

ZRA 741, BP 5051

Nouakchott, Mauritanie

**Téléphone:** +222 45 25 24 28

+222 45 25 33 73

**Fax:** +222 45 29 38 95

P-4999-SOW-001-A


# Tasiast Mauritanie Limited S.A.

## Tasiast Water System Facilities Operation SCOPE OF WORK

Version control			
Version	By	Date	Changes
001-A	AS.K	Oct, 10 <sup>th</sup> , 2023	Issued for tender.
001-B	AS.K	Nov, 26 <sup>th</sup> , 2023	Last review before tender

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## 1. INTRODUCTION

### 1.1 TASIAST MINE

Tasiast is a “Kinross Corporation” mine located in northwestern Mauritania, approximately 300 km north of the capital Nouakchott and 250 km southeast of the major city of Nouadhibou. The Tasiast Lands are accessed from Nouakchott using the paved Nouakchott to Nouadhibou highway for 370 km and then via 55 km of graded mine access road. There is an airstrip at the mine site that is used for light aircraft travelling to and from Nouakchott. The infrastructure on site supports an open pit mining operation and associated processing facilities.

### 1.2 CONTEXT

Tasiast Mauritanie Limited S.A. is seeking the services of a competent company to provide a comprehensive operation service of its water system, which supplies water to the Tasiast Gold Mine.


This document sets forth the obligations, responsibilities, and expectations for the selected contractor, encompassing the operation of water system facilities and the management of key operational tasks. This includes everything from raw water extraction and treatment to the monitoring of water quality and the implementation of necessary maintenance measures.

### 1.3 DEFINITION AND ROLES

For the purposes of this scope of work document, the abbreviations, roles and definitions listed in below Table 1 apply.

**Table 1 - Definitions and Roles**

Term	Meaning
TMLSA / Tasiast	Tasiast Mauritanie Limited S.A.
Company	Tasiast Mauritanie Limited S.A.
Company Representative	As defined in the Contract or the Tasiast Responsible Manager/Engineer, Project Manager or Construction Manager.
Contract	A Contract is the formal commercial agreement under which the work is performed and includes ‘Contract’, ‘Agreement’ or ‘Order’ as the case may be.
Business Partner / Contractor	The provider of goods or services under the Contract.
Documents	Documents are all documents created for the purposes of the Contract and/or project that contain specific information about plant infrastructure and/or equipment, and include the electronic files of such documents.
Engineering Technical Information	Documents, Drawings, Company Standards and all related and dependent information.
ERSP	Earthworks, Roads, and Satellite Projects
Must and Should	The word ‘must’ is to be understood as mandatory and the word ‘should’ as recommended but non-mandatory.

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Work(s)	All, or any part, of the work which the Business Partner is or may be required to successfully execute under the Contract and includes anything that is required in order to satisfy the intent of the SOW and Contract.
EIC	Electrical, Instrumentation, and Control
Sondage	French word Commonly used to refer to the boreholes field
CIL	Carbon In Leach
ADR	Adsorption, Desorption, and Recovery
RO	Reverse Osmosis

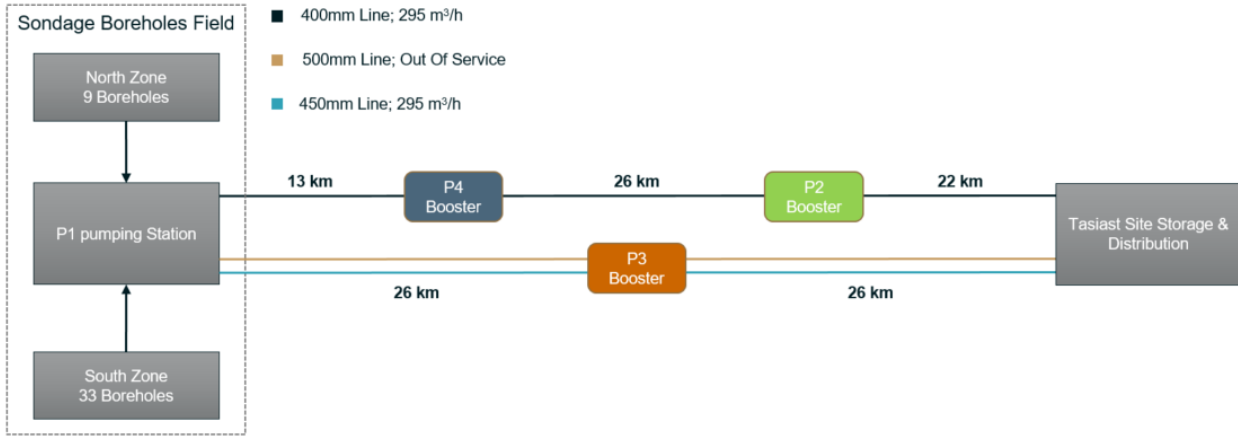
*Note: Refer to the Contract for additional definitions. Definitions in the Contract take precedence over definitions in this document. Other than names of specific entities, no term should be capitalized, unless such term is used to denote a defined term in **Table1**.*

