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|---------|----------------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-0800                    | REV. | 5 | PAGE | 1 | OF | 9 |
| TITLE   | <b>SHEQ APPROVAL OF PROJECTS</b> |      |   |      |   |    |   |

## 1 PURPOSE AND SCOPE

Activities on the Necsa site are subject to a variety of legal requirements. It is essential that all projects (as defined in Appendix B), Necsa's as well as those of private tenants, comply with legislated as well as Necsa's SHEQ and security requirements. Compliance with such requirements is ensured by means of various processes, which culminate in obtaining approval from various bodies/authorities.

The purpose of this document is to describe the procedure to be followed by LD and SHEQD, Managers of facilities and Project Leaders to obtain SHEQ approval, incorporating internal (Necsa) and external legal requirements for the safe execution of projects. This document deals with all the principles, responsibilities and procedures of Necsa's SHEQ Project Approval Process.

This document only covers SHEQ approval requirements and is applicable to all Necsa projects as well as projects of private tenants on the Necsa site. This document does not address the commercial justification and approval of a project.

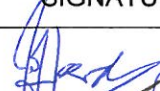
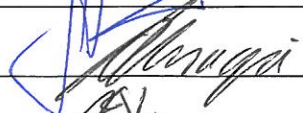
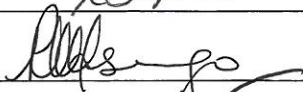
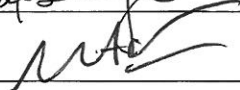
## 2 REFERENCES

### 2.1 This document complies with the requirements of the following:

- National Nuclear Regulator Act (Act 47 of 1999).
- Occupational Health and Safety Act (Act 85 of 1993) and Regulations.
- Environment Conservation Act (Act 73 of 1989) and EIA Regulations – Implementation of sections 21, 22 and 26 of the Act.
- National Environmental Management Act (Act No. 107 of 1998) - EIA Regulations Government Gazette 33306, Government Notice 543, 18 June 2010.
- Hazardous Substances Act (Act No. 15 of 1973).
- Necsa Management Board Resolution numbers 1762 and 1991.

### 2.2 This document refers to or should be read in conjunction with the following documents:

- SHEQ-INS-0801 Facility and Process Description Requirements for Safety Assessment Reports.
- SHEQ-INS-0810 Requirements for Public Participation.

|              | NAME                                                                                             | SIGNATURE                                                                            | DATE       |
|--------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------|
| PREPARED     | J van Heerden<br>CS: LD                                                                          |  | 2011-06-07 |
| CHECKED      | A L Visagie<br>SM: LD                                                                            |  | 2011-06-08 |
| ACCEPTED     | I E Steyn<br>SM: SHEQD                                                                           |  | 13/06/2011 |
| ACCEPTED     | R Masango<br>GE: NC                                                                              |  | 04/07/2011 |
| APPROVED     | R M Adam<br>CEO                                                                                  |  | 06-07-2011 |
| DISTRIBUTION | This document is available on SHAREPOINT – <a href="#">SHEQ SYSTEM DOCUMENTS</a><br>SHEQ Records |                                                                                      |            |

|         |                                  |      |   |      |   |    |   |
|---------|----------------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-0800                    | REV. | 5 | PAGE | 2 | OF | 9 |
| TITLE   | <b>SHEQ APPROVAL OF PROJECTS</b> |      |   |      |   |    |   |

- SHEQ-INS-0811 SHE Categorization of Projects.
- SHEQ-INS-0825 Necsa Requirements for Construction.
- SHEQ-INS-0864 Safety Case Structure and SAR Preparation.
- SHEQ-INS-0865 Hazard Level of a Nuclear, Radiation or Chemical Facility.
- SHEQ-INS-0866 Application of the Defence-in-Depth Principle in Nuclear and Radiation Facilities.
- SHEQ-INS-0875 Periodic Safety Revue of a Nuclear Facility.

