

Tips for Operators about Emergencies

by Arthur T. Van Gelder, III and John Virginia

The Binghamton-Johnson City Joint Sewage Treatment Plant has had four high water events between June 2004 and the flood of June 28, 2006. While the events in the past were described as 50-year, 75-year and 100-year events, the June 28 flooding has been called a 450-year event. While there was some damage to the ongoing construction and the existing facilities during the earlier events, the 2006 flood was most damaging because the work of Nine Prime Contractors there was 95 percent complete and five weeks away from startup.

The following operator tips were compiled for dealing with such events as this. Once the word is out that there will be a flood event, or any other natural disaster in or around your facility, these actions should be taken.

Pre-Disaster

- Review, annually update and distribute emergency response plan to ensure all personnel are aware of procedures to be followed.
- Advise personnel never to walk in flooded areas due to open pits, tanks, etc.
- Move as much equipment as possible to high ground.
- Install pumping equipment in areas of possible flooding.
- Designate personnel to man site for maintenance of pumping equipment.



Photo provided by C&S Companies, Inc.

Water pours into a basement area via existing electrical conduits and junction box.

- Distribute telephone numbers of key personnel.
- Bulkhead openings (doors, louvers, etc.) in areas subject to flooding.
- Take photos of facility prior to flooding.
- Disconnect power to facilities subject to flooding.
- Move records and drawings of your facility to a safe place.
- Prioritize equipment by cost and/or critical to your facility. Consider computers, controls, system monitors, etc.
- Make sure your emergency generator is properly maintained (see Mike VerDow's article), test and run it under full load conditions, if possible.
- Obtain portable hoisting equipment to aid in moving vital equipment to high ground.
- Notify the regulatory agencies of your plan to prepare for the anticipated event.

Remember there is not enough documentation that you can get your hands on before a disaster such as a flood occurs. The more you have, no matter how small or meaningless you might think it will be, is going to help show what your facility looked like before, during and after a flood.

Event Duration

- Remind personnel never to walk in flooded areas due to open pits, tanks, or to walk on tank covers.
- Monitor radar on weather channels.
- Monitor rising waters.
- Review evacuation plan to aid in determining when you must leave the site, and steps to be followed in preparation of evacuation (i.e. turn off all power, secure site) to ensure your safe return.
- Notify regulatory agency of the evacuations, emergency measures

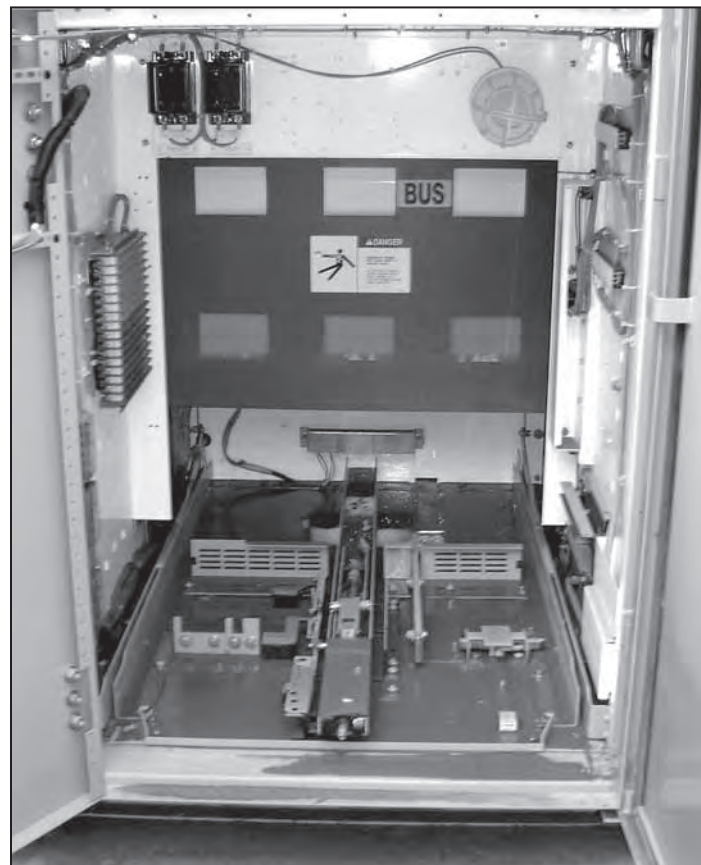


Photo provided by C&S Companies, Inc.

This electrical cabinet was submerged by the floodwaters and will need to be replaced.

