**Electromechanical contractor management plan**

**EC-ESHSMP – Part 1**

**Master Document**

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**REGIONAL RUSUMO FALLS HYDROELECTRIC PROJECT**

**RUSUMO POWER COMPANY LIMITED (RPCL)**

Nile Equatorial Lakes Subsidiary Action Program Coordination Unit (NELSAP-CU)

**CONTRACTOR:**

**CONSULTANT:**

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**Drawn by**

H. Steiner 2017/10/05

**Checked by**

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**Agreed by**

J. Zubler 2017/10/05

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<td>15</td>
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1 Project Information relevant to Health, Safety and Environmental Management

1.1 Introduction
ANDRITZ HYDRO is well aware of his responsibilities for health, safety and environment and therefore does all its best to protect the environment and take care of the health and safety of his employees and affected persons on site.
Together with other documents like the HSE Plan, the Environmental Protection Plan and the Environmental Risk Assessment this document describes the way ANDRITZ HYDRO deals with his responsibilities.

1.2 Project Description
Project: Rusumo Falls
Employer: Rusumo Power Company Limited (RPCL)
Owners Engineer: AECOM Consultants Inc.
Site Location: Latitude: -2.3823379; Longitude: 30.7832596

The new hydro-power station of Rusumo Falls will be located on the Kagera River, about 2 km downstream of the confluence of the rivers Ruvubu and Kagera, at the border between Rwanda and Tanzania.
The project is driven by the investment program of the Nile Basin Initiative, the “Nile Equatorial Lakes Subsidiary Action Program (NELSAP)”, on behalf of RPCL as a joint development of the three African nations – Burundi, Rwanda and Tanzania.

1.3 Scope of work
At the Rusumo Falls Hydropower Plant site ANDRITZ HYDRO has the following scopes of Work:
- Installation of three 27.5 MW vertical Kaplan turbines and auxiliaries
- Installation of the Generators
- Installation of the Electrical Power Systems (EPS)
- Installation of the Power-house cranes
- Installation of the Draft tube gates and stop logs
- Installation of the Control and protection systems of the hydropower plant

1.4 Validity
This specific EC-ESHSMP is applicable to the processes site assembly and commissioning.
It is valid for the scope of works and supplies by ANDRITZ HYDRO for the hydroelectric power plant Rusumo Falls.
Chapters to be modified during the project course do not invalidate the general outlines of this plan. Updates will be edited in later revisions or in edited annexes.

1.5 General requirements
The draft EC-ESHSMP shall be submitted to AECOM not less than 30 days before the start of any construction works on any worksite. Comments from AECOM shall be provided to the Contractor within 15 days after reception of the draft version of the EC-ESHSMP. Final version shall be submitted to AECOM not later than 10 days before the effective start of the works.
The EC-ESH SMP is structured into 3 parts:

Part 1: Master Document, which defines the Contractor's general environmental and social commitments in terms of organization and production: personnel with roles and responsibilities, mobilized resources, site procedures, communication, management of non-conformities, documents and data management, auditing;

Part 2: Sectorial Technical Plans (STPs), which detail the ESHS best practices on the worksites to satisfy the present specifications

Part 3: Site Specific Plans (SSPs) which define, for the worksite, the ESHS measures implemented by the Contractor.

Parts 1 and 2 of the EC-ESH SMP shall be finalized and non-objected by the OWNERS ENGINEER prior to start any work on sites. Part 3 shall be prepared site by site, depending on a general site opening program established by the Contractor. Start of work on a specific worksite shall be authorized by the OE only after non-objection of the related SSP to be submitted by the Contractor not later than 30 days before the scheduled start of works.

2 Health, Safety and Environmental Principles and Policies

The project is executed according to the Management System of ANDRITZ. The Health, Safety, and Environmental Management are an integral part thereof.

It is the objective of ANDRITZ to carry out the project in the most efficient manner, without causing injury or damage to either persons involved in the contract, the general public, property, or environment.

Contractors ISO 14001, ISO 9001 and OHSAS 18001 certification see attachments.

2.1 Environmental Policy R HY QM 003

The official Environmental Policy of the ANDRITZ HYDRO Company is issued by the Management board of ANDRITZ HYDRO and published under the Regulation R HY QM 002.

It includes ANDRITZ HYDRO awareness and special responsibility for the environment throughout the execution of our business and in cooperation with our business partners.

Our environmental management is certified by a renowned accredited body according to ISO 14001 and is integrated into our global Management System.

2.2 Health & Safety Policy R HY QM 004

The official Health & Safety Policy of the ANDRITZ HYDRO Company is issued by the Leader board of ANDRITZ HYDRO and published under the Regulation R HY QM 004.

It includes ANDRITZ HYDRO awareness and special responsibility for our employees and other affected by our activities throughout the execution of our business and in cooperation with our business partners.

Our occupational Health and Safety management is certified by a renowned accredited body according to ISO 14001 and is integrated into our global Management System.

3 Health, Safety and Environmental risk identification and assessment

3.1 Definitions

The management of activities with risk to health, safety, and environment has to be governed by risk assessment and safety instructions. The purpose is to identify the risks associated with a specific task and define the safety measures to be taken. The results have to be used for the health and safety co-ordination and for issuing of Permit to Work orders.

