Along with the civil defence programme compulsory for national schools an experiment is being carried out, which promotes nuclear safety to the young generation through issuing magazines, presenting children's shows and exhibiting children's paintings. The programme is carried out in all schools within the 30 km emergency planning zone. The "Hello Earth" magazine is a non-traditional educational tool, which in an easy, plain and informal way arouses children's interests in topics such as calamities, accidents and disasters. The "Hello Earth" show is an original summary lesson for 7 to 11 year old pupils, finalising the 4 year school training in this area. The objectives of the show are:
- retain the acquired knowledge for a long time;
- expand the knowledge about nuclear power plants, radiation protection and demonstrate the advantages of nuclear energy over the conventional energy sources;
- improve practical skills through competitions;
- cultivate behavioural models of self-protection, mutual aid and friendship in case of trouble;
- emotionally involve children in the learning of a "boring subject".

The picture exhibition "I saw the trouble" provides a feedback of the acquired knowledge, the emphasis being put on the idea rather than the artistic values of the pictures.

Nogent, France

Nogent NPP has instituted many unique and beneficial ways to maintain contact with the residents in the area of the plant. Among these projects are:
- "Natural Network of Opinion" since Dec. 2002. This kind of close contact with public by NPP staff will strengthen the liaison with public
- One-to-one contact with residents to evaluate the image of the plant and to increase the plant staff's sensitivity to local concerns
- A quarterly journal "L'Echo des Tours" with information on the plant and emergency actions
- A toll free number for residents to call
- Excellent facilities for briefing the press
- CLI (Committee for Local Information) of Nogent-Sur-Seine plays important role for the liaison between Nogent NPP, public and media
- Personal distribution of potassium iodine tablets by volunteers fire fighters, Red Cross, etc. which also provide an opportunity to discuss emergency activities one-to-one with residents.
The plant has established comprehensive Emergency Information Procedures for public information to inform the public during an emergency. The significant changes occurred. The site held 650 meetings and met with 46,000 local citizens and government personnel to enhance the public relation. Environmental monitoring real-time data could be accessed on the Internet by local citizens. The plant has sufficient, qualified and trained personnel assigned for public information activities. Several positive actions were evident, since the Mihama NPP steam leakage incident the plant performed the inspection and the report to the public. After the earthquake on 2004 October 23 and November 4, station personnel promptly prepared information inform the media and the public on associated emergency aspects. The public information facilities in the TSC were well equipped and properly maintained for allowing quickly response to the public.

Blayais, France

Weather forecast website applied proactively to support emergency response initiation. Bearing in mind the significance of risk of severe weather events, the plant has set up the mini “weather forecast website” issued by Meteo France. This is an exclusive application for the plant and aims to monitor local weather conditions and make predictions regarding the preparedness measures to the anticipated weather conditions. The web site comprises a seven day forecast for the Gironde region, a set of forecast, report every three hours period, and infrared satellite images every six hours. According to this local weather forecast and anticipated weather conditions the preventive measures could be initiated in the plant. In case of anticipating severe weather the plant prepares the units and the emergency plan (PUI) can be triggered. So emergency staff can arrive on-site before severe weather conditions reach the site. The application could be an example for other plant with severe weather operating experiences.
Use of Video Conference during Emergency Response

Volgodonsk NPP has developed an innovative system for interaction of several support and oversight organizations with the site staff during emergency response. The plant has a video conference capability that links the Rosenergoatom Concern Emergency and Technical Support Centers, 3 national laboratories, the Federal Crisis Center, the reactor designer and the reactor manufacturer with the emergency management team in the Plant Emergency Center. Generally, the lead manager in each location participates in the ongoing video conference. This allows emergency management across the various response organizations to discuss and resolve issues rapidly face-to-face.

The system can operate through fiber and satellite channels ensuring good reliability. The system is also used for routine communications between counterparts to facilitate sharing of information. However, it is a particularly effective tool during emergencies to link together decision makers and technical staff from disparate support organizations. The use of this system is routinely practiced during drills and exercises increasing effectiveness and realism, as well as improving response coordination.
Estimated accidental release analysis programme "SaTu" including plant premises.

