

## **1.0 Introduction**

At the end of the life of a facility, there is need for decommissioning and restoration of the site to a safe condition that minimizes potential residual environmental impact and permits re –instatement of activities. Decommissioning is however the strategic approach to deactivating a project or facility from service.

The nature of a facility process(s), operational practices and waste management system employed during the facility’s operation may result in contamination of the environmental media within and around the facility. Site decommissioning involves but is not limited to engineering and safety practices. When decommissioning a site, the process of closing, dismantling, remediation of contamination, reclamation, evaluation and decision-making is in consideration to human health and safety, potential (negative) effects on the environment and ensuring compliance with all environmental stated laws and regulations.

The Federal Ministry of Environment, being the apex environmental regulatory authority, have developed this guideline to guide facility owners on the appropriate processes to follow for successful decommissioning of a facility and rehabilitation of the surrounding environment.

## **1.2 Purpose for the guideline**

The purpose of this guideline is to provide clear directions and guidance on the step by step process involved in decommissioning a facility in Nigeria. The guideline is to aid in achieving an effective and environmentally sustainable decommissioning process that shall be compatible with intended future land use on health concerns and environmental impacts.

## **1.3 Objectives of this guideline**

The objectives of this guideline are to:

- i. Ensure that proper closure and decommissioning principles and processes are followed;
- ii. Develop a comprehensive framework for assessing the applicability of decommissioning and reclamation plans.

- iii. Render assistance to industries in planning and implementing safe and environmental friendly decommissioning procedures/plan.
- iv. Establish safety requirements for all aspects of decommissioning, from the siting and design, of a facility to the termination of the authorization for decommissioning.

#### **1.4 Reasons for decommissioning a facility**

- i. In the case of facility development life cycle, a facility may lose funding and be terminated which instigates decommissioning
- ii. Availability of modern facilities with lesser running expenses and state of the art design.
- iii. Economic consideration with increasing pressure of urban encroachment on industrial lands may result in the closure of industrial facilities and the selling of the land for re use.

#### **1.5 Who executes the decommissioning process?**

The proponent/ facility owner with his structured team executes the decommissioning process under the supervision of the decommissioning team from the Federal Ministry of Environment.

#### **2.0 Decommission Planning**

A decommission plan shall be developed in consideration with the Ministry's stated guidelines in relation to environmental sustainability. The proponent shall begin the planning for decommission from the design stage of the facility and shall continue throughout the lifetime of the facility. The planning shall include;

- i. preparation of an initial decommissioning plan,
- ii. collection of relevant information and data to facilitate future decommissioning,
- iii. selection of a decommissioning strategy,
- iv. characterization of the facility,
- v. preparation of a final decommissioning plan,
- vi. estimation of costs,
- vii. identification of the provision of financial resources for the decommissioning project,
- viii. submission of the plan to the regulatory body for review and approval,
- ix. public consultation in accordance with national requirements, and

- x. consideration of clean up, removal and disposal of materials.

### **3.0 Decommissioning Options**

Decommissioning projects/facility options suitable for the proponent shall be stated in the decommissioning plan. The options include:

1. Project/ Facility mothballing - the termination of a facility with the intention to maintain building structures, and machineries in state suitable for re-use upon re-activation by which access to the industrial site shall be monitored and controlled by government agencies to ensure compliance with applicable regulations while rehabilitating and treating contamination at the site.
2. Partial facility decommissioning - This shall be applicable if a part/section of the facility is to be shut down or when the facility is very large and complex. Partial decommissioning shall also be used for complete decommissioning if the environmental and financial cost of complete decommissioning is too high.
3. Complete site decommissioning - Complete facility decommissioning of a facility is the total closure of an industrial site. It involves the application of all the principles and regulations necessary to protect human health and safety, and minimize environmental hazards.