3.2 Site Risk Assessment

The preparation of health, safety and environmental risk assessments is part of the safety planning and has to be done the first time during the planning phases of the site installation and commissioning.

The risk assessments (job hazard analysis) shall be filed according to the work activities or work schedule.
The risk assessment shall be done according to:
R HY HSM 004 Health, Safety and Environmental Risk Assessment for Site Activities

Risk evaluation for health and safety issues shall follow the template
R HY HSM 002/1 Health and Safety Risk Assessment for Site Activities.

Risk evaluation for environmental issues shall follow the template
R HY HSM 002/3 Environmental Risk Assessment for Site Activities

The ESHS Manager has to update and review the risk assessment form the planning phase and analyze the risks of work activities on site.

In addition the ESHS Manager has to assess potential pollutions, potential nuisance and waste. Proper preventive or disposal measures have to be taken.

All assessments and reviews on a regular basis shall be done in cooperation with the Site Manager and the help of the site supervisors.

For activities with high risks, safety instructions have to be issued to control the risks.

The risk index criteria or measurement of risk can be determined by the following matrix:

<table>
<thead>
<tr>
<th>Severity</th>
<th>Insignificant or minor</th>
<th>Moderate damage</th>
<th>Moderate to significant damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unlikely or rare</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Moderate likelihood</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Likely or almost certain</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

### 3.3 Control of Substances Hazardous to Health

Site supervisors have to assess the risks of the use and storage of materials or substances hazardous to health and shall take preventive measures as necessary. A list with all hazardous substances according to the Template R HY HSM 002/2 or equivalent, including the safety instruction (Chemical Safety Cards) or material safety data sheets must be available on site.

### 4 Legal and reference framework

#### 4.1 Legislation applicable to the works

Legal requirements applicable to the contract (but not limited to):
- N° 04/2005 of 08/04/2005 Organic Law determining the modalities of protection, conservation and promotion of environment in Rwanda
- N° 13/2009 of 27/05/2009 Law regulating labour in Rwanda
- Ministerial order n°02 of 17/05/2012 determining conditions for occupational health and safety
- Water and sanitation sector strategic plan 2013/14 - 2017/18 (republic of rwanda - ministry of infrastructure)
During contract execution further applicable legislation might be identified and updated by the ESHS Manager in reference to the contract and to mutual agreement between ANDRITZ HYDRO and the customer.

4.2 Safety Instructions for the Site
The following instructions are made available on site and have to be observed by everybody:

ANDRITZ specific instructions:
R PP HSM 001 Basic Health, Safety, and Environmental Rules

Other base instructions could be obtained from the global Health, Safety & Environment ANDRITZ website:
https://acp.andritz.com/global/GQS/hse

If required, the Site Manager or the ESHS Manager can set in force additional safety instructions e.g. due to assessed risks, they need than to be identified and updated by the ESHS Manager.

4.3 General Site Rules
The general site rules have to be imparted to everybody on site during the site induction training.
New recruited and members of personnel shall be made aware and acknowledge their understanding of the rules of procedure and the associated provisions. Induction training on the rules shall be carried out for all employees prior to the start of the work.

The general site rules shall be regularly addressed by the supervisors during the tool box talks. The site rules have to be observed by everybody.

The rules will be clearly displayed at the different worksites and posted in worker camps and canteens.

- Personal Protective Equipment (PPE):
  PPE has to be used as indicated by signs or defined by risk assessments. As minimum standard hard hats, safety shoes and proper overalls have to be used all the time with exception of in the Mess and Site Office.
- All work and safety instructions have to be followed at all times.
- All buildings are designated Non Smoking areas.
- Anybody showing symptoms of being under the influence of alcohol or drugs will be removed from the site immediately, and may be dismissed.
- Everybody has to register at the site office and has to pass the site induction prior to commencing any work on site.
- Any vehicle, forklift truck, or item of plant on site may only be operated by personnel authorized to do so.
- All vehicles may only be parked on designated areas.
- Electricity:
  Treat all cables, connectors, and equipment as live. Work on electrical plant may only be carried out by competent persons and only after having obtained a Permit-to-Work.
- **Confined Space:**
  Do not enter any confined space without a Confined Space Entry Permit.

- **Scaffolds:**
  Scaffolds may only be erected and maintained by competent persons. The usage is restricted unless an inspection has been carried out.

- **Tools and Equipment:**
  All equipment and tools have to be used as directed. Misusing and willful damage will not be tolerated on site and will lead to disciplinary action, including dismissal.

- **All equipment has to be maintained properly and regularly inspected. Any damages have to be reported to the supervisor. No personal tools may be used.**

- **Housekeeping:**
  Keep your work area and environment clean and tidy. Remove everything not needed for the execution of the work and store it properly at the designated areas.

- **Environment:**
  Hazardous substances shall be stored properly at safe places.
  Dispose rubbish and waste safely and correctly in the designated bins and containers.

- **Lifting Operations:**
  Cranes shall only be used by authorized persons. Use correct lifting tackle, check its condition before use and ensure load is secure.

- **Fire Prevention and Emergency Procedure:**
  Do not carry out hot work without a Hot Work Permit. In case of an emergency follow the procedures and instructions. Do not block any escape routes.

  - Keep a look out for potential hazards, report them, and contribute to a good health, safety, and environmental protection culture. Report all accidents, incidents, and near misses to your supervisor or the Site Safety Advisor.

