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1. Introduction

As part of Eskom's Integrated Environmental Management System, an Environmental Management Plan is required for all new or existing assets that could have significant environmental aspects. This document would then serve as a guide to Construction and Operations staff (Project Management, Field Services, Major Engineering Works and External Contractors) towards sound environmental practices. Whilst satisfying our customer's needs in the most cost-effective way, due consideration should be given to managing negative environmental impacts identified during the environmental site visit. This is in accordance with and the fulfillment of Eskom's SHEQ Policy 32-727

An EMP sets out how potential environmental impacts will be managed and monitored, and how the environment will be rehabilitated. This Environmental Management Plan (EMP) is aimed at identifying negative environmental activities associated with the RTD Renewable Hydrogen Facility construction work. Recommendations are made on management and monitoring of such activities in order to "maximise the benefit and minimise the damage" to the environment.

2. Supporting Clauses

2.1. Scope

As per the National Environmental Management Act (NEMA) an EMP shall be developed and implemented for all construction work activities. The EMP shall include all applicable significant environmental issues. The activities identified relate to the following scope of work for RTD Renewable Hydrogen Facility Project.

2.1.1. Applicability

This EMP is applicable to any contracting organisation who intends tendering for the contract.

2.2. Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1. Normative

ISO 14001:2025 Standard

2.2.2. Informative

[1] Environmental Incident Management Procedure 240-133087117

[2] Hazardous Chemical Substances Act (Act 85 of 1983)

[3] Occupational Health and Safety Act and Regulations No 85 of 1993.

[4] National Environmental Management Act 107 of 1998.

[5] National Road Traffic Act 93 of 1996.

[6] SHEQ Policy 32-727

2.3. Definitions

Definition	Explanation
Environmental Aspects	Elements of the organisation's activities, products, services or physical resources that can interact with, and may have an impact (harmful or beneficial) on the environment. These may include discharges or emissions, raw materials and energy use, waste recycling, noise, dust and visual pollution.
Environmental Impacts	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from the organisations activities, products or services.
Chemicals	Refers to all substances usually of a hazardous nature including liquid, solid or gaseous examples - sulphuric acid
Environment	The surroundings in which humans exist that is made up of the land, water, air, living organisms, plants, animal life and atmosphere of the earth.
Environmental management plan	A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting or preventing negative environmental impacts are implemented during the life-cycle of a project. This Environmental Management Plan should preferable form part of Eskom's Environmental Management System
Major oil spillages	A spillage that is large enough to be classified as an Emergency Situation requiring help from the Emergency Response Personnel or consultants in order to deal with the situation.
Material safety data sheet	Detailed information sheets supplied by the manufacturers of all materials and substances in terms of the Hazardous Substances Act No. 15 of 1973.
NEMA Section 30 incidents	An unexpected, sudden and uncontrolled release of a hazardous substance, including from a major emission, fire or explosion, that causes, has caused or may cause significant harm to the environment, human life or property.

2.4. Abbreviations

Abbreviation	Explanation
AIA	Approved Inspection Authority
EMP	Environmental Management Plan
MSDS	Material Safety Data Sheet
NEMA	National Environmental Act

Abbreviation	Explanation
AIA	Approved Inspection Authority
PCB	Polychlorinated Biphenyls
PPE	Personal Protective Equipment
SHEQ	Safety Health Environment and Quality

2.5. Roles and Responsibilities

2.5.1 Project Roles and Responsibilities

The professionals which will form part of the project team are the Project Manager, Eskom Environmental Officer and the Contractor.

2.5.2 Project Coordinator

The Project Coordinator is responsible for overall management of project and EMP implementation. The following tasks will fall within his / her responsibilities:

- Be familiar with the recommendations and mitigation measures of this EMP, and implement these measures.
- Monitor site activities on a daily basis for compliance.
- Ensure audits of the construction site against the EMP are conducted.
- Confine the construction site to the demarcated area.
- Rectify transgressions through the implementation of corrective action.

2.5.3 Environmental Officer

The Eskom Environmental Officer will be on site on a daily basis or as required by the project, for matters concerning the implementation and day-to-day monitoring of the EMP by the contractor. The following tasks will fall within his / her responsibilities:

- Conduct regular site visits to be able to report on and respond to environmental issues.
- Advise the Contractor on environmental issues within the defined work areas.
- Take immediate action on site where clearly defined and agreed “no-go” areas are violated or in danger of being violated and to inform Eskom representative of the occurrence immediately and take action.
- Conduct regular audits of the construction site according to the EMP.
- Educate the construction team about the management measures of the EMP.
- Regular liaison with the construction team and the project leaders.
- Recommend corrective action for any environmental non-compliance incidents on the construction site.
- Compile a regular report highlighting any non-compliance issues as well as good compliance

2.5.3 Contractor

The Contractor is responsible for the overall execution of the activities envisioned in the construction phase including the implementation compliance with recommendations and conditions of the EMP. The Contractor must therefore ensure compliance with the EMP at all times during construction activities and maintain an environmental register which keeps a record of all environmental incidents which occur on site during construction. These incidents may include:

- Public involvement / complaints
- Health and safety incidents
- Incidents involving Hazardous materials stored on site
- Noncompliance incidents
- The Contractor is also responsible for the implementation of corrective actions issued by the Environmental Officer and Project Manager within a reasonable or agreed period of time.

