

APPENDIX I: HAZARDOUS SUBSTANCES LEAKAGE OR SPILLAGE MONITORING SYSTEM

Project aspect	Mitigation Objectives	Management actions	Monitoring		
			Methodology	Frequency	Responsibility
A. CONSTRUCTION PHASE					
1. Contamination of soil and risk of damage to vegetation and/or fauna through spillage of concrete.	Avoid soil contamination and risk of damage to vegetation and/or fauna through spillage of concrete.	1.1. Concrete mixing area (if any) must be defined in the site map and restricted to this area. If any concrete mixing takes place on site, this must be done on board, plastic sheeting or other appropriate impermeable surface capable of retaining cement slurry run-off, which is to be removed from the site once concreting is completed; or in areas to be covered by further construction.	Check that sand, stone and cement are stored and handled as instructed. Ensure that cement batching occurs in the demarcated areas and according to the cement batching method statement.	Daily	Contractor and ECO
		1.2. Any excess sand, stone and cement must be removed from site at the completion of the construction period and disposed of at a proper landfill site.	Check that sand, stone and cement are stored, handled and disposed of as instructed.	Daily	Contractor and ECO
2. Contamination of soil and risk of damage to vegetation and/or fauna through spillage of fuels and oils.	Avoid soil contamination and risk of damage to vegetation and/or fauna through spillage of fuels and oils.	2.1. Check construction equipment daily (by Contractor) to ensure that no fuel spillage takes place from construction vehicles or machinery, and monitored weekly by ECO and ensure drip trays are present.	Check that no spills have taken place.	Daily	Contractor and ECO
		2.2. Spilled fuel, oil or grease must be retrieved and contaminated soil removed, cleaned (or disposed of) and replaced with uncontaminated soil.	Check that no spills have taken place. Where spills have occurred, ensure appropriate remediation/ disposal measures are applied.	Daily	Contractor and ECO
		2.3. Contaminated soil to be collected by the Contractor (under observation of ECO) and disposed of at a waste site designated for this purpose.	Check that no spills have taken place. Where spills have occurred, ensure appropriate remediation/ disposal measures are applied.	Daily	Contractor and ECO

Project aspect	Mitigation Objectives	Management actions	Monitoring		
			Methodology	Frequency	Responsibility
		<p>2.4. Portable bioremediation kit (to remedy chemical spills) is to be held on site and used as required.</p> <p>2.5. In case of a spillage of hazardous chemicals where contamination of soil occurs, depending on the degree of contamination, excavation and removal to a hazardous waste disposal site might be necessary. If the spillage is widespread, a specialist will need to be immediately appointed to deal with the issue, the DEA notified and the notification process stipulated in the National Norms and Standards for the Remediation of Contaminated Land and Soil Quality (GN 331, 2 May 2014) should be followed.</p>	Ensure that a well maintained Portable bioremediation kit (to remedy chemical spills) is available on site and that site workers and contractors know its location and instructions.	Daily	Contractor and ECO
		2.6. Bunded containment to be provided below and around any fuel storage containers.	Check that no spills have taken place.	Daily	Contractor and ECO
3. Soil contamination from leakage from stores of hazardous substances on site	Avoid soil contamination during transport and storage of hazardous substances	3.1. Hazardous substances must be transported inside containers.	Check that this is undertaken.	During transport of hazardous substances	Contractor and ECO
		3.2. Containers must be well packed to the transport vehicle.	Check that this is undertaken.	During transport of hazardous substances	Contractor and ECO
		3.3. A minimum set of equipment necessary to combat any simple spillage or leakage problems should be provided and the transport team trained on how to use it.	Ensure that transport team know how to manage spills.	During transport of hazardous substances	Contractor and ECO
		3.4. The development of facilities for the temporary or permanent storage & handling of hazardous substances on site should adhere to the appropriate international standards and SANS requirements and should be located on an impermeable barrier/layer (e.g. concrete surface with acid lining). Storage of dangerous goods may not exceed the thresholds specified in the EIA Regulations and other relevant legislation, without prior approval from the relevant authorities	Ensure that the facility adheres to the relevant SANS and international requirements and complies with local legislation.	On-going	Contractor and ECO