### 3 REVISION HISTORY

- Revision 0 – 1997-06-27 - First issue. Major revision. This document supersedes VER 8: Compilation of safety reports and project approval procedure (M Mekisich)
- Revision A – 1998-03-11 – Minor revision. Includes requirement for Safety Evaluation Committee to evaluate the risks of chemical facilities (M Mekisich)
- Revision B – 1999-11-11 – Major revision to include external HSE approval and to streamline/simplify procedure (A C van der Bijl)
- Revision C – 2003/10/28 - This document supersedes RM-VES-0800: SHEQ Approval of Projects, due to a general updating of document and revision to include new legislative requirements, lessee SHEQ project approval requirements and approval structure (J van Heerden)
- Revision D – 2006/08/30 – Document reviewed to address NNR comment received during PBL meeting (2006/07/20), reviewed flow diagrams (Appendix A) and to reflect change in organisation and SHEQ System (A C van der Bijl)
- Revision 5 – Document reviewed as a general review (correct titles of SHEQ System documents referenced, change of responsibilities with regard to the Licensing Department). The diagram in Appendix A was replaced with a simpler one. The document was also revised to be read in conjunction with SHEQ-INS-0811 and items were included so that SHEQ-INS-0823 could be considered redundant. (J van Heerden)

### 4 DEFINITIONS AND ABBREVIATIONS

The definitions and abbreviations are included in Appendix B.

### 5 PRINCIPLES FOR THE SHEQ APPROVAL OF PROJECTS

The general methodology of the SHEQ approval of projects is based on the total Safety Case approach to projects. The organisational aspects of the SHEQ Approval of Projects will be the responsibility of the Licensing Department. The project approval process is applicable to any phase or combination of project phases.

Project phases include:

- Project Management & Administration
- Conceptual Design
- Environmental Impact Assessment (EIA) Process phase
- Siting phase
- Basic Design phase
- Procurement phase
- Construction phase
- Cold Commissioning phase
- Hot Commissioning phase
- Operational (and change in operations) phase
- Decommissioning phase

|         |                                  |      |   |      |   |    |   |
|---------|----------------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-0800                    | REV. | 5 | PAGE | 3 | OF | 9 |
| TITLE   | <b>SHEQ APPROVAL OF PROJECTS</b> |      |   |      |   |    |   |

These phases form the framework for the requirements listed in SHEQ-CHL-0800. With this as basis, the following principles shall be adhered to:

- All category 2 and 3 projects on the Necsa site shall be subjected to SHEQ approval.
- Projects shall be categorized according to the criteria in SHEQ-INS-0811 and the route for SHEQ approval determined as indicated in Appendix A.
- The SHEQ approval requirements for a specific project shall be established at an early stage of the project, during the initial meeting (the so-called INS-0800 Meeting), when the requirements checklist will be completed. The checklist (SHEQ-CHL-0800) shall serve as a Project Approval Strategy to obtain the necessary approvals. The documents identified in the checklist constitute the project's Safety Case.
- An external approval process (as applicable) shall be followed to the extent required by the relevant external authorities.
- SHEQ approval actions should be considered in project scheduling, taking a phased approval as well as hold point requirements into consideration.

## 6 RESPONSIBILITIES

| No. | Responsible Person(s)         | Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.1 | The Licensing Department (LD) | <p>The Senior Manager: LD shall:</p> <ol style="list-style-type: none"> <li>Appoint competent persons (SQEPs) for initiating and conducting the SHEQ Project Approval Process.</li> <li>Approve the compiled checklists (SHEQ-CHL-0800) prior to acceptance by the Project Leader.</li> <li>Approve the checklist after compliance and signing off of all requirements. This approval will serve as a recommendation if the SC is involved in the approval process.</li> </ol> <p>The Licensing Department shall have the following responsibilities:</p> <ol style="list-style-type: none"> <li>To manage the SHEQ Project Approval Process as illustrated in Appendix A.</li> <li>To establish and maintain contact, and liaison on behalf of Necsa, with the relevant external authorities as appropriate.</li> <li>To determine the extent of the applicability of the SHEQ Project Approval Process to projects.</li> <li>Perform Safety Assessments and Analyses as required.</li> <li>To evaluate compliance with the project SHEQ requirements as specified in the accepted project-specific checklist SHEQ-CHL-0800.</li> <li>To verify the quality (from a SHEQ perspective) of the relevant supporting documents before signing off on the checklist (SHEQ-CHL-0800).</li> <li>To ensure close-out of conditional approval.</li> <li>To manage concessions granted for specific projects.</li> </ol> |
| 6.2 | The SHEQ Department (SHEQD)   | <p>The SHEQ Department shall have the following responsibilities:</p> <ol style="list-style-type: none"> <li>To perform audits and inspections (Quality and Safety Support Group) at identified hold points (as reflected in SHEQ-CHL-0800) to verify compliance with requirements for continuation of the next phase of a project.</li> <li>To establish and maintain contact, and liaison on behalf of Necsa, with the relevant external authorities as appropriate.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