- **Toilets, washing and other facilities are provided for specific purposes. Use them correctly and clean up after yourself.**

### 4.4 General Environmental Rules

It is recommended to coordinate all efforts in respect of waste management with other responsible entities on site e.g. civil works, customer etc. in order to achieve an overall synchronized approach, to reduce general costs and use possible synergies. Therefore it shall be the aim to pass a mutual agreed waste disposal regime with all involved parties.

- The site, all work areas, and the camp must be kept free of waste. The waste has to be collected and stored separately at designated areas only.

- Waste has to be disposed by authorized companies only. Records must be kept.

- Each sub-supplier is responsible for the collection, storage and disposal of his own waste.

- During demobilization all waste, unused material, assembly equipment, and installation auxiliaries must be removed from site. No contamination may remain on site.

### 4.5 Acts regarded as a serious misconduct

- Drinking alcohol during working hours resulting in safety risks for other staff or surrounding population,

- Indecent statements or attitudes, in particular sexual harassment,

- Violent behavior, Intentional damage to assets and interests of others or the environment,

- Repeated negligence or imprudence leading to damage or prejudice to the environment, the population or properties, particularly breaching provisions intended to prevent the spreading of STD and AIDS,
- Drug use,
- Possession of fire arms within the boundaries of the worksites,
- Possession and/or consumption of meat or any other part of an endangered animal or plant as defined in the Washington Convention (CITES) and national regulations

4.6 Disciplinary measures
In the case of the non-respect of the general rules, ESHS regulations and requirements of ANDRITZ the concerned staff

- is given a warning and obliged to undergo a repeated training in case of the first time
- is given a warning in writing and obliged to undergo a repeated training in case of the second time, and
- Sent off the site in case of the third time.

In extreme cases the concerned staff may also be sent off the site immediately.
Acts considered as serious misconduct may result in contract termination for the concerned employee and this without prejudice to any legal action by the public authority, if justified. Those acts are listed above in chapter 4.5.

5 Objectives, targets and compliance
The ESHS Manager shall establish environmental objectives at relevant functions and levels, taking into account the organization's significant environmental aspects and associated compliance obligations, and considering its risks and opportunities.

The environmental objectives shall be:

- consistent with the environmental policy;
- measurable (if practicable);
- monitored;
- communicated;
- Updated as appropriate.

The ESHS Manager shall maintain documented information on the environmental objectives.

When planning how to achieve its environmental objectives, the ESHS Manager together with the site Manager shall determine:

- What will be done;
- What resources will be required;
- Who will be responsible;
- When it will be completed;
- How the results will be evaluated, including indicators for monitoring progress toward achievement of its measurable environmental objectives.

6 Project Organization according to Health, Safety, and Environmental
A detailed site organization chart with respect to Health, Safety, and Environment is attached to this Plan (see attachment).
Remark:
Revisions of the Project Organization Chart shall be made individually. The revision thereof shall not involve a revision of this ESHS Plan and vice versa.

The following is an outline of basic responsibilities:

6.1 Responsibilities of ANDRITZ HYDRO and Sub-Contractor’s Supervisors:
- Ensuring that risks of the work are identified and controlled appropriately.
- Ensuring work is carried out safely and according to instructions.
- Ensuring material and equipment is in a good safe working order.
- Carrying out tool box talks as necessary.
- Reporting of accidents, incidents and of any deficiencies in equipment or working practices.
- Co-ordination in health, safety, and environmental aspects and participation in health and safety meetings.
- The respective supervisor may not leave the site at the end of the shift without reporting an incident.
- Participation in any incident investigation conducted which involves his or sub-contractor employees
- Ensure engineering controls are implemented to reduce the risks to an acceptable level. Use of the hierarchy of controls at all times:
  - Task elimination
  - Change of method
  - Technical means
  - Organization means
  - PPE’s

6.2 Role description and responsibilities of the Site Manager:
- Has full responsibility for all work according to the contract carried out on site.
- Ensuring that the Health, Safety, and Environmental Management System is applied on site by providing resources for the implementation of the Health, Safety, and Environmental Plan.
- Participation in any incident investigation conducted which involves his or sub-contractor employees

6.3 Role description and responsibilities of the ESHS Manager on site
- Implementation and update of the EC-ESHSM-Plan (Health, Safety, and Environmental Plan)
- Identification of risks and definition of control measures
- Suspend, when justified, the works in the event of a major and critical non-conformity
- Regular monitoring of the Health, Safety, and Environmental protection arrangements on site
- Allocate resources, personnel and equipment as needed for immediate corrective action
- Carrying out and recording of regular safety checks and safety inspections
- Recording and investigation of accidents and incidents
- Appoint ESHS inspectors
- Co-ordination of health, safety, and environmental aspects of site activities
- Arranging for induction training and site specific health, safety, and environmental training
- Participation in any incident investigation conducted which involves his or sub-contractor employees
Attend requested meetings with ESHS Teams and participate fully in initiatives arranged by the Employer.

Analyze incidents, including close call to identify and report on trends.

The ESHS Manager shall be permanently based on the Worksite for the full duration of the works as of Contractor’s mobilization until the provisional acceptance of all works.

The ESHS Manager shall speak fluently English. The ESHS Manager shall hold a relevant University degree and shall preferably have an experience of at least 10 years in designing and monitoring the implementation of ESHS issues on construction sites of equivalent size.