The plant use an analysis programme, named "SaTu" support the on and off-site emergency organizations to estimate accidental releases in advance and the recommendations for protective actions can be estimated based on averted dose. The accessibility of the plant locations (containment, reactor building and other plant rooms) and potential needs for improving radiation shielding can be studied by SaTu. With SaTu system it is possible to give a first estimate after starting the event for 2 hours. When it is activated it continuously maintains and completes the estimate. By using SaTu the accident scenario for exercises are more comprehensive and realistic.

Fortum Nuclear Service (FNS) has developed the "SaTu" system in 2002. In cooperation with the plant, FNS has implemented this system. People have been trained in FNS group and the plant emergency organization to use this system during accidents with radiation release. The main goal of this system is to assess and forecast the release and transportation of ionized materials during accident situations.

The assessment is based on plant process, safety, ventilation and containment system status. The "SaTu" system calculates the radionuclide concentrations in the plant and the releases to the atmosphere. It calculates also the radiation levels in different locations in the plant. The estimates of source term can be recalculated based on plant safety system status and actual radiation level measurements.

The "SaTu" system has been made to use in the emergency plan for make prognoses accidental releases, plant design in assessing the need for radiation shielding for accident situations. It is also made for emergency exercises creating accident scenarios and to use in training radiation specialists to understand and evaluate the behavior of radioactive materials in accidents situations.

This system is very useful to analyze on and off-site emergency situations with radiation releases to take protective actions.
Several means are used by the site to optimize the time in emergency response.

- To ensure rapid access of emergency personnel to the site, when access is limited, specific coloured stickers have been developed and distributed for all vehicles of persons having a role in case of emergency and thus being authorized to enter the site. These coloured stickers also mention the vehicle number plate and are labeled "PUI" (Internal Emergency Plan). The colour of the sticker changes every year. There is an agreement that a specimen of the PUI sticker is sent to the authorities managing traffic in the event of a limited access zone being set up. As well as allowing entrance to the plant, the stickers enables police on roadblocks to identify emergency plan personnel and allow them to pass through. These sticks represents less then 10 % of the distributed stickers.

- If off-site emergency services have to come on site, the meeting points for emergency response teams are defined, signposted on the site and indicated on a plan provided by guards when each emergency service vehicle (fire brigade, ambulances) comes on site. Firstly, a blue flashing light system is activated from the control room to guide the fire department to the affected unit. There are 7 flashing lights on site. In order to ensure that emergency services arrive rapidly at the accident location, a member of the first response team rolls out a tape from the meeting points to actual location of accident. A tape is available in a box at each "relais EPI" (first response meeting point).

- As a result of feedback from EPP exercises, a need for a short document on immediate response management was expressed. Therefore the plant decided to draw up immediate response sheets for each role in the emergency plan on call system. These sheets are in a standardized credit-card sized format and fit easily into a pocket. Thanks to these immediate response sheets every role in the emergency plan has all the required information for the immediate actions required in the event of an emergency. The front side of the document is generic, while the back is specific to each role. Reference is made to the emergency plan. Accordingly to each type of event immediate response sheets contains following data:
  * Phone, fax and cell phone numbers of contact persons;
  * Summarized description of the roles and responsibilities of that respective individual;
  * Proper reflex sheet, good practices and immediate actions to perform;
  * Sequence in emergency deployment rooms, locations of actors and identification of information flows.

There are similar immediate response sheets for emergency functions at corporate level. These various improvements optimize time in an emergency response. They ensure that site emergency personnel are able to get on to the plant rapidly and have all the information and instructions for initial actions available in a user-friendly form. They likewise ensure that the off-site emergency services can rapidly reach the location of the accident.
The plant has developed a tool that identifies strategies for solving technical problems during a nuclear emergency. This tool is the Technical Handbook for Plant Operational Manager – Technisk Handbok for Anlaggningsledare (THAL).

Using this tool, the Plant Operational Manager (AL) presents the Site Emergency Director (OL) with an assessment of the feasibility, data needs, resources, and expected results for solving technical problems that are not covered by General Disturbance Procedures. This high level view of the management of technical issues during an accident is unique in the Team’s opinion.

Instead of entering directly into Severe Accident Management Guidelines (SAMG), the tool gives management-level guidance on what is needed to solve the problem, who can help and what tools can they use. The THAL does not replace the SAMG, which are used by a separate group of engineering and safety analysis specialists. The THAL explains when to start the SAMG analysis and what to expect from the group of specialists.