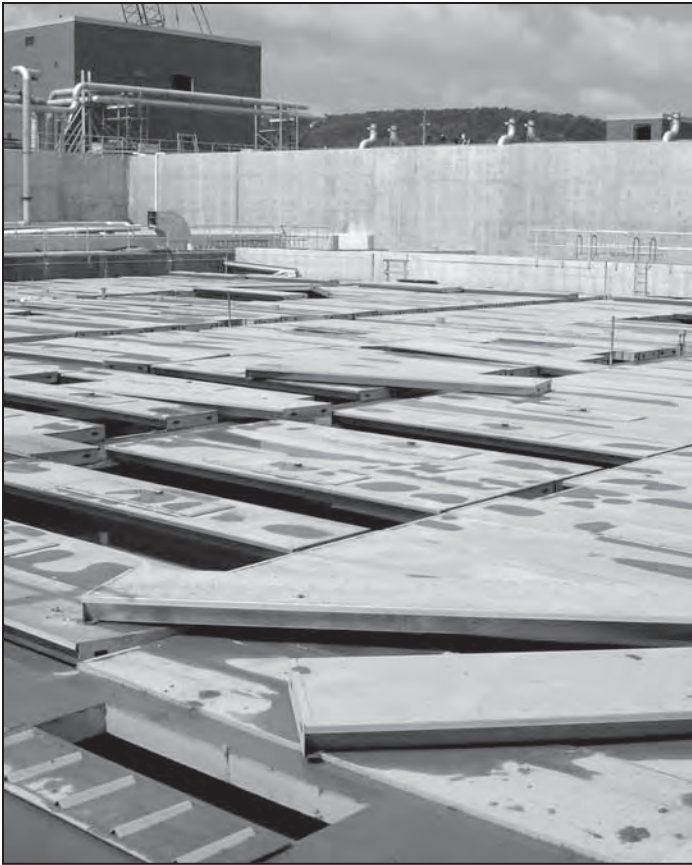


Photo provided by C&S Companies, Inc.

Primary clarifier covers are scattered haphazardly after floodwaters subside.

taken and anticipated or actual bypasses necessary.

- Maintain emergency pumping equipment, if possible.
- Monitor routes to evacuate the site if necessary.
- Reinforce bulkheads if necessary and if accessible.
- Take photos as flooding progresses, peaks and recedes.
- Review and update recovery plans.
- Contact facilities that can repair motors and electrical equipment to ensure a rapid turnaround is available.
- Contact your insurance company to start a claim and determine what they will require.
- Note that other natural disasters occur, such as ice storms and power blackouts, which may cause damage to structures and electrical equipment.

If, as in the case of the Binghamton-Johnson City Joint Sewage Treatment Plant, construction activities are under way, consult with the contractors to help secure the site and start work on estimates of anticipated damages.

Post-Disaster

- Advise personnel never to enter flooded areas due to open pits, tanks, or to walk on tank covers.
- Never enter an affected area before the space is checked for hazardous gases.
- Provide all personnel with the proper personal safety equipment necessary, such as boots, gloves, flashlights, goggles, etc.
- Access areas as soon as possible as flooding recedes to assess damage.
- Begin dewatering as soon as possible and acquire additional equipment if required.

- Dewater one tank at a time (clarifiers, thickeners, digesters, etc.) as required.
- After dewatering is completed, install temporary lighting and ventilation equipment.
- Photo document each structure and each piece of equipment as soon as possible.
- Begin debris removal and cleanup, insure mud and silt is removed from all moving parts and equipment.
- Clean and inspect each facility for structural and equipment damage.
- Megger all wiring and record results of affected wiring as soon as possible and repeat this testing to determine any possible trends indicating possible failure of insulation. You could see changes that may require replacement of this wiring within days, weeks or months.
- Inspect all electrical equipment.
- Contact manufacturers for inspection and recommendations on replacement or repair. In the case of motors, a decision must be made to replace or repair by baking or other recommended measures.
- Flush all pipelines that were submerged.
- Set up procedures for restarting the facility in an efficient and safe manner. Prepare a restart schedule for startup of each piece of equipment and each individual component of the facility.
- Reinstall any equipment that was removed prior to flood or replace with available spare equipment or parts as required.
- After inspection, test and always systematically re-energize electrical equipment one at a time to ensure proper, safe operation.
- Reintroduce flow to completed facility and proceed to the next tank.
- Repeat the above procedures for each tank, pumping facility or building.
- Monitor discharge throughout the recovery period.

This is a time when all available resources should be brought to the site. Be prepared to spend a lot of time and money getting the facility, or any construction activities back on line. Be careful when baking electric motors and testing electrical wiring, that all silt, mud, and water are out of the equipment. There have been a number of cases where a motor, controller, or wiring that was cleaned, tested, and placed back in service, have failed after a short period of time.

There will also be a number of federal, state, and local agencies onsite that can assist you and your facility with getting back on track. Take it slow and steady with this. There are a number of documents required by all of the agencies and, while your primary mission will be trying to get your facility back on line, your documentation and photos should be copied for each agency, along with cost sheets and estimates to recover and return your facility to its original condition prior to the flood. Remember, the most important asset you have at your facility is your personnel. Always think safety, work safely, and be aware of the surroundings and conditions at your facility as you strive to return everything back to its normal condition following the disaster.

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