requirements of the permit. The access and egress requirements shall be observed (see SHEQ-INS-7020 and -8150);
- ii) to clearly define the applicable area/plant/equipment/activity as well as the limits of the authorisation where applicable;
- iii) to confirm in writing that the area/plant/equipment has been made safe before the activity is carried out. In this regard, also refer to SHEQ-INS-2120: Lock-Out Systems, and SHEQ-INS-6300: Written Safe Work Procedures, Instructions, Orientation and Task Training;
- iv) to point out and explain the identified hazards to the persons who are going to work in the area;
- v) to identify and prescribe personal protective equipment (PPE) as well as stand-by personnel (e.g. Emergency Services, Radiation Protection Officers, operational or maintenance personnel);
- vi) to transfer or hand-over the plant/equipment, in respect of responsibility, from one person/group to the other (e.g. from Operations to Maintenance and back to Operations);
- vii) to confirm that the plant/equipment is in a safe condition after the activity has been completed but before normal activities commence or the plant recommissioned; and
- viii) to serve as a record that the above actions have been carried out.

A-2 Work permits shall be in duplicate so that the person who is authorised and the one who authorises, both have a copy. The permit shall also be attached (where practicable) to the equipment to indicate that a job is being done on it.

A-3 The time and period of validity of the authorisation shall be reflected on the work permit.

A-4 In general a work permit will be with immediate effect when signed unless the effective time of authorization is clearly stated in the permit.

A-5 A work permit shall be withdrawn or cancelled at any point in time when the hazards associated with the task has changed or the work is not performed in a safe manner.

A-6 See Exhibit 1 and 2 for examples of a Work Permit and a Site Work Permit respectively.



# WORK PERMIT

## WORK PERMIT FOR WORK IN A PROCESS AREA



|                  |              |                            |
|------------------|--------------|----------------------------|
| <b>BUILDING:</b> | <b>DATE:</b> | <b>PERMIT NUMBER:</b>      |
| <b>AREA:</b>     | <b>TIME:</b> | <b>PERIOD OF VALIDITY:</b> |

|                      |                         |
|----------------------|-------------------------|
| <b>1</b>             | <b>TASK INFORMATION</b> |
| Description of task: |                         |
|                      |                         |
|                      |                         |
|                      |                         |
|                      |                         |

|          |                            |           |                  |            |           |
|----------|----------------------------|-----------|------------------|------------|-----------|
| <b>2</b> | <b>AREA CLASSIFICATION</b> |           |                  |            |           |
|          | <b>YES</b>                 | <b>NO</b> |                  | <b>YES</b> | <b>NO</b> |
|          |                            |           | Respiratory zone |            |           |
|          |                            |           | Confined space   |            |           |
|          |                            |           | Noise Zone       |            |           |
|          |                            |           | Other Zones      |            |           |

|          |                              |           |                                                                                                                             |            |           |
|----------|------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------|------------|-----------|
| <b>3</b> | <b>HAZARD IDENTIFICATION</b> |           |                                                                                                                             |            |           |
|          | <b>YES</b>                   | <b>NO</b> |                                                                                                                             | <b>YES</b> | <b>NO</b> |
|          |                              |           | Asbestos substances present.                                                                                                |            |           |
|          |                              |           | Toxic substances present.                                                                                                   |            |           |
|          |                              |           | Irritant substances to eyes, skin, nose, etc.                                                                               |            |           |
|          |                              |           | Radioactive substance present.                                                                                              |            |           |
|          |                              |           | Flammable substances. (If Yes standby is required. Complete section 6. Electronic equipment prohibited such as cell phones) |            |           |
|          |                              |           | Corrosive material present.                                                                                                 |            |           |
|          |                              |           | Possible eye injuries due to projecting objects, splashing, etc.                                                            |            |           |
|          |                              |           | Suffocation. (If Yes standby is required. Complete section 6)                                                               |            |           |
|          |                              |           | Engulfment. (If Yes standby is required. Complete section 6)                                                                |            |           |
|          |                              |           | Electrical hazards.                                                                                                         |            |           |
|          |                              |           | Explosion hazard. (If Yes standby is required. Complete section 6)                                                          |            |           |
|          |                              |           | Moving machinery.                                                                                                           |            |           |
|          |                              |           | Working at elevated heights (SHEQ-INS-2141).                                                                                |            |           |
|          |                              |           | Structures collapsing (SHEQ-INS-2141).                                                                                      |            |           |
|          |                              |           | Possible head injuries.                                                                                                     |            |           |
|          |                              |           | Possible foot injuries.                                                                                                     |            |           |
|          |                              |           | Psychological hazards present, high stress activities.                                                                      |            |           |
|          |                              |           | Biological hazards.                                                                                                         |            |           |
|          |                              |           | Noise hazard present during execution of task.                                                                              |            |           |
|          |                              |           | High temperatures.                                                                                                          |            |           |
|          |                              |           | Low temperatures.                                                                                                           |            |           |
|          |                              |           | High atmospheric pressure.                                                                                                  |            |           |
|          |                              |           | Low atmospheric pressure.                                                                                                   |            |           |
|          |                              |           | Other hazards. Specify:                                                                                                     |            |           |

|          |                                         |           |                                                                       |            |           |
|----------|-----------------------------------------|-----------|-----------------------------------------------------------------------|------------|-----------|
| <b>4</b> | <b>SAFETY REQUIREMENTS FOR THE WORK</b> |           |                                                                       |            |           |
|          | <b>YES</b>                              | <b>NO</b> |                                                                       | <b>YES</b> | <b>NO</b> |
|          |                                         |           | Additional PPE and safety equipment required:                         |            |           |
|          |                                         |           | Half air suit.                                                        |            |           |
|          |                                         |           | Full air suit.                                                        |            |           |
|          |                                         |           | Filter mask type.                                                     |            |           |
|          |                                         |           | Air hood with air supply.                                             |            |           |
|          |                                         |           | Other respiratory equipment. Specify:                                 |            |           |
|          |                                         |           | Safety harness or other fall prevention/arresting equipment. Specify: |            |           |
|          |                                         |           | Safety boots.                                                         |            |           |
|          |                                         |           | Gloves.                                                               |            |           |
|          |                                         |           | Rubber boots.                                                         |            |           |
|          |                                         |           | Safety glasses.                                                       |            |           |
|          |                                         |           | Hardhat.                                                              |            |           |
|          |                                         |           | Hearing protection.                                                   |            |           |
|          |                                         |           | Other. Specify:                                                       |            |           |

|          |                                                    |           |                                                                                                                                                                                   |            |           |
|----------|----------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|
| <b>5</b> | <b>SAFETY PREPARATION (also see SHEQ-INS-2120)</b> |           |                                                                                                                                                                                   |            |           |
|          | <b>YES</b>                                         | <b>NO</b> |                                                                                                                                                                                   | <b>YES</b> | <b>NO</b> |
|          |                                                    |           | Electrical isolation done. If yes provide permit no:                                                                                                                              |            |           |
|          |                                                    |           | Equipment isolated (mechanical lock-out) If yes provide lock number/identification.                                                                                               |            |           |
|          |                                                    |           | Pressure decreased /increased to atmospheric. Pipes/tanks, equipment purged, washed/flushed with: e.g. Air, O <sub>2</sub> , CO <sub>2</sub> , N <sub>2</sub> , H <sub>2</sub> O. |            |           |
|          |                                                    |           | Equipment (e.g. tanks/pipes) drained. Other methods of removal/isolation of hazards. Specify:                                                                                     |            |           |



# WORK PERMIT

## WORK PERMIT FOR WORK IN A PROCESS AREA



| 6                                                                                                                | SHEQ REQUIREMENTS |    |
|------------------------------------------------------------------------------------------------------------------|-------------------|----|
|                                                                                                                  | YES               | NO |
| Advice from Emergency Services or trained emergency person required.                                             |                   |    |
| Gas concentration to be measured. If YES indicate type of gas and concentration measured at time of measurement. |                   |    |
| Type: _____ Concentration: _____                                                                                 |                   |    |
| Standby, fire extinguishing required.                                                                            |                   |    |
| Standby for rescue or resuscitation required.                                                                    |                   |    |

| 7                                                                                                           | AUTHORIZATION |    |
|-------------------------------------------------------------------------------------------------------------|---------------|----|
|                                                                                                             | YES           | NO |
| I have inspected the area and assessed the task before the work permit was issued to the workers.           |               |    |
| The area has been made safe as far as reasonably possible.                                                  |               |    |
| The task and area have been evaluated for hazards and stressors.                                            |               |    |
| The hazards and stressors have been communicated to the person/s to whom the work permit is issued.         |               |    |
| The safety measures prescribed in the work permit will assure the worker's safety within acceptable limits. |               |    |
| Work instruction/procedure number ..... has been issued to the workers.                                     |               |    |
| Additional Comments:                                                                                        |               |    |
| Name: _____ Signature: _____ Date: _____                                                                    |               |    |

| 8                                                                                        | ACCEPTANCE BY WORKER |    |
|------------------------------------------------------------------------------------------|----------------------|----|
|                                                                                          | YES                  | NO |
| I have read the work permit and I understand and accept the requirements.                |                      |    |
| The location of emergency equipment (emergency shower, BA's, etc.) has been shown to me. |                      |    |
| I am trained in the safety and use of emergency equipment applicable to the task.        |                      |    |
| Name: _____ Signature: _____ Date: _____                                                 |                      |    |

| 9                                                                                                                      | ACCEPTANCE BY EMERGENCY OR STANDBY PERSON<br>(When required) |    |
|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|----|
| Description of type of emergency/standby required:                                                                     |                                                              |    |
|                                                                                                                        | YES                                                          | NO |
| I understand the requirements and have done the necessary checks or measurements requested.                            |                                                              |    |
| I declare that according to information given to me and according to my knowledge it is safe to proceed with the task. |                                                              |    |
| Name: _____ Signature: _____ Date: _____                                                                               |                                                              |    |

| 10                                                                                                                                                                                   | COMPLETION OF TASK BY WORKER |    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----|
|                                                                                                                                                                                      | YES                          | NO |
| I certify that above work is completed and all safety measures restored to, "or requested that it be restored to", the original working condition. (*-delete non applicable portion) |                              |    |
| Name: _____ Signature: _____ Date: _____                                                                                                                                             |                              |    |

| 11                                                                                                                   | SIGN-OFF OR CLOSE-OUT BY AUTHORISER (see 7) |    |
|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----|
|                                                                                                                      | YES                                         | NO |
| I have inspected the area after completion of the work.                                                              |                                             |    |
| The area has been made safe, all safety measures are restored to the original condition, and the area is cleaned up. |                                             |    |
| Additional Comments:                                                                                                 |                                             |    |
| Name: _____ Signature: _____ Date: _____                                                                             |                                             |    |



|                                                               |  |                           |  |
|---------------------------------------------------------------|--|---------------------------|--|
| <b>1</b>                                                      |  | <b>TASK INFORMATION</b>   |  |
| Description of task (please attach a drawing where possible): |  |                           |  |
|                                                               |  |                           |  |
|                                                               |  |                           |  |
|                                                               |  |                           |  |
|                                                               |  |                           |  |
|                                                               |  |                           |  |
|                                                               |  |                           |  |
|                                                               |  |                           |  |
| Buildings or facilities that may possibly be affected:        |  |                           |  |
| Commencement date:                                            |  | Completion date (approx): |  |
|                                                               |  |                           |  |
| <b>2</b>                                                      |  | <b>APPLICANT</b>          |  |
| Company/Department                                            |  |                           |  |
| Supervisor name                                               |  | Tel no:                   |  |
| Names of persons that will be working on the site:            |  |                           |  |
|                                                               |  |                           |  |
| <b>3</b>                                                      |  | <b>SHEQ REQUIREMENTS</b>  |  |
| Emergency Services:                                           |  |                           |  |
| Name:                                                         |  | Date:                     |  |
|                                                               |  |                           |  |
| Requirements:                                                 |  |                           |  |
|                                                               |  | Signature:                |  |
| Environmental Specialist:                                     |  |                           |  |
| Name:                                                         |  | Date:                     |  |
|                                                               |  |                           |  |
| Requirements:                                                 |  | Signature:                |  |
|                                                               |  |                           |  |
| SHEQD Senior Manager:                                         |  |                           |  |
| Name:                                                         |  | Date:                     |  |
|                                                               |  |                           |  |
| Requirements:                                                 |  | Signature:                |  |
|                                                               |  |                           |  |
| <b>SAFETY OFFICER OR RADIATION PROTECTION OFFICER:</b>        |  |                           |  |
| Name:                                                         |  | Date:                     |  |
|                                                               |  |                           |  |
| Requirements:                                                 |  | Signature:                |  |
|                                                               |  |                           |  |