#### 1.4 GENERAL SITE AND CLIMATIC CONDITIONS

Below Table 2 contains the general site and climatic conditions at Tasiast.

Description	Unit	Detail
Country	-	Mauritania
Nearest town	-	Nouakchott
Distance to nearest town	km	300
Language spoken	-	French, Arabic
Climate Description	-	Hot, Dry
Hottest month	-	May and October
Max monthly average temperature	°C	35
Maximum temperature	°C	55
Coldest month	-	January
Minimum monthly average temperature	°C	13
Minimum temperature	°C	5
Atmospheric Pressure at the site	kPa	
Maximum Wind Speed	m.s <sup>-1</sup>	45
Rainfall yearly average	mm	157
Rainfall highest monthly average	mm	80
Snow Loading	kPa	0
Max. design humidity	%	69

**2. WATER SYSTEM OVERVIEW**



The water system infrastructure encompasses several essential components, each serving a specific purpose in the collection, treatment, and distribution of raw and potable water as detailed below:

**2.1 SONDAGE BOREHOLES FIELD**


The Tasiast Gold Mine relies on groundwater extracted from the Sondage borehole field situated approximately 60 kilometers west of the mine site. This water is drawn from a saline underground aquifer through a system of 43 production boreholes, and it serves as the exclusive source of water to support all of site activities. The Sondage wells, organized into separate areas, are combined in a manifold for each area and collectively feed into distinct pipeline systems.

**2.2 PIPELINES AND PUMPING STATIONS**

The abstracted water is pumped from the boreholes to a main pumping station P1 located at the Sondage area. A network of pipelines and booster pumping stations transport raw water from P1 to the Tasiast Gold Mine site. These pipelines include DN400 HDPE, DN450 GRP, and DN500 PVC lines, each equipped with its dedicated booster pumping station.

The 3 pipelines details are as follows:

Water Line	Constructed	Material	Design capacity (m3/day)	Booster Stations	Flow Capacity m3/day	Status
400 mm	2006	PVC	4,000	2 Booster Pump Stations	6,000	Operational
450 mm	2012	GRP	12,000	1 Booster Pump Station	12,000	Operational
500 mm	2005	PVC	8,000	1 Booster Pump Station	8,000	Out Of Service since 2012

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## 2.3 WATER STORAGE

Water storage is ensured through strategically located ponds, serving as reservoirs, which are directly supplied from the Sondage lines. These ponds, managed on a demand-driven basis, serve as vital reservoirs, ensuring a reliable water supply, especially during high-demand periods or in emergencies. The careful coordination of the distribution system, booster stations, and storage facilities plays a pivotal role in sustaining an uninterrupted and consistent water supply to meet the requirements of the mine's diverse operational needs.

## 2.4 REVERSE OSMOSIS PLANT

The Reverse Osmosis (RO) Plant is a critical component of the water treatment system at the Tasiast Gold Mine and consists of three trains and one brine unit. The RO process efficiently removes dissolved salts and impurities from the saline groundwater, producing low-ionic strength water essential for various mining operations including mineral processing and other human utilization.

Moreover, a portion of the softened water generated by the RO Plant undergoes a potabilization process involving the addition of specific chemicals, including antipants and disinfectants, such as Sodium hypochlorite.

The treated water and potable water are then distributed to various end-users across the Tasiast Gold Mine site, including the living camp, processing plant, and other facilities.