3. Compliance with the EMP

A copy of the EMP must be kept on site at all times during the construction period. The EMP will be binding on all contractors operating on site and must be included within Contractual Clauses. It should be noted that in terms of the Environmental Conservation Act (ECA) No 73 of 1989 and National Environmental Management Act (NEMA) No 107 of 1998 (Section 28) those responsible for environmental damage must pay the repair costs both to the environment and human health and the preventative measures to reduce or prevent further pollution and/or environmental damage (The ‘polluter pays’ principle).

4. Layout of the EMP

The EMP is divided into one phase of development. The construction phase has specific issues unique to that particular period of the construction of RTD Renewable Hydrogen Facility and associated infrastructures. The impacts are identified, and brief description is given.

5. Construction Phase

This section of the EMP provides management principles for the construction phase of the project. Environmental actions, procedures and responsibilities as required during the construction phase are specified. These specifications will form part of the contract documentation and therefore the Contractor will be required to comply with these specifications to the satisfaction of the Project Manager and Environmental Officer

6 Environmental Aspects

6.1 Site clearing

Areas which are not to be affected by construction must not be cleared; only the site of the construction camp as well as the area needed for vehicle access may be cleared. Soil that will be removed from site must be disposed of at an approved landfill site. Silt fences and erosion control measures must be implemented in areas where the impacts may be more prevalent, these include wetlands and steep areas. Topsoil from the servitude area must be neatly stockpiled adjacent to the excavations ready for backfill when required. The Contractor shall ensure that all work is undertaken in a manner which minimises the impact on the environment. No protected tree shall be felled, topped, cut, damaged or pruned without a license.

6.2 Site establishment

The contractor shall establish his construction camps, offices, and any other infrastructure as per the agreed site layout plan in a manner that does not adversely affect the environment. Site establishment shall take place in an orderly manner and all required amenities shall be installed at the camp site before the main workforce move onto site. The construction camp shall have the necessary ablution facilities with chemical toilets at commencement of construction activities. The contractor shall inform all site staff to make use of supplied ablution facilities and under no circumstances shall indiscriminate sanitary activities be allowed other than in supplied facilities.

The contractor shall supply waste collection bins, where such bins are not available, all solid waste collected shall be disposed of at a registered landfill site. A certificate of disposal shall be obtained by the contractor and kept in a file. Where a registered waste site is not available close to the construction site, the contractor shall provide a method statement with regard to waste management. The disposal of waste shall be in accordance with all relevant legislation. Under no circumstances may solid waste be burnt on site.

6.3 Oil

It is recommended (where applicable) that the PCB status of all oil containing equipment be established before removal. Records of quantities disposed, disposal sites, disposal dates, transporters used & safe disposal certificates must be kept and copies submitted to the Environmental section after project completion. As per the Eskom Waste Management Standard 32-245 hazardous materials identified for disposal must not be stored for more than 90 days while preparations are made for final disposal. If there is a real possibility for such equipment to be stored for longer than 90 days, the environmental section needs to be notified. All oil containing equipment must be labelled.

If the oil is sold, the conditions, of oil sale, to the buyer and or contractor must be documented and agreed that the buyer will take reasonable measures to prevent environmental pollution through the oil. Emergency plans must be arranged prior to transportation, should there be accidents e.g. travel routes, emergency services numbers along route, spill kit, etc.

Vehicles used for transportation must be road worthy. During transportation, speed limits and all traffic signs must be adhered to. The supplier used to transport hazardous material should provide the Eskom representative with proof of such an emergency plan. Oil spills must be reported according to the Environmental Incident Management Procedure 240-133087117 via a flash report and cleaned up according to the Eskom standard Waste Management Standard 32-245. An oil spill kit should be kept on site during construction and in vehicles transporting oil filled equipment. For major oil spills an oil spill clean-up consultant should be called in. Spills of any product like paints, oil cleaning agents etc, should be cleaned up immediately by removing the spillage together with the polluted soil and by disposing at the registered facility. It is recommended that ‘’metal drip trays’’ to be used to contain oil leaks from the construction vehicles, generators etc

6.4 Soil

Topsoil must be removed from all areas where physical disturbance of the surface occurs, it must be kept separate and shall be used for rehabilitation. Topsoil must not be used for construction purposes

6.5 Removal of waste

As per the Eskom Waste Management Standard 32-245, all remaining material must be removed from site and disposed of in an appropriate and approved manner before final inspection or within 30 days where there is no formal final inspection process. All waste should be disposed of at a registered waste site.