# WORK PERMIT

## SITE WORK PERMIT (WORK OUTSIDE PROCESS AREA/BUILDINGS)



|                                                                                                                                                       |                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| <b>4</b>                                                                                                                                              | <b>OTHER REQUIREMENTS</b>                       |
| <b>Utilities Operations:</b><br>Name: _____ Date: _____<br>Requirements: _____<br>_____ Signature: _____                                              |                                                 |
| <b>Security Services:</b><br>Name: _____ Date: _____<br>Requirements: _____<br>_____ Signature: _____                                                 |                                                 |
| <b>Electrical Engineering:</b><br>Name: _____ Date: _____<br>Requirements: _____<br>_____ Signature: _____                                            |                                                 |
| <b>Design &amp; Drafting:</b><br>Name: _____ Date: _____<br>Requirements: _____<br>_____ Signature: _____                                             |                                                 |
| <b>BUILDINGS OR FACILITIES AFFECTED:</b><br>Building or facility manager:<br>Name: _____ Date: _____<br>Requirements: _____<br>_____ Signature: _____ |                                                 |
| <b>5</b>                                                                                                                                              | <b>AUTHORIZATION</b>                            |
| <b>NUCLEAR COMPLIANCE:</b><br>Property Management:<br>Name: _____ Date: _____<br>Requirements: _____<br>_____ Signature: _____                        |                                                 |
| <b>6</b>                                                                                                                                              | <b>TO BE FILLED IN AFTER COMPLETION OF TASK</b> |
| <b>APPLICANT:</b><br>Supervisor:<br>Name: _____ Date: _____<br>Requirements: _____<br>_____ Signature: _____                                          |                                                 |
| <b>7</b>                                                                                                                                              | <b>SIGN-OFF OR CLOSE-OUT OF PERMIT</b>          |
| <b>NUCLEAR COMPLIANCE:</b><br>Property Management:<br>Name: _____ Date: _____<br>Requirements: _____<br>_____ Signature: _____                        |                                                 |



# Research and Innovation Development



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|            |                                                                                                     |
|------------|-----------------------------------------------------------------------------------------------------|
| Department | Applied Radiation                                                                                   |
| Title      | Waste Management Plan for Mining Shroud Detection project during construction of a gantry structure |
| Number     | SRS-MSH-PLN-23003                                                                                   |
| Revision   | 1.0                                                                                                 |

## APPROVAL & DISTRIBUTION

|          | NAME                                                               | SIGNATURE AND DATE                                                                                      |
|----------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Prepared | U Gooding<br>Acting Project Coordinator                            | <br>23/05/2024 11:38:19(UTC+02:00)<br>Signed by Ursula Gooding,<br>Ursula.Gooding@necsa.co.za           |
| Reviewed | TS Modise<br>Head: Project Manager                                 | <br>23/05/2024 16:19:15(UTC+02:00)<br>Signed by Tshimologane Modise,<br>Tshimologane.Modise@necsa.co.za |
| Accepted | GC Daniels<br>Research Leader<br>Smart Radio Sensors               | <br>23/05/2024 16:20:33(UTC+02:00)<br>Signed by Graham Daniels,<br>Graham.Daniels@necsa.co.za           |
| Accepted | E van Heerden<br>Chief Scientist<br>Environmental Management Group | <br>23/05/2024 16:17:54(UTC+02:00)<br>Signed by Eunika van Heerden,<br>eunika.vanheerden@necsa.co.za    |
| Approved | JR Zeevaart<br>Principal Research Scientist<br>Applied Radiation   | <br>23/05/2024 18:19:00(UTC+02:00)<br>Signed by Jan Rijn Zeevaart,<br>janrijn.zeevaart@necsa.co.za      |

|              |    |               |     |  |     |  |
|--------------|----|---------------|-----|--|-----|--|
| Distribution | 1. | U Gooding     | 9.  |  | 17. |  |
|              | 2. | T Modise      | 10. |  | 18. |  |
|              | 3. | GC Daniels    | 11. |  | 19. |  |
|              | 4. | JR Zeevaart   | 12. |  | 20. |  |
|              | 5. | C Kröts       | 13. |  | 21. |  |
|              | 6. | H Monkoe      | 14. |  | 22. |  |
|              | 7. | E Van Heerden | 15. |  | 23. |  |
|              | 8. | ET Layte      | 16. |  | 24. |  |

## TABLE OF CONTENTS

## PAGE

OPEN



# Research and Innovation Development



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|                                                         |          |
|---------------------------------------------------------|----------|
| <b>APPROVAL &amp; DISTRIBUTION.....</b>                 | <b>1</b> |
| <b>REVISIONS.....</b>                                   | <b>2</b> |
| <b>1. PURPOSE.....</b>                                  | <b>3</b> |
| <b>2. SCOPE.....</b>                                    | <b>3</b> |
| <b>3. REFERENCES.....</b>                               | <b>3</b> |
| <b>4. DEFINITION AND ABBREVIATIONS.....</b>             | <b>3</b> |
| <b>5. DESCRIPTION OF TASK (INCLUDING DURATION).....</b> | <b>4</b> |
| <b>6. RESPONSIBILITIES.....</b>                         | <b>5</b> |
| <b>7. EXPECTED WASTE TO BE GENERATED.....</b>           | <b>5</b> |
| <b>8. STRATEGY &amp; WASTE MANAGEMENT PLAN.....</b>     | <b>5</b> |
| <b>8.1 STRATEGY.....</b>                                | <b>5</b> |
| <b>8.2 WASTE MANAGEMENT PLAN.....</b>                   | <b>6</b> |
| <b>APPENDIX A.....</b>                                  | <b>6</b> |

## REVISIONS

This document has been revised in accordance with the following schedule:

| Rev. No. | Date approved | Nature of Revision | Prepared  |
|----------|---------------|--------------------|-----------|
| 1.0      | May 2024      | First issue.       | U Gooding |



# Research and Innovation Development



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## 1. PURPOSE

The purpose of this document is to detail the waste management plan for any waste generated as a result of the construction of a gantry structure for the Mining Shroud Detection project.

## 2. SCOPE

This document will cover the clearance, removal and storage of waste generated during the construction and decommissioning phases of the gantry for the Mining Shroud Detection project.

## 3. REFERENCES

|                      |                                                                      |
|----------------------|----------------------------------------------------------------------|
| SHEQ-INS-0280        | Necsa Requirement for Nuclear Material Accounting.                   |
| SHEQ-INS-8030        | System for the classification and demarcation of Radiological Area.  |
| SHEQ-INS-8120        | Safe Work Procedures and Radiation Protection Work Permit System     |
| PMSS-SAFETY-LET-0008 | Handover area outside Gate 1, for Mining Shroud Detection Technology |

## 4. DEFINITION AND ABBREVIATIONS

The following definition and abbreviations are used in this document:

### Definitions

|                  |                                                                    |
|------------------|--------------------------------------------------------------------|
| Gantry structure | A bridge-like overhead structure, supporting electronic equipment. |
|------------------|--------------------------------------------------------------------|

### Abbreviations

|     |                                |
|-----|--------------------------------|
| NFM | Nuclear Facility Manager       |
| PM  | Project Manager                |
| PL  | Project Leader                 |
| EMG | Environmental Management Group |

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|      |                                         |
|------|-----------------------------------------|
| NLM  | Nuclear Liability Management            |
| QA   | Quality Assurance                       |
| RPO  | Radiation Protection Officer            |
| SHEQ | Safety, Health, Environment and Quality |
| WAR  | Waste Acceptance Requirement            |
| PPE  | Personal Protective Equipment           |

## 5. DESCRIPTION OF TASK (INCLUDING DURATION)

The gantry structure will be resurrected with two steel columns, rafters and a base footing structure for each column. Electrical components in the form of detectors will be added to the structures as well as an electrical supply to provide electricity for the purpose of the testing.

The identified site has been handed over by Property Management and will be situated outside Gate 1 between the entrance street to the Necsa houses and the Gate 1 entrance.

**Actual testing will take a week per optimisation and will not go beyond a week for each cycle. The testing will be planned as to have as little impact to the operations of Gate 1 and the residential area as possible.**

From set up to decommissioning of the gantry structure, the duration is earmarked to take 1 month. The site will be prepared to accommodate the base structure in a way as to fully rehabilitate the site once the testing is completed.

**Tasks include:**

- Excavation of ground and rocks to make way for the gantry base structure
- Gantry base structure will be placed in the ground and filled with cement.
- Steel plates will be installed to hold the structure in the correct upright place.
- Electricity will be connected to the gantry structure.
- After testing the structures will be decommissioned and the surface area impacted by the structure base will be restored.



## Research and Innovation Development



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### 6. RESPONSIBILITIES

- It is the responsibility of the PL to ensure that the requirements and instructions as specified in this document are adhered to.
- Dedicated demarcated area's for all waste associated with rubble and secondary waste generated in the dismantling and construction process will be allocated by the Property Management personnel for temporary storage during construction.
- The area will be monitored by the RPO for adherence to radiological area classification.
- No radiological waste is expected to be generated.

### 7. EXPECTED WASTE TO BE GENERATED

- Metal waste generated during the assembly and dismantling of the steel gantry (i.e., support beams, grids and removed bolts and nuts).
- Concrete rubble generated during the dismantling of the concrete base structure.
- PPE, paper, cloths, plastic that will be generated during the dismantling and construction process.
- Electrical wires and cabling associated with the detector installation.

### 8. STRATEGY & WASTE MANAGEMENT PLAN

#### 8.1 STRATEGY

- The waste will consist mostly of steel, soil and concrete rubble.
- Sign posting shall be in accordance with the requirements specified.



