OSART Good Practices

EMERGENCY PREPAREDNESS AND RESPONSE

Emergency preparedness

Arkansas, USA

Mission Date; 15 Jun.-2 Jul., 2008

The Emergency Planning Procedure/Print Document Disaster Recovery System enhances the plant's emergency preparedness.

The plant maintains all procedures and documents necessary for use by Emergency Response Organization (ERO) personnel on the Entergy Web. Should this system be lost for any reason, emergency planning has a disaster recovery system established that ensures access to these documents is retrievable by all ERO personnel. Designated computers, in each primary and alternate emergency facility, receive a daily download from document control. The most current revision of all procedures and drawings required for sustained ERO operations is loaded to the hard drive of these computers. If a failure of the intranet occurs, all required documents can be retrieved and used from local computer hard drives with no loss of information experienced while responding to an emergency event. This process reduces work burden and cost on document control by allowing electronic update of procedures and prints in ERO facilities without having to maintain hard copy backup. It also reduces the need to audit prints and procedures for current revisions which saves even more time.

Mihama 3, Japan

Mission Date; 20 Jan.-5 Feb., 2009

Comprehensive off-site emergency drills, including resident evacuation have been conducted every year with Mihama station participating every four years. Fukui Prefecture conducts yearly off-site emergency drills with participation of a few hundred local residents, which are quite comprehensive, covering the items listed below (*: drills where the licensee lends its cooperation):

- Emergency communication drill (*)
- Emergency taskforce operation/management drill (*)
- Off-site center operation/management drill (*)
- Self-Defense Force dispatch drill
- Emergency monitoring drill (*)
- Emergency exposure medical treatment drill (*)
- Resident evacuation drill (*)
- Evacuation center operation/management drill (*)
- Public relations drill (*)
- Traffic control drill
- Nuclear operator on-site fire brigade firefighting drill (*)
- Training for relevant authorities to deal with the region evacuated
- Support team mobilization training, based on the Fukui Prefecture Wide Area Mutual Firefighting Support Agreement

Off-site centers have been established in the Fukui Prefecture municipalities with nuclear power stations (Mihama Town, Takahama Town, Ohi Town, and Tsuruga City). The four municipalities have taken turns conducting these comprehensive drills where municipalities and power stations have participated.

The yearly off-site comprehensive drill significantly improves the public awareness and sufficiently supports the preparedness of off-site and on-site emergency response organizations.

Ringhals 3/4, Sweden

Mission Date; 1-18 Mar., 2010

Cooperation With Local Authorities.

The plant has made a commitment to close coordination with local police that has resulted in a better overall understanding of how off site and on site organizations will respond to events involving radiological concerns as well as fire, rescue, and potential hostile actions. In many cases, events involving hostile actions can change the way an emergency response organization responds to a radiological event. Actions taken by the plant in this area have helped to improve plant safety through a defense in depth concept provided by the emergency responders.

Together with police officers and group leaders for the local security company, the staff assigned as Engineer on Duty has undergone training, including Table Top exercises directed at criminal attack. During the training, it was repeatedly emphasized that the primary objective for the responders is to maintain reactor safety and that apprehension of the criminals is secondary. In 2008, a functional exercise in physical protection was carried out with 21 police officers, 23 engineers on duty (all) and 9 group leaders from the plant's security force. The evaluation of this training and exercise showed this type of exercise to be very valuable and has given all participants more in-depth knowledge of their own roles and knowledge and understanding of the roles of other responders The commitment to cooperation included on site familiarity training of 160 police officers in 2007 through 2009, and 110 police officers undergoing refresher training at the site in during the same period.

Doel, Belgium

Mission Date; 8-25 Mar., 2010

The plant has a comprehensive database of all equipment intended to be used for emergencies.

All equipment, instruments and logistics needs for all emergency management functions and facilities are inventoried in a centralized database (under SAP management system). The database contains a detailed description of the items, the frequency at which they need to be tested, the calibration requirements (for detection equipment) and the department responsible for their maintenance. A sample check of the instruments indicates that the detection instrument calibration is up to date.

This comprehensive equipment management system ensures that the equipment is fit for duty and provides a demonstrable, effective and reliable way to ensure that all the equipment required to manage emergency response is available for emergencies.

Doel, Belgium

Mission Date; 8-25 Mar., 2010

The plant has a customized training program for each person in key emergency response positions.