### **4.0 Basic Requirements for Decommissioning**

Decommissioning requirements expected of facilities is to provide acceptable standards required for eliminating environmental and health hazards during decommissioning and site clean-up. These requirements are applicable to development of decommissioning plan in line with regulatory authorities' framework on human health and environmental safety. It includes;

- i. removal of structures on or beneath the ground,
- ii. disposal or secure isolation and/or treatment of contaminated equipment in-situ or off-site,
- iii. remediation of aesthetics (back-fillings, stained soil removal, waste disposals, etc.) and containment control of contaminant and general site clean-up.
- iv. access controls for physical structures remaining on- site that are unsafe or hazardous to humans or animals

- v. remediation of aesthetically unacceptable portions of the site (filling of pits, removal of stained soil and odourous material, levelling of mounds, disposal of waste rock) etc.
- vi. clean-up of the site to a level which will provide long-term environmental protection and will be safe for the intended future use
- vii. registration on title to the property of any contaminants, wastes or structures left on site that restricts future land use or that require periodic monitoring to ensure continued integrity
- viii. submission to the applicable regulatory agency and other required jurisdictions of a report confirming that decommissioning and clean-up has been completed

Some specific requirements and considerations include but are not limited to:

#### **4.1 Facility/Infrastructure Rehabilitation**

- i. Consultation shall be made with Local and State Government to determine whether they could be useful if left in place. In this instance, the transfer of the responsibility of maintaining such facility shall be considered to avoid any conflicts between interested parties.
- ii. Consideration shall be made on the feasibility of transferring other fixed assets with beneficial re-use to third parties.
- iii. Where practical; safe and useful options exist, which are agreed to by the parties, formal transfer of responsibility (for maintenance and legal compliance) of specifically defined remaining infrastructure and equipment to identified third parties.
- iv. The proponent shall obtain the express approval of the relevant regulatory authorities and potentially affected landowners before a decision is made to leave any equipment on site for third party use. Provision shall be made to ensure that this infrastructure or equipment does not pose a safety hazard.
- v. Prepare specific options analysis for the final decommissioning of the facilities.

#### **4.2 Recycling and Reuse:**

- i. Identify suitable recycling and disposal options for the equipment and materials that are dismantled, in line with best management principles of the waste hierarchy.
- ii. Recycling and reuse of materials is to be maximised to the greatest extent possible, subject to safety and pollution considerations.
- iii. Maintain a detailed record of all suitable recycling materials,

- iv. Much reasonable practical, and subject to considerations about safety and pollution, provide host community with first choice concerning acquisition of recyclable or reusable infrastructure, non – polluting waste (such as wood), parts and equipment.

#### **4.3 Contaminated land management and waste disposal**

It shall be necessary to adopt standard management practice for the remediation and appropriate waste disposal. These shall include but not limited to the following:

- i. An assessment report which identifies all areas of contaminated land, the nature of the contamination and the necessary measures to contain and remediate these plans shall be carefully carried out.
- ii. Specifications shall include bioremediation where feasible or other measures to remediate the area in accordance with Nigerian legislation and good industrial practice, as well as the removal of hazardous waste
- iii. Appropriate disposal of liquid and solid waste i.e. wastewater, gabbages, metals and glass shall be in accordance with Nigeria legal standards and other appropriate standards and guidelines applicable at the time.
- iv. Prepare an inventory of all hazardous materials and wastes to be disposed of and specify the method of disposal in accordance with the FMEnv,
- v. Evacuation of demolition waste by appropriate authorised waste management personnel.

#### **4.4 Re-contouring, Reinstatement and Rehabilitation:**

Specialists shall be commissioned to assist with removal of all project infrastructures, de-compaction of soil, re-vegetation and the management of likely environmental impact, the following shall be ensured;

- i. All other channels and drains shall be restructured into smooth slopes and integrated into the natural drainage pattern.
- ii. Contour banks and energy dissipating structures shall be necessary to protect disturbed areas from erosion prior to stabilisation.
- iii. Re-vegetation shall be promoted through the encouragement of the natural process of secondary succession.
- iv. All alien and/or exotic vegetation should be removed.
- v. Seeding programme shall be employed only where necessary, and as agreed with the re-vegetation specialist. Strategies to be employed shall be based on natural re-seeding as the most effective means of rehabilitation, acceptable cover from which typically occur over two rainy seasons.

#### **4.5 Socio-Economic Considerations:**

The final decommissioning and remediation plan shall consider the potential effects resulting from the project decommissioning and identify measures to minimise these as far as practically and economically possible.

Much of the work necessary to manage these impacts must be done during the operational life of the project.

