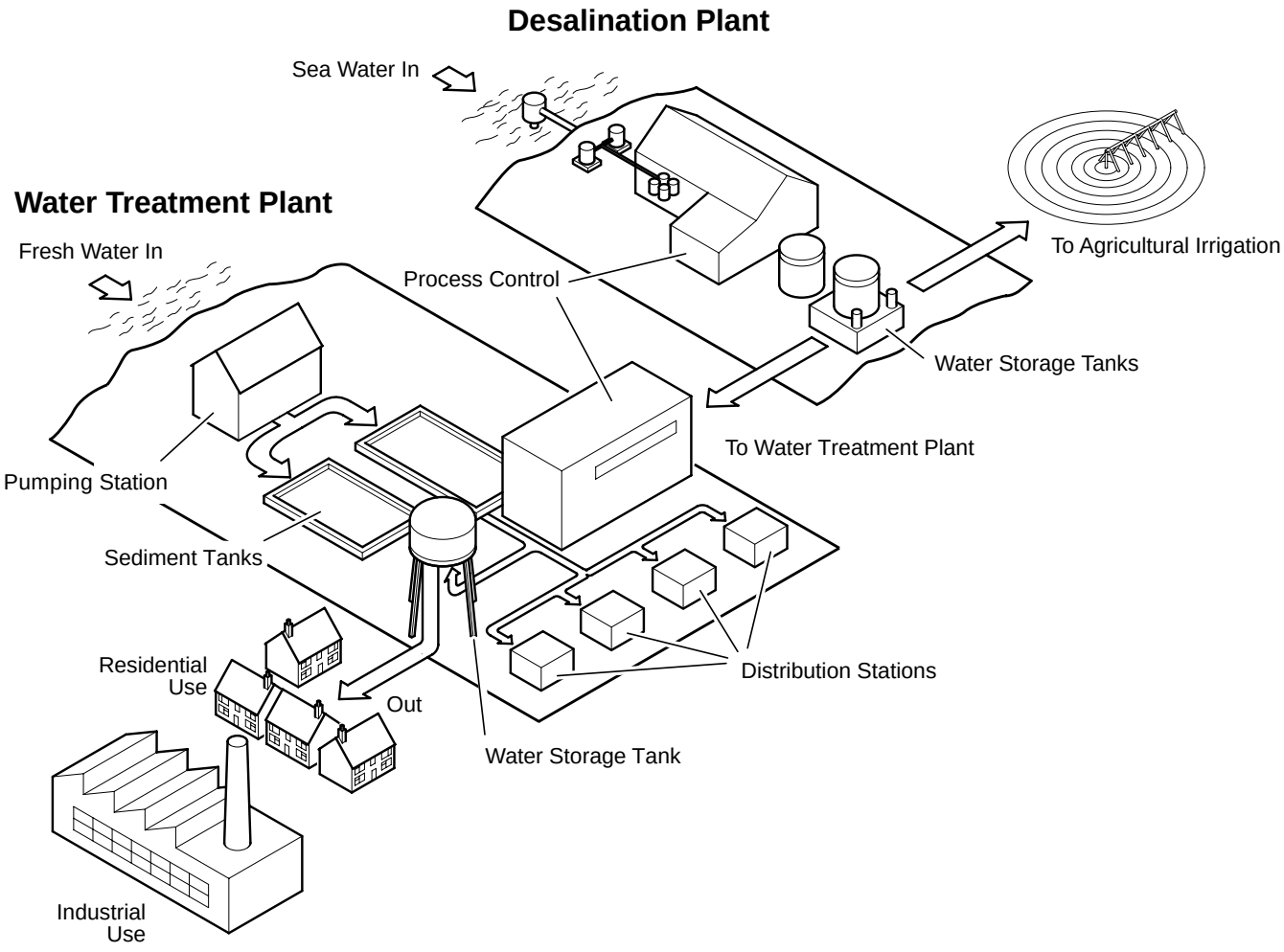
Application Guide
AG/AI–014_2

Nitrate Monitoring on a Potable Water Treatment Plant



In this application, nitrate measurements are made at the inlet to provide early warning of unacceptable levels of nitrate in the raw water and at the outlet to ensure that the drinking water meets the necessary standard for human consumption.

Suitable valving and/or pressure reduction equipment may be necessary, depending on the particular plant conditions.

Why Monitor Nitrate

- Excessive levels of nitrate in drinking water is dangerous for infants and can cause “blue baby syndrome”.
- To monitor nitrate levels in river water being abstracted for drinking water.
- To enable blending of low level nitrate waters with ‘high’ level nitrate water so that a safe blended value which complies with water quality standards can be achieved.
- On de-nitrification plants to monitor the efficiency of the process.

Why use ABB Instrumentation?

- Simple, easy to use monitor – virtually no maintenance requirements.
- No reagents required – extremely low cost of ownership.
- Automatic cleaning – optimises performance with minimum maintenance.
- Long life light source – life expectancy up to 10 years.
- Automatic compensation for turbidity – no filtration required.
- Automatic compensation of the light source intensity – reduces the need to recalibrate because of drift, reducing still further the need for manual intervention.
- Automatic compensation for variations in light source intensity – minimum drift reducing the need for calibration of the system.
- Loss-of-flow alarm – provides immediate warning of loss of sample through the analyzer.
- IP66/NEMA4X – enables satisfactory operation in demanding site conditions.
- Non-volatile memory – no battery back up required.
- Inherently safe design – unauthorized removal of the light source causes the power to the light source to be disconnected automatically.