6.6 Littering

No littering must be allowed, and all litter must be removed from site. All litter must be deposited in a clearly marked, closed, animal proofed disposal bin in the construction area. Particular attention needs to be paid to food waste.

6.7 Environmental incidents

All environmental incidents such as bird kills, plants destroyed, oil spills, erosion, etc., should be reported according to the Environmental Incident Management Procedure 240-133087117 via a flash report, within 24 hours.

6.8 Training

It is important that personnel be informed and educated with regards to the contents of the EMP and with respect to activities that could be harmful to the environment. Personnel must be trained to deal with emergency situations and should be capable of using an oil spill kit to treat minor spills.

6.9 Materials handling, use and storage

Contractors shall ensure that delivery drivers are supervised during off loading, by someone with an adequate understanding of the requirements of the specifications. Materials shall be appropriately secured to ensure safe passage between destinations. Loads including, but not limited to sand, stone chip, refuse, paper and cement, shall have appropriately covered to prevent them spilling from the vehicle during transit. The Contractor shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials.

6.10 Dust

The Contractor shall be responsible for dust control on site to ensure no nuisance is caused to the Landowner or neighbouring Communities. A speed limit should be set on dirt roads and must not be exceeded to ensure minimum dust problems. Any complaints or claims emanating from the lack of dust control shall be recorded and attended to immediately by the Contractor. Excavations and other clearing activities must only be done during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas.

6.11 Water management

Adequate sanitary and ablutions facilities must be provided for construction workers. In accordance with the requirements of the National Water Act, surface or groundwater shall not be polluted (oil, petrol, chemicals, cleaning materials, etc. must be handled in such a way that it does not come in contact with any water sources under any circumstances. Water containing pollutants such as cements, concrete, lime, chemicals and fuels shall be discharged into a conservancy tank for removal from the site to a licensed disposal facility.

6.12 Cement

Cement is regarded as a hazardous substance and should be handled appropriately. When using cement, it is ideal to use pre-mix cement that is supplied by a contractor. If however, pre-mix cement is not available, and cement must be mixed on site it is very important that cement is mixed inside a wheelbarrow or inside a portable cement mix machine. NO cement must be mixed on the bare ground.

6.13 Fire prevention

The Contractor shall always have operational fire-fighting equipment available on site. The level of firefighting equipment must be assessed and evaluated thorough a typical risk assessment process. It may be required to increase the level of protection, especially during the winter months.

6.14 Asbestos (If applicable)

Disposal of asbestos should be done by an approved Asbestos Removal Contractor. ***The employer must notify in writing the provincial Department of Labour prior to the commencement of any Asbestos related work. This letter needs to be documented for audit purposes*.** The Project co-coordinator should not allow any work to be performed until such time that this certificate is received. All asbestos and asbestos containing material must be identified and recorded on an inventory. Only an approved asbestos removal Contractor certified by the Department of Labour will be allowed to perform the removal as stipulated in the Eskom Standard: Requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos-containing material, equipment and articles 32-303.

In order to protect any Eskom employee involved in asbestos monitoring practices, it is required that any work conducted by an external Approved Inspection Authority (AIA) (external to Eskom Holdings SOC Ltd and subsidiaries) should be conducted in full by such an AIA; the AIA may not contract this work out to any Eskom employee, or instruct any employee or asbestos practitioner to conduct this work on his/her behalf. No asbestos material or any article containing asbestos should be imported or exported outside the boundaries of the Republic of South Africa (RSA). If it is required that a part or article must be imported for whatever reason, the Employer shall apply to the Department of Forestry, Fisheries and Environment for the necessary permission.

Care should be taken to minimize asbestos dust dispersion when handling asbestos and suitable dust masks must be worn throughout when working with the material. The Employer shall ensure that the respiratory protective equipment issued to any person for protection against asbestos exposure:

1) Is only of the type suitable for asbestos; and

2) Has been approved by the Chief Inspector of the Department of Labour.

Transfer of any asbestos-containing structures, buildings, article or material, etc. shall not be approved by Eskom Distribution, if intended for resale purposes. No asbestos or asbestos-containing material, equipment, plant or article should be sold, donated, marketed, advertised or displayed without a written recommendation from the General Manager as well as the approval of the applicable Divisional Executive or representative. Only cases with special merit will be considered. **No asbestos waste is to be left uncovered at the end of a workday**. The consultant will be required to produce a cradle to grave plan of the Asbestos disposal after removal from site.

