The plant severe accident management program is reliably supported by a wide range of expertise and analytical tools.

The ability to effectively manage a severe accident situation at the plant is significantly improved by having available a wide range of experts and tools. Examples of the analytical tools are:

• CRISALIDE (which can assess the size of the breach during a LOCA, the time before fuel uncovering, etc.)
• TOUTEC (which can assess the risk of hydrogen combustion and the time before fuel uncovering in the spent fuel pool) and
• PRACSITEL (which evaluates residual power in real time).

The ability to reliably determine accident details (such as break size and location) and the time to crucial events (such as time to fuel uncovering or vessel failure), greatly improves the ability to manage the accident. Stress levels increase greatly when dealing with the unknown and so providing good information reduces the likelihood of operator error.
Expert system for the evaluation of source term based on accident type and status of barriers against fission product releases (ESPRO).

Radiological consequences caused by fission products releases during severe accidents are calculated using RTARC code and depends on existing source term. Selection of proper source term is an essential condition for timely selection of protective measures based on existing radiological consequences. Existing accident conditions (e.g. rapid and sudden conditions changes, unpredictable evolution) could aggravate evaluation of source term. Old method for evaluation of source term is based on TSC personnel judgment. Expert system ESPRO facilitates evaluation of source term based on existing emergency conditions evolution.

For various severe accidents scenarios types source terms are pre-calculated using MELCOR code. Expert system ESPRO is a tool for on-line selection of proper source term based on actual evolution of accident.

Source term evaluation is based on calculation of dominated effects on release path significantly affecting source term magnitude. Such an approach does not require detail knowledge about fission products release paths and certain source term could be common for various emergency sequences. The decision making process is based on knowledge of crucial systems and barriers status significantly affecting a release paths. This method is based on the following assumptions:

- Limited number of severe accidents conditions significantly affecting severe accident progression;
- Several parameters characteristic for severe accident conditions are identified and documented;
- Variable values of parameters are available on-line during severe accident progression.

Source term evaluation algorithms corresponds to symptom oriented EOPs structure and the evaluation of source term is performed automatically based on on-line data provided by unit information system. If on-line data from unit information system are not available the source term evaluation could be performed manually.
The approach taken to severe accident damage mitigation is based on the uniform response of the Clinton Power Station and the whole Exelon fleet of nuclear power plants. CPS in coordination with other nuclear power plants in the Exelon fleet decided to harmonize the approaches used and to acquire standard (primary and backup) equipment for each plant of the fleet for mitigation of severe accident damage. Each site having unified mitigating equipment, some of which is portable including unified connections points of cables and hoses, will allow transferring and utilizing the equipment at another site if needed. The approach taken would also facilitate sharing experiences and resources in training and maintenance.

In addition, the Clinton Power station is involved in the establishment of regional response centres equipped with additional equipment available for all NPPs in the country, thus providing a cost effective means for NPP responses to emergencies. The National SAFER Response Center is in an advanced stage of implementation.

Due to compatibility of the means which allows sharing them with other nuclear power plants in the Exelon fleet and with the regional centre, the CPS will be better positioned to effectively deal with severe accidents by more powerful means and for a prolonged period of time. In this way also public trust and confidence is further strengthened.
Nuclear rapid response task force (FARN). Availability to support FLAMANVILLE
The nuclear rapid response team (FARN), set up following the Fukushima accident, is
tasked with responding within 24 hours at a nuclear power plant affected by a severe
accident in order to limit further deterioration of the situation, prevent large off-site
radioactive releases and prevent core melt if possible.
FARN is able to provide support in terms of personnel and equipment resources to a
plant affected by a severe accident. The taskforce is set up to allow it to respond to
accidents involving several reactors on a single site (currently 2 units, to be extended to 4
units from the beginning of 2015 and 6 units from beginning 2016), regardless of site
access conditions. Flamanville can currently be supported by FARN, and modifications
(scheduled for completion by the end of 2014) are in progress to install connection points
for FARN mobile equipment.
FARN is composed of approximately 300 EdF personnel that are able to transport and
deploy major specific resources to a site affected by an accident. FARN is set up at 4
regional bases located at Civaux, Dampierre, Paluel and Bugey power stations, with the
headquarters located in the Paris region. Every regional base has 5 teams (columns) of
14 persons each, all on call for immediate action within 1 hour. The first FARN team
arrives on the site affected by the accident in less than 12 hours and is fully operational
within 24 hours.
The FARN members are all nuclear workers who split their time throughout the year
between their original specialisation at their NPP and activities specific to FARN. During
the periods of FARN duty, the team members dedicate most of their time to training, drills
and maintenance of the FARN equipment. In the event of response operations, FARN
deploys the essential skills (operational, maintenance and logistics) to respond or take
over from the site teams.
The team members deployed for response to an NPP affected by an accident under
FARN command have to carry out the following priority actions as dictated by the crisis
manager (PCD1) at the affected site:
- provide and connect the emergency response equipment (pumps, emergency diesel
generators, fuel tanks and air supply)
- carry out appropriate monitoring of operation of the emergency response equipment and
  ensure related logistics to guarantee operation, especially fuel supply
- participate in assessment of availability and condition of site equipment
- participate in maintenance of site equipment, so as to guarantee (or restore) its
  availability
- support the shift team and ensure targeted handover (assessment of the situation,
  ongoing and forthcoming actions and status of the safety functions)
- participate in priority operating actions (in support of or to take over from the shift crew),
  required by the situation and especially unit safety status
- operate vital safety systems (especially the steam dump to atmosphere (GCTa), auxiliary
  feedwater system (ASG) and station blackout diesel generator (LLS))
- carry out line-ups
- carry out plant monitoring and checking rounds
- deploy the backup means of emergency response communication
- provide logistics
The keys for mobile emergency response equipment are stored in a key box next to the equipment. The plant currently has 2 mobile emergency diesel generators, 2 pneumatic mobile pumps and 1 mobile air compressor stored in a seismically qualified location on Unit 2. The keys for the mobile emergency diesel generators are stored in a sealed key box next to the area where the equipment is stored. Additional sets of keys are available in the emergency control centre bunker and with the maintenance group. This measure contributes to the operability of the mobile emergency response equipment in severe accident conditions. For example, in case of an earthquake the keys will remain available given the resistance of the storage facility to earthquakes. This measure will also save time by allowing emergency response teams to go directly to the equipment storage area.