What ABB Products are Suitable?

- Model 7330/000 comprising a wall-mounted analyzer and the flow-through detector system.

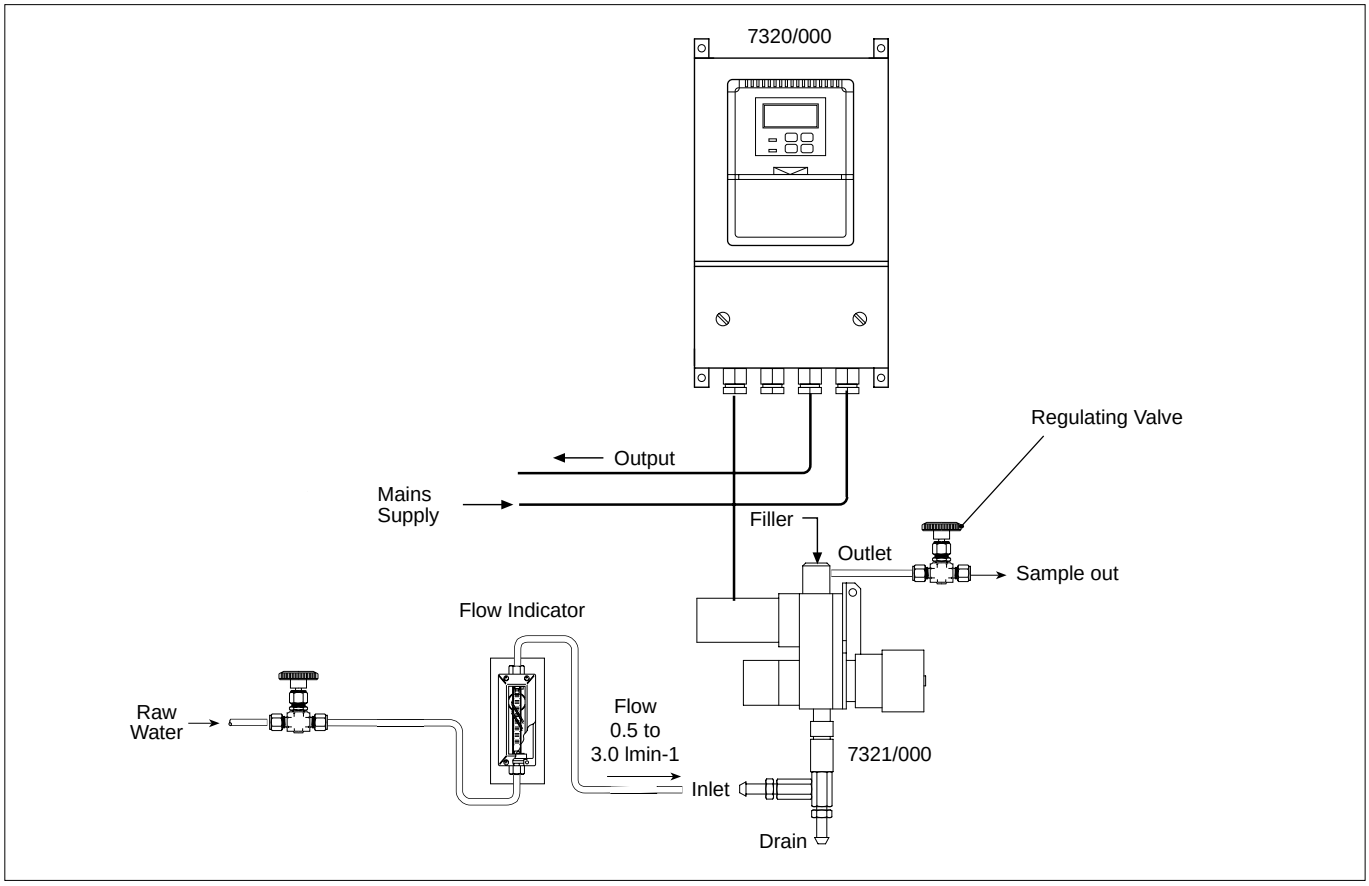
Associated ABB Products for use in Potable Water Treatment Plant

- pH on raw water and coagulation control.
- pH control of the coagulation process.
- pH of final water.
- Ammonia on raw water intake and on final water.
- Fluoride monitoring – fluoridation of drinking water.
- Phosphate monitoring on final water.
- Turbidity of raw water after the clarifiers, after the filters and final water.
- Flow measurement and recording.
- UV absorbtion for coagulation control.

Installation

- It is essential that the installation is carried out as per the manual.
- Ensure that the flow regulation is implemented downstream of the flow system to avoid degassing.
- Ensure there is adequate space when installing the flow sensing system to allow removal of the wiper motor, light source and receiver.
- Ensure there is sufficient head space to enable calibration to be carried out conveniently.

Note. The flow indicator is not essential for optimum system performance.



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