Regular inspections shall be conducted to ensure the correct use of personal protective equipment (PPE). PPE issued to an employee shall be decontaminated. Separate containers or storage facilities shall be provided for PPE when not in use, and all PPE, when not in use, shall only be stored in the place provided. No person shall be allowed to remove dirty or contaminated PPE from the premises. Where contaminated PPE must be disposed of, it shall be treated as asbestos waste.

Decontamination facilities shall be provided at a reasonable distance for employees involved in the removal or phase-out of asbestos-containing materials. The water shall be treated in such a manner as not to cause contamination to any water source or pose a threat to the public.The medical surveillance programme shall include at least the following:

An initial medical assessment shall be done by an Occupational Medicine Practitioner; either immediately or within the first 14 days of commencement of employment. The examination shall include but not be limited to:

- Medical history
- Occupational history
- Medical examination
- Lung function test
- Chest X-rays

The interval between periodical health assessments should not exceed two years. An employee certified unfit for work should not be permitted to work in any part of the workplace with asbestos dust. Employees certified unfit to work due to asbestos in the workplace should be reported and subsequently be investigated. To ensure that asbestos fibres are contained during and after repairs or alterations or during the removal of asbestos containing lagging or insulation, the following methods, as listed here and can be used under controlled conditions:

- Sealing/encapsulation
- Wet removal
- Dry removal
- Removal by high-pressure water jets
- A combination of the above methods

Consult the Standard: Requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos-containing material, equipment and articles 32-303 for more information. A waste manifest i.e.: a document providing quantity of Asbestos containing material disposed and proof of disposal must be presented to the Environmental Officer and Project Coordinator after disposal and must be kept in the file for audit purposes. All asbestos from the project must be disposed at a site licensed for Class H:h or Class H:H hazardous waste only and must not be mixed with general waste or sites specifically designed for this purpose according to the Environment Conservation Act no. 100 of 1982.

6.15 Reduction of possible asbestos exposure

Typical engineering controls involve the use of covers and caps, vegetation, fencing, landscaping, and in some conditions, the application of water to suppress dust. Local factors, such as climate, influence the extent to which these approaches are implemented. For example, areas with dry or windy conditions may need more dust control than those with humid or less windy conditions. Common work practices include limiting activities on Asbestos-containing areas, reducing driving speed on unpaved roads that may contain Asbestos, and cleaning vehicles driven over Asbestos.

Examples of Engineering and Work Practices that Reduce Exposure to Asbestos:

- Wet road surfaces with water using trucks, hoses, or sprinklers.
- Wet piles of excavated material and cover them with tarps or plastic sheeting.

- Continuously mist the work area.
- Install wind barriers around the work area.
- Clean or decontaminate equipment and vehicles to ensure that no equipment or workers track soil out of the work area (a gravel pad, tire shaker, or wheel wash system may be used to clear soil from vehicles).
- Wet the work area using a spray system attached directly to rock cutting or drilling equipment, such as a fine-mist sprayer or a variable-rate fogger nozzle (similar to those used in firefighting).
- Excavate utility trenches to an adequate depth and backfill them with clean soil so that future repair work will not need excavation into potential Asbestos containing materials.
- When transporting Asbestos-containing materials, avoid overloading trucks; keep the material below the top of each truck compartment and cover material with a tarp.
- Limit personnel and vehicle access to the work area.
- Identify Asbestos-containing areas with signs.
- Reduce driving speed.
- Reduce drilling or excavating speeds.
- Excavate during periods of calm or low winds

7. RISK RATING EXPLANATION

7.1 Environmental Significance

Table 1 – Criteria for Determining Environmental Impact Significance

CRITERIA	RATING		
	High (3)	**Medium (2)**	**Low (1)**
LIKELIHOOD OF IMPACT What is the probability that the impact will occur?	Routine or ongoing activity or impact. Is known to have occurred on routine basis in the past. Impacts associated with the aspects are likely to emerge soon. Impacts are unknown.	Periodically, occurs once or twice a year. Impacts that is likely to occur within one year.	Very infrequently, every several years. Impacts associated with the aspects are several years away.
MAGNITUDE OF IMPACT	Aspect has a recognized global environmental impact. Widespread or permanent ecological damage locally. Remediation would take longer than one year. Could result in a major health hazard. Magnitude is unknown.	Aspect could result in a major uncontained or sustained environmental release impacting on a regional or local environment only. Ecological damage can be remedied within one year. Health hazard to humans in the immediate vicinity but not resulting in critical or fatal injuries/illness.	Little or no ecological effect and no measurable impact on human health.