The plant has a well-documented statement of required capabilities and knowledge for each of the positions identified in the emergency plan. For each “person”, based on their knowledge and experience, the plant designs an individualized training program to allow the individual to achieve the required level of performance. This includes self-studies, courses (with designated instructors), on-job training and drills. Following completion of the program and sign off, the individual is tested orally. If the results are not satisfactory, the individual is prescribed additional training. If successful, the individual receives a certification with a clear validity period. The performance of each individual is tracked, including the need for recertification. This is included in the personnel training database system of SCALDIS.

This system ensures optimal performance of the emergency response teams against clearly defined standards.

Bohunice 3/4, Slovakia

Mission Date; 1-18 Nov., 2010

For fulfillment of working tasks of OHO management unit (EBO Emergency Committee) in emergency conditions it is necessary to equip the Emergency Committee members with such knowledge and skills which will facilitate them to achieve optimal working performance under stressful conditions, they learn how to handle the information more effectively, to remove errors in processing of information within OHO team, etc.

The training courses are performed in form of an experience /adventure/game, with a certain level of physical and psychical load, by applying method of active participation and experience training in the field.

The training courses, focused on psychological preparation of EBO Emergency Committee (EC) members, have been attended by EBO EC members since 2005, with the following topics:

- 2005: 'Reacting in crisis situations' (pilot project which was attended just by one shift of EBO Emergency Committee
- 2006: 'Reacting in crisis situations' (Since 2006 the courses are attended by the whole EBO EC)
- 2007: 'Development of team cooperation and communication'
- 2008: 'Self-knowledge and team cooperation'
- 2009: 'Accident management'
- 2010: 'Solving of crisis situations'

The purpose of psychological preparation is that EC members, after passing the courses, are able to:

- Objectively obtain and evaluate information about the reality,
- Distinguish projective and tunnel seeing (and to be able to eliminate it) and to distinguish it from objective (unbiased) perception and evaluation of the situation,
- Identify own role in the team, its strengths and weaknesses from the point of view of team cooperation,
- Get to know positive and negative aspects of oneself and of the team under pressure and when situation or strategy change,
- Master the principles of effective two-way and multi-way (three-way) communication during emergency situation and to apply these rules during a simulated situation of NPP accident, the rescue of persons and material values /assets/, evacuations, etc.
- Development of communication and team cooperation,
- Select appropriate communication and management strategy and to be able to apply it during a simulated situation of NP accident, rescue of people and material values /assets/.
- Deal with crisis situations under time stress, change of strategy procedure
- Correctly provide first aid to the affected persons, correctly use the protective suit - tyvek

On the basis of the results and analysis of the given (running) course there are formulated objectives and goals for the next courses which are under preparation for the future period and there is not affected the continuity of psychological preparation of EBO EC members. Individual courses are mutually interlinked, they are focused mainly on problem areas and they are at a very high professional standard.

Seabrook, USA

Mission Date; 6-23 Jun., 2011

Radiological field monitoring & communication system.

The plant's emergency response organization (ERO) offsite monitoring teams (OMTs) utilize a web-based program known as WebEOC to record field monitoring data and to transmit the data to dose assessment personnel in the Emergency Operations Facility (EOF). ERO OMTs are deployed into the field in dedicated vehicles to conduct radiological surveys and environmental sampling. The OMT uses the WebEOC application to enter its team identification number, its location, and the survey results information using the data entry screen. When the data entry is saved, the information is immediately transmitted to the EOF where it is displayed on a large screen for viewing by EOF dose assessment staff which allows prompt recommendation and intervention. The redundancy of measurement is also assured. New Hampshire and Massachusetts state field monitoring personnel are equipped with laptop computers with the same WebEOC field data communication capability.

This method:

- Eliminates the need to verbally communicate information over cellular telephones or via radio transmission.
- Minimizes opportunities for human performance errors resulting from repeated manual transcription and communication of data.
- Provides for prompt information to decision makers.

Cattenom, France

Mission Date; 14 Nov.-1 Dec., 2011

Efficient follow-up by the Radiological Assessment Group (PCC) of the off-site radiological situation using real-time ambient dose rate data.

The Radiation Monitoring vehicles, to be deployed during an emergency, are equipped with a gamma dose rate system connected with a GPS system allowing the PCC staff to track their location continuously on a map. The ambient dose rates measured, every 10 seconds, by this system are displayed on the dashboard and transmitted by TETRA radio to the PCC. A colour code is applied to the transmitted data allowing a quick assessment of the radiological situation (green if dose rate is lower than 0.35 □Sv/h, yellow for values between 0.35 □Sv/h and 1 mSv/h and red for ambient dose rates □ 1 mSv/h). This automatic transmission allows the accumulation of the environmental measurement data while avoiding misunderstanding or errors, improving the accuracy of the available environmental data.