|         |               |                           |   |      |   |    |   |
|---------|---------------|---------------------------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-0800 | REV.                      | 5 | PAGE | 4 | OF | 9 |
| TITLE   |               | SHEQ APPROVAL OF PROJECTS |   |      |   |    |   |

| No. | Responsible Person(s)       | Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.3 | Line Management of Facility | <p>Line Management shall have the following responsibilities:</p> <ul style="list-style-type: none"> <li>(a) To appoint a SQEP as Project Leader that will coordinate all SHEQ related issues of the project.</li> <li>(b) To contact the LD as soon as a category 2 or 3 project is planned so that the SHEQ Project Approval Process can be initiated.</li> <li>(c) To refer concession applications with regard to the SHEQ project approval requirements to the LD or the Facility Safety Committee (where applicable) for evaluation and approval.</li> <li>(d) To ensure continued compliance with all SHEQ requirements.</li> <li>(e) To ensure that a properly constituted SC is established and maintained in accordance with the NIL.</li> <li>(f) Accepted project-specific checklist SHEQ-CHL-0800 for the project.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                         |
| 6.4 | The Project Leader          | <p>The Project Leader shall have the following responsibilities:</p> <ul style="list-style-type: none"> <li>(a) To consider SHEQ requirements at the planning stage of a project.</li> <li>(b) The LD is to be contacted for ratification of the category of a project.</li> <li>(c) To liaise with the facility SC in accordance with the procedure set out in Appendix A.</li> <li>(d) To request an INS-0800 meeting from the LD.</li> <li>(e) To ensure that the appropriate approvals are obtained and that the checklist is signed off.</li> <li>(f) To obtain SHEQ approval for a project according to all the requirements as defined in this document, illustrated in Appendix A and identified in the project specific checklist.</li> <li>(g) To compile the project's Safety Case that will consist of the signed-off checklist as well as all the supporting documents listed in the project-specific checklist.</li> <li>(h) To prepare and submit all SHEQ documents to the members of the Safety Committee if SC approval was indicated during the INS-0800 meeting.</li> <li>(i) To ensure that the LD is provided with hard as well as electronic copies of the Safety Case File, including the signed off checklist.</li> </ul> |
| 6.5 | Property Management         | <p>Property Management shall ensure that:</p> <ul style="list-style-type: none"> <li>(a) All private tenants are familiarized with the SHEQ project approval requirements as specified in this document.</li> <li>(b) The Lease Contract refers to the obligations of the tenant to comply with Necsa's SHEQ project approval requirements contained in this document.</li> <li>(c) The SHEQD is notified of contract applications as well as contract renewals for evaluation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

DOC NO. SHEQ-INS-0800 REV. 5 PAGE 5 OF 9

TITLE **SHEQ APPROVAL OF PROJECTS**

| No. | Responsible Person(s)     | Responsibilities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.6 | The Safety Committee (SC) | <p>(a) The SC needs to be established in accordance with the requirements of the Nuclear Installation Licence, which includes (but are not limited to) matters referred to the SC, such as:</p> <ul style="list-style-type: none"> <li>(i) All matters required by the NIL.</li> <li>(ii) All safety policies and procedures, processes or documents required by the NIL.</li> <li>(iii) Any on or off site safety matter.</li> </ul> <p>(b) The terms of reference of the SC needs to be submitted to the NNR.</p> <p>(c) The members of the SC need to be SQEPs.</p> <p>(d) The SC shall be responsible to handle a project referred to it as indicated in the diagram in Appendix A and based on identified documents of the Safety Case.</p> <p>(e) The SC shall recommend approval (including conditions of approval, if any) for the project in accordance with the procedure in Appendix A.</p> <p>(f) Verify/rectify the SCC, quality and project classification.</p> |