Activity	Aspect	Impact	Rating Environmental Impact			Regulatory requirement	Mitigation Measures	Performance Indicators	Monitoring	Responsible person	Date Completed/ Remarks
			Likelihood	Magnitude	Significance rating						
General matters essential to the planning phase											
Pre-construction, main site establishment	Site layout and planning	Erosion, soil and water pollution	1	1	1	National Water Act 36 of 1998. National Environmental Management Act 107 of 1998 Eskom Land and Biodiversity Standard EPL 32-736	A site which has minimal impact on the immediate and surrounding environment must be selected: A preliminary investigation must be done as to the situation of this site. Aspects such as slope and distance from water bodies must be taken into consideration to minimize erosion and pollution of surface water.	Incident reports, Complaints from I & AP's register	Will be noted in project reviews, ECO visits	Contractor/ PC	

Incidents	Reporting and response measures	Pollution, property damage, human injuries	1	2	2	Hazardous Chemical Substances Regulation National Environmental Management Act 107 of 1998 National Water Act 36 of 1998. Eviro Incidents Reporting Procedure 240-133087177	Incidents (accidents, hazardous substance spills, etc.) and near-misses must be reported to the Eskom RT&D SHEQ department. Emergency response plans should be available on site. Prior arrangements must be made for timeous/ immediate appointment of clean-up consultant should a major spill occur. The Contractor shall have operational fire-fighting equipment available on site at all times. The firefighting equipment must be serviced and maintained as required by safety regulations and Eskom standards	Incident flash report, emergency plans, firefighting equipment		Contractor, Eskom employees	

Activity	Aspect	Impact	Rating Environmental Impact			Regulatory requirement	Mitigation Measures	Performance Indicators	Monitoring	Responsible person	Date Completed/ Remarks
			Likelihood	Magnitude	Significance rating						
General matters essential to the planning phase											
Pre-construction, main site establishment	Site layout and planning	Erosion, soil and water pollution	1	1	1	National Water Act 36 of 1998. National Environmental Management Act 107 of 1998 Eskom Land and Biodiversity Standard EPL 32-736	A site which has minimal impact on the immediate and surrounding environment must be selected: A preliminary investigation must be done as to the situation of this site. Aspects such as slope and distance from water bodies must be taken into consideration to minimize erosion and pollution of surface water.	Incident reports, Complaints from I & AP's register	Will be noted in project reviews, ECO visits	Contractor/ PC	
Incidents	Reporting and response measures	Pollution, property damage, human injuries	1	2	2	Hazardous Chemical Substances Regulation National Environmental Management Act 107 of 1998 National Water Act 36 of 1998. Enviro Incidents Reporting Procedure 240-133087177	Incidents (accidents, hazardous substance spills, etc.) and near-misses must be reported to the Eskom RT&D SHEQ department Emergency response plans should be available on site Prior arrangements must be made for timeous/ immediate appointment of clean-up consultant should a major spill occur.	Incident flash report, emergency plans, firefighting equipment		Contractor, Eskom employees	

							4.The Contractor shall have operational fire-fighting equipment available on site at all times. The firefighting equipment must be serviced and maintained as required by safety regulations and Eskom standards				
Training	Lack of training	Non-compliance of EMP and/or permits	2	2	4	National Environmental Management Act 107 of 1998. National Water Act 36 of 1998. National Forest Act 84 of 1998. National Heritage Resources Act 25 of 1999.	Environmental training of EMP. All staff operating equipment such as excavators, loaders etc. Shall be adequately trained. Environmental sensitivities and conditions should be motivated by including these topics in toolbox talks, morning meetings etc.	Attendance registers		Contractor, Eskom Enviro practitioner	
Access to development area	Use of private roads and entering private property	Damaging of flora outside existing vehicle tracks	2	1	2	National Environmental Management Act 107 of 1998	All access roads that will be used must be pre-arranged with landowners and maintained. Keep to existing tracks as far as possible No property may be accessed without permission from the	Written agreement		Contractor, PC	

							landowner. Gates shall be left as found. Open gates left open and closed gates kept closed				
Soils											
Soil excavations	Exposure of soil to rainfall and wind	Erosion and dust contamination	2	1	2	National Environmental Management Act 107 of 1998	Separate topsoil from sub soil during excavation and cover disturbed soils as much as possible. All topsoil stockpiles shall be kept clear of any alien vegetation. Stockpiles may not exceed 1.5m in height Implement dust and erosion control practices Vegetation to be disturbed as little as possible All erosion caused during construction shall be repaired immediately to the satisfaction of the landowner and the Eskom environmental practitioner Vehicles speed shall not exceed 40km/h on dust roads and 20km/ when traversing unconsolidated and unvegetated areas	Project review reports		Contractor, PC	
Surface and ground water/waste management											
Cement mixing	Spillage of cement	Soil and water pollution	2	2	4	National Environmental	Pre-mixed cement to be used as far as	Project review reports		Contractor	

						Management Act 107 of 1998 National Water Act 36 of 1998	possible. No cement may be mixed on bare soil. It must be mixed on an impermeable surface. If any wet cement is spilled it shall be cleaned up immediately. Bagged cement must be stored in appropriate facility at least 10m away from any water source. Empty cement bags are seen as hazardous waste and must be disposed of as such.				
Movement of vehicles and storage of materials on site	Spillages	Pollution to groundwater and/or soil	1	2	2	National Environmental Management Act 107 of 1998 National Water Act 36 of 1998 Waste Management Standard, 32-245	Hazardous chemicals shall be stored in a lockable store, covered from rain, on an impermeable surface.				