## Research and Innovation Development



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### 8.2 WASTE MANAGEMENT PLAN

The below table shows the waste type to be generated, estimated amount and the management approach.

| Waste type generated                                                   | Estimated amount of waste to be generated | Management approach (disposal, recycling etc.)                                                                    |
|------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Metal waste:<br>(e.g. support beams, grids and removed bolts and nuts) | ± 50Kg                                    | Uncontaminated metal will be recycled internally at Necsa or disposed of at Necsa's scrap yard                    |
| Concrete rubble                                                        | ± 2m <sup>2</sup>                         | Uncontaminated concrete to be used as part of the construction to fill the void left by the gantry structure base |
| Loose soil generated during the digging of the trench                  | ± 4m <sup>2</sup>                         | The soil that was removed will be placed aside to refill the void                                                 |
| Wiring Waste                                                           | To be determined during installation      | Uncontaminated waste to be disposed of as normal waste                                                            |

### APPENDIX A

Project Scope document RS-MSh-DES-2300



# SHEQ SYSTEM



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|         |                                                                  |      |   |      |   |    |   |
|---------|------------------------------------------------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-8120                                                    | REV. | 7 | PAGE | 1 | OF | 4 |
| TITLE   | SAFE WORK PROCEDURES AND RADIATION PROTECTION WORK PERMIT SYSTEM |      |   |      |   |    |   |

## 1 PURPOSE AND SCOPE

To provide a Radiation Protection Work Permit System and to prescribe radiation protection control measures where these are not prescribed in approved procedures.

## 2 REFERENCES

- 2.1 This document shall be used together with:
- SHEQ-INS-8150: Access and egress control for radiological areas
  - SHEQ-INS-8180: ALARA programme
  - SHEQ-INS-5300: Written Safe Work Procedures, instruction, orientation and task training
  - SHEQ-INS-5520: Work Permits

## 3 REVISION HISTORY

- Revision 0 – May 1997 – This document supersedes NL27-AEC-HP-12(01,02) – Administrative work permit system for radiological control (M Meklsich).
- Revision A – 9 March 1998 – Addresses CNS comment in AB1405 (M Meklsich).
- Revision B – 26 March 1998 – Addresses CNS comment in AB1638 (M Meklsich).
- Revision C – 30 March 1998 – Addresses CNS comment in AB1843 (M Meklsich).
- Revision D – 6 November 2000 – Major revision (S E van Niekerk).
- Revision D/1 – 2001/02/05 – Paragraphs 5.1(c) changed as follows: "At least once every two years (in the case of a repetitive task);" (S E van Niekerk).
- Revision E – 2004/04/06 – Document reviewed to change the document number and to reflect Necsa's new organisation (S E van Niekerk).
- Revision F – 2004/07/14 – Document revised (parts 2.1 and 6.1) to address NNR comments in AB3295 (A C van der Bijl).
- Revision 7 – Scheduled review. HSE changed to SHEQ and references to SHEQ-INS-5520, SHEQ-INS-5300 included. The role of pre and post ALARA reviews included (F Beeslaar).

|              | NAME                                                                                    | SIGNATURE | DATE       |
|--------------|-----------------------------------------------------------------------------------------|-----------|------------|
| PREPARED     | F J L Beeslaar<br>RPS                                                                   |           | 2016-10-13 |
| CHECKED      | S E van Niekerk<br>RPS                                                                  |           | 2016-10-13 |
| ACCEPTED     | I E Steyn<br>SM: SHEQD                                                                  |           | 14/10/2010 |
| ACCEPTED     | R Masango<br>GE: NC                                                                     |           | 19/10/2010 |
| APPROVED     | R M Adam<br>CEO                                                                         |           | 20/10/2010 |
| DISTRIBUTION | This document is available on SHAREPOINT – <u>SHEQ SYSTEM DOCUMENTS</u><br>SHEQ Records |           |            |



# SHEQ SYSTEM



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|         |                                                                  |      |   |      |   |    |   |
|---------|------------------------------------------------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-8120                                                    | REV. | 7 | PAGE | 2 | OF | 4 |
| TITLE   | SAFE WORK PROCEDURES AND RADIATION PROTECTION WORK PERMIT SYSTEM |      |   |      |   |    |   |

## 4 DEFINITIONS

- 4.1 **ALARA:** ALARA is the acronym for "As Low As Reasonably Achievable". ALARA is the philosophy that is applied in the optimisation of protection. The following should inter alia be kept ALARA:
- Individual dose of persons exposed
  - The number of people exposed
  - The predicted probabilistic risk associated with an NF and/or a process where radioactive material is handled
  - Quantities of radioactive waste (solid and gaseous and liquid effluent) generated.
- In applying ALARA, economic and social factors are taken into account.
- 4.2 **ALARA pre-planning and pre-task briefing.** Done when (See SHEQ-INS-8180):
- When complicated or high-risk work has to be performed in a radiological area.
  - When the estimated individual dose from an operation is expected to exceed 1 mSv.
  - When the estimated collective dose from an operation is expected to exceed 10 man mSv.
- 4.3 **ALARA Post-task assessment:** Done when (See SHEQ-INS-8180):
- When the actual collective dose exceeded 10 man mSv.
  - When the dose to an individual exceeded 1 mSv.
  - When the actual dose exceeded the pre-task dose estimate by more than 50%.
  - When a stop-work order was issued for radiological reasons.
  - When operations resulted in the notification of a nuclear occurrence.
  - When significant lessons were learned regarding radiological hazards or dose saving techniques.
- 4.4 **Hold point:** Pre-determined stage, established by the RPO, during the execution of a task to reassess the radiological conditions and to ensure that the prescribed controls are still adequate.
- 4.5 **Post-task assessment:** An assessment performed after a task is completed, or stopped, to:
- Evaluate the effectiveness of the prescribed radiological controls,
  - Evaluate estimated exposure versus actual exposure,
  - Note effectiveness of dose saving actions together with highest and average dose values, and
  - Note any problems that might have occurred during the execution of the task.
- 4.6 **Radiological task:** A given task or specific activity involving inter alia the following:
- The breach of a system containing radioactive material;
  - The handling or use of sealed radioactive sources or unsealed radioactive materials;
  - The decontamination of radiological contaminated areas or equipment;
  - Welding, grinding and cutting operations performed on contaminated or potentially contaminated equipment;
  - The use of X-ray apparatus;
  - Entry into a purple radiological area;
  - Any work involving radioactive waste handling in any radiological area; or
  - Any maintenance or in service inspection activity or other operation involving the removal of shielding, in any radiological area, which may result in a radiological hazard.
- 4.7 **The following abbreviations are used in this document:**
- |              |                                                                   |
|--------------|-------------------------------------------------------------------|
| NFM:         | Nuclear Facility Manager                                          |
| RP:          | Radiation Protection                                              |
| RPO:         | Radiation Protection Officer                                      |
| RPO level 1: | RPO who is certified as RPO level 1 by an RPS (see SHEQ-INS-8020) |
| RPS:         | Radiation Protection Specialist                                   |



# SHEQ SYSTEM



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|---------|------------------------------------------------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-8120                                                    | REV. | 7 | PAGE | 3 | OF | 4 |
| TITLE   | SAFE WORK PROCEDURES AND RADIATION PROTECTION WORK PERMIT SYSTEM |      |   |      |   |    |   |

RPWP: Radiation Protection Work Permit  
SHEQD: Safety, Health, Environment and Quality Department

## 5 RESPONSIBILITIES

### 5.1 NFM shall ensure that:

- i) An RPWP system for radiological control is implemented in nuclear facilities under their control.
- ii) Written Safe Work Procedure (WSWP) incorporating radiological control measures are accepted as prescribed. (See also SHEQ-INS-5300.)

### 5.2 The responsible person (task supervisor) shall sign acceptance of the RPWP and ensure that the tasks specified in the permit are carried out in accordance with the prescribed safety requirements.

### 5.3 The facility RPO shall be responsible for the preparation, radiological assessment, prescription of special radiological control measures and personal protective equipment, authorization, etc. of the RPWP (see paragraph 6.7).

## 6 SYSTEM REQUIREMENTS

### 6.1 An RPWP shall only be used for ad-hoc radiological tasks in a licensed area/facility.

### 6.2 Every radiological task shall be controlled by means of an RPWP, *unless* the task meets the following requirements:

- iii) The task is performed according to a work instruction(s) prescribing RP measures; and
- iv) The work instruction is accepted by an RPS or RPO level 1 (as applicable); and
- v) The work instruction is reviewed:
  - At least once every two years (in the case of a repetitive task); or
  - Whenever the radiological conditions are different in nature or more severe than envisaged in the work instruction; or
  - Whenever there is a change in work methods that may change the radiological risk associated with the task.

### 6.3 Acceptance of work instructions incorporating radiological control measures:

- i) Work instructions issued as alternatives for RPWPs shall be accepted by an RPS if:
  - The maximum dose to an individual may exceed 1 mSv, or
  - The collective dose may exceed 5 man mSv.
- ii) Other such work instructions may be accepted by an RPO level 1.

### 6.4 In order to facilitate proper evaluation of the appropriateness of RP measures for a given task, the work instruction shall include a hazard assessment (including ALARA pre-planning) for the task. The hazard assessment must include an estimate of the maximum individual and collective doses.

### 6.5 RPWPs shall be assessed and authorised by an RPS if it is estimated during the pre-task assessment that:

- i) The maximum dose to an individual may exceed 1 mSv, or
- ii) The collective dose may exceed 5 man mSv.

### 6.6 RPWPs may be issued for up to 5 continuous workdays with the requirement that the RPO shall conduct daily surveys and inspections of the workplace to ensure that the prescribed control measures are still adequate.

### 6.7 The RPWP shall be available at the location where the task is performed.



# SHEQ SYSTEM



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|---------|------------------------------------------------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-8120                                                    | REV. | 7 | PAGE | 4 | OF | 4 |
| TITLE   | SAFE WORK PROCEDURES AND RADIATION PROTECTION WORK PERMIT SYSTEM |      |   |      |   |    |   |

- 6.8 The RPWP may be used as a separate document or in conjunction with a conventional work permit, if applicable. A facility-specific RPWP may be established and implemented or the RPWP may be incorporated into a conventional work permit (see SHEQ-INS-5520), provided the principles specified in this document, are addressed and an RPS accepts the applicable procedure and permit.
- 6.9 The RPWP shall make provision for the following:
- Unique RPWP number.
  - Other permit numbers, e.g. conventional permit number.
  - Identification of the plant and the location where the task is to be performed.
  - Date when the task is to be performed.
  - Description and location of the work to be done and limitations.
  - Estimated duration of the task (validity period).
  - Names of the workers involved in the task.
  - An assessment of radiological conditions in the workplace before the task commences.
  - Estimation of the anticipated radiological conditions while the task is performed.
  - Estimation of the anticipated radiation dose that could be received by the worker(s) for the task.
  - Prescription of special dosimetry based on the anticipated worker exposure.
  - Prescription of special personal protective equipment (other than normal for the area) based on the anticipated radiological conditions while the task is performed.
  - Prescription of special radiological protection measures (specific actions, time limits, distance, shielding, etc. to reduce dose).
  - Prescription of RP surveillance requirements for the task.
  - Specification of task hold points and the prescription of RP actions to be performed at the hold points.
  - Prescription of work area preparation requirements.
  - Prescription of work area clean-up requirements.
  - Issuing by the RPO.
  - Authorisation by the RPS as appropriate.
  - Stopping of work by the RPO/RPS.
  - Acceptance of RP requirements by the line supervisor responsible for supervising the task.
  - Capturing of actual workplace surveillance and individual monitoring data.
  - Sign-off by the RPO after the task is completed or after the permit has expired.

(An example of a Radiation Protection Work Permit – SHEQ-FRM-8120 – is available from SHEQD.)

- 6.10 A post-task assessment shall be performed for each RPWP and Post ALARA Task assessment if needed.