## 7 PROCESS FOR THE SHEQ APPROVAL OF PROJECTS

The process for obtaining SHEQ approval is set out in Appendix A. The Project Leader or the private tenant shall follow this process in collaboration with the Licensing Department. When a lease contract is to be renewed, an evaluation will be performed by the SHEQD on the status with regard to SHEQ matters and a new SHEQ Project Approval Process may be initiated.

Projects shall be approved internally in accordance with the project category as described in SHEQ-INS-0811 and as indicated in Appendix A.

## 8 LOCAL COMMUNITY AND OTHER INTERESTED AND AFFECTED PARTIES

Nuclear, Environmental as well as other legislation require public participation. The Public Participation Process is covered in SHEQ-INS-0810 (as applicable). The environmental approval of a project is issued by means of an RoD.

For new facilities or new activities that require NNR licensing, public participation to the extent decided by the NNR Board of Directors will also be required. The NNR public hearing process is covered in SHEQ-INS-0810. The NNR approval of a project is issued in the form of a nuclear authorisation or a letter of approval.

The Department of Labour only requires notification to the Department and the public.

## 9 THE SAFETY COMMITTEE (SC)

The Nuclear Installation License of a facility requires the implementation of a Safety Committee (Section 16). The SC evaluates the SHEQ aspects of projects based on the set of documents required by the SC as well as verification of compliance with the SHEQ requirements as identified in the checklist.

**BBS****BEHAVIOURAL  
BASED SAFETY  
REDUCES AT-RISK  
BEHAVIOURS**

# SHEQ SYSTEM



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|         |               |      |   |      |   |    |   |
|---------|---------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-0800 | REV. | 5 | PAGE | 6 | OF | 9 |
|---------|---------------|------|---|------|---|----|---|

|       |                                  |
|-------|----------------------------------|
| TITLE | <b>SHEQ APPROVAL OF PROJECTS</b> |
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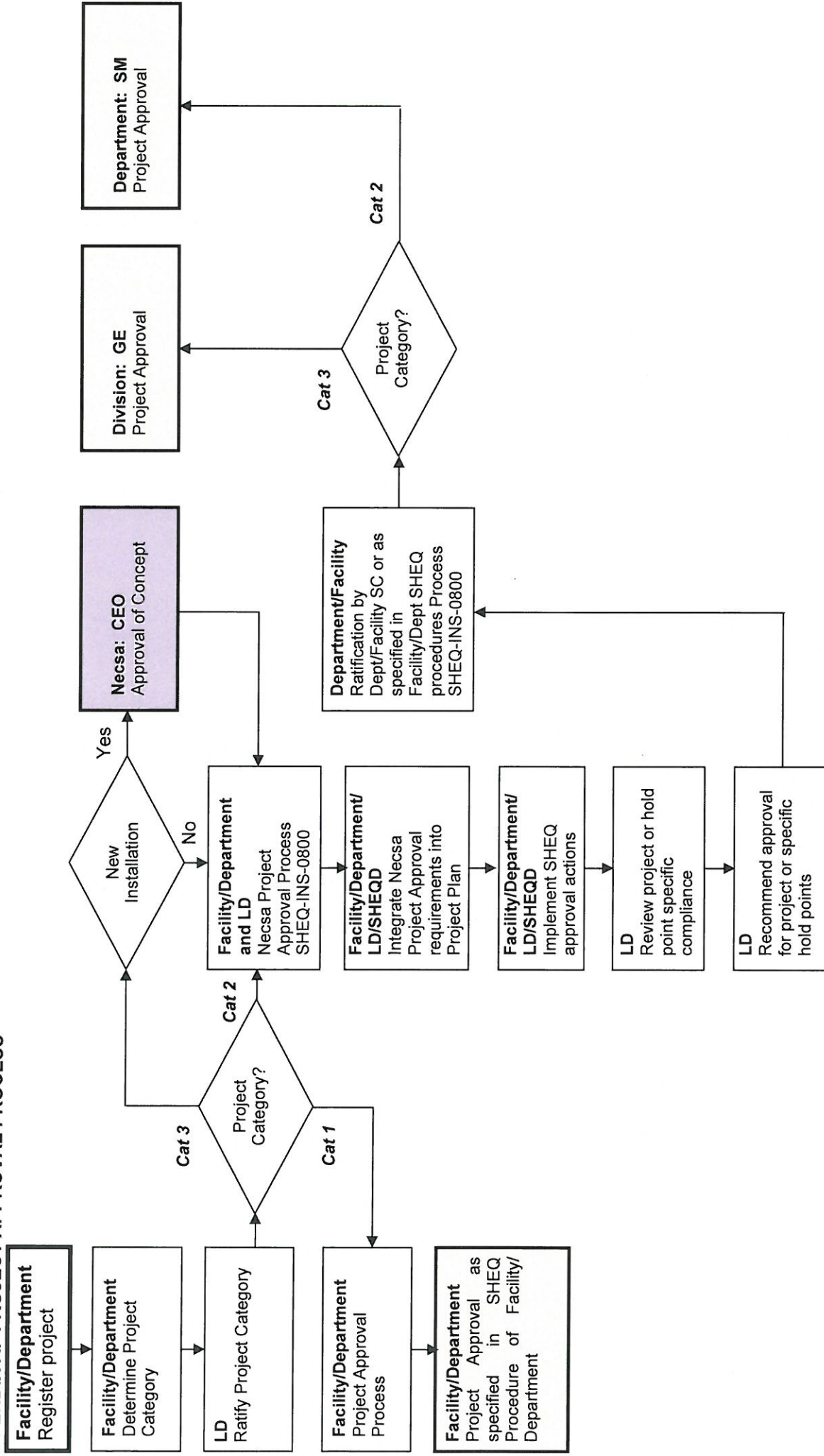
## 10 RECORDS

