



PUBLIC WORKS DEPARTMENT
Ministry of Public Infrastructure, Energy, Utilities & Domestic Transport
“Exceeding Expectations”

P O Box 52
Wellington Road
Basseterre, St. Kitts

Tel: (869) 467-1122
Email: pwdsecs@gmail.com

December 18, 2024

TERMS OF REFERENCE

Installation of a Water Treatment Plant to Reduce Arsenic in Potable Well Water

A. Background

The Water Services Department (WSD) of the Ministry of Public Infrastructure, Et al (Government of St. Kitts and Nevis) is interested in installing a Water Treatment Plant to reduce the levels of Arsenic at two (2) wells at Shadwell, St. Kitts.

B. Scope of the assignment

- I. We are requesting your company to submit a Technical Proposal with costing to design, procure and install a water treatment plant to reduce the level of Arsenic as specified below. The raw water will be supplied to the plant from two (2) wells (Shadwell #1 and #2) located within 500 feet of the plant with a capacity of 400,000 and 600,000 imperial gallons per day.
- II. The level of Arsenic is found to be 22 ppb and 52 ppb in the two (2) wells (Shadwell #1 and Shadwell #2) respectively. The desired level after treatment is 5 ppb.
- III. The treated water will be pumped to both our storage tanks at Olivees and St. Peters (1,500,000-Gal storage).
- IV. A comprehensive plan for the discharge is needed.
- V. The plant is expected to be sited at the site of either of the wells. The wells will be blended to both come into the plant at the same time.
- VI. Your company should conduct comprehensive testing of the plant to ensure it meets performance criteria. Provide training for Water Services Department staff on operation and maintenance.
- VII. Develop a detailed operation and maintenance plan, including schedules and protocols for routine maintenance. Provide ongoing technical support for a specified period.

C. Specifications

Table 1. showing the chemical parameters per well and the treatment goal desired.

Parameters	Well 1 (300 I.G.P.M)	Well 2 (500 I.G.P.M)	Treatment Goals
Arsenic (mg/L)	0.022	0.052	<0.005
Nitrate (mg/L)	6.38	6.37	No change required
PH	7.89	7.86	No change required
Total Dissolved Solids (mg/L)	274	490	No change required
Phosphate (mg/L)	0.54	0.61	No change required
Total Suspended Solids (mg/L)	85.5	12	No change required
Total Hardness	34.2	34.2	No change required
Iron (mg/L)	0	0	No change required
Silicon (mg/L)	0.03	0.04	No change required
Manganese (mg/L)	0	0	No change required
Total Organic Carbon (mg/L)	0	0	No change required
Alkalinity (mg/L)	119	306	No change required

D. Methodology

1. We are open to any water treatment plant options available from your company, including coagulation-filtration, reverse osmosis, ion exchange and others. Provide a simple, safe, compact system requiring minimal attendance by maintenance personnel.
2. Disinfectant system (chlorine, ozone, or UV light) may be added to kill any remaining pathogens and ensure the water is safe for drinking.
3. The capacity of the plant should be 1 million imperial gallons per day.
4. The company should provide their expertise for the backwash water disposal. In addition, planning or designing a sludge or backwash recycling management.
5. The treatment plant design should be energy-efficient, environmentally friendly and sustainable.

E. Submission Requirements

Proposal submissions are to include:

- Technical proposal (including a schedule of operations)
- A cost proposal (budget)

Completed Request for Proposal (RFP) shall be delivered via email to water.services@gov.kn by January 17th 2025.

F. Evaluation Criteria

The Evaluation of Bids would be based on the following criteria:

- Price (40%)
- Methodology (25%)
- Experience Record (25%)
- Schedule (10%)