The proponent shall work closely with the local communities to reduce the negative impacts associated with termination of employment at the end of the operational phase by;

- i. Ensuring that employees are fully informed about decommissioning and how it will affect them well before the project finally closes.
- ii. Building community capacity to manage opportunities and impacts arising from the decommissioning and post-decommissioning phase of the project;
- iii. Providing training to build local skills tailored to project decommissioning and post-decommissioning activities (equipment dismantling, rehabilitation activities, monitoring etc.). This will promote local communities (local labour) benefits from some employment opportunities created during decommissioning and post decommissioning phases.
- iv. Providing training to transfer project-learned skills to alternative and secondary industries tailored to respond to market economy.

#### **5.0 The Decommissioning Process**

When the life cycle of a facility has been exhausted, the proponent shall consider decommissioning the facility. They are key steps of the decommissioning process to adhere to before the approval of the destruction of a facility. The key steps proponents and relevant participatory bodies shall adhere to are:

##### **5.1 Notice of intent**

The proponent shall develop a notice of intent and submit to the Federal Ministry of Environment informing the FMEnv of his intention to decommission. The notification shall be submitted prior to obtaining a facility disposal form.

## **5.2 Acquisition of Project Disposal Form**

The proponent shall acquire a “project disposal form” from FMEnv as a means of registration and proper documentation at the ministry upon the payment of certain prescribed fees. The disposal form shall contain but not limited to:

- i. General information of the licensee
- ii. Facility location, company name, license number, expiration etc.
- iii. Inventory of samples collected

## **5.3 Submission of the project disposal form**

After filling out the disposal form appropriately, the proponent shall submit the form back to the ministry with the relevant requested documents.

## **5.4 Decommissioning Team Setup**

The proponent shall be required to set up a decommission team that entails but is not limited to:

- i. scrutiny members – reviews plan and changes to policies of decommissioning activities.
- ii. governance board – determines appropriate decision-making process, approves decommissioning recommendations and leads stakeholder engagement and communications.
- iii. head of projects/ project manager - A senior level individual to lead the decommissioning process and development of strategy.
- iv. lead officer - manages the operational decommissioning process and implements stakeholder engagement and communications plan.
- v. category manager - Managers for different categories; Facilities Management , Health ,Planning and Environment etc.

Individuals who are experienced in assessing and analyzing contaminant problems as well as specialists familiar with the operations of the industrial sector shall be on the proponent team. The required field expertise includes but not limited to:

- i. contaminant hydrogeology and geology
- ii. air pollution control
- iii. environmental engineering and waste management
- iv. geotechnical and civil engineering
- v. soil science
- vi. organic and analytical chemistry

- vii. instrumentation and control technology
- viii. occupational health ,safety and industrial hygiene
- ix. aquatic and terrestrial biology

The Ministry shall also set up a decommission committee for the purpose of monitoring the decommissioning process.

## **5.5 Decommission Phase Task Descriptions**

A detailed task that shall be carried out by the licensee and their team before the development of a decommission plan includes:

1. Stakeholders input – the team shall communicate with the stakeholder groups and seek to identify any technical interdependencies that may need to be addressed.
2. Develop Retirement Approach - The team shall determine the scope of the retirement efforts and establish an approach for decommissioning as well as a detailed schedule of tasks.
3. Communicate Decision to Stakeholders – The team shall draft an initial report for distribution to the stakeholder community notifying them of the decision to terminate the facility. If different potential audiences are likely to have different priorities with regard to the facility retirement, the communication shall be customized to address the unique sensitivities of the different audiences. The communication is reviewed and approved by appropriate management (including the facility owner) before it is sent out. At a minimum, the contents of this initial communication shall include:
  - i. The rationale for disposing of the facility.
  - ii. The plan for transitioning equipments that will be retained and
  - iii. The tentative timeline for disposition.
4. Prepare Decommissioning Plan – The team shall use the guidelines laid out in the decommission Plan i.e. template, checklist, and instructions to develop a draft of the decommissioning plan that shall address how the various components of the facility will be handled at the completion of operations. The plan shall also note any provisions for future access to the facilities components particularly the data. The plan is forwarded to appropriate management personnel and stakeholders for review and approval.
5. Communicate Schedule to Stakeholders – The team shall prepare another report that is customized to address the different stakeholder audiences. The purpose is to communicate the details of the plan. At a minimum, it shall include the planned



schedule for the facility decommissioning and any known outages that will occur during the disposition.