Mobilization Matrix:

<table>
<thead>
<tr>
<th>Workforce / Men on site</th>
<th>ESHS personnel</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-50</td>
<td>ESHS Manager</td>
<td>Permanent</td>
</tr>
<tr>
<td>&gt; 50 - 150</td>
<td>1. ESHS Engineer (Assistant)</td>
<td>Workforce / men present</td>
</tr>
<tr>
<td>&gt; 150</td>
<td>2. ESHS Engineer (Assistant)</td>
<td>Workforce / men present</td>
</tr>
</tbody>
</table>

6.4 Role description and responsibilities of the HSE coordinator

The HSE Coordinator is responsible for the implementation of customer obligations from the contract.

The HSE Coordinator himself is not part of the site staff, works independently as an administrative body in the project.

Reports shall be issued to the HSE Coordinator for the evaluation, if the ESHS system is implemented and to report the current situation to the ANDRITZ HYDRO Project Manager and management board in case of uncertainties regarding Environmental and Health & Safety Risks at site.

Responsibilities:

- Prepare of ESHS documents (preliminary EC-ESHSMP plan, template documents…) before the ESHS Manager starts his work at site.
- Support of the ESHS Manager in case of uncertainties regarding the implementation of the ESHS management system and the requirements according this document at site
- May change the EC-ESHSMP if necessary.

6.5 Responsibilities of all people on site:

- Complying with the requirements for health, safety, and environmental protection and using personal protective equipment provided.
- Notifying hazards, deficiencies, incidents and accidents to the supervisor.
- Awareness that everybody is responsible for his/her owns safety and the safety of all others.
- Ensuring all incidents are reported immediately to the Site Manager.
- Inform the supervisor of any issue that could result in an injury to any person.
- Every person has the responsibility to refuse to conduct a task if there is a risk of injury to him / herself or other persons.
6.6 Health, Safety, and Environment Overview

- Report any medical issues to the supervisor at the start of the shift, i.e. feeling ill, lack of sleep, taking prescription medication, etc.
- Shall report any damaged or unsafe equipment to the supervisor immediately.

6.7 Arrangements for Directing and Coordinating Sub-Contractors

The responsibility for ensuring that personnel under the sub-contractor’s control understand and comply with the relevant health, safety, and environmental legislation and procedures rests with the sub-contractor.

A register of sub-contractors according to the Template R HY HSM 002/4 or equivalent must be available on site.

6.7.1 Selection of Sub-Contractors

Sub-contractors shall be evaluated on their health, safety, and environmental competence before engagement. Sub-contractors shall provide the sub-contractor’s Health, Safety, and Environmental Policy, including details of organization, arrangements for ensuring that the policy is implemented and provisions for health, safety, and environmental protection. Additionally, procedures or method statements applied on this project shall be provided.

6.7.2 Health, Safety, and Environmental Information for Sub-Contractors

The Health, Safety, and Environmental Plan including all referenced legislation, procedures, instructions and documents are made available to and are binding for every sub-contractor.

6.7.3 Management aspects

- The organization, responsibilities and tasks included in this Health, Safety, and Environmental Plan are binding for all sub-contractors. Every sub-contractor has to nominate a suitable trained, experienced and competent supervisor as safety representative before start of work.
- Sub-contractors have to assess the risks associated with their activities and have to prepare appropriate written erection safety instructions for all activities with high risks. If requested, sub-contractors have to produce for their scope of supply health, safety, and environmental documents like safety plans, risk assessments, safety instructions and the revisions thereof. They have to be
provided for review to the ESHS Manager respectively the HSE Coordinator prior to work commencing.

- Where the sub-contractor undertakes design or appoints others as designers, he will ensure that the legal requirements imposed upon designers are met and the requirements of this Health, Safety, and Environmental Plan related to the design work are fulfilled.

- The sub-contractor will ensure that all personnel under his control, including his management and supervisory personnel have been provided with adequate training to enable them to carry out their work in a safe manner and without risk to health. At least the health, safety, and environmental training requirements described in this Health, Safety, and Environmental Plan have to be fulfilled and proven by every sub-contractor.

- The sub-contractor will ensure that any plant, vehicles, equipment, machinery, apparatus and material brought onto or used on the site is safe, without risk to health and maintained in a safe condition. All appropriate tests and examinations of such plant, equipment etc. must be carried out and the respective certificates and reports be maintained in accordance with the relevant statutory requirements. Copies of such documentation must be kept available on site for inspection.

- The sub-contractor will ensure that substances hazardous to health are only used, if they cannot be substituted by less hazardous ones. Before hazardous substances are brought to the site, the safety data sheets must be made available on site. The sub-contractor has to ensure that the substances are marked, handled, used, stored and disposed correctly and that operators are trained sufficiently.

- The sub-contractor has to attend the start-up meeting before start of work and review the Safety Coordination Sheet R HY HSM 003/1.

- The sub-contractor has to attend the health and safety meeting in accordance with this ESHS plan.

- If there are deficiencies in the health, safety, and environmental performance, then ANDRITZ will have the authority to demand additional actions or to stop activities. In serious cases ANDRITZ may even expel individuals or companies from site. ANDRITZ will not accept responsibility for any increased cost or delay arising out of such action.