## 7 RECORDS

The following records shall be kept:

| DESCRIPTION                                       | RETENTION PERIOD                   | BY WHOM |
|---------------------------------------------------|------------------------------------|---------|
| Original copy of Radiation Protection Work Permit | 10 years                           | NFM     |
|                                                   | 50 years after closure of facility | SHEQD   |

**NECSA**  
**NEW GANTRY**  
**PROJECT - 77777**

| ITEM NO | PAYMENT    | DESCRIPTION                                                            | UNIT | QTY  | RATE | AMOUNT R |
|---------|------------|------------------------------------------------------------------------|------|------|------|----------|
|         | SANS1200 A | SECTION A: PRELIMINARY & GENERAL                                       |      |      |      |          |
| A1      | 8.3        | FIXED CHARGE ITEMS                                                     |      |      |      |          |
| A1.1    | 8.3.1      | Contractual requirements.                                              | Sum  | 1,00 | 0,00 | 0,00     |
| A1.2    | 8.3.2      | Establish facilities on site:                                          |      |      |      |          |
| A1.2.1  | 8.3.2      | Facilities for the Contractor:                                         | Sum  | 1,00 | 0,00 | 0,00     |
|         |            | a) Office and storage sheds.                                           | Sum  | 1,00 | 0,00 | 0,00     |
|         | PSA 2      | b) Ablution & latrine facilities.                                      | Sum  | 1,00 | 0,00 | 0,00     |
|         |            | c) Tools & equipment.                                                  | Sum  | 1,00 | 0,00 | 0,00     |
|         | PSA 3 & 4  | d) Water and power supplies.                                           | Sum  | 1,00 | 0,00 | 0,00     |
|         |            | e) Dealing with water.                                                 | Sum  | 1,00 | 0,00 | 0,00     |
| A1.3    | 8.3.3      | Other fixed time obligations.                                          | Sum  | 1,00 | 0,00 | 0,00     |
| A1.4    | 8.3.4      | Removal of Contractor's site establishment on completion of the works. | Sum  | 1,00 | 0,00 | 0,00     |
| A2      | 8.4        | TIME RELATED ITEMS                                                     |      |      |      |          |
| A2.1    | 8.4.1      | Contractual requirements.                                              | Sum  | 1,00 | 0,00 | 0,00     |
| A2.2    | 8.4.2      | Operate and maintain facilities on site:                               |      |      |      |          |
| A2.2.1  | 8.4.2      | Facilities for the Contractor for the duration of the contract:        |      |      |      |          |
|         |            | a) Office and storage sheds.                                           | Sum  | 1,00 | 0,00 | 0,00     |
|         | PSA 2      | b) Ablution & latrine facilities.                                      | Sum  | 1,00 | 0,00 | 0,00     |
|         |            | c) Tools & equipment.                                                  | Sum  | 1,00 | 0,00 | 0,00     |
|         | PSA 3 & 4  | d) Water and power supplies.                                           | Sum  | 1,00 | 0,00 | 0,00     |
|         |            | e) Dealing with water.                                                 | Sum  | 1,00 | 0,00 | 0,00     |
| A2.3    | 8.4.3      | Supervision for the duration of the contract.                          | Sum  | 1,00 | 0,00 | 0,00     |
| A2.4    | 8.4.4      | Company and head office overheads for the duration of the contract.    | Sum  | 1,00 | 0,00 | 0,00     |
| A2.5    |            | Qualified safety officer for the duration of the contract.             | Sum  | 1,00 | 0,00 | 0,00     |
| A2.6    |            | Provision of an approved firewatch officer during hot work on site.    | Sum  | 1,00 | 0,00 | 0,00     |
| A2.7    | 8.4.5      | Other time-related obligations.                                        | Sum  | 1,00 | 0,00 | 0,00     |

|                       |      |
|-----------------------|------|
| TOTAL CARRIED FORWARD | 0,00 |
|-----------------------|------|

NECSA

NEW GANTRY

PROJECT - 77777

| ITEM NO         | PAYMENT | DESCRIPTION                                                                                                                                                            | UNIT     | QTY  | RATE | AMOUNT R |
|-----------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------|------|----------|
| BROUGHT FORWARD |         |                                                                                                                                                                        |          |      |      | 0,00     |
| A3              | 8.5     | PROVISIONAL SUMS:                                                                                                                                                      |          |      |      |          |
|                 |         | a) Dayworks.                                                                                                                                                           | Prov Sum | 1,00 | 0,00 | 0,00     |
|                 |         | b) Dealing with ground water.                                                                                                                                          | Prov Sum | 1,00 | 0,00 | 0,00     |
|                 |         | c) Dealing with existing services.                                                                                                                                     | Prov Sum | 1,00 | 0,00 | 0,00     |
| A4              |         | Compliance with the requirements of the OHS Act, the Construction Regulations and Total SA Site Specific Safety Requirements                                           | Sum      | 1,00 | 0,00 | 0,00     |
| A5              |         | Extra over item A4 for preparation of a safety file manual.                                                                                                            | Sum      | 1,00 | 0,00 | 0,00     |
| A6              |         | Carry out all necessary material quality testing in accordance with the requirements of the relevant sections of SABS 1200 (i.e. concrete cube tests, soil tests etc.) | Sum      | 1,00 | 0,00 | 0,00     |
| A7              |         | Preparation of erection method statements for all structural steelwork, in accordance with the proforma prepared by SAISC for approval by Engineer.                    | Sum      | 1,00 | 0,00 | 0,00     |
| A8              |         | Surveying and setting out all structures on site prior to commencement of work.                                                                                        | Sum      | 1,00 | 0,00 | 0,00     |

|                                  |      |
|----------------------------------|------|
| TOTAL CARRIED FORWARD TO SUMMARY | 0,00 |
|----------------------------------|------|

NECSA

NEW GANTRY

PROJECT - 77777

| ITEM NO                          | PAYMENT             | DESCRIPTION                                                                                                                                                                | UNIT | QTY  | RATE | AMOUNT R |
|----------------------------------|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|----------|
| B1                               | SANS 1200C<br>8.2.8 | SECTION B: SITE CLEARANCE<br><br>Remove vegetation and clear area for excavation of concrete bases<br><br>Clear area for the works<br><br>a) Existing grass and vegetation | m²   | 8,00 | 0,00 | 0,00     |
| TOTAL CARRIED FORWARD TO SUMMARY |                     |                                                                                                                                                                            |      |      |      | 0,00     |



NECSA

NEW GANTRY

PROJECT - 77777

| ITEM NO               | PAYMENT     | DESCRIPTION                                                                                                                    | UNIT | QTY  | RATE | AMOUNT R |
|-----------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------|------|------|------|----------|
| C1                    | SANS 1200DA | SECTION C: EARTHWORKS                                                                                                          |      |      |      |          |
|                       |             | Restricted excavation in all material including stockpiling of material on site for later re-use in backfilling of excavations |      |      |      |          |
|                       |             | a) Column bases.                                                                                                               | m³   | 2,00 | 0,00 | 0,00     |
|                       |             | b) Trial holes.                                                                                                                | m³   | 0,00 | 0,00 | 0,00     |
| C2                    |             | c) Miscellaneous.                                                                                                              | m³   | 0,00 | 0,00 | 0,00     |
|                       |             |                                                                                                                                |      |      |      |          |
| C3                    |             | Nominally compact (90% Mod AASTHO density) for:                                                                                |      |      |      |          |
|                       |             | a) Column bases.                                                                                                               | m²   | 2,00 | 0,00 | 0,00     |
|                       |             | b) Miscellaneous.                                                                                                              | m²   | 1,00 | 0,00 | 0,00     |
| TOTAL CARRIED FORWARD |             |                                                                                                                                |      |      |      | 0,00     |

NECSANEW GANTRYPROJECT - ?????

| ITEM NO | PAYMENT   | DESCRIPTION                                 | UNIT           | QTY   | RATE | AMOUNT R |
|---------|-----------|---------------------------------------------|----------------|-------|------|----------|
|         | SANS1200G | SECTION D: CONCRETE                         |                |       |      |          |
| D1      | 8.2       | FORMWORK                                    |                |       |      |          |
| D1.1    | 8.2.2     | Vertical smooth finish to:                  |                |       |      |          |
|         |           | a) Column bases plinth.                     | m <sup>2</sup> | 2,00  | 0,00 | 0,00     |
|         |           | b) Narrow widths less than 150mm not        | m              | 1,00  | 0,00 | 0,00     |
|         |           | c) Miscellaneous.                           | m <sup>2</sup> | 20,00 | 0,00 | 0,00     |
| D2      | 8.3       | REINFORCEMENT                               |                |       |      |          |
| D2.1    |           | High tensile to:                            |                |       |      |          |
|         |           | a) Column bases.                            | t              | 0,08  | 0,00 | 0,00     |
|         |           | b) Miscellaneous.                           | t              | 0,01  | 0,00 | 0,00     |
| D2.2    |           | Welded mesh to:                             |                |       |      |          |
|         |           | a) Equipment surface bed.                   | m <sup>2</sup> | 1,00  | 0,00 | 0,00     |
|         |           | b) Miscellaneous mesh.                      | t              | 0,00  | 0,00 | 0,00     |
| D3      | PSG 1     | CONCRETE                                    |                |       |      |          |
| D3.1    | 8.4.3     | 30MPa/19mm concrete to:                     |                |       |      |          |
|         |           | a) Column bases.                            | m <sup>3</sup> | 2,00  | 0,00 | 0,00     |
|         |           | c) Miscellaneous.                           | m <sup>3</sup> | 1,00  | 0,00 | 0,00     |
| D3.3    |           | Steel floated finish to:                    |                |       |      |          |
|         |           | a) Top of equipment base (non-slip finish). | m <sup>2</sup> | 1,00  | 0,00 | 0,00     |
|         |           | c) Miscellaneous.                           | m <sup>2</sup> | 1,00  | 0,00 | 0,00     |
| D3.4    |           | 10MPa benching/blinding.                    | m <sup>3</sup> | 1,00  | 0,00 | 0,00     |
| D3.5    | PSG2      | Curing of all concrete                      | Sum            | 1,00  | 0,00 | 0,00     |

|                       |  |  |  |  |  |  |      |
|-----------------------|--|--|--|--|--|--|------|
| TOTAL CARRIED FORWARD |  |  |  |  |  |  | 0,00 |
|-----------------------|--|--|--|--|--|--|------|

NECSA

NEW GANTRY

PROJECT - ?????

| ITEM NO         | PAYMENT | DESCRIPTION                                       | UNIT | QTY  | RATE | AMOUNT R |
|-----------------|---------|---------------------------------------------------|------|------|------|----------|
| BROUGHT FORWARD |         |                                                   |      |      |      | 0,00     |
| D5              |         | MISCELLANEOUS                                     |      |      |      |          |
| D5.1            |         | Cast-in items:                                    |      |      |      |          |
| D5.1.1          |         | Supply and install the following cast-in HD bolts |      |      |      |          |
|                 |         | a) M20                                            | No   | 8,00 | 0,00 | 0,00     |
| D5.2            |         | Grout beneath base plates using suitable non-     | m³   | 0,10 | 0,00 | 0,00     |

