

tampering, unauthorized access) to be posted at all facilities and critical components. Area around critical components to be free of objects. Key control and accountability policy; keep a record of locks and associated keys and visit log book at facilities.

### **11.16.3 Prolonged Power Failures**

The central control room shall contact the power company to determine the cause and estimated time until power will be restored, in the occurrence of a facility power failure. Project officials shall be contacted and advised of the situation.

Through mutual aid agreements and the coordination of other local agencies, a plan shall be developed to obtain the necessary emergency backup equipment in order to maintain the operations of the system. Maintenance or operating personnel shall be dispatched to assure that designated equipment is operating with emergency power.

### **11.16.4 SCADA System Failure**

SCADA systems items shall be provided with:

- a) Password Protection
- b) Virus Protection
- c) Battery Backup
- d) Connections Protection
- e) Firewall Protection
- f) Software Protection
- g) Hardware Protection
- h) Data Backup

The information technology system plays an important role in water and wastewater systems because it controls the equipment and informs the O & M personnel about any problems through alarm event protocol and reports. They can response to flooding, stormwater, equipment failure, power outage, telephone disconnection and fire faster, especially the remote areas at western region.

### **11.16.5 Facility Transformer Failure**

The emergency response procedure shall be implemented when facility transformer has failed, leading to power outage on the system due to the followings causes:

- Natural calamities, e.g. earthquake, floods, tornadoes, etc.,
- Fire in various installation/equipment,
- Failure of equipment due to technical faults,
- Accident due to human error or faculty equipment/non-maintenance,
- Terrorist attack and sabotage.

The emergency response procedure should include the following:

- a) Emergency power supply system shall be made operational to deal with any emergency,
- b) In plants immediately affected or likely to be affected, efforts should be made to make shutdown to keep the units in good condition,
- c) Arrange required safety equipment,
- d) Organized all support services like fire-fighting system, etc.,