Working with hazardous substances	Spillages and storage	Soil and/or water pollution	1	2	2	National Environmental Management Act 107 of 1998	All hazardous substances must be stored in a suitable container and must be clearly marked with warning labels. Employees handling such materials must be appropriately trained to do so. 3MSDS for all hazardous substances used on site must be available on site. Appropriate PPE must be worn when using hazardous substances. Adequate firefighting equipment must be available at all hazardous substances storage areas. An appropriate sized spill kit must be available at all hazardous substances storage areas and the responsible operator must have the relevant training to use the kit.				
Selling of insulation oil and other materials generated from project	Transferring of assets and their risks. Mishandling,	Business risk, Pollution, health risk	1	2	2	National Environmental Management Act 107 of 1998 Chapt 7 Sec 28, 30	The conditions of oil and scrap sale, to the buyer and or contractor must be documented and agreed that the buyer	Asset sales records, Quantity records, Inventory records		PC, Contractor	

	Illegal dumping.					Waste Management Procedure 32-245	will take reasonable measures to prevent environmental damage from the oil. The contractor and or buyer must clearly present the purpose for oil and scrap purchasing; such purpose must be assessed by Eskom personnel prior to sale or appointment of contractor/ buyer. All equipment and material that could not be sold on site as scrap should be delivered to Eskom stores. All parts that can be recycled or reused can be transported back to stores.				
Construction activities	Waste and hazardous substances	Pollution of substation yard, roads and surrounding area. Injuries, Fatalities, Damages,	1	1	1	Hazardous Chemical Substances Regulation National Environmental Management Act 107 of 1998 Environmental Conservation Act 73 of 1989 Occupational Health &	Refuse bins must be made available on site. All waste including general litter must be removed from the site and disposed of at a licensed disposal site on a regular basis. No waste is to be left on site. All hazardous waste must be collected in marked receptacles in a	Waste is managed properly and efficiently. Site is clean and tidy, Emergency plans		Eskom employees, contractor, PC	

						Safety Act 85 of 1993 Atmospheric Pollution Prevention Act 45 of 1965 Hazardous Substances Act 15 of 1973 Land and Biodiversity Standard 32-736 Environmental Procedure: Waste standard 32-245 National Road Traffic Act 93 of 1996 Environmental Conservation Act 73 of 1989"	demarcated area on site. Hazardous waste must only be disposed of at hazardous disposal site registered to handle such waste. Records of quantity, disposal site, disposal date and transporters must be kept on site and submitted to the Environmental section after project completion. Hazardous materials identified for disposal must not be stored for more than 60 days while preparations are made for final disposal. If possible, refuse must be recycled, reused or sorted. No waste is to be burned on site. Emergency plans must be arranged prior to transportation, should there be accidents e.g. travel routes, clean-up consultants. 11. Transportation of hazardous waste should be done only by registered				

							hazardous waste transporters. There must be spill kits and trained personnel on spill kit use on site. Cement is regarded as a hazardous substance and should be handled appropriately. If cement is mixed on site, it is very important that cement is mixed inside a wheelbarrow or inside a portable cement mix machine. NO cement must be mixed on the bare ground. After cement is mixed on site the bags are still regarded as hazardous waste. Cement bags should be disposed of as hazardous waste. Safe disposal certificates should be retained as evidence. Hazardous waste may not be kept on site for longer than 90 days.				
Flora											
Bush clearing or construction activities	Cutting/ Damaging/ Clearing vegetation	Damage to flora and surrounding	2	2	4	National Environmental Management Act 107 of	Indigenous vegetation to be left undisturbed as far as possible. Protected, rare and	EMP/ permit induction, site visits			

		biodiversity and ecosystem				1998 National Forest Act 84 of 1998	endangered species to be identified, marked to avoid accidental removal and permits applied for of no other alternative but to cut. All vegetation that is either removed or damaged during construction must be documented and feedback given to the relevant Eskom environmental practitioner in order to report back to the relevant Competent Authority. Vegetation management to be done as per Eskom standard 240-70172585.				
Fauna											
Construction activities	Disturbance to fauna	Degradation of biodiversity	1	2	2	National Environmental Management Act 107 of 1998 Eskom Land and Biodiversity standard 32-815	No interference with any livestock or other fauna in the project area allowed. No poaching/ killing of any animals allowed. Breeding sites of birds must be taken into consideration and left undisturbed unless an appropriate	Project reviews / Incident registers			
Heritage											
Social issues in sensitive	Construction activities	Displacement/ destruction of	1	2	2	National Heritage	Should anything be found, or exposed during excavations,	Incident register,		Contractor, PC, Eskom environment	