## **5.6 Decommissioning Plan**

The proponent and his commissioned team shall develop a decommission plan that overviews of all the activities and shall state how appropriately the process can be completed with existing technology in a manner that ensures the protection and safety of workers and the general public, the environment (restoration of land and water) and the management of excess materials and waste and its consistency with regulatory requirements. A template/ checklist shall be used in documenting these activities (see Annex A). This plan shall also provide basis for the estimated cost of the decommissioning process. The plan shall include:

- i. A description of the site and the structures, systems and components (SSCs) to be decommissioned;
- ii. A description of the decommissioning scope, objective, end state and strategy.
- iii. A description of the activities to be performed during the decommissioning;
- iv. A schedule for decommissioning activities;
- v. An estimate of the decommissioning cost;
- vi. A discussion of the human factor considerations involved in the decommissioning;
- vii. An estimated inventory of the hazardous and radioactive wastes that will be generated during decommissioning;
- viii. An assessment of the potential environmental impacts of decommissioning;
- ix. An assessment of the radiological, chemical and industrial safety hazards involved in the decommissioning;
- x. A brief discussion of administrative aspects of the decommissioning such as quality assurance, documentation and records; and
- xi. A commitment to periodically review and, if necessary update the plan.

### **5.6.1 Decommissioning approach phases**

The following approach phases of decommissioning shall be properly stated by the proponent in the plan. They are:

### **5.6.1.1 Site Information Assessment (Phase 1)**

This is the process of selecting and evaluating decommissioning alternatives for the facility. There shall be site inspection by the Ministry (FMEnv). The proponent shall compile all data to be reviewed which includes:

- i. information gathered for transition, deactivation and removal of facility/ project.
- ii. site evaluation information;
- iii. review of facility history;
- iv. preliminary hazard characterization information
- v. the project scoping document or preliminary project plan; and
- vi. Regulatory agency concerns etc.

### **5.6.1.2 Reconnaissance Survey (Phase 2)**

The proponent shall carry out an extensive study of the entire area of the project to be decommissioned by:

- i. Identifying the types, range and general locations of contaminants problem.
- ii. Elucidating soil, geological, hydro-geologic and hydrological conditions of the site and surrounding areas
- iii. Determining background concentrations of chemical contaminants in all the medias (soil, subsurface materials, surface water, ground water and air)
- iv. Investigating structures on site which due to their physical dimensions cannot be removed but require specific remedial measures to make the site safe for future beneficial land use and;
- v. Identifying structures, process or manufacturing equipment that requires decontamination prior to re-use, removal and disposal.

Other factors the proponent shall consider in this survey include;

- i. Physical proximity
- ii. Continuing operational requirements
- iii. Land use requirements
- iv. Logical groupings of facilities and activities
- v. Similarities in structures and nature of contamination
- vi. Realistic forecast of available funding and
- vii. Relationship and proximity to the soil or ground water remedial action projects

### **5.6.1.3 Exhaustive Testing Assessment (Phase 3)**

After assessing the data from phase 2, the proponent shall identify and indicate where there is a need for an exhaustive testing assessment. If it is required, it shall involve:

- i. aiming at areas of indicated contamination to demarcate boundaries;
- ii. a further explanation of site physical, subsurface, and atmospheric conditions to assess chemical movement along various pathways and its resulting human and environmental exposures;
- iii. examining and defining areas of unknown subsurface anomalies identified by remote sensing or geophysical techniques
- iv. collect structural and soil data needed to demolish, clean, stabilize, and isolate man-made structures on the site.
- v. Provision of information on areas not accessible during reconnaissance sampling due to the presence of existing structures which shall be removed during plant dismantling
- vi. Provision of information to evaluate the feasibility of various decommissioning options necessary to attain preferred land use.

