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Pilot Plants for Biological Treatment Processes

The emergence of new water contaminants, the depletion of available water resources, the growing need to investigate higher recovery processes, and the global push for greener technologies have all contributed to further investigations of the advantages of biological treatment.

For the past few years, Intuitech has been fortunate to have designed and fabricated several biological treatment pilot plants for companies who are leading the push towards developing this technology.

This issue of *About the Process* will focus on three different biological filtration pilot plants that were designed, fabricated, and tested all in-house at our Salt Lake City facility.



WATER QUALITY TECHNOLOGY
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Containerized Biological Pilot Plants

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All Intuitech containerized biological pilot plants are constructed completely inside 40 foot long steel ISO shipping containers. This gives designers and operators plenty of room to work with while providing a completely transportable, weather proof, climate-controlled, stand alone pilot plant.

This particular custom pilot plant was designed for selenium and nitrate removal. It utilizes dual pressurized bioreactor chambers that are run in series, along with backwash and nutrient feed systems. Other features include automatic operation, data acquisition, web enabled email alarm notification, and online instrumentation.

The interior also includes insulated walls and ceiling, thermostat-controlled HVAC system, external process connections, and a water-tight abrasion resistant polyurethane floor liner.

Specifications

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Skid-Mounted Biological Pilot Plants

Specification

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Intuitech's skid-mounted biological pilot plants utilize welded stainless-steel frames, polypropylene decks, automatic operation, data-acquisition, email alarm notification, online instrumentation, and static mixers. These custom pilot plants were designed to remove perchlorate, selenium, and nitrate.



Remotely Accessible HMI

Stainless Steel Frames

Aeration Column With Floc Mixer

Polishing Filter

Specifications

- Feed Flow Rate: 2.0...6.0 GPM
- Backwash Rate: 6.3...31.8 GPM/SF
- Air Scour Rate: 1.3...8.9 SCFM/SF
- Backwash Tank: 425 GAL
- Power: 20A @ 120VAC

Instrumentation

- Feed Flow*
- Backwash Flow*
- Headloss*
- Influent/Effluent Turbidity*
- Dissolved Oxygen Concentration*
- Nitrate Concentration* *Data Logged

FEATURE: Pilot Plant Startup Services

We understand that startups can be frustrating. However, with over 13 years of experience, Intuitech has the process of setting up pilot studies down to a science. We know our equipment and the requirements needed to get things going fast and smoothly. With this knowledge in hand, we are now offering startup and take-down services for our lease equipment. Startup services feature:

- Loading and unloading
- Installation
- Calibration and configuration of instruments
- Training

We are committed to optimizing your time and budgets. **Most startups take less than one day** and require minimal client involvement.



NEW LEASE EQUIPMENT! 3 Cellular Broadband Remote Access Units Added to Lease Pool



The expansion of cellular infrastructure and higher data rates with 3G networks enable cellular broadband to replace antiquated methods for remote access to control systems. Intuitech's remote access units X100, X200, and X300 mount within the equipment control panel and connect to the industrial LAN. These units include a sophisticated router that secures the LAN from unauthorized access from the WAN. This connectivity gives clients access to the pilot plant's control system, process data, and alarm

functions. Programmers can modify or upgrade PLC and HMI programming without ever having to go onsite. The HMI can also be programmed to send notifications of process alarms to any email compatible device, such as a personal computer, PDA, or cell phone. The remote access units are leased by the week with a four week minimum lease term.

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