NECSANEW GANTRYPROJECT - 777777

| ITEM NO                          | PAYMENT | DESCRIPTION                                                                                                                                                                                                                                                                                                                                    | UNIT | QTY  | RATE | AMOUNT R |
|----------------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|----------|
|                                  | 8.3.1   | For the detailing, supply, fabrication, galvanising (heavy duty to SANS 121:2011/ISO1461:2009), and delivery to site of the following grade 350W (or S355JR) steelwork including necessary cleats, brackets, gussets, packs, end plates, connections, class 8.8 bolts, nuts, etc. (material certificates to be provided for all materials) to: |      |      |      |          |
| E1                               |         | Structural hot rolled steel (350W) to:                                                                                                                                                                                                                                                                                                         |      |      |      |          |
| E1.1                             |         | a) Gantry Structure                                                                                                                                                                                                                                                                                                                            | t    | 0,00 | 0,00 | 0,00     |
|                                  |         | b) Miscellaneous.                                                                                                                                                                                                                                                                                                                              | t    | 0,00 | 0,00 | 0,00     |
| E1.2                             |         | Offload on site, stack and erect steelwork.                                                                                                                                                                                                                                                                                                    | t    | 0,00 | 0,00 | 0,00     |
|                                  |         | Site cold galvanising as required                                                                                                                                                                                                                                                                                                              | t    | 0,00 | 0,00 | 0,00     |
| E2                               |         | MISCELLANEOUS:                                                                                                                                                                                                                                                                                                                                 |      |      |      |          |
| E2.1                             |         | Supply and install 600W solar panels                                                                                                                                                                                                                                                                                                           | No   | 0,00 |      |          |
| TOTAL CARRIED FORWARD TO SUMMARY |         |                                                                                                                                                                                                                                                                                                                                                |      |      |      | 0,00     |

NECSA

NEW GANTRY

PROJECT - ?????

| ITEM                             | PAYMENT   | DESCRIPTION                                      | UNIT | QTY  | RATE | AMOUNT R |
|----------------------------------|-----------|--------------------------------------------------|------|------|------|----------|
|                                  | SANS 1200 | SECTION F: SITE CLEARANCE                        |      |      |      |          |
| F1                               |           | Remove Gantry after 30 days and store on site to | Sum  | 1,00 | 0,00 | 0,00     |
| F1.1                             |           | Remove concrete bases and store on site to       | Sum  | 1,00 | 0,00 | 0,00     |
|                                  |           | Reinstate soil to original state                 |      |      |      |          |
| F1.2                             |           | Backfill and compact existing soil               | Sum  | 1,00 | 0,00 | 0,00     |
| TOTAL CARRIED FORWARD TO SUMMARY |           |                                                  |      |      |      | 0,00     |

**SUMMARY OF SECTIONS**

| SECTION                                       | DESCRIPTION                      | AMOUNT R    |
|-----------------------------------------------|----------------------------------|-------------|
| SECTION A                                     | SECTION A: PRELIMINARY & GENERAL | 0,00        |
| SECTION B                                     | SECTION B: SITE CLEARANCE        | 0,00        |
| SECTION C                                     | SECTION C: EARTHWORKS            | 0,00        |
| SECTION D                                     | SECTION D: CONCRETE              | 0,00        |
| SECTION E                                     | SECTION E: STRUCTURAL STEELWORK  | 0,00        |
| SECTION F                                     | SECTION F: SITE CLEARANCE        | 0,00        |
| TOTAL CARRIED FORWARD TO SUMMARY OF SCHEDULES |                                  | <u>0,00</u> |

THE SOUTH AFRICAN NUCLEAR ENERGY  
CORPORATION SOC LTD

# **TERMS AND CONDITIONS OF CONTRACT**

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**June 2017**

## CONTENTS

|                                                      |    |
|------------------------------------------------------|----|
| Terms and Conditions of Contract .....               | 3  |
| 1. Definitions and Interpretation .....              | 3  |
| 2. Application .....                                 | 5  |
| 3. Agency .....                                      | 5  |
| 4. Assignment .....                                  | 5  |
| 5. Subcontracting .....                              | 5  |
| 6. Indemnity and Limitation of Liability .....       | 5  |
| 7. Insurance .....                                   | 6  |
| 8. Fees and Payment Terms .....                      | 6  |
| 9. Reports/Deliverables .....                        | 7  |
| 10. Contract Amendments .....                        | 8  |
| 11. Penalties .....                                  | 8  |
| 12. Impossibility of Performance .....               | 9  |
| 13. ProjectPlan and Variation .....                  | 9  |
| 14. Delays in the Service Provider'sPerformance..... | 9  |
| 15. Force Majeure.....                               | 10 |
| 16. Confidentiality .....                            | 10 |
| 17. Ownership and Intellectual Property .....        | 11 |
| 18. Settlement of Disputes .....                     | 12 |
| 19. Breach of Agreement.....                         | 12 |
| 20. Termination for Insolvency .....                 | 13 |
| 21. Notices .....                                    | 13 |
| 22. Non-Solicitation of Personnel .....              | 14 |
| 23. Relaxation .....                                 | 14 |
| 24. Validity and Severability .....                  | 14 |
| 25. Variation.....                                   | 15 |
| 26. Warranties.....                                  | 15 |
| 27. Applicable Law.....                              | 16 |
| 28. Governing Language .....                         | 16 |
| 29. Taxes and Duties.....                            | 16 |

## **TERMS AND CONDITIONS OF CONTRACT**

*These TERMS AND CONDITIONS OF CONTRACT are applicable to all bids, contracts and orders issued by the South African Nuclear Energy Corporation to service providers for the supply of goods or works or rendering of services*

### **1. DEFINITIONS AND INTERPRETATION**

- 1.1 Clause headings in this *Agreement* are for convenience and reference purposes only and shall not affect the interpretation of the Agreement.
- 1.2 Where the context requires words implying the singular only shall also include the plural and vice versa and words signifying one gender shall signify all genders.
- 1.3 In this *Agreement* the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires:
  - 1.3.1 **"Agreement"** means these Terms and Conditions of Contract including all attachments and appendices hereto and all documents incorporated by reference therein and, where applicable, special conditions of contract.
  - 1.3.2 **"Bid Documents"** means Bid Specification, Request for Proposal, Request for Quotation documents, or any other document, used by NECSA to solicit the supply of goods or works or services.
  - 1.3.3 **"Fees"** means the contract price(s) as set out in the Pricing Schedule, attached as Annexure "E" in the accompanying SLA, which are payable to the Service Provider under this Agreement for the full and proper performance of the Service Provider's contractual obligations.
  - 1.3.4 **"Order"** means an official written Purchase Order issued for the supply of goods or works or for the rendering of a service. A copy of the Order must be attached in the accompanying SLA as Annexure "C".
  - 1.3.5 **"The South African Nuclear Energy Corporation SOC Ltd"** hereinafter referred to as NECSA
  - 1.3.6 **"NECSA Data"** means information, reports or data and related matter, whether of a confidential or proprietary nature or not, belonging to NECSA or in the possession, or under the control of NECSA provided by NECSA to Service Provider pursuant to the Service Provider providing the Services.
  - 1.3.7 **"Party"** means either NECSA or the Service Provider and **"Parties"** means NECSA and the Service Provider jointly.

1.3.8 **"Project Plan and Schedule of Deliverables"** means a document addressing how and when the Services are to be achieved by showing activities to be performed, the deliverables to be achieved and the milestones/timelines to achieve the deliverables, attached in the accompanying SLA as Annexure "B".

1.3.9 **"Proposal"** means a document, in the form of a business proposal, quotation or other document, setting out the Service Provider's proposed course of action or plan, with proposed solutions to address the Service needs of NECSA and the resources required, in response to the Bid Documents, attached hereto as Annexure "A" (or where Proposal is voluminous, sufficiently referenced in Annexure "A").

1.3.10 **"Service Level Agreement or SLA"** means the special conditions of contract entered into by the Parties to address specific conditions applicable to specific Services with the purpose of either amplifying or amending these Terms and Conditions of Contract.

1.3.11 **"Services"** means those functional services ancillary and incidental to the supply of goods, works or rendering of services and other such obligations of the Service Provider covered under this Agreement or any document purporting to engage the professional services of the Service Provider.

1.3.12 **"Service Provider"** means a service provider, consultant or contractor engaged by NECSA to supply goods or works or render services.

1.3.13 **"Service Provider's Intellectual Property/Technology"** means know-how, techniques, concepts, ideas, methods, methodologies, procedures, models, processes, templates; generalised features of the structure, sequence and organisation of software, user interfaces and screen designs; general purpose consulting and software tools, utilities and routines and logic, coherence and methods of operation systems, created or acquired by the Service Provider or where the Service Provider otherwise obtained rights in.

1.4 All terms referred to or defined in the Service Level Agreement shall have the meanings assigned to them therein.

1.5 Any reference to days, months or years shall be a reference to calendar days, months or years as the case may be.

## **2. APPLICATION**

**2.1.** These Terms and Conditions of Contract are applicable to all bids, contracts and orders issued by NECSA to service providers for the supply of goods or works or rendering of services.

**2.2.** Where applicable, Service Level Agreements may be provided to address specific Services. Such SLA shall, by reference therein, incorporate these Terms and Conditions of Contract.

**2.3.** Where there is a conflict between the provisions of such Service Level Agreement and the provisions of these Terms and Conditions of Contract, the Service Level Agreement shall, to the extent of the conflicting provisions, supersede these Terms and Conditions of Contract.

## **3. AGENCY**

This *Agreement* does not constitute either of the *Parties* as the agent of the other for any purposes whatsoever and neither party will be entitled to act on behalf of, or to represent the other unless duly authorised thereto in writing.

## **4. ASSIGNMENT**

Neither *Party* may assign, transfer, subcontract or otherwise part with this *Agreement* or any part thereof or any right or obligation there under, without obtaining the other *Party's* prior written consent thereto.

## **5. SUBCONTRACTING**

In the event of subcontracting any of the work the *Service Provider* shall give preference to Black Empowerment Companies as subcontractors. The *Service Provider* shall notify NECSA in writing of all subcontracts awarded under the *Agreement* if not already specified in the *Bid Documents*. Such notification, in the *Bid Documents* or later, shall not relieve the *Service Provider* from any liability of obligation under the *Agreement*.

## **6. INDEMNITY AND LIMITATION OF LIABILITY**

**6.1.** The *Service Provider* hereby indemnifies NECSA and undertakes to hold NECSA harmless against all loss or damage, from any cause arising, which the *Service Provider* and/or its employees may sustain as a result of the performance of the *Services* under this *Agreement*.

6.2. The *Service Provider* indemnifies NECSA against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the goods, works or rendered services or any part thereof by NECSA.

6.3. The *Service Provider* further indemnifies NECSA against any loss, damage, expenses, legal costs, including attorneys and own client costs, which NECSA may incur as a result of the *Service Provider's* breach of any of the warranties and representations as may have been provided.

6.4. Except in cases of criminal, negligence or wilful misconduct, neither *Party* shall be liable to the other, whether in contract, tort or otherwise, for any indirect or consequential loss or damage in any way arising out of or in connection with this *Agreement*.

## **7. INSURANCE**

7.1. The goods supplied under the contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in the Service Level Agreement.

7.2. Each *Party* hereby accepts its own legal liabilities resulting from its culpable actions and shall ensure that it has sufficient insurance cover to cover its liabilities so arising.

## **8. FEES AND PAYMENT TERMS**

8.1. Subject to the provisions of clause 11 (Penalties), where applicable, NECSA shall pay the *Service Provider Fees* as set out in the Pricing Schedule in the manner specified in the SLA as an Annexure "E" for full and complete performance of the *Services*.

8.2. NECSA shall pay the *Fees* only after the *Services* have been fully performed and completed and the reports/deliverables as per Annexure "B" concerning the performance and completion of such *Services* have been accepted in accordance with the provisions of clause 9 (Reports/Deliverables).

8.3. The *Service Provider* shall submit a monthly statement no later than the last day of the month, along with an original invoice and associated documents, in a format acceptable to NECSA, for the *Fees* due after completion and acceptance of the deliverables.