Project aspect	Mitigation Objectives	Management actions	Monitoring		
			Methodology	Frequency	Responsibility
		<p>3.5. Secondary containment for hazardous substances may need to be constructed and must have a capacity of at least 110% of the largest storage tank's capacity. The secondary containment should include the following:</p> <ul style="list-style-type: none"> • The off-loading point must be located in the bunded area to ensure that any potential spill during the offloading of the electrolyte solutions is contained; • Divert rainwater away from the bunded area to avoid rainwater mixing with hazardous spillage potentially present within the secondary containment; • Ensure that the containment area is sloped to a sump; and • All drains should be covered. 	Provide secondary containment according to the specifications.	On-going	Contractor and ECO
		<p>3.6. Although highly unlikely, any spill/leakage from the hazardous substances storage facility must be attended to immediately and be handled in an environmental friendly manner (i.e. no discharge into the ground or any surface water body) and must be disposed of at an appropriate licensed hazardous waste disposal facility.</p> <ul style="list-style-type: none"> • Small Spills: Absorb spill with absorbent, inert material, place in a labelled container for disposal by licensed Hazardous Waste Contractor. Clean area with water and detergent. Dispose of cleanup materials in appropriate containers. Wear safety glasses with splash shields. Wear appropriate gloves to prevent skin exposure. 	Immediately attend to any spillage.	On-going	Contractor and ECO

Project aspect	Mitigation Objectives	Management actions	Monitoring		
			Methodology	Frequency	Responsibility
		<ul style="list-style-type: none"> Large Spills: Isolate and contain spill using absorbent pillows, mats or rolls. Keep unauthorized persons away from spill area. Contact Hazardous Materials Clean-up Contractor immediately for onsite response. Empty containers may still contain trace amounts of this material and are still hazardous. This substance is hazardous to the environment. Do not dump into drains. Dispose of only through proper hazardous waste methods. 			
B. OPERATIONAL PHASE					
4. Contamination of soil and risk of damage to vegetation and/or fauna through spillage of fuels and oils.	Avoid soil contamination and risk of damage to vegetation and/or fauna through spillage of fuels and oils.	4.1. Maintenance equipment must be checked to ensure that no fuel spillage takes place from vehicles or machinery.	Implement specifications for maintenance equipment use as specified by Contractor.	Monthly	Operations and Maintenance Contractor
		4.2. Spilled fuel, oil or grease is retrieved during operations where possible and contaminated soil removed, cleaned or disposed of and replaced with uncontaminated soil.	Implement specifications for removal and disposal of contaminated soil equipment use as specified by Contractor.	Monthly	Operations and Maintenance Contractor
		4.3. Contaminated soil to be collected and disposed of at a waste site designated for this purpose.	Implement specifications for removal and disposal of contaminated soil equipment use as specified by Contractor.	Monthly	Operations and Maintenance Contractor

Project aspect	Mitigation Objectives	Management actions	Monitoring		
			Methodology	Frequency	Responsibility
		<p>4.4. Portable bioremediation kit (to remedy chemical spills) is to be held on site and used as required.</p> <ul style="list-style-type: none"> In case of a spillage of hazardous chemicals where contamination of soil occurs, depending on the degree of contamination, excavation and removal to a hazardous waste disposal site might be necessary. If the spillage is widespread, a specialist will need to be immediately appointed to deal with the issue, the DEA notified and the notification process stipulated in the National Norms and Standards for the Remediation of Contaminated Land and Soil Quality (GN 331, 2 May 2014) should be followed. 	Ensure that a well maintained Portable bioremediation kit (to remedy chemical spills) is available on site and that site workers and contractors know its location and instructions.	Monthly	Operations and Maintenance Contractor
		4.5. Bunded containment to be provided below and around any fuel storage containers.	Implement specifications for maintenance equipment use as specified by Contractor.	Monthly	Operations and Maintenance Contractor
C. DECOMMISSIONING PHASE					
5. No specific impacts are associated with the decommissioning phase other than those from the operational phase that will still be relevant for the duration of the decommissioning phase due to on-going occupation of the area.					