### **5.6.2 Finalization and approval of clean up criteria by regulatory agency**

The development and application of clean up criteria is facility –specific. Since risk assessment is a relatively new issue and because regulatory agencies are responsible for defining allowable concentrations of contaminants in the environment, the proponent’s development of clean up criteria shall be co-ordinate with and approved by the regulatory agency

### **5.6.3 Preparation of decommissioning, remediation and reclamation plans (Phase 4)**

In the development of a decommissioning and clean-up plan, the proponent shall ensure the feasibility study to identify and evaluate remedial action are constructively defined and are equivalent to its end-points. This plan shall be drawn with consultation from the regulatory authorities. The end-points shall be determined as early as possible to provide the basis for identifying and assessing alternatives, while planning for the decommissioning. A clean-up plan shall include;

- i. A summary of data on contaminants which are present at levels exceeding the proposed clean-up criteria.
- ii. Identification, delineation, characterization and quantification of materials to be treated or removed.
- iii. A summary and description of alternatives for site clean-up
- iv. Assess disposal alternatives of contaminated materials
- v. Description of methods proposed for site clean-up including technical feasibility and approximate costs
- vi. Proposed schedule of work
- vii. Discussion of how clean-up plan is integrated with other decommissioning measures
- viii. Discussion of fate of residual contaminants in soils which are at levels above the background but less than criteria and how those conditions will affect future development of the site.
- ix. Summary measures to control and monitor fugitive emissions and workers' occupational health and safety plan; and
- x. Identification of any long term monitoring provisions and land use restrictions that may apply to future use of the site.

The alternatives and approach to decommissioning and clean up shall be documented in a draft or site remedial action plan. The draft plan shall be circulated to the regulatory agency for approval and to other parties for comments. After receipt and consideration of comments, the final decommissioning and clean-up plan report shall be prepared.

### **5.7 Decommissioning Plan Report (DPR)**

The process of decommissioning of facilities shall require submission and approval of a decommissioning plan report (DPR) by the Federal Ministry of Environment (FMEnv). The report shall entail all assessment plans, technicalities and information on the processes to be carried out in the decommissioning phases as required as and stated on this guideline.

## **5.8 Submission and Review of Decommissioning Plan Report (DPR)**

The proponent/ licensee shall submit a decommissioning and clean-up plan to the regulatory agencies (FMEnv) and public interest groups for their perusal and plans will either be:

- a. accepted as proposed or
- b. accepted with some conditions that more sampling and analysis be done or that certain public concerns be addressed

Where the report is accepted as stated in “a” above there shall be an approval of the decommissioning plan and implementation shall be carried out

Where the report is accepted with some conditions as stated in “b” above, they shall be need for resampling and analysis of the concerns indicated.

## **5.9 Approval of Final Decommissioning /Clean-up Plan**

A clean-up plan shall be submitted to the government for a final review that includes detailed design of all clean-up, reclamation, containment and monitoring plans. They shall be an integration of the clean-up plan with all other decommissioning activities. The plan shall include:

- i. safety of clean-up workers and staff,
- ii. measures to treat wash waters generated during the decontamination activities, and
- iii. other measures to minimise potential spread of subsurface contaminants

## **5.10 Implementation of Decommissioning and Clean-up Plans (Phase 5)**

This shall be embarked upon by a team of professional and well experienced individuals assembled by the proponent to ensure successful completion and to reduce the potentials for accidents or inadvertent release of contaminants into the environment.

Decommissioning actions shall be considered completed when the approved end state of the facility has been reached. Subject to national legal and regulatory requirements, this end state shall be a result of conducting decontamination, dismantling, waste management and clean-up, leading to the release of the facility from regulatory control with or without restrictions on its future use. Its implementation includes:

1. Preparation of specifications and tender documents and contractor selection
2. Work health and safety monitoring; ensuring workers follow health safety protocols
3. Construction of on-site waste containment facility.
4. Handling of wastewater and surface drainage.
5. Control of fugitive atmospheric emissions.
6. Removal and disposal of material residue.
7. Removal and disposition of process equipment.
8. Cleaning and dismantling of buildings
9. Removal of buried equipment's and services
10. Excavation of contaminated soil and sediments
11. Reclamation measures
12. In program containment monitoring

All implementation procedure shall conform to ISO standards (Annex B)

#### **5.11 Decommissioning procedural considerations during implementation**

The proponent shall:

- i. Consider ensuring long term social and environmental liability of all proposed development activities during the lifespan of the project and, where feasible, implement alternatives that reduce long term risks.
- ii. Follow an effective management approach to decommissioning by minimizing the project footprint during the project lifespan and by closing and rehabilitating all areas which are no longer required for the project at the time.
- iii. Review current legislation that may influence decision - making at the time of decommissioning
- iv. Plan the decommissioning of facilities in consultation with statutory authorities, local communities and other interested parties.
- v. Update the project Waste Management Plan to conform with both (national and international), to include all relevant aspects of waste management during decommissioning
- vi. Systematically shut down the operating processes in a manner which minimises risks to project personnel, the environment and the surrounding community.