## 2.5 SEWAGE TREATMENT PLANT

Beyond the supply of water, the mine's infrastructure includes a sewage treatment plant (STP). This facility is responsible for processing and treating sewage and wastewater generated on-site. It encompasses several treatment processes, including screening, primary clarification, biological treatment, secondary clarification, and disinfection. Effective management of sludge generated during the treatment process is crucial. Additionally, the plant employs chemical additives to enhance the treatment process, ensuring that the effluent complies with regulatory standards.

## 2.6 WATER QUALITY LABORATORY

A dedicated water quality laboratory conducts essential tests on water samples from various sources, including raw water supply, treated water supply, bottled water, and the distribution system.

The lab is properly equipped to analyze the physicochemical and microbiological parameters of the water. It also actively contributes to chemical cleaning and optimization of the RO Plant and ADR Plant when needed.


# 3. SCOPE OF WORK

The selected contractor is expected to undertake the following operational responsibilities:

## 3.1 SONDAGE AREA AND WATER PIPELINES OPERATION

The contractor should conduct daily monitoring and operation of the Sondage area, including boreholes and pumping stations (P1, P2, P3, and P4) to maintain a steady water supply. This includes addressing issues such as leaks in the pipelines to prevent interruptions in water supply, troubleshooting, repairing, or replacing borehole pumps as needed.

Additionally, the contractor should perform routine maintenance, including the calibration of flow meters, repair of breathers, and other necessary tasks to ensure the smooth operation of the Sondage area.

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### 3.2 RO PLANT OPERATION

Continuously monitor the RO system parameters, including water flow rates, pressure, and treated water quality. Perform routine maintenance tasks on RO equipment, such as cleaning and replacing filters, membranes, and pumps. Manage the addition of chemicals, such as antiscalants and disinfectants, to optimize RO system performance. Ensure the addition of sodium hypochlorite for microbial control to prevent biofouling. Identify and troubleshoot issues or anomalies in the RO system for corrective actions.

### 3.3 SEWAGE TREATMENT PLANT OPERATION

Monitor the inflow of raw sewage into the treatment plant, assess flow rates, and organic content. Operate and control various treatment processes, including screening, clarification, biological treatment, and disinfection, to treat sewage and wastewater effectively. Manage and handle the sludge generated during the treatment process, including dewatering, digestion, and disposal. Add chemicals as needed to enhance the treatment process, perform routine maintenance and repairs on treatment plant equipment, and implement odor control measures to minimize unpleasant odors. Regularly test the treated effluent to ensure compliance with regulatory discharge standards and be prepared for emergency responses.

### 3.4 VALVES AND POND MONITORING

Regularly check valve positions to ensure they are open, closed, or partially open as required. Supervise and maintain water levels in the main ponds fed from Sondage lines using a demand-driven approach to pond management to ensure water availability.

### 3.5 WATER QUALITY LAB AND CHEMICAL ANALYSIS

Conduct daily water sample tests from various areas, including the Raw Water Supply, Raw Water Storage Facilities, treated water supply and storage, and bottled water supplies. Perform microbiological and physicochemical testing to ensure water quality, assist in chemical cleaning and optimization of the RO and ADR Plants as needed.

### 3.6 PRESSURE MANAGEMENT AND PUMP STATIONS OPERATION


Monitor and control water pressure within the distribution system, adjust booster pump settings as needed to maintain consistent pressure throughout the network, and ensure pumps operate correctly and efficiently. Identify and assist in repairing defective parts, waterline leakages, and maintain pipe fittings to standards.

### 3.7 DATA COLLECTION AND RECORDING

Gather data from various sources, including sensors, instruments, databases, and manual observations. Ensure data accuracy and integrity following established protocols and quality control measures. Record data in a structured and organized manner, typically using data logging systems, spreadsheets, databases, or specialized software with timestamps.

## 4. REQUIRED RESOURCES

The contractor is responsible for providing all the necessary resources, including manpower, supervision, communication, and mobility, to fulfill the services detailed in this SOW. Based on past experience and previous knowledge, the following is an explicit list of the minimum required resources:

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#### 4.1 MANPOWER

Role	Profile	Academic Background	Number of Positions
Supervisors	Experienced hydrological engineers with a background in water system management.	Bachelor's or Master's degree in Hydrology, Environmental Engineering, or related field.	2
RO Plant Operators	Skilled operators with expertise in Reverse Osmosis (RO) systems.	Relevant technical diploma or certification in Water Treatment and RO System Operation.	5
Valves and Pond Field Operators	Well-trained operators with knowledge of valve systems and water storage.	High school diploma or relevant technical certification	4
Sondage Field Operators	Proficient field operators experienced in managing boreholes and pumps.	High school diploma or relevant technical certification	6
Pumping Stations Operators	Competent operators skilled in pump operation and maintenance.	High school diploma or relevant technical certification in pump operation and maintenance.	4
Helpers	Support staff responsible for assisting with various field and equipment-related tasks.	Varied, from high school diploma to technical certifications in relevant fields.	16
STP Operators	Experienced operators specializing in sewage treatment plant operations.	Technical diploma or certification in Wastewater Treatment.	4
Troubleshooting Technicians	Proficient technicians with expertise in instrumentation and electrical systems.	Bachelor's degree or technical certification in Instrumentation, Electrical Engineering, or related field.	2
Chemical Lab Technicians	Skilled technicians responsible for conducting water quality tests and chemical analysis.	Bachelor's or Associate degree in Chemistry or Laboratory Science.	3
Database Technician	Knowledgeable technician responsible for data collection, recording, reporting, and management.	Bachelor's degree in Data Management, Information Technology, or related field.	1


These resources will work on a roster basis, with shifts lasting 11 hours, and the company will manage the team roster to ensure continuous coverage and operational efficiency.

#### 4.2 MOBILITY AND COMMUNICATION RESOURCES:

The successful contractor is expected to provide all the required mobility and communication resources to facilitate the effective operation and management of the water system, real-time reporting, and efficient task execution. The contractor shall be responsible for supplying and maintaining the following:

##### **Team Vehicles:**

The contractor should provide a minimum of 4 well-maintained, reliable vehicles for the team (Toyota Hilux 2018 or more recent model). These vehicles will be used on daily basis for on-site work and transportation between various water system facilities. In case of a vehicle breakdown, immediate replacement with an equally suitable vehicle is mandatory to prevent any operational disruptions.

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**Communication Devices:**

To maintain effective communication within the team and with the management, the contractor should equip its team members with reliable communication devices, such as two-way radios, mobile phones, and any necessary communication apps or software.

**5. PROPOSAL SUBMISSION**

Proposals must be in clear and fluent English and include a description of the bidder's organization, size, structure, and financial capability.

General bidder experience, including any previous experience in providing similar services should be indicated. The pages of the proposals should be numbered, and the format outlined below should be strictly followed to ensure consistency in bidder responses and full consideration of each proposal. *Poor format or non-compliant format proposals may be disqualified from evaluation.*

Every proposal must consist of 2 separate files, a technical proposal and a commercial proposal.

**6. EVALUATION CRITERIA**

The selection of the contractor for water system operation services will be based on the following evaluation criteria, each assigned a specific weight in the overall assessment:

**6.1 COMMERCIAL**

The commercial aspect will carry substantial weight in the evaluation, taking into account the cost-effectiveness, pricing structure, and contract total cost of ownership.

**6.2 COMPANY EXPERIENCE**

The contractor's overall experience and record of accomplishment in delivering similar services.

**6.3 PROPOSED TEAM PROFILE AND EXPERIENCE**

The proposed team members relevant experience in water system operation, including the complexity and scale of projects they have previously worked on. The clarity, organization, and comprehensibility of the provided CVs.

**6.4 METHODOLOGY AND APPROACH**


The clarity, comprehensiveness, and feasibility of the contractor's proposed methodology and approach outlined in their proposal for managing and operating the water system.

**6.5 PROPOSAL CLARITY**

The clarity, organization, and comprehensibility of the contractor's proposal documentation.

**3.8 SAFETY AND ENVIRONMENTAL CONSIDERATIONS**

The bidder's strategy for ensuring safety and environmental compliance during the review and optimization process.

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## 7. RESPONSIBILITIES

The company will provide:

- Accommodation and meals for the Contractor staff while working on site.
- Transport to and from site to and from Nouakchott and Nouadhibou cities for Contractor employees.
- Fuel for all Contractor equipment while working on site
- Equipped office for contractor team working on site

The Contractor shall provide anything else required for a professional and efficient service as described in this scope of work, including but not necessarily limited to PPE for the staff, office consumables, laptops, software, papers, pens and other admin consumables, work permit, visa, phones, etc.