- 8.4. If the documents mentioned in 8.3 are correct, payments shall be effected within thirty (30) days after date of statement. All payments will be made by NECSA only through electronic bank transfer into a banking account nominated by the *Service Provider*.
- 8.5. Where travel, accommodation and disbursement expenses are not included in the *Fees* and NECSA has agreed to reimburse the *Service Provider* for reasonable expenses incurred, the *Service Provider* shall, in accordance with, and subject to, the provisions of 8.3 submit an invoice for payment of such expenses.
- 8.6. Where deemed necessary, Necsa shall be entitled to a Retention Fee of 10% of the contract value. Such fees will be paid to the Service Provider within three (3) months of receipt of all Goods and/or Services and the issue of a certificate of acceptance.
- 8.7. Should the Service Provider render services and be entitled to labour costs for installation or erection on a recovery basis, a monthly statement shall be provided to Necsa no later than the last day of the month and Necsa will, if the statement is correct, effect payment within thirty (30) days. Should the monthly statement be in error, Necsa will be entitled to make the adjustment at the next payment or on payment of the retention fees.

## **9. REPORTS/DELIVERABLES**

- 9.1. Where the carrying out of the *Services* requires reports to be submitted as deliverables, Interim and final reports in connection therewith must be furnished to NECSA at its *domicillium*, within the stages set out by the *Parties* and attached as a Schedule in the Service Level Agreement.

### **9.2. Acceptance of Reports/Deliverables:**

9.2.1. NECSA shall have a period of seven (7) days (the "Evaluation Period") after furnishing of the Reports/Deliverables, or any part thereof provided in stages in accordance with the agreed to Schedule, to verify that such Reports/Deliverables, or part thereof, conform in all material respects with NECSA requirements.

9.2.2. Should there be a non-conformity with NECSA requirements, NECSA must notify the *Service Provider*, in writing, prior to the expiration of the relevant Evaluation Period that such Reports/Deliverables, or part thereof, fail in any material respect to conform with such specifications (a "Nonconformity"), the *Service Provider* shall, at its expense, promptly correct such

Nonconformity, whereupon NECSA shall receive an additional **seven (7) day period ("the Verification Period")** commencing upon *NECSA's* receipt of the corrected Reports/Deliverables, or part thereof, to verify that the previously reported Nonconformity has been corrected.

9.2.3. NECSA shall provide the *Service Provider* with such assistance as the *Service Provider* may reasonably require to enable the *Service Provider* to verify the existence of, and correct, a reported Nonconformity.

9.2.4. Should NECSA not inform the *Service Provider* of its acceptance of the Report/Deliverables, NECSA agrees that the Reports/Deliverables, or any part thereof, which has been provided to NECSA shall be deemed accepted by NECSA upon the expiration of the Evaluation Period or, in the event that NECSA has notified the *Service Provider* of a Nonconformity as provided above, upon expiration of the relevant Verification Period.

9.2.5. Upon full and final payment to the *Service Provider* of amounts due to the *Service Provider* for fully performed and completed *Services* and accepted Reports/Deliverables, all Reports/Deliverables shall, subject to the provisions of clause 17 (Ownership and Intellectual Property), become the property of NECSA.

## **10. CONTRACT AMENDMENTS**

No variation in or modification of the terms of the contract shall be made except by written amendment signed by the parties concerned.

## **11. PENALTIES**

If the *Service Provider* fails to deliver any or all of the deliverable(s) or to perform the *Services* within the period(s) specified in this *Agreement*, NECSA shall, without prejudice to its other remedies under this *Agreement*, deduct from the *Fees*, as a penalty, a sum calculated in accordance with a formula specified in the Penalty Formula attached hereto as Annexure "D" of the Service Level Agreement, for each day of the delay until actual delivery or performance. NECSA may also consider termination of the contract pursuant to clause 19 (Breach of Agreement).

## **12. IMPOSSIBILITY OF PERFORMANCE**

- 12.1. In the event of a failure or delay in performance by either *Party* arising from a cause beyond its reasonable control or unforeseeable with reasonable foresight at the time of execution of this *Agreement*, such failure or delay shall not be deemed to be a breach of the *Agreement*.
- 12.2. If either *Party* is affected by such failure or delay, it shall give to the other *Party* notice in writing thereof within five (5) days after its existence has manifested. A *Party* shall be entitled to rely on the provisions of clause 12.1 above only if it has given such notice.
- 12.3. Should either *Party*, after having given the notice in clause 12.2, be unable to rectify its impossibility of performance within fourteen (14) days of the occurrence thereof, the other *Party* may cancel this *Agreement* without any further notice.

## **13. PROJECT PLAN AND VARIATION**

- 13.1. The *Services* shall be completed in accordance with the stages/phases set out in the Project Plan and Schedule of Deliverables attached hereto in the SLA as Annexure "B".
- 13.2. If, however, there arises a need to vary and/or add the *Services* and the Project Plan and Schedule of Deliverables as a result of matters, circumstances and/or necessary additional procedures that were not reasonably foreseen at the onset or if there are delays in obtaining the required documentation and there arises a need to vary and/or extend the delivery time frames, either *Party* will notify the other in writing, as soon as they become aware of this fact and the *Parties* shall agree on the variation of the Project Plan and Schedule of Deliverables and, where applicable, *Fees*.

## **14. DELAYS IN THE SERVICE PROVIDER'S PERFORMANCE**

Notwithstanding the provisions of clauses 12 (Impossibility of Performance), 13 (Variation of Project Plan) and 19 (Breach of Agreement), in the event of a delay in the *Service Provider's* performance beyond the essential delivery time period, NECSA shall, without cancelling the *Agreement*, be entitled to obtain the services of another service provider at the *Service Provider's* expense or to cancel the *Agreement* and procure the services of another service provider as may be required to complete the *Agreement* and without prejudice to NECSA's other rights.

## **15. FORCE MAJEURE**

Neither *Party* shall be liable, whether direct or consequential, to fulfil its obligations in terms of this *Agreement* if such failure is caused by any circumstance or event beyond the reasonable control of such *Party* which shall without limitation include any act of God, riot, strike action, civil commotion, war, civil war, public disorder, any form of labour disturbances, acts of terrorism, insurrection, rebellion or revolution and/or any other event or activity beyond their reasonable control.

## **16. CONFIDENTIALITY**

16.1. It is envisaged that pursuant to this *Agreement* information, reports or data and related matter, whether of a confidential or proprietary nature or not, belonging to either *Party* may be disclosed or otherwise become available to the other *Party*. Each *Party* agrees to:

16.1.1. Accept such information, reports or data and related matter in confidence and not to copy, disclose, reproduce or make such information, reports or data and related matter available to any third party, unless authorised thereto in writing by the other *Party*, and

16.1.2. Use such information, reports or data and related matter solely in connection with the performance of its obligations in terms of this *Agreement*, and

16.1.3. Restrict the use of such information, reports or data and related matter exclusively to the purpose directed by the other *Party*.

16.1.4. The *Service Provider* undertakes, upon signing hereof, to ensure that all its Employees or agents (as the case may be) who may be privy to any information, reports, data and related matter, process or any other information whatsoever emanating from this process, are well informed and aware of the contents and legal implications of Section 51 of Nuclear Energy Act, 1999 (Act No. 47 of 1999) and have signed confidentiality agreements to hold *NECSA* information in confidence.

16.2. Use of contract documents and information; inspection:

16.2.1. The *Service Provider* shall not, without *NECSA*'s prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of *NECSA* in connection therewith, to any person other than a person

employed by the Service Provider in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

16.2.2. The Service Provider shall not, without NECSA's prior written consent, make use of any document or information mentioned in the Service Level Agreement except for purposes of performing the contract.

16.2.3. Any document, other than the contract itself shall remain the property of NECSA and shall be returned (all copies) to NECSA on completion of the Service Provider's performance under the contract if so required by NECSA.

16.2.4. NECSA shall permit the Service Provider to inspect NECSA's records relating to the performance of the Service Provider and to have them audited by auditors appointed by NECSA at its own cost, if so required by NECSA.

## **17. OWNERSHIP AND INTELLECTUAL PROPERTY**

17.1. All *NECSA Data* and *Service Provider's Intellectual Property/Technology* and any other intellectual property rights, including but not limited to copyright, in and to the original material supplied by one *Party* to the other *Party* shall vest in the *Party* supplying the material.

17.2. Ownership in all *NECSA Data* belonging to *NECSA*, whether under its control or not, shall continue, to vest in *NECSA*, and the *Service Provider* shall not obtain any proprietary rights in such data. Any improvements to *NECSA Data* resulting from this *Agreement* shall remain the property of *NECSA*.

17.3. Where the *Service Provider* utilizes any of its property including the *Service Provider's Intellectual Property/Technology* in connection with the *Services* provided in terms of this *Agreement*, such property shall remain the property of the *Service Provider* and any improvements to the *Service Provider's Intellectual Property/Technology* resulting from this *Agreement* will remain the property of *Service Provider*.

17.4. The *Service Provider* warrants that no aspect of the *Service Provider's Intellectual Property/Technology* utilised by *NECSA* in terms of this *Agreement* will infringe any patent, design, copyright, trade secret or other proprietary right of any third party

("third party proprietary rights"), and the *Service Provider* shall, at its cost, defend NECSA against any claim that the use of the Deliverables infringe any such third party proprietary rights: Provided that NECSA gives prompt notice to the *Service Provider* of such claim, the *Service Provider* controls the defence thereof and NECSA does not jeopardise the claim in any way.

17.5. To the extent that there are any components of the *Service Provider's Intellectual Property/Technology* included in the Deliverables, the *Service Provider* grants to NECSA , a royalty-free, perpetual, non-exclusive, non-transferable licence to use such *Service Provider's Intellectual Property/Technology* solely in connection with such Deliverables.

17.6. In the event of NECSA requesting the use of any *Service Provider's Intellectual Property/Technology* outside the scope of this *Agreement*, this would be subject to the *Parties* agreeing to a written licence agreement for such use.

## **18. SETTLEMENT OF DISPUTES**

18.1. If any dispute or difference of any kind whatsoever arises between the *Parties* in connection with or arising out of the *Agreement*, the *Parties* shall make every effort to resolve amicably such dispute or difference by mutual consultation. Either *Party* shall in writing notify the other of the dispute, providing the details of the dispute.

18.2. The dispute shall first be referred to the respective project managers of each *Party*, who must use their best endeavours to resolve the dispute within **seven (7) days** of the dispute having been referred to them, or such other time frame agreed between the *Parties*.

18.3. Should the project managers of the *Parties* be unable to resolve the dispute in accordance with the foregoing, the dispute shall be escalated to the respective executive managers/managing directors (or equivalent officers) of the *Parties*, who must use their best endeavours to resolve the dispute within **ten (10) days** of the dispute having been referred to them, or such other time frame agreed between the *Parties*.

18.4. Should it not be possible to settle a dispute by means of mutual consultation, then the *Parties* may exercise their rights afforded to them by law.

## **19. BREACH OF AGREEMENT**

In the event of anyone of the *Parties* ("the Defaulting Party") committing a breach of any of the terms of this *Agreement* and failing to remedy such breach within a period of **seven (7) days** after receipt of a written notice from the other *Party* ("the Aggrieved Party") calling upon the Defaulting Party so to remedy, then the Aggrieved Party shall be entitled, at its sole discretion and without prejudice to any of its other rights in law, either to –

19.1. claim specific performance of the terms and of this *Agreement*; or

19.2. terminate this *Agreement* forthwith and without further notice, to claim and recover damages from the Defaulting Party.