### **5.12 Decommissioning Completion Reporting (phase 6)**

A completion report shall be prepared for submission to the regulatory agency which shall include but not limited to the following. The three (3) principal activities that shall be undertaken, these are;

- i. A confirmatory testing of all areas to ascertain if the removal of contaminants, and stabilization of site has been, reached, and that remediation conditions have been met.
- ii. The interpretation of confirmatory sampling data
- iii. A completion report with all activities carried out during site decommissioning and remediation, all documented to include as built-drawings for all completed works, relevant in-program monitoring data, and confirmatory monitoring plan.
- iv. A flowchart of the decommissioning phases is presented in Annex C

### **6.0 Considerations Relevant to Site Decommissioning Management**

1. Regulatory body approval of decommissioning completion – a very important step in all the phases of decommissioning and clean up.
2. Long term monitoring
3. Future controls of land use
4. Preventive measures
5. Audits and monitoring
6. Clean up response to decontamination

### **7.0 Monitoring and Surveillance**

After decommissioning and the clean-up process, the proponent shall ensure to carry out environmental monitoring and surveillance The essence is to:

- i. to detect if an impact has occurred and to estimate its magnitude
- ii. to ensure that legal standards for wastes are not exceeded;
- iii. to check that mitigation measures are implemented in a manner prescribed in the report or other related documents.

### **8.0 Impact Monitoring**

After decommissioning, the proponent shall carry out impact monitoring. Variable to consider includes but are not limited to:

1. Soil Status - Top and subsurface soil samples shall be collected from designated points within and around the project area.
2. Water Quality Status (Groundwater & Surface water): Water samples from bore-holes and water body (rivers, streams, ponds, drainage) shall be collected monthly and analysed.

### 8.1 Mitigation measures

The mitigation measures shall be adopted during monitoring. The table below shows mitigation measures that shall be employed.

**Table 1: Mitigation measures during project decommissioning activities**

Decommissioning Activity	Potential Impact	Mitigation Measures
1. Labour force	Influx of labour force will impact socio-cultural values and cultural interface.	Mount awareness campaign, restrict movement of visitors to the work sites.
2. Waste Disposal	Contamination of surface and groundwater	Avoid indiscriminate discharge of waste through cleanup of the worksites.
3. Spills, leaks and operational failures	Pollution of surface and ground water disrupts fishing and transportation	Regular monitoring of facilities. Ensure that appropriate contingency measures to contain, control and clean spills or leaks are functional.
4. Discharges	Pollution of surface water	Avoid discharges into the aquatic environment. Ensure appropriate response strategies.
5. Restoration Activities	Rehabilitation of contaminated surface waters, which includes restoration of fish into the water bodies	Monitoring through chemical and biological laboratory studies.



## **9.0 Integrating Decommissioning into Project Life-Cycles**

Proponents shall ensure that the following decommissioning plans should be integrated into project life-cycles;

- a. Designs for new production facilities should include features and characteristics to support better technologies.
- b. No operation should start without the development of a conceptual Decommissioning and
- c. The conceptual DPR should become more detailed as the project moves into operation, and as there is a greater understanding of logistical and contextual issues.
- d. There should be a pre-set timetable for periodic review and updating of the DPR, typically every three years. This should be resubmitted to the regulator (FMEnv) for review and approval. The regulator would retain the right to delay operations if the DPR update is not submitted or not adequate.
- e. At the latest two years before expected termination of the facility (or expiration of the license, whichever comes earliest). It is therefore important that the plan is well articulated, prior to closure date or LoF becoming apparent.
- f. The dynamics outlined in Environmental Impact Assessments (EIAs) and risk assessments prepared by the body, who will arrange for DPR review to be put on an annual or biannual schedule, depending on the complexity of the project

## **10.0 Post Closure Monitoring, Auditing and Reporting**

### **Closure and post-closure monitoring**

Prior to decommissioning and rehabilitation activities, a monitoring program shall be developed and submitted to the Ministry for approval, as a part of the final decommissioning plan. This shall be done to cover proposed monitoring during and after the closure of the facility.