Associated with online real-time ambient dose rate values from 29 off site gamma-tracer stations (Genitron) and with the colour coding used, this system may give a comprehensive overview of the environmental radiation situation.

The online display of the ambient dose rates on the dash board also participates a better protection of the team members of the vehicles (driver and technician).

The system has been in place at Cattenom NPP since 2010.

Mühleberg, Switzerland

Mission Date; 8-25 Oct., 2012

External Emergency Storage Facility in Reitnau

Following the severe reactor accident in Fukushima, Japan, the operators of NPPs in Switzerland were requested by ENSI ordinance to make urgently available an external storage facility for severe accident scenarios. The storage facility was to be earthquake and flood proof and to contain additional means and equipment for deployment.

The operators decided to set up a joint central external storage facility (in the following referred to as "External Storage") and to store therein additional equipment for event scenarios. The equipment stored exceeds the international standards.

The External Storage constitutes a supplementary pillar for Emergency Management of CH-NPPs and has been integrated as such in the Emergency Organisation of the respective plants. The equipment stored is permanently ready for deployment. For this purpose, the systems and equipment stored are regularly maintained and used for training. In the event of an accident the emergency response unit will be set up at an early stage, i.e. predefined staff will travel from the non-affected plants to the external storage facility and start preparing material and equipment for transportation.

The External Storage accommodates emergency generators, fire brigade equipment such as pumps, hoses and other fire fighting material, radiation protection material, tools, fuels, oils & lubricants, and other auxiliary materials. There are several sets for many of the aforementioned items.

The storage facility was designed and established in cooperation with the fire brigades, army and air force. All items are packed and prepared in such a way, that they can immediately be transported by land or air (helicopter) with the help of these response forces.