The THAL takes the approach that in order to be able to make decisions during a severe accident, different alternative strategies need to be considered. The THAL is a knowledge based handbook where such strategies are described, along with other essential information. The THAL also identifies the short term actions that are important for long term accident management. The THAL is organized by issues such as:
- Short term actions (minimizing the spread of radioactivity, core damage assessment, reactor vessel integrity assessment, etc…)
- Long term actions (containment pH adjustment, measuring activity and chemical parameters in the containment, hydrogen control, etc…)
- Instrumentation available in the containment
- Radiological environment (habitability)
- Personal safety measures
- Alternatives for electrical supply
- Communication means
- List of mobile equipment available in the region (pumps, generators, etc…)
- Operation at non affected reactor units
- Process systems relation

Each issue is covered in a dedicated section that contains
  o Info
  o Strategy
  o References

Using the THAL manual, the Plant Operational Manager (AL) can provide the Site Emergency Director (EL) with a very good overview of the decisions he may have to make during the emergency.
The availability of a dedicated emergency response mobile command post and response team equipment vehicle (PCOM van) results in more rapid and effective response to emergencies on-site, as well as more efficient coordination between on-site and off-site responders.
- First and Second level emergency response teams, as well as the Head of Rescue (EDF) and the Commander of Rescue Operations (Local Fire Service), are situated close to the event in a protected, mobile location. This provides for ease of communication and coordination of the response.
- The PCOM van is intended for use during on-site fire, medical, and radiological emergencies.
- The emergency team's response time is shortened since they can equip themselves for the emergency in the PCOM van close to the emergency location.
- Eliminates the need for response teams to transit on foot in heavy protective gear to reach the site of the emergency.
- The reduction in response time should reduce both the risk to the personnel as well as potential damage to plant equipment.
- The van is tested weekly for operability/availability, and maintenance responsibilities are established.
Communication between the on duty emergency planning and preparedness staff by cellular phone.

Management and plant staff members are issued company cellular phones used on the network of a cell phone operator in Sweden, which when entering the plant automatically operate at a lower intensity of electromagnetic power in order to avoid plant systems interferences and disturbances. The mobile phones are used in all spheres of the plants activities and in the case of an emergency the systems allows a zero delay and efficient means to relay emergency messages to standby persons at any location on and off-site. The system allows prompt mobilization of resources during classification and notification of an emergency as well as continuous updating and exchanging of information with support functions for emergency decision makers. The use of mobile phones in emergency communication enables the plant public announcement system to be dedicated for important messages for the protection of persons on site. In the case of an emergency it is also possible to allow the use of private phones on site if necessary.

The use of cellular phones in drills and exercises has shown that the plant is able to notify, classify and activate its emergency facilities in normal and outside normal working hours in a timely manner. It was also used to good effect during a Staff Alert at the plant in 2008, and the network proved to have sufficient capacity to handle the situation.

In case of a breakdown of the national cell phone network which is part of the global net, the indoor antenna system for communication radio TETRA, using digital radio technology will be utilized. TETRA has an eight hour UPS battery backup. In addition to TETRA the plant also has a blue-light-authority 80 MHz radio system and a new digital RAKEL radio system. All indoor antennas are connected to two outdoor antennas which are a backup of each other, and should this fail, direct communication with the handheld radios is still possible.
Aids to Local Communication Command Post

The plant has developed tools to help staff from the communication command post to prepare the first communication messages and press meetings, as well as to respond serenely to telephone or face to face media communication.

This consists of the following elements:

A) Analysis Sheet:
The communication command post uses an analysis sheet which rapidly decodes the event and describes it in a reliable manner. This provides the head of the communication command post with data and documents on the nature of the event and with key emergency messages.

B) Key Emergency Messages:
An emergency message is planned for each type of emergency event. The emergency message is used by the head of the communication command post and the site spokesperson in preparing for their meetings with the press. Each one contains:
- 1 introductory sheet (key aspects: human, environmental, technical),
- 4 sheets: « what has happened»; «protective measures»; «consequences » and « actions taken »,
- Prompts for the most likely questions.