Annexes

Annex A

Decommissioning checklist sample

**COMPLETE the checklist for any voluntary decommissioning project certified. Important: this checklist is for decommissioning projects. Clean-up checklist is proposed for contamination information (if any).**

**GENERAL INFORMATION**

**Facility Owner Name:** \_\_\_\_\_

**Facility Site Address:** \_\_\_\_\_

**Facility Owner Phone Number:** \_\_\_\_\_

**Licensed Service Provider (ECP)**

**Company Name:** \_\_\_\_\_

\_\_\_\_\_  
**License Number**

\_\_\_\_\_  
**Expiration Date**

---

✓ **Check each item that is complete and correct (i.e. true).** By checking any of the boxes in the checklist, you are indicating that the statement applies to this project. If there are any exceptions to the statement, please note them in the comment area provided. If the statement does not apply, please do not check box. *Important:* This checklist must be signed by the supervisor with responsibility for this project.

**Check one of the following three statements – A, B, or C.**

A. The decommissioning was performed after (*specify date*)

B. The decommissioning was performed prior to (*specify date*) by a licensed service provider (*facility decommissioning*) and (*state number of samples*) soil samples were collected in general conformity with ISO 10381-1:2002.

Service Provider Name: \_\_\_\_\_

License No.: \_\_\_\_\_

C. The decommissioning was performed prior to (*specify date*) by an unlicensed contractor or no soil samples were originally collected at time of decommissioning. If this box is checked as yes, then this checklist is used to document current site assessment actions taken to comply with the requirement of ISO 14000.

**Check all the statement below that are true.**

1. The facility was decommissioned using a national code of practice.
2. The facility was cleaned to the maximum extent practicable. Disposal receipts for the facility contents are included in the report.
3. A site assessment was concluded that meets the requirements of the ISO 14000 Standards.
4. A site sketch, drawn approximately to scale, has been made of this site which clearly shows:  
The location of all buildings and other key features, both man-made and natural;  
The name of adjacent streets and properties;  
The location of all excavations;  
The location of all equipments including those that were decommissioned as well as those that remain on the site; and  
All soil and water sample locations including sample depths.
5. All soil and/or water samples have been collected, coded, stored, shipped, and analyzed as required and chain-of-custody forms have been filled out (ISO/10381-1:2002, ISO/TC/147/SC6)
6. A report has been prepared which includes a detailed description of everything that was observed and performed at the site, and that meets the requirement of (ISO 14004: 2016)

---

---

“By my signature below, I state the information contained in this report is true and complete to the best of my knowledge.”

Name of person preparing report: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Supervisor License No.: \_\_\_\_\_