7 Training and awareness programs

Any ANDRITZ employee sent to the site will have been trained regularly in health, safety, and environmental protection.

Sub-contractors will have to prove, that their employees are trained in health, safety, and environmental protection sufficiently for the task and for a safe execution of the work.

A list of names including professional qualification according R HY HSM 002/7 or equivalent should be available on site.

7.1 Site Induction Training

Everybody has to attend a site induction training before being allowed to enter the site. The minimum content of the induction training is:

- Health & Safety and Environmental Principles
- General site rules and safety instructions
- Health, safety, and environmental awareness

7.2 Security Briefing in Risk Countries

Every new arrival must receive a briefing about the security situation within 72 hours after arrival to the site. This briefing should contain:

- Current security situation on the ground (political situation, criminality, recent incidents, etc.)
- NO-GO areas
- Best way to and from site
7.3 Regular Training and ESHS Information

- Cultural sensitivities: Do’s and don’ts

- First Aid training: The Site Manager has to check regularly and ensure that enough people trained in First Aid are present. If necessary, additional training has to be arranged.
  At least one first aid trained employee necessary for each shift of 10 to 25 co-workers.
- If needed additional training has to be arranged, for the safe execution of specific tasks with high risks.
- Statutory notices shall be displayed in the office, workshop and mess as necessary.

8 Communication internal and external

8.1 Weekly report

The ESHS Manager shall submit (not later than every Tuesday) on a weekly basis a report providing:

- The results of monitoring analysis (drinking water, wastewater, air quality, noise) carried out during the week insofar areas in the responsibility of CP 2 are concerned (e.g. camp area and storage area)
- The status of non-compliances to the ESHS rules opened or closed during the week
- Particular activities carried out during the last week or scheduled for the coming week.

8.2 Monthly report

As part of the Progress Report the ESHS Manager shall submit a Monthly ESHS Progress Report (MEPR) presenting all ESHS activities performed during the month. The MEPR is part of the Monthly Project Progress Report submitted.

Monthly ESHS Progress Report (template R HY HSM002/11) is a complete and permanent document, with full page numbering, established in a structured and concise manner to ensure accuracy and ease of use. The document is written in English.

The monthly ESHS Progress Report shall be submitted not later than 7 working days after the end of the month. The template R HY HSM002/11 Monthly HSE Site Report shall be adapted to ensure, that following information is implemented:

- List of ESHS staff on site at the end of the month, recruitment, departures
- Status of worksites: sites opened or decommissioned during the month
- ESHS inspections carried out during the month (site and date)
- Non-compliances opened and closed during the month
- Up-date of the hazardous products register at the end of the month
- Description of anti-erosive and sediment control measures implemented during the month
- Solid waste management: production of solid waste during the month including non-hazardous (domestic, recyclable, construction) and hazardous (medical, oils and grease, batteries, oil filters etc.) with up-date of registers at the end of the month
- Results from monitoring activities of drinking water, wastewater, stormwater, discharge from sedimentation ponds, air quality, noise
- Training activities including type (formal session, tool-box meeting, on-site induction), topics covered, date, duration, number of attendees
• Health and Safety on site, providing results by the end of the month for at least the following HS indicators:
  o Number and type of incident/accident with lost-time
  o Number and type of incident/accident without lost-time
  o Statistical distribution of incident/accident per cause type (lack of procedure, lack of supervision, neglect, dangerous behavior, lack of maintenance, etc.)
  o Number of sanitary evacuations and cause
  o Status of Project workforce on site by the end of the month, distributed per skilled/unskilled category and per origin (International, Rwanda, Tanzania, Burundi)
  o Number of hours worked during the month and number worked since the start of the project
  o Status of indicators related to health and safety: dangerous situations, NC registered, speed controls, truck tires condition, truck loads, car safety belt use, alcohol test for drivers, number of H&S inspections, extinguisher tests, etc.
  o Health situation of workforce on site: observed pathologies, statistics of consultation and number of bed-day occupation at the medical center, prevalence of infection types
  o Anti-vector control activities
  o Provisional program of activities for the coming month

8.3 Incident notification
• Immediate emergency actions have to be taken in case of an accident.
• Everybody on the site must notify to his supervisor any accidents, incidents or dangerous occurrences. It is the obligation of every supervisor to forward the notification (template R HY HSM 002/8 Hazard Report Card or equivalent) to the Site Manager and the ESHS Manager. The ESHS Manager and his aides are responsible that the causes are analyzed, and appropriate corrective measures are implemented by relevant personnel.
• The Site Manager is responsible for ensuring that accidents, incidents, and dangerous occurrences are recorded and corrective and preventive measures are taken.
• A death, major injury, or very dangerous occurrence has to be reported to the authority immediately by the quickest possible means and confirmed in writing afterwards.
• The Site Manager also has to report accidents and incidents according to the ANDRITZ Group Accident Incident and Emergency Policy internal as well as to the Owners Engineer.
• The Site Manager shall be informed within one hour of any incident involving serious bodily injury to a member of personnel, site visitor or any other third party, caused by the execution of the works or the behavior of ANDRITZ HYDRO personnel res. sub-suppliers under responsibility of ANDRITZ HYDRO.
• The Site Manager shall be informed of any near-missed accident relating to the execution of the works which, in slightly different conditions, could have led to serious injury or damage to private property or the environment, within 24 hours after the event