The following records shall be kept:

| DESCRIPTION                                                                                                      | PERIOD    | BY WHOM                                    |
|------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------------------|
| Project Safety Case (i.e. all documents identified in the checklist, including a copy of the approved checklist) | Unlimited | Licensing Department<br>Document Custodian |

## SHEQ APPROVAL OF PROJECTS

### APPENDIX A: PROJECT APPROVAL PROCESS



|         |                           |      |   |      |   |    |   |
|---------|---------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-0800             | REV. | 5 | PAGE | 8 | OF | 9 |
| TITLE   | SHEQ APPROVAL OF PROJECTS |      |   |      |   |    |   |

## APPENDIX B: SHEQ APPROVAL OF PROJECTS – DEFINITIONS AND ABBREVIATIONS

| ABBREVIATION OR TERM | DEFINITION                                                                                                                                                                                                                                                                                                 |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BAR                  | - Basic Environmental Assessment.                                                                                                                                                                                                                                                                          |
| DEA                  | - Department of Environmental Affairs.                                                                                                                                                                                                                                                                     |
| EAP                  | - Environmental Assessment Practitioner.                                                                                                                                                                                                                                                                   |
| EIA                  | - Environmental Impact Assessment.                                                                                                                                                                                                                                                                         |
| EIR                  | - Environmental Impact Assessment Report.                                                                                                                                                                                                                                                                  |
| External Approval    | - Approval from local, provincial and National Government Authorities as applicable, including the relevant public scoping.                                                                                                                                                                                |
| Facility:            | - The preferred term in nuclear authorisations for an assembly, installation, plant, or part thereof, treated as a unit for purposes of authorisation. For the sake of simplicity, this term is also used for other (e.g. chemical) plants or installations.                                               |
| - Experimental       | - A facility in which design and operation are allowed to be varied for experimental purposes, often leading up to the design of a Full Scale Facility.                                                                                                                                                    |
| - Full Scale         | - A facility that is not intended to be the precursor of a larger facility.                                                                                                                                                                                                                                |
| - Pilot              | - A facility (i) in a demonstration phase to demonstrate the feasibility of, or establish the scaling factors for a full-scale facility; and (ii) with intermittent production; and (iii) with a maximum design production rate of e.g. less than several hundred tonnes per annum (Guideline definition). |
| GE                   | - Group Executive.                                                                                                                                                                                                                                                                                         |
| Hazard               | - A detrimental effect/threat that has the potential for causing harm to people, property and the environment.                                                                                                                                                                                             |
| Hazardous Material   | - Nuclear hazardous and other hazardous materials. Any toxic, harmful, corrosive, explosive, irritant or asphyxiate substance, or a mixture of such substances.                                                                                                                                            |
| HAZOP                | - Hazard and Operability Study.                                                                                                                                                                                                                                                                            |
