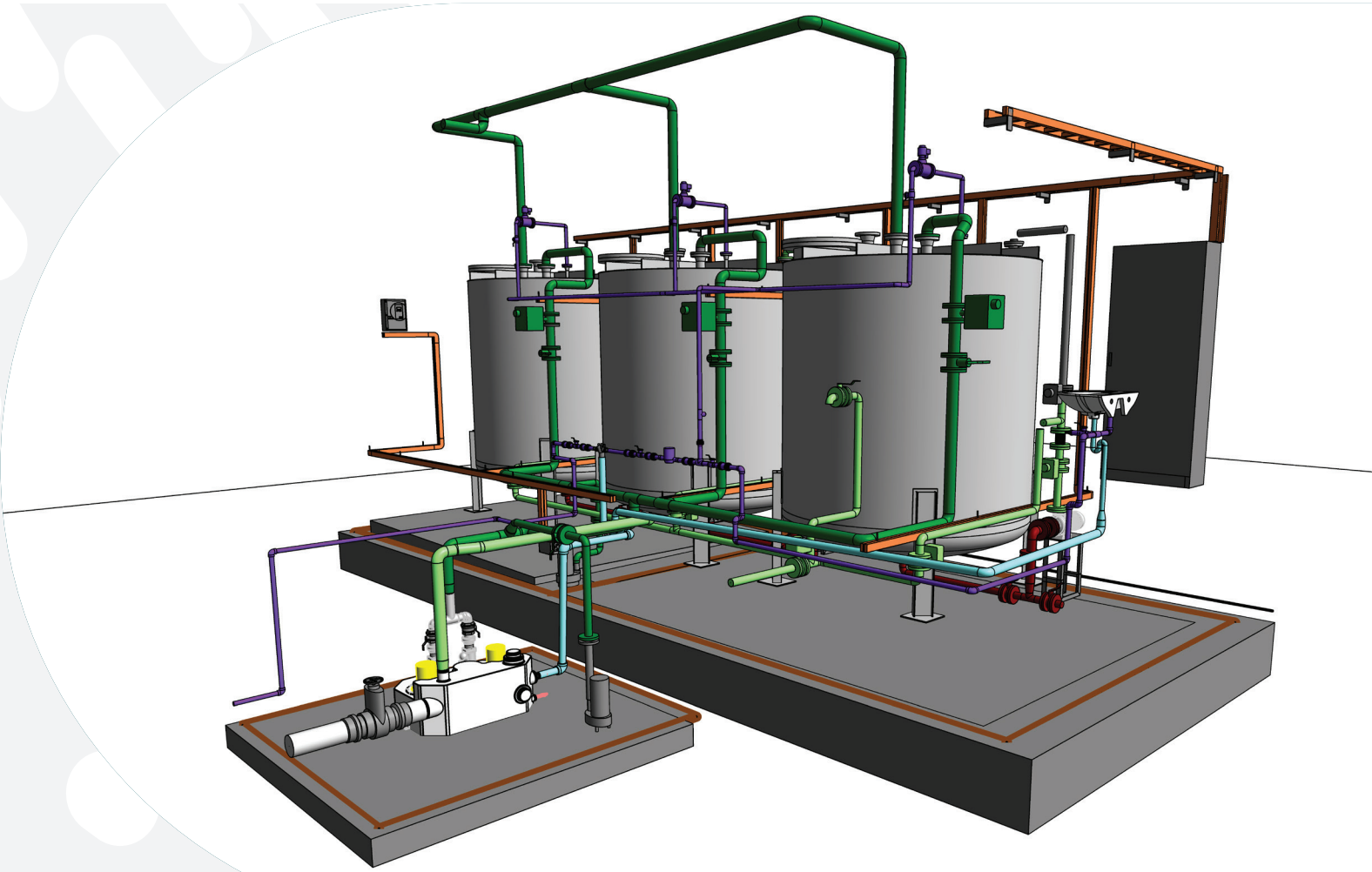
NUVIATECH HEALTHCARE

SOLUTION

Radioactive waste management system



A radioactive waste system is designed for the storage, measurement and disposal of liquid radioactive waste from Nuclear Medicine facilities. A tank will be filled with the effluents and then kept closed until radioactive decay reduces the activity to a safe level. The whole process from filling the tank to releasing the radioactive waste is monitored by a connected activity meter. The clearance level to the sewer is set by the legislation of each country. Nuvia may offer the complete solution including piping, software, training of personnel or only some elements when required.

REFERENCE PROJECTS

CUSTOMER
ENSECO a.s.