8.4 Safety Notice Board
A safety notice board will be displayed on site. This will include information and updates on the project as it progresses. The notice board is intended to display the following notices, where all personnel working on the contract can see them:
• Copy of the ESHS Plan or notice where it can be viewed
• Basic Health Safety Environment Rules
• Emergency Plan details
The records of health, safety, and environmental activities and the responsibilities thereof are summarized in the following table. The Site Manager has to ensure that the records are available on site. Before demobilization the Site Manager has to summarize the records in a close out report. Upon request, records have to be sent to the ANDRITZ HSE Coordinator.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Records</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning for health, safety, and environmental protection (this plan acc. R HY HSM 002)</td>
<td>Health, Safety, and Environmental Plan</td>
<td>ESHS Manager</td>
</tr>
<tr>
<td>Project Organization (acc. R HY PM 010/1)</td>
<td>Organization Chart</td>
<td>Project Manager</td>
</tr>
<tr>
<td>ESHS Training (acc. R HY HSM 002/9)</td>
<td>Training log</td>
<td>ESHS Manager</td>
</tr>
<tr>
<td>Check and update the Site Risk Assessments (acc. R HY HSM 002/1)</td>
<td>ESHS Risk assessment</td>
<td>Supervisor</td>
</tr>
<tr>
<td>Control of substances hazardous to health (acc.(R HY HSM 002/2)</td>
<td>Material Safety Data Sheets or Safety instruction</td>
<td>Supervisor</td>
</tr>
<tr>
<td>Safety Instruction, if necessary</td>
<td>Document</td>
<td>Supervisor</td>
</tr>
<tr>
<td>Selection of Sub-Contractors</td>
<td>Sub-Contractors Health, Safety, and Environmental Policy</td>
<td>Project Manager, Sub-Contractor</td>
</tr>
<tr>
<td>Check and update the Environmental assessment (acc. R HY HSM 002/3)</td>
<td>Environmental risk assessment</td>
<td>Site Manager</td>
</tr>
<tr>
<td>Waste disposal</td>
<td>Bill of lading</td>
<td>Supervisor</td>
</tr>
<tr>
<td>Start-up meeting if necessary</td>
<td>Minutes of Meeting</td>
<td>Site Manager</td>
</tr>
<tr>
<td>Regular Co-ordination meeting</td>
<td>Minutes of Meeting</td>
<td>Site Manager</td>
</tr>
<tr>
<td>Health and Safety Committee</td>
<td>Minutes of Meeting</td>
<td>ESHS Officer</td>
</tr>
<tr>
<td>Tool Box Talks (acc. R HY HSM 002/9)</td>
<td>Work log</td>
<td>Supervisor</td>
</tr>
<tr>
<td>Permit to Work (acc. R HY HSM 002/10)</td>
<td>Copy of the Permits-to-Work</td>
<td>ESHS Officer</td>
</tr>
<tr>
<td>Health, Safety, and Environmental Inspections</td>
<td>Reports</td>
<td>ESHS Officer</td>
</tr>
<tr>
<td>Accidents/Incidents</td>
<td>Accident report (acc. Enclosure 1)</td>
<td>Site Manager</td>
</tr>
<tr>
<td>Activity</td>
<td>Records</td>
<td>Responsibility</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>ESHS Report and Statistic</td>
<td>Report (acc. R HY HSM 002/11)</td>
<td>ESHS Officer</td>
</tr>
<tr>
<td>Support / assistance all ESHS activities</td>
<td>Report</td>
<td>ESHS Officer</td>
</tr>
<tr>
<td>on site if necessary</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10 Emergency preparedness and response / Site Emergency Procedure

In cooperation of the other involved parties on site the ESHS Manager prepare an Emergency Preparedness and Response Plan (EPRP) including the following chapters. The Plan describes the organization to respond efficiently emergency situations and the procedures to respect for a control of any emergency situation.

Potential risks are to be accessed by the before mentioned ESHS Risk assessment and Environmental risk assessment – any additional measure thereof shall correspond with necessary actions in case of an emergency – when all taken precautions fail.

10.1 Raising of Alarm

An emergency notice according to the Template R HY HSM 002/5 or equivalent must be available on site.

Site Emergency Notice R HY HSM 002/5

(Example, which has to be adapted at site mobilization)
10.2 Reporting of emergencies

<table>
<thead>
<tr>
<th>Function</th>
<th>Name</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency call</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site Manager</td>
<td>Manfred Kiene</td>
<td></td>
</tr>
<tr>
<td>ESHS Manager</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AH supervisor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisor subcontractor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project Manager</td>
<td>Johannes Zubler</td>
<td></td>
</tr>
</tbody>
</table>

(Example, which has to be adapted at site mobilization)

10.3 First aid arrangements

It is mandatory put available a First Aid kit including at least the necessary medicine for first aids: medicine cabinet, ropes, cables, stretcher, bandages, etc. Location and mutual use of fixed first aid kits shall be harmonized with other involved parties at site during site mobilization.

An adequate number of people trained in first aid. At least one first aid trained employee deemed necessary for each shift of 10 to 25 co-workers. A list of nominated first aiders must be available on site. (See also 1.7.3)

10.4 Firefighting equipment

The firefighting equipment is preferably chemical powder extinguisher (ABC). Extinguishers with Halon should not be used.