## **20. TERMINATION FOR INSOLVENCY**

Should either *Party* become bankrupt or otherwise insolvent, or commit an act of Insolvency or in the event of any of the following circumstances:

20.1. Either *Party* being placed under judicial management whether provisionally or finally;

20.2. A judgment of any competent court being given against either *Party* which judgement is not satisfied within a period of fourteen (14) days from date of knowledge thereof by either *Party*, or no application to be made to a competent court to rescind such judgement within a period prescribed by the rules of the court:

either *Party* shall have the right without prejudice to any other rights or claims which it may have, to cancel and terminate this *Agreement* without notice.

## **21. NOTICES**

The *Parties* choose the addresses set out in *SLA* as their *domicilium citandi et executandi* for all purposes under this *Agreement*, whether in respect of the service or delivery of court process, notices or other documents or all other communications. The *Parties* also choose the persons named in the *SLA* as their project managers and contact persons for the purpose of this *Agreement*. Any notice to be given or to be made for any purpose under this *Agreement* shall be in writing and shall:

21.1. If delivered to the addressee's physical address, be deemed to have been received when so delivered; or

21.2. If sent by registered post to the addressee's postal address, be deemed to have been received seven (7) days after it has been posted; or

- 21.3. If sent by facsimile, be deemed to have been received on the day on which it was sent; or
- 21.4. If sent by email, be deemed to have been received on transmission on the day on which a document was emailed.
- 21.5. Any of the *Parties* shall be entitled to change its respective *domicilium* and any other address, as the case may be, on fourteen (14) days' notice to the other, provided such address is within the Republic of South Africa.

## **22. NON-SOLICITATION OF PERSONNEL**

- 22.1. The *Parties* agree not to make any offer of employment or to employ any member of either *Party's* personnel working on the basis of this *Agreement*, either during the period of this *Agreement* or for a period of six (6) months after completion of the *Services* in terms of this *Agreement*. The *Parties* also agree not to use either *Party's* personnel as consultants, either independently or via a third party for the same period.
- 22.2. A breach of this condition will render the breaching *Party* liable to pay damages in an amount equal to six (6) month's salary of the relevant member of personnel, provided that such damages shall be calculated in respect of the six (6) month period prior to such member of personnel leaving the employ of non-breaching *Party*. The *Parties* agree that the aforementioned damages are fair, based on the damage the non-breaching *Party* is likely to suffer, and considering the difficulty in calculating the actual damages.

## **23. RELAXATION**

No latitude, extension of time or other indulgence which may be given or allowed by any *Party* to the other *Party* in respect of the performance of any obligation hereunder, and no delay or forbearance in the enforcement of any right of any *Party* arising from this *Agreement*, and no single or partial exercise of any right by any *Party* under this *Agreement*, shall in any circumstances be construed to be an implied consent or election by such *Party* or operate as a waiver or a novation of or otherwise affect any of the *Parties'* rights in terms of or arising from this *Agreement* or stop or preclude any such *Party* from enforcing at any time and without notice, strict and punctual compliance with each and every provision or term hereof.

## **24. VALIDITY AND SEVERABILITY**

24.1. If any provision of this *Agreement* is found or held to be invalid, unlawful, or unenforceable, such terms will be severable from the remaining terms.

24.2. The validity of all the other remaining provisions will not be affected and will continue to be valid and enforceable. If any invalid term is capable of amendment to render it valid, the *Parties* agree to negotiate an amendment to remove the invalidity.

## **25. VARIATION**

No variation of or addition to this *Agreement* will be of any force or effect unless reduced to writing and signed by the *Parties* or their duly authorised representatives.

## **26. WARRANTIES**

26.1. The Service Provider warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The Service Provider further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by NECSA's specifications) or from any act or omission of the Service Provider, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.

26.2. This warranty shall remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise in SLA.

26.3. NECSA shall promptly notify the Service Provider in writing of any claims arising under this warranty.

26.4. Upon receipt of such notice, the Service Provider shall, within the period specified in SLA and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to NECSA.

26.5. If the Service Provider, having been notified, fails to remedy the defect(s) within the period specified in SLA, NECSA may proceed to take such remedial action as may be necessary, at the Service Provider's risk and expense and without prejudice to

any other rights which NECSA may have against the Service Provider under the contract.

## **27. APPLICABLE LAW**

This *Agreement* shall in all respects be governed by and construed in accordance with the Laws of the Republic of South Africa and all disputes, actions and other matters in connection therewith shall be determined in accordance with such law.

## **28. GOVERNING LANGUAGE**

*The contract*, all correspondence and other document pertaining to the *Agreement* that is exchanged by the *Parties* shall be written in English.

## **29. TAXES AND DUTIES**

29.1. A foreign Service Provider shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside NECSA's country.

29.2. A local Service Provider shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to NECSA.

29.3. No contract shall be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid the Department must be in possession of a tax clearance certificate, submitted by the bidder. This certificate must be an original issued by the South African Revenue Services.

SIGNED AT \_\_\_\_\_ ON THIS \_\_\_\_\_ DAY OF \_\_\_\_\_ 20\_\_\_\_.

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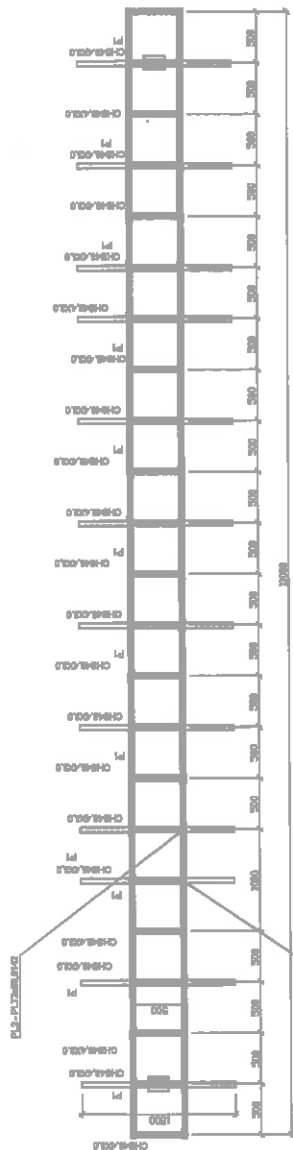
**FOR AND ON BEHALF OF THE SERVICE PROVIDER**

General Notes  
 1. Unobstructed height  
 2. Safety netting  
 3. 20mm mesh

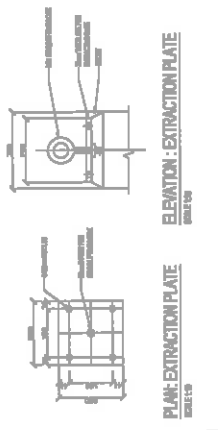
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|        |         |       | REV 03/08 |

**Autodesk**

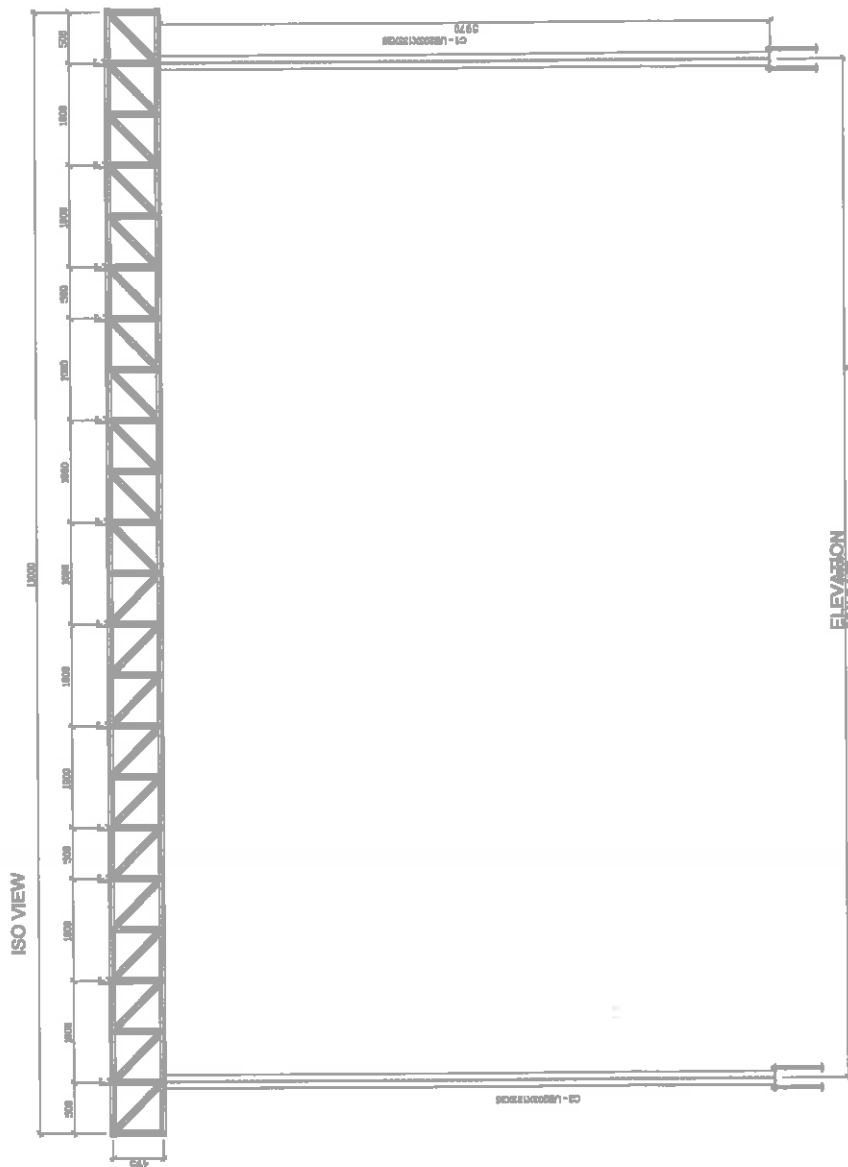
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|-------------|----------------|
| COMP        | NO ENGINEERING |
| PROJECT     | HEXA           |
| COMPANY     | HEXA           |
| PROJECT NO. | HEX-100        |
| DATE        | 10/10/08       |
| BY          | 10/10/08       |
| CHKD        | 10/10/08       |
| APPD        | 10/10/08       |



PLAN VIEW  
SCALE 1:25

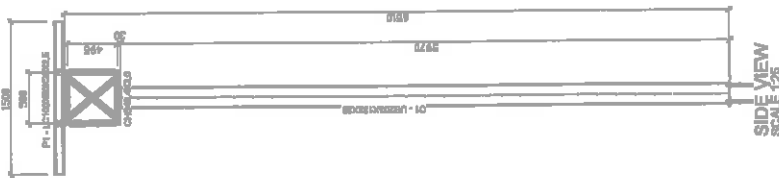


ELEVATION: EXTRACTION PLATE  
SCALE 1:25



ISO VIEW

ELEVATION  
SCALE 1:25



SIDE VIEW  
SCALE 1:25

# NOTES

1. ALL WORK TO BE COMPLETED WITHIN THE SPECIFIED PERIOD OF TIME.
2. ALL MATERIALS TO BE SUPPLIED BY THE CONTRACTOR AND MUST BE OF THE BEST QUALITY AVAILABLE.
3. ALL WORK TO BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND STANDARDS OF THE ENGINEER.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE RELEVANT AUTHORITIES.
5. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AND ROADS AT ALL TIMES.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND STRUCTURES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISPOSAL OF ALL WASTE MATERIALS IN ACCORDANCE WITH THE RELEVANT REGULATIONS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF ALL PERSONNEL AND THE PUBLIC AT ALL TIMES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE ENVIRONMENT AT ALL TIMES.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETION OF ALL WORK WITHIN THE SPECIFIED PERIOD OF TIME.