heritage, archaeology and palaeontology areas	(Stockpiling, excavating etc.)	heritage resources				Resources Act 25 of 1999	all work shall be terminated immediately and the findings reported to the Project Manager who shall inform the Eskom Environmental Practitioner and the SAHRA. Specialist studies recommendations must be adhered to where applicable Eskom environmental practitioner should make the project team aware of any heritage, archaeological or paleontological sensitivities. No graves may be disturbed or damaged in any way.	specialist studies		al practitioner	
Disease											
Construction activities	Sanitation	Environmental degradation, soil and water pollution	1	2	2	National Environmental Management Act 107 of 1998	Mobile chemical toilets must be used, no human excrement allowed in the veld and no 'pit' toilets allowed. Toilets may not be closer than 100m from a watercourse. Toilet ratio must be 1:15 Toilets must be serviced and emptied on a regular basis	Project reviews			Contractor

							and proof of this must be kept on file				
Emergency procedures											
Construction activities	Emergency incident	Environmental degradation	2	1	2	National Environmental Management Act 107 of 1998 National Water Act 36 of 1998 Eskom Environmental, Incident procedure 240-133087117	An emergency response plan shall be in place for potential fires and spillages. All staff shall be aware of the emergency response plan	Project review			
Equipment use and storage											
Equipment use and storage	Possible spillages	Soil, surface and groundwater contamination	2	1	2	National Environmental Management Act 107 of 1998 National Water Act 36 of 1998	No vehicles or equipment may be serviced on site. All vehicles and equipment must be serviced according to manufacturing recommendations to minimise risk of spillages. Drip trays must be used under all vehicles/ equipment that could potentially leak.				
Noise											
Construction activities	Noisy machinery and equipment	Noise pollution	2	1	2	National Environmental Management Act 107 of 1998	Construction shall stay within normal working hours 07:00 to 17:00 unless alternative arrangements are made with the land				

							owner and community affected. Any noise complaints must be recorded and reported to Eskom.				
Fire prevention											
Construction activities	Uncontrollable fires	Environmental degradation	2	1	2	National Environmental Management Act 107 of 1998	Designated smoking areas shall be provided Firefighting equipment must be on all vehicles on site as well as at the construction camp.				

Equation for calculating overall significant environmental aspects score:

(Likelihood x magnitude) = Significance rating (significant is rating is ≥ 3)

Aspects with high Likelihood or Magnitude (3x1 or 1x3)

8. CONCLUSION

Environmental issues related to the RT&D Renewable Hydron Facility Construction Activities are highlighted within this EMP. This EMP encourages easy management of the activities and related impacts. Implementation of recommended measures will ensure minimisation of negative environmental impacts. The EMP is a stand-alone document, which must be used on the site during each phase of development. The onus set out in the EMP rests with the Eskom personnel and the contractors, who need to demonstrate environmental responsibility and commitment.

9 RECOMMENDATIONS

- To ensure conformance to the EMP, it is recommended that a monitoring program be set up. The monitoring program can be used to monitor the effectiveness of the EMP and identify environmental issues and impacts that have not been accounted for in the EMP, which are or could result in significant environmental impacts for which corrective action is required.
- It is important that the Environmental Management Plan be presented and explained to the Construction team and/or contractors in order to familiarise them to the environmental agreements and conditions.
- Site visits are to be conducted throughout the project by the relevant environmental practitioner, representatives from construction, project management or affected parties at predetermined intervals.
- It is recommended that emergency plans be put in place for the activities identified within the EMP in order to minimise possible impacts should incidents occur.
- Prior arrangement must be made for timeous / immediate appointment of clean-up consultant should major spill occur.
- All equipment handled must be inspected for cracks, open lids, loose screws, leaks etc. during operation, before removal and transportation.
- Any new environmental aspect identified during the project needs to be added to the EMP register above. Help in this regard can be obtained from the environmental section.

ANNEXURE A

Standard Conditions to be adhered to during construction and Operation.