A sufficient number of fire extinguishers appropriate for the potential fire hazards must be kept in visible positions. Location and mutual use of fire extinguishers shall be harmonized with other involved parties at site during site mobilization.

Firefighting equipment must be inspected and maintained regularly.

An adequate number of people trained in handling with fire extinguisher. A list of nominated fire fighter must be available on site.

10.5 Kits for chemical substances leakages or spill over

In the work place where will be dangerous substances shall be placed kits of equipment capable to control any possible leakage or spill out of oil, gasoline, etc.

Each kit shall include as appropriate:

- Absorbents like wiper, industrial rag in order to contain and collect the spilled liquid
- Commercial kits for leakages pre-packaged with a big variety of absorbents for big or small spilling
- Manual tools and/or equipment for excavation of contaminated materials. Cylinders and plastic bags capable to clean and transport the contaminated material
- Warning tape

10.6 Addresses of medical services

<table>
<thead>
<tr>
<th>Medical services</th>
<th>Name</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
11 Compliance monitoring and site inspections

The ESHS Manager will carry out an ESHS inspection of the worksites on a weekly basis jointly with the Owner Engineer.

A written report shall be drafted by the ESHS Manager after each weekly inspection (see chapter 9 documentation and document control and chapter 8 Communication internal and external).

The extract of the reports shall be transmitted to the Owner Engineer as part of the weekly report.

11.1 Start-up meeting

Before start of work every sub-contractor has to attend the start-up meeting. The objective of this meeting is to ensure that all sub-contractors have an understanding of the work especially the implications for/by others, the restrictions and the Health and Safety co-ordination.

The Site Manager has to ensure that a current list (template R HY HSM 002/4 or equivalent) with all sub-contractors, addresses, and the names of the supervisors/nominated persons is available on site.

11.2 Regular Site Co-ordination Meeting

This will review the work progress, advise all parties of situations arising that may affect the on-going work, and ensure the co-operation between all sub-contractors on site. Items which have to be addressed are:

- Location of all on-going tasks and description of the tasks
- Sub-contractors and number of personnel involved
- Relevant risk assessments and associated safety instructions
- Completion dates of tasks
- Deliveries, transport activities, crane requirements
- Permit-to-Work orders issued
- Implications for/by others
- Restrictions or actions to be taken after a near miss/incident
During the site co-ordination meeting ESHS has to be considered in the agenda where all the required organizational and coordination issues are to be discussed.

The ESHS Manager convenes a co-ordination meeting once a month where the participants are the responsible persons of ANDRITZ and of the subcontractors - and/or their expert representatives. During these meetings current ESHS subjects and measures are discussed that result from site walk downs, accidents and close calls, dangerous situations, customer requirements, etc.

Further contents:

- Particular safety information for the site
- Use of the PPE
- Alarm and hazards prevention plan (e.g. fire protection regulation)
- Handling of tools, devices, and machinery
- Activities with hazardous substances
- Mobile inspections of tanks and working in restricted spaces
- Subjects as proposed by the staff
- Tidiness and cleanliness
- Subjects from the checklist for toolbox meeting

The objective is to motivate the staff and the contractors to adhere to behavior easing working conditions and being environmentally appropriate.

**Participants:** Site Manager, all supervisors (at least one from every sub-contractor), the ESHS Manager and representatives from those parties affected by the work if applicable. The meeting is to be documented in writing.

### 11.3 Health and Safety Committee

Alongside the regular site co-ordination meetings with the Employer’s representatives, a formal health and safety committee will be held; attendance will be mandatory.

The objective is:

- to review the Health, Safety, and Environmental Plan,
- the evaluation of the health, safety, and environmental performance,
- to set/update safety instructions as required.

**Participants** (at least): Site Manager, ESHS Manager, one representative of every sub-contractor, a representative of the Employer. The Committee is to be documented in writing.

### 11.4 Tool Box Talks

Every supervisor has to carry out tool box talks with his staff regularly. Items which have to be addressed are:

- Location and explanation of the task
- Hazards and precautions to be taken
- Check the risk assessment
The tool box talks are also an arrangement for consultation with employees. Observations of hazardous situations shall be discussed and action taken. The ESHS Manager will give assistance if requested and will monitor the tool box talks.

The Tool Box Talk must be documented with the Template R HY HSM 002/9 or equivalent.

### 11.5 Permit to Work

A permit to work system will operate on site. The following activities may not be carried out unless the risks have been assessed, appropriate precautions taken and a formal Permit of Work issued before start of the activity:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Referenced Documents</th>
<th>Authorized Person for release of permit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welding or Hot Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entry to confined spaces</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ionizing Radiation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifting Operations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driving a forklift</td>
<td>Driving license</td>
<td></td>
</tr>
<tr>
<td>Crane operation</td>
<td>Operation license</td>
<td></td>
</tr>
<tr>
<td>Electrical Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work with hazardous substances</td>
<td>Safety Data sheets /</td>
<td></td>
</tr>
<tr>
<td>Commissioning</td>
<td>Check list</td>
<td></td>
</tr>
</tbody>
</table>

Before work commences on plant items, all necessary sources of danger such as electricity supply, water/steam supply etc. are isolated and the points of isolation are fitted with a Lock Out and Tag Out system. Any locked and tagged out items of equipment must not be interfered with.

The Permit to Work must be documented with the template R HY HSM 002/10 or equivalent.