## CONCRETE

1. ALL CONCRETE TO BE CASTED IN ACCORDANCE WITH THE SPECIFICATIONS AND STANDARDS OF THE ENGINEER.
2. ALL CONCRETE TO BE CASTED IN THE PRESENCE OF THE ENGINEER OR HIS REPRESENTATIVE.
3. ALL CONCRETE TO BE CASTED IN THE PRESENCE OF THE ENGINEER OR HIS REPRESENTATIVE.
4. ALL CONCRETE TO BE CASTED IN THE PRESENCE OF THE ENGINEER OR HIS REPRESENTATIVE.
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9. ALL CONCRETE TO BE CASTED IN THE PRESENCE OF THE ENGINEER OR HIS REPRESENTATIVE.
10. ALL CONCRETE TO BE CASTED IN THE PRESENCE OF THE ENGINEER OR HIS REPRESENTATIVE.

## STEEL

1. ALL STEEL TO BE SUPPLIED BY THE CONTRACTOR AND MUST BE OF THE BEST QUALITY AVAILABLE.
2. ALL STEEL TO BE SUPPLIED BY THE CONTRACTOR AND MUST BE OF THE BEST QUALITY AVAILABLE.
3. ALL STEEL TO BE SUPPLIED BY THE CONTRACTOR AND MUST BE OF THE BEST QUALITY AVAILABLE.
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9. ALL STEEL TO BE SUPPLIED BY THE CONTRACTOR AND MUST BE OF THE BEST QUALITY AVAILABLE.
10. ALL STEEL TO BE SUPPLIED BY THE CONTRACTOR AND MUST BE OF THE BEST QUALITY AVAILABLE.

## PAVING

1. ALL PAVING TO BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND STANDARDS OF THE ENGINEER.
2. ALL PAVING TO BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND STANDARDS OF THE ENGINEER.
3. ALL PAVING TO BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND STANDARDS OF THE ENGINEER.
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9. ALL PAVING TO BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND STANDARDS OF THE ENGINEER.
10. ALL PAVING TO BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND STANDARDS OF THE ENGINEER.

## FOR INFORMATION ARCHITECTS

REFER TO DRAWING NO. 10/10

10/10

NOTE: STRUCTURE TO BE REMOVED FROM LOCATION AFTER SPECIFIED PERIOD AND STORED ON SITE AS DETERMINED BY CLIENT. CONCRETE BASE TO BE REMOVED AND GROUND TO BE MADE GOOD.

ENTIRE GANTRY TO BE HOT-DIP GALVANIZED

**WD**  
Consulting Engineers  
Pty Ltd

Project: NECSA

Ref: 10/10

Drawn: GANTRY LAYOUT AND DETAILS

Scale: 1:10

Check: 10/10

Issue: 10/10

24002 - F - 01 - C - 10

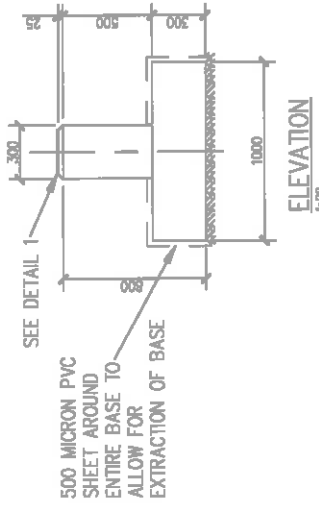
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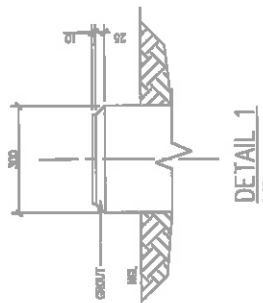
PLAN: BASE  
1:20

## GANTRY FOUNDATION LAYOUT

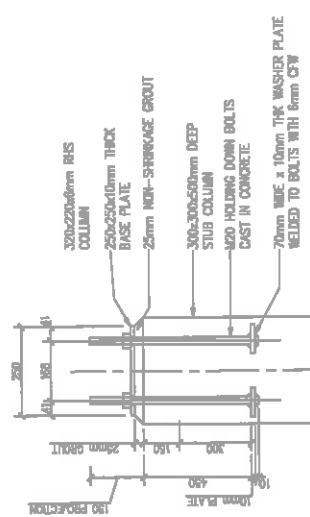
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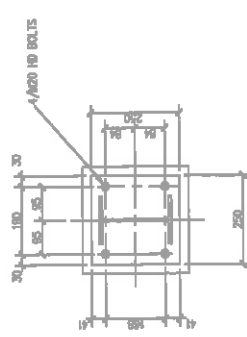
ELEVATION  
1:20



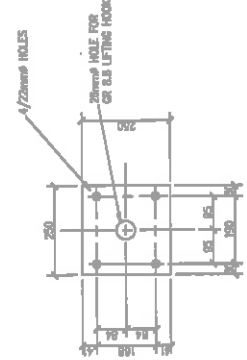
DETAIL 1  
1:10



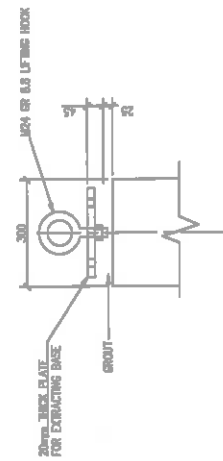
HOLDING DOWN BOLTS DETAIL  
1:10



PLAN BASEPLATE  
1:10

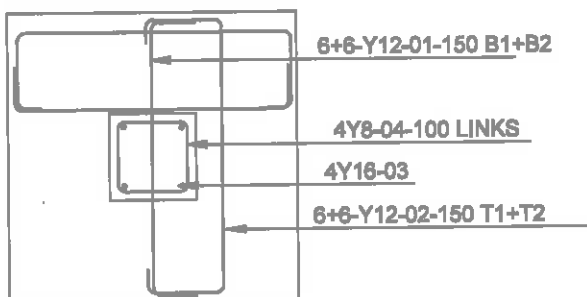


PLAN: EXTRACTION PLATE  
1:10

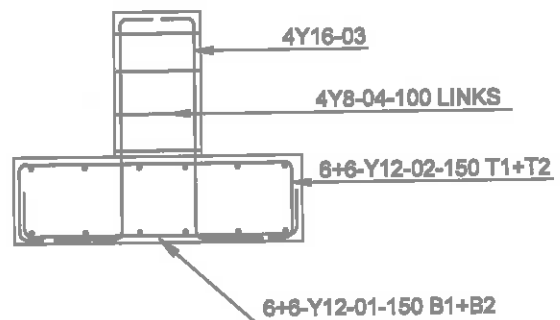


ELEVATION: EXTRACTION PLATE  
1:10

| MEMBER | BAR MARK | DIA | NO OF | NO BARS | CUT LENGTH | TOTAL | SC | A   | B   | C   | D   | E/R | kg |
|--------|----------|-----|-------|---------|------------|-------|----|-----|-----|-----|-----|-----|----|
| BASE   | 01       | Y12 | 2     | 12      | 1200       | 24    | 32 | 900 |     |     |     |     |    |
|        | 02       | Y12 | 2     | 12      | 1450       | 24    | 55 | 150 | 200 | 900 | 200 |     |    |
|        | 03       | Y16 | 2     | 4       | 1150       | 8     | 54 | 300 | 750 |     |     |     |    |
|        | 04       | Y8  | 2     | 4       | 1000       | 8     | 60 | 200 | 200 |     |     |     |    |
|        |          |     |       |         |            |       |    |     |     |     |     |     |    |
|        |          |     |       |         |            |       |    |     |     |     |     |     |    |
|        |          |     |       |         |            |       |    |     |     |     |     |     |    |
|        |          |     |       |         |            |       |    |     |     |     |     |     |    |
|        |          |     |       |         |            |       |    |     |     |     |     |     |    |
|        |          |     |       |         |            |       |    |     |     |     |     |     |    |
|        |          |     |       |         |            |       |    |     |     |     |     |     |    |
|        |          |     |       |         |            |       |    |     |     |     |     |     |    |
|        |          |     |       |         |            |       |    |     |     |     |     |     |    |
|        |          |     |       |         |            |       |    |     |     |     |     |     |    |
|        |          |     |       |         |            |       |    |     |     |     |     |     |    |



PLAN



ELEVATION

|       | 6 | 8 | 10 | 12 | 16 | 20 | 25 | 32 | 40 | TOTAL |
|-------|---|---|----|----|----|----|----|----|----|-------|
| R     |   |   |    |    |    |    |    |    |    |       |
| Y     |   | 3 |    | 57 | 15 |    |    |    |    |       |
| TOTAL |   | 3 |    | 57 | 15 |    |    |    |    | 75    |

STEEL TO COMPLY WITH : SANS 282-2011

STOOLS SIT ON B1 AND SUPPORT T2 LAYER

|                                                                                                                                                                                                                                                              |                                                                                                                                                         |                                                               |                         |                         |     |      |             |                          |                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------------------|-------------------------|-----|------|-------------|--------------------------|---------------------------------------------------------------------------------------|
| <b>ABBREVIATIONS :</b><br>T Top<br>B Bottom<br>B1 1st Lower layer<br>T1 1st Top most Layer<br>T2 2nd layer down<br>B2 2nd layer up<br>EF Each Face - FF Far Face<br>NF Near Face - EW Each Way<br>STG Stagger - ALT Alternate<br>ABR Alternate Bars Reversed | <table border="1"> <tr><td>0</td><td>15/02/22</td><td>ISSUED FOR CONSTRUCTION</td></tr> <tr><td>REV</td><td>DATE</td><td>DESCRIPTION</td></tr> </table> | 0                                                             | 15/02/22                | ISSUED FOR CONSTRUCTION | REV | DATE | DESCRIPTION | <b>PROJECT:</b><br>NECSA |  |
|                                                                                                                                                                                                                                                              | 0                                                                                                                                                       | 15/02/22                                                      | ISSUED FOR CONSTRUCTION |                         |     |      |             |                          |                                                                                       |
|                                                                                                                                                                                                                                                              | REV                                                                                                                                                     | DATE                                                          | DESCRIPTION             |                         |     |      |             |                          |                                                                                       |
|                                                                                                                                                                                                                                                              | <b>MIN. LAP LENGTH = 60 x DIAMETER</b>                                                                                                                  | <b>DRAWING:</b><br>GANTRY BASES<br>REINFORCEMENT - BS         |                         |                         |     |      |             |                          |                                                                                       |
| <b>COVER :</b><br>20mm                                                                                                                                                                                                                                       | <b>CONC. VOL (m³)</b>                                                                                                                                   |                                                               |                         |                         |     |      |             |                          |                                                                                       |
| <b>REFERENCE DRAWING:</b> 908-L1-01-R1                                                                                                                                                                                                                       | <b>DRAWN:</b> SM<br><b>SCALE:</b> N.T.S<br><b>ENG:</b> WD<br><b>DATE:</b> 14-02-22<br><b>APPROVED:</b> WD                                               |                                                               |                         |                         |     |      |             |                          |                                                                                       |
|                                                                                                                                                                                                                                                              |                                                                                                                                                         | <b>JOB No:</b> 240001<br><b>SCH No:</b> BS01<br><b>REV:</b> 0 |                         |                         |     |      |             |                          |                                                                                       |