| HCS                  | - Hazardous Chemical Substances.                                                                                                                                                                                                                                                                           |
| LD                   | - Licensing Department.                                                                                                                                                                                                                                                                                    |
| SHEQ                 | - Safety, Health, Environment and Quality. ('Safety' may include the other terms).                                                                                                                                                                                                                         |
| SHEQD                | - SHEQ Department.                                                                                                                                                                                                                                                                                         |
| Modification         | - A change to the design specifications, facility change or extension to an existing facility that may have an impact on the approved safety, health or environmental design criteria.                                                                                                                     |
| Necsa                | - South African Nuclear Energy Corporation.                                                                                                                                                                                                                                                                |
| NIL                  | - Nuclear Installation Licence.                                                                                                                                                                                                                                                                            |
| NNR                  | - National Nuclear Regulator.                                                                                                                                                                                                                                                                              |



# SHEQ SYSTEM



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|         |                           |      |   |      |   |    |   |
|---------|---------------------------|------|---|------|---|----|---|
| DOC NO. | SHEQ-INS-0800             | REV. | 5 | PAGE | 9 | OF | 9 |
| TITLE   | SHEQ APPROVAL OF PROJECTS |      |   |      |   |    |   |

## ABBREVIATION OR TERM

## DEFINITION

Project

- A planned enterprise for establishing a new facility or process, modifying an existing facility or process, reassessing the risk of an existing facility, comprehensive maintenance or the decommissioning of an existing facility. The definition of a project includes:
  - All or any phase as described in Part 5;
  - Laboratory or pilot-scale projects (to develop technology/products outside existing approved operation and safety reports, work procedures etc).
  - Modification of an existing plant, equipment and projects which may have a SHEQ impact or where licensing or statutory requirements demand formal handling as a project;
  - Construction projects and excavations (new, alterations or extensions);
  - Comprehensive maintenance jobs which may have a SHEQ impact or where licensing or statutory requirements demand formal handling as a project;
  - Stopping operation for extended periods, "mothballing", decommissioning of plants/equipment/processes.

The following projects are specifically included in Schedule 1 of the Environmental Conservation Act (only aspects related to activities on the Pelindaba sites are noted):

Item 1 - The construction or upgrading of:

- (b) Nuclear Reactors and installations for the production, enrichment, reprocessing and disposal of nuclear fuels and wastes;
- (c) Transportation routes and structures, and manufacturing, storage, handling or processing facilities for any substance which is dangerous or hazardous and is controlled by legislation;
- (n) Sewage treatment plants and associated infrastructure;

Item 8 - The disposal of waste in terms of section 20 of the Act.

Item 9 - Scheduled processes listed in the second schedule of the Atmospheric Pollution Prevention Act (Act 45 of 1965).

As can be seen, the definition of a project is very extensive. It is not possible to provide guidelines that are more exact. Therefore, whenever any planned activity will be outside the scope of normal operation and maintenance (e.g. outside authorisation or permit conditions) line management or project leaders should approach the SHEQ Department to determine whether the procedures set out in this document are applicable.

RoD

- Record of Decision (from environmental authorities).

Safety Case

- A collection of arguments and evidence to demonstrate the safety of a facility or activity. The Safety Case consists of all the documents identified in the checklist (SHEQ-CHL-0800).

SC

- Facility Safety Committee (which, for INS-0800 purposes shall include representation from the LD).

SQEP

- Suitably Qualified and Experienced Person.