SITE
New Generation Hospital, Bratislava, Slovakia

IMPLEMENTATION
2022

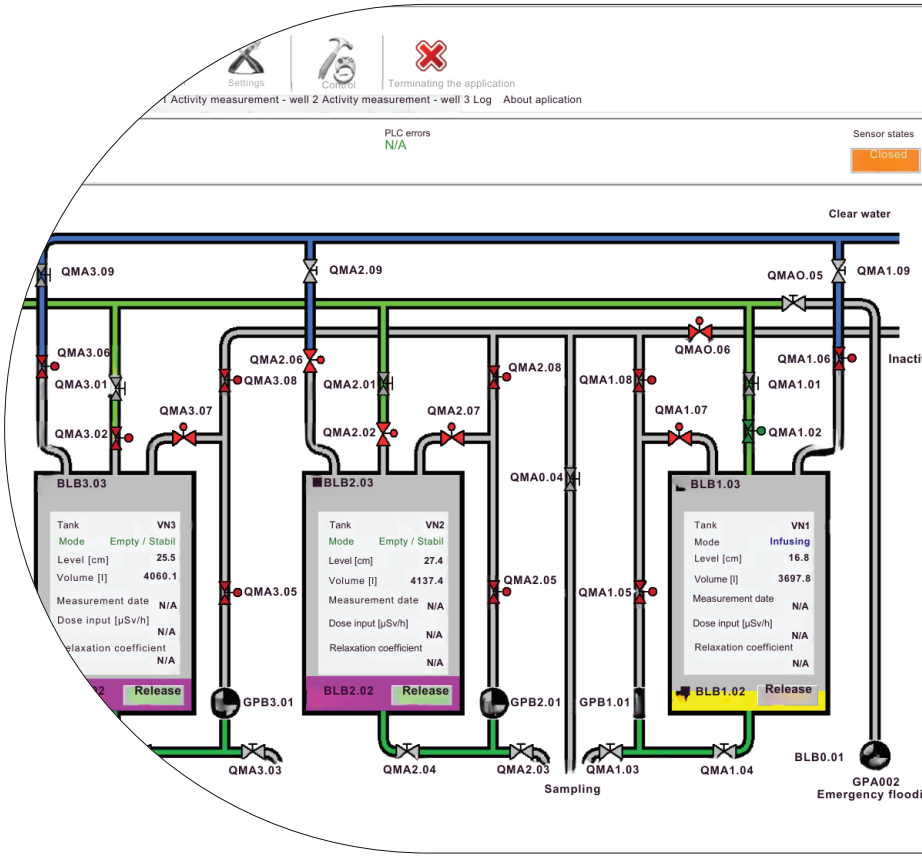
SCOPE OF DELIVERY
- Design of the piping system
- Complete supply of measuring probes and control elements necessary to monitor the functioning of the radioactive waste tanks technology
- Control and measurement system, evaluation system, visualisation and HMI interface Control software

CUSTOMER
METROSTAV.

SITE
The University Hospital Brno

IMPLEMENTATION
11/2015 - 02/2016

SCOPE OF DELIVERY
- Documentation
- System design
- Pipe connection
- Pumps installation
- SW technology
- Control software and user interface



DETAILED DESCRIPTION OF THE SCOPE OF DELIVERY

BASIC FUNCTION DESCRIPTION

The radioactive waste management solution consists of decay tanks (to collect liquid waste from facilities that produce short-lived radionuclides), measuring, and control equipment. The system allows the waste to be released into the normal sewerage system after the residual activity has fallen below the level required by the country's legislation requirements.

The control system uses a sludge pumping station to pump the activated waste into the selected decay tank. The liquid waste remains in the decay tank and its activity is continuously measured. Each tank is equipped with NaI detector with lead collimator. Detector measures activity of the waste close to the tank bottom at regular intervals. The waste is homogenized (mixed) by pump before each measurement."If the activity falls below a specified legal limit, the tank is automatically or manually pumped into the sewage system.

The tanks are equipped with a system of pumps and valves to ensure occasional mixing of the waste in order to ensure homogeneity of measurement. At the same time, it ensures that the waste can be pumped between the tanks or the contents of the sewage can be pumped into the sewage system.

The measurement and control system is installed in a steel cabinet. The local control interface consists of a 15" LCD touch screen monitor located on the door of the substation. System operates in automatic or manual mode, depending on the settings. All displayed values and setting options are accessible via the local HMI and can be controlled from any remote operator PC with an installed client SW. Measured parameters, conditions and setting of the device are archived in the internal database of the measuring system and continuously archived on the remote DB server.

SCOPE OF DELIVERY

Design and build of the complete piping system

The delivery includes a detailed isometric design of the piping system in electronic form for the possibility of drawing up production documentation by the customer.

Instrumentation, Measurement and Control system, wiring and communication line

Complete supply of measuring sensors and control elements necessary to ensure the operation of the decay technology.

CONTROL AND MEASURING SYSTEM

Complete supply of the control system for the decay technology, including measuring system, evaluation system, visualization, and HMI interface. The components of the control and evaluation measuring system are installed together in one steel cabinet with dimensions 800x1200x300 mm (cabinet size is approximate).

DEVICE	QTY	DESCRIPTION
2" NaI (Tl) detectors	3	Detector mounting system in the tank, connectors, and cables
Multi-channel analyzer MCA	3	Evaluation of measurements from the detectors (analyzers are part of the detectors and communicate with the evaluation equipment via RS485)
Control system	1	PLC with the corresponding input and output interfaces for the possibility of controlling the technological equipment (including the necessary switching elements, terminals, etc...)
Control interface and evaluation system	1	Industrial PC with 15.6" touch screen located in the door of the substation

SOFTWARE EQUIPMENT AND OTHER HARDWARE EQUIPMENT

Control software is part of the measuring and evaluation system.

SOFTWARE	DESCRIPTION
MeasControlS	Measuring and control software for controlling the technology of the radioactive waste tanks and evaluation of the measurements
ClientSW	Control SW serving as local and remote HMI interface of the technology
SCADA SW	Installed on the PC of the measuring system or on the remote "DBClientSW" server, running on the standard "Firebird" server
GamWin SW	Service, evaluation and visualization

PROJECT DOCUMENTATION

The project documentation includes detailed documentation of the project implementation for approval of the construction in the scope of the operational file of the Control and Management System and the Electrical System. Documentation of the mechanical part, includes the location of the piping system elements, especially the isometric diagram of the piping routes.