Expiration Date: \_\_\_\_\_

## Annex B

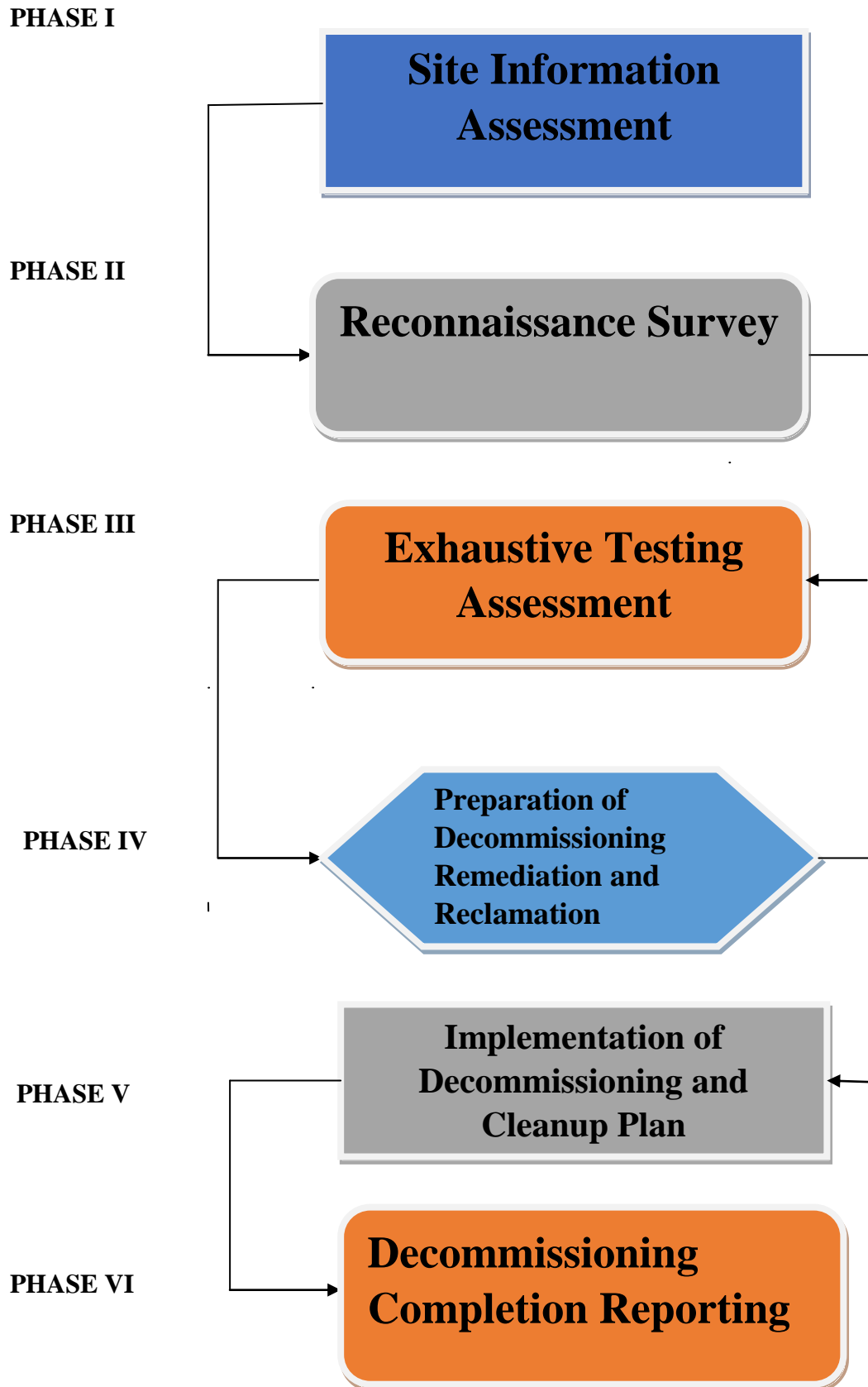
### Standards Applicable to Decommissioning

International Organization for Standardization (ISO) creates documents that provide requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose. For the decommissioning of facilities; every technical process/ analysis shall conform with international standards. These are but not limited to;

ISO /17402:2008:	Soil quality -- Requirements and guidance for the selection and application of methods for the assessment of bioavailability of contaminants in soil and soil materials.
ISO/PRF 18504:	Soil quality -- Guidance on sustainable remediation (Under development)
ISO /11932:1996	Activity measurements of solid materials considered for recycling, re-use or disposal as non-radioactive waste
ISO /10381-1:2002	Soil quality -- Sampling -- Part 1: Guidance on the design of sampling programmes
ISO/DIS 20761	Water reuse in urban areas -- Guidelines for water reuse safety evaluation: assessment parameters and methods
ISO/TC147/SC6	Water sampling –general methods
ISO 45001	Occupational health and safety
ISO 14000 family	Environmental management
ISO 14004:2016	Environmental management systems -- General guidelines on implementation

Annex C

Flow chart of the phases in project decommissioning



## Annex D

### Typical materials decommissioned and their typical mode of Disposal

<b>Component</b>	<b>Typical Mode of Disposal</b>
Concrete Foundations	Crush and recycle as granular material
Solar Panels, turbines, dome for storage	Reuse or recycle
Steel and aluminium racks and mounts	Salvage for reuse or recycle for scrap
Cablings, and transmission lines	Recycle
Inverter step-up transformers, inverters and circuit breakers	Salvage for reuse or recycle for scrap
Granular materials	Reuse or dispose in landfill
Oil/lubricants/fuels containers	Can be Recycle
Hazardous materials	Shall be dispose through a licensed hauler
Geotextile Materials	Shall be dispose in a landfill
Miscellaneous non-recyclable materials	Shall be dispose in a designated landfill