Each message identifies the slides that can be used for media purposes. Those slides are provided by corporate communication services (used by all EDF communications functions).

C) Template for First Press Release:
Approved templates provide speed (within one hour after the command station has been set up) and guarantee the factual accuracy of the first press release. A template for the first press release is planned for each key emergency message. Once the event has been diagnosed using the analysis sheet, the head of the communication command post selects the appropriate template, fills it in, has it checked and then issues the release.

D) Media response pack (based on OEF):
These documents help the person in charge of telephone communication and the person in charge of face to face contact with media to better handle media attention. The document provides clear and polite responses to be used for any impatient questioning by journalists. These sheets have been drafted in response to needs identified during communication-specific EPP exercises.

Plant results demonstrate that this practice produces the expected results and press releases issued during EPP exercises are published within the required time frame.
A comprehensive emergency plan for unexpected events has been formulated, in which 17 unexpected events have been taken into consideration. Some of them are far beyond the normal level of contingency plans in nuclear power plants.

Seventeen sub-plans have been formulated accordingly to respond to such unexpected events as environmental pollution, food poisoning, public hygiene, infectious diseases, gang events, typhoon, geological disaster, oceanic disaster and traffic accidents.

For all these events, specific exercises are performed in a regular way. In addition, this emergency plan integrated with municipal emergency response organization from which DNMC will seek assistance whenever necessary.

Precautious measures for e.g. food poisoning provided to keep plant staff, operation personnel in particular, harmless from those unexpected events in order to ensure the safety of plant personnel and the plants property.
Robust, diversified and redundant telecommunication means deployed in the various on-site emergency response facilities. The on-site emergency response facilities are equipped with various telecommunication means. These are redundant and diversified in order to guarantee the availability of communication channels needed to communicate the required decisions or recommendations and to communicate with the off-site authorities.

These telecommunication means are:

- Wired channels
  - normal ("PUI Site") and secure ("PUI Sûreté") site networks
  - direct external lines ("PUI SATS" (Services d'audioconférences et de télécopies sécurisés, Audioconference and fax secured services) & "PUI Extérieur")
  - intercom between emergency facilities ("PUI Interphonie")
- Radio communications
  - wireless phones (Digital Enhanced Cordless Telephone, DECT)
  - TETRA radios (PUI TETRA)
  - Pagers
- Satellite means (PUI Satellite)
  - INMARSAT
  - IRRIDIUM
  - SELCA (Système d'Echanges Local Cattenom-Autorités, local system for exchanges between Cattenom and authorities) used for alerting and information exchange with Luxembourg and Germany
  - VSAT

These means are located in the different emergency facilities of the site:
- On-site Emergency Centre (BDS)
- On-site Technical Support Centre (ELC)
- Main Control Room
- Assembly points inside the buildings
- Gathering rooms for the rescuers (PRS)
- Fallback centre
- Media centre
- Medical service
- Security post (PCP)

The VSAT satellite system installed at the Cattenom NPP forms a fully independent network between on-site emergency facilities and the EDF national support allowing communication among the emergency facilities even in the case of a total isolation of the site.

Each of these "PUI" telecommunication means is identified by a specific colour sticker facilitating their identification and category. In addition, each emergency response function have at their disposal an information booklet, called MEMOTEC (MEmento des MOyens de TElécommunication de Crise, Memento of crisis communication means), giving practical indications on each telecommunication means (who am I?, identification/visualisation of the connections...).
Computerized emergency decision support system.

This is a system to support decision making for protective actions both on-site and off-site. This system enables the plant to decide proper protective actions on-site and make suggestions to the off-site authorities about protective actions in a timely manner. This includes the following:

− User-friendly interface, simplified input process for users, improving the working effectiveness of response staff.
− Quick identification of site specific default operational intervention levels (OILs) from pre-calculated OILs in accordance with the type of accident and the meteorological conditions.
− Environment monitoring data and meteorological data can be input automatically, saved, managed and can be directly used for the further revision of OILs.
− After revising the OILs based on the environment monitoring data, the emergency protective action suggestions of each area can be directly displayed on the map.
− Report formats to national emergency headquarters and other off-site relevant organizations can be automatically produced, including environment monitoring report formats and protective action suggestion report formats.
− This system had been tested comprehensively and the availability and efficiency was already proved.