- ✓ The Eskom project manager or co-ordinator shall be responsible for ensuring that the landowners, Project co-ordinator have been informed before any work is carried out on site. Contractors shall find out if owners, Project co-ordinator the have been informed before moving onto site.
- ✓ No fences, gates or locks shall be damaged to obtain access onto construction site Arrangements shall be made in advance to obtain permission for access.
- ✓ Use of private roads shall be arranged in advance. Any damage to private roads shall be repaired at the contractor's expense and to the satisfaction of the landowner. This shall be the responsibility of the project manager or coordinator.
- ✓ Gates shall be left as they are found, i.e. closed gates shall be kept closed and open gates shall be left open. Gates to adjacent properties or onto public roads shall be always closed.
- ✓ Permission shall be obtained from landowners before any water is used.
- ✓ No fires shall be lit on private property. If fires are lit on Eskom's property or in the construction camp, provision shall be made that no accidental fires are started. No firewood shall be collected in the veld.
- ✓ If activities that can cause a fire are carried out, fire extinguishers shall be available on site and in the construction camp.
- ✓ No property may be accessed after normal working hours except with the permission of the landowner, Project co-ordinator. Privacy shall be always respected.
- ✓ Eskom, Eskom's contractors and their employees shall always be courteous towards landowners, tenants and the local community.
- ✓ Eskom, Eskom's contractors and their employees shall not cause damage to property, crops or animals. Activities that may cause conflict with landowners, tenants, the local work force or the local community shall be avoided. Should conflict arise it shall be immediately reported to the Eskom project manager or coordinator.
- ✓ Vehicles shall be driven at a moderate speed on private roads and stay within the statutory speed limit on public roads.
- ✓ All movement of vehicles shall take place on the established Eskom servitude road or on private roads as agreed in advance. Keep to existing tracks. No movement shall take place through the veld. Special care shall be taken to prevent excess damage during wet weather.
- ✓ If any vehicle should get stuck, the damage shall be repaired immediately so that no deep ruts remain.
- ✓ Any damage to private property shall immediately be reported to Eskom and the owner. The damage shall be rectified immediately if possible and/or appropriate compensation shall be paid to the owner at the discretion of the project manager/coordinator in consultation with the property owner. A written record of damages and rectifying action shall be kept. The landowner's satisfaction with the outcome of rectifying action shall be obtained in writing.
- ✓ A proper system of waste management shall be instituted in the construction camp. This entails that sufficient waste bins are available on site and in the construction camp. The waste

shall be dumped at an approved waste disposal site. No containers, scrap metal, conductor etc. shall be left on site.

- ✓ All scrap shall be removed and taken to an appropriate disposal site. No oil, diesel or other chemicals shall be spilled or discarded anywhere. If an accidental spill occurs, it shall be reported immediately and cleaned to the satisfaction of Eskom and the landowner. No waste shall be left in the veld or on the line route.
- ✓ Water and Toilet facilities shall be provided on site and in the construction camp. The facilities shall comply with Eskom standard.
- ✓ Camp and office sites shall be dismantled and removed after completion of the construction phase of the project. The site shall be rehabilitated to as close as possible to its original condition to the satisfaction of the landowner that shall be in writing.
- ✓ All excavations shall be enclosed to prevent animals or people from accidentally falling into excavations.
- ✓ No trees shall be cut or removed without prior permission from the landowner. Permits shall be obtained for the cutting and removal protected and indigenous trees.
- ✓ Oil spill kits to be kept on site in case of oil spill.
- ✓ Refuse bins shall be made available on site.
- ✓ All waste including general litter must be removed from the site and disposed of at a licensed disposal site on a regular basis.
- ✓ No material shall be left on site.
- ✓ All hazardous waste shall be collected in marked receptacles in a demarcated area on site and shall be disposed of at hazardous disposal site registered to handle such waste.
- ✓ Environmental incidents shall be reported via the flash report process.

ANNEXURE B

IMPLEMENTATION OF THE ENVIRONMENTAL MANAGEMENT PROGRAM

The Eskom's appointed contractor _____ for the project is responsible for the following issues:

1. Ensure that the affected landowners are informed about your (the contractors) presence on their property.
2. Ensuring that Eskom and its contractors are aware of all the specifications, legal constraints and Eskom's standards and procedures pertaining to the project specifically regarding the environment.
3. Any damage to property or the environment must immediately be reported to Eskom and the landowner. The damage must be repaired immediately to the owner's written satisfaction.
4. No wandering around adjacent properties. Access is limited to the farm tracks area and the site only.
5. The public and all property are to be always treated with respect.
6. To ensure that all stipulations within the attached Environmental Management Program are communicated to and adhered to by Eskom and its contractors.
7. To monitor the EMP throughout the project by means of site visits and meetings. This should be documented as part of the site meetings minutes.
8. To ensure that all clean up and rehabilitation or any remedial actions that are required are completed prior to the issuing of a closure certificate.

ANNEXURE C

UNDERTAKING:

I, _____, the undersigned and duly authorized thereto by Eskom hereby undertake to give effect to all aspects as contained in the attached Environmental Management Plan and accept all responsibility, therefore.

Signed at, _____ on this _____day of _____

_____
SIGNATURE

Witnesses:

1. _____

2. _____