### 11.6 Work Equipment

All equipment, devices, tools have to be kept in safe condition by regular inspection and maintenance. Work equipment must be suitable for the task it is expected to do.

A list of equipment which must be inspected by legal regulations must be available on site. Use the Template R HY HSM 002/6 or an equivalent.

The following equipment must be inspected and records must be available on site

- Portable electric tools
Mobile Work Equipment (e.g. forklift, excavator)
- Lifting Equipment
- Lifting Accessories (e.g. chain, ropes,)
- Scaffolds
- Mobile Elevated Work Platforms (MEWP)
- Fall Protection (safety harness)
- Fall arrest equipment
- Cranes
- Ladders and platforms
- Goods and personnel lifts
- Electrical panels, boxes, cables and earthing devices
- Compressors and generators

Inspections must be carried out by competent persons. The inspection must be documented and the inspected equipment must be adequately marked.

12 Non-compliance detection, correction and prevention

The following describe the handling of non-conformities detected during site inspection with the Owners Engineer.

Non-conformities are divided in 4 categories from the lowest (ON) to the highest (NC level 3)

Observation notice (ON):
Observation Notice (ON) for minor non-conformities. This level requires only oral notification by the Owners Engineer to the ESHS Manager, with the ON being entered into the Engineer’s register. If there are many similar ONs at the site or if the Contractor does not take the ON into account the ON can be raised to a level 1(NC1).

Level 1 (NC1):
NCs that do not represent a serious immediate risk for health and environment. NC1 is subject to report and the contractor shall correct the situation within 5 days. Any NC1 left uncorrected after one (1) month shall be raised to NC2 level.

Level 2 (NC2):
NCs that have resulted in damages for health or environment or represent a high potential risk for health or the environment. NC2 is subject to report and the Contractor shall correct the situation within 3 days. Any NC2 left uncorrected after one (1) month shall be raised to NC3 level.

Level 3 (NC3):
NCs that represent a risk with major consequences to health and the environment. The highest levels of the Contractor’s and Engineer’s hierarchies present in the Employer’s country are informed immediately and the Contractor has twenty-four (24) hours to bring the situation under control. If the situation requires, the Owners Engineer can order the suspension of works on the concerned worksite until the closing of the NC.
NCs detected by the Owner Staff or by the Owner Engineer staff will be subject to a formal reporting addressed to the ESHS Manager with limited time for correction as before said. After definition and implementation of the corrective measure, the ESHS Manager has to report it to the Owner Engineer.

All detected NCs shall be documented by digital photographs with captions to provide a visual illustration, explicitly indicating the location, date of inspection and the non-conformity under consideration.

Non-conformity template see attachments.

13 Internal and external health and safety and environmental inspections and auditing

The Site Manager and all supervisors will have the responsibility for checking that the work is carried out safely and that safety instructions and environmental requirements are met.

The HSE Coordinator (see project organization chart) will perform an audit during the first months, but not earlier than 3 months after the ESHS Manager has started his job at site, to ensure that the ESHS management is implemented according to this ESHS plan, customer requirements and Andritz regulations.

ESHS inspection or Audits will carry out according the following schedule.

<table>
<thead>
<tr>
<th>Function</th>
<th>Sequence</th>
<th>Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Manager</td>
<td>Monthly</td>
<td>Checklist R HY HSM 002/12</td>
</tr>
<tr>
<td>Supervisor</td>
<td>(See tool box talks)</td>
<td>R HY HSM 002/9</td>
</tr>
<tr>
<td>ESHS Manager</td>
<td>Weekly (see inspections with the Owner Engineer)</td>
<td>Checklist R HY HSM 002/12</td>
</tr>
<tr>
<td>HSE Coordinator</td>
<td>On yearly basis</td>
<td>R HY QM 009/6</td>
</tr>
</tbody>
</table>

Copies of the completed inspection checklists will be held on site and will be used for discussion at Internal Management and the Health and Safety Committee (s. 11.3). The preventive actions have to be carried out by the responsible supervisor.

14 Senior management health and safety and environmental review

The relevant ANDRITZ HYDRO location is responsible to integrate site activities and reports into the quarterly Management System review. It is the duty of the Project Manager to structure and report to the management issued information.

15 Relevant applicable document / Attachments

- Site organization chart
- ANDRITZ Group Quality Health and Safety Reporting Policy
- ANDRITZ Basic Health, Safety, & Environmental Rules
- R HY QM 003 Environmental Policy
- R HY QM 004 Health & Safety Policy
- R HY HSM 002/1 Health and Safety Risk Assessment for Site Activities
- R HY HSM 002/2 List of hazardous substances
- R HY HSM 002/3 Environmental Risk Assessment for Site Activities
• R HY HSM 002/4 Register of Sub Contractors
• R HY HSM 002/5 Site Emergency Notice
• R HY HSM 002/6 Equipment Safety Inspection Plan
• R HY HSM 002/7 Employees qualification
• R HY HSM 002/8 Hazard Report Card
• R HY HSM 002/9 HSE Training / Tool Box Talk
• R HY HSM 002/10 General Work Permit
• R HY HSM 002/11 Monthly HSE Site Report
• R HY HSM 002/12 Checklist Safety & Environment
• Contractors ISO 14001 certification
• Contractors ISO 9001 certification
• Contractors OHSAS 18001 certification