Kozloduy, Bulgaria

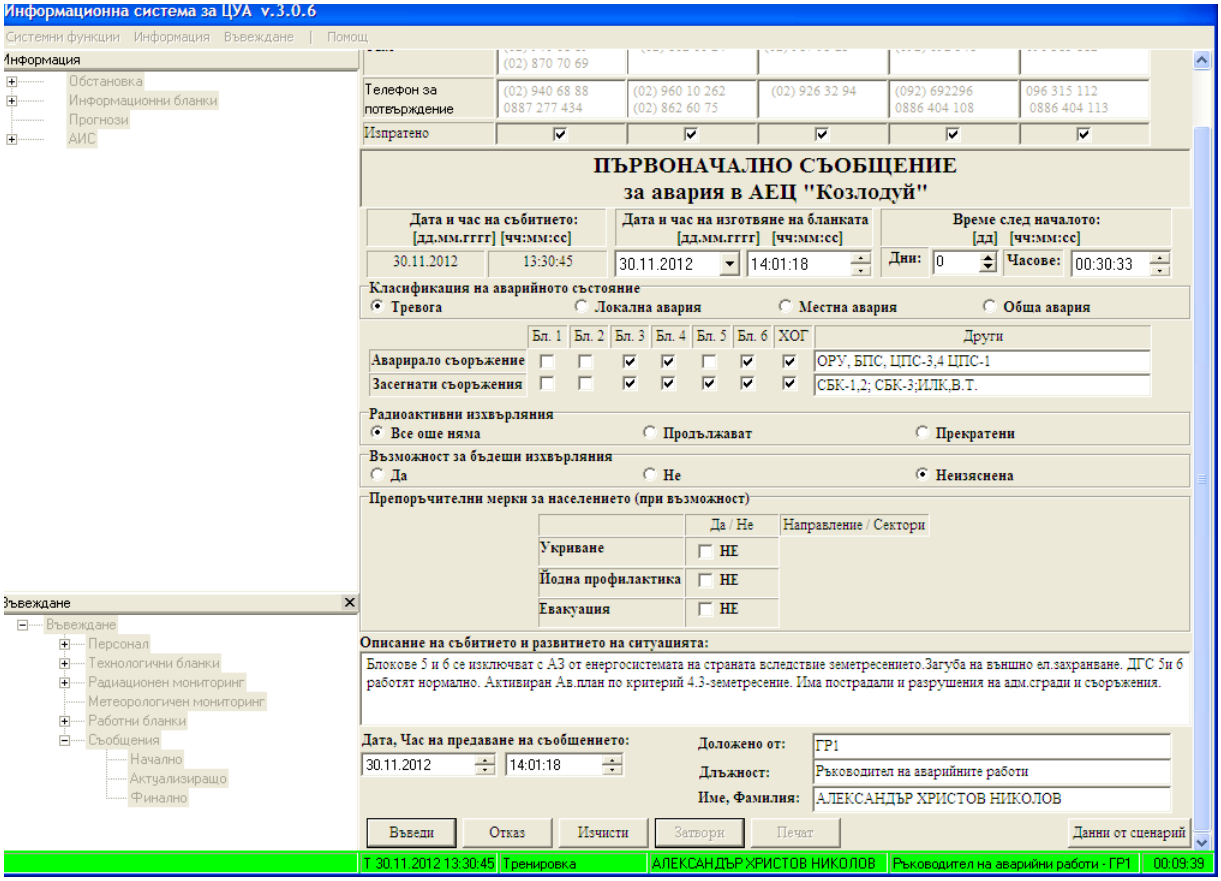
Mission Date; 26 Nov.-13 Dec., 2012

Emergency Response Centre Information System (ERCIS)

The plant has identified the need to transmit information concerning the status of units 5-6 and the consequences for the public and the environment to several off-site organizations. There are several pre-arranged forms used for this purpose.

The plant has developed an Emergency Response Centre Information System (ERCIS) to automatically acquire the necessary information and fill-in the forms. The forms can then be faxed, printed or emailed with the touch of a button.

The ERCIS is used by emergency team on duty at the ERC during drills or emergencies to prepare messages to state institutions. The ERCIS is tailored to the work of each person on duty at the Emergency Response Centre. Each work station is authorized to acquire specific information from a server and transmit it to the off-site authorities. Every form sent to the off-site authorities is logged and time-stamped automatically.



The server has access to the following information:

- meteorological data from three weather stations;
- radiation monitoring data from the industrial (on-site) gamma monitors;
- radiation monitoring data the ring of detector surrounding the plant in the EPZ;
- radiation monitoring data from the fixed network in the UPZ;
- nuclear units 5 and 6 process parameters;
- safety parameters display system (SPDS);
- post accident monitoring system (PAMS);

- spent fuel storage facility (SFSF) parameters.

ERCIS has three modes of operation:

1. Monitoring mode during normal operation to get access to real data from the site, the weather stations and the radiation monitors.
2. Scenario mode during exercises to get simulated data. In this case, the simulated data is prepared using EPA-Dose, JRODOS and main control room simulator.
3. Emergency mode to obtain real data regarding the emergency and transmit forms to the off-site authorities.

The benefits of this system are that it improves the accuracy and timeliness of the information transmitted to the off-site authorities. It also simplifies the management of the information and allows the Emergency Action Manager to track the information that was sent. Finally, it allows the same system to be used during drills or exercises, improving the training of emergency team.

Borssele, Netherlands

Mission Date; 1-18 Sep., 2014

The plant organizes six site-wide integrated exercises each year to ensure that all personnel with assigned duties during an emergency participate in an exercise each year.

Each exercise includes the participation of one of the shift crews at the simulator, a complete roster of personnel at the Alarm Coordination Centre, the security organisation, the maintenance organisation, the deployment of emergency mitigation equipment (diesel generators or pumps) which may involve the assistance of off-site contractors or the Army. In addition, the exercises are coordinated and conducted in collaboration with the external Emergency Response Organisations, which include: the Regional Centre of the Safety Region of Zeeland (VRZ), the nuclear regulatory body (KFD), the National Institute for Public Health and the Environment (RIVM), the National Nuclear Assessment Team (EPAn), and the crisis centre of the plant designer (Krisenstag Areva). These organisations appreciate the opportunity for all their personnel to participate to an exercise.

Once every five years, a national large scale exercise includes the participation of all ministries involved in the response to a large scale emergency, in addition to the participants to the annual exercises.

Borssele, Netherlands

Mission Date; 1-18 Sep., 2014

The plant organizes annual exercises with the 13 Armoured Brigade of the Netherlands Armed Forces. The tests involve support by the Army for the deployment of beyond design basis emergency mitigation equipment, security, and decontamination.
After the Fukushima accident, the plant made arrangements with the 13 Armoured Brigade to provide support in crisis situations. The 13 Armoured Brigade possesses a wide range of mobile equipment and means of transport to deliver resources anywhere. Its personnel is equipped and trained to operate under harsh conditions such as those encountered during a nuclear emergency.

The agreement between the plant and the 13 Armoured Brigade includes participation in a yearly exercise where these arrangements are tested in the field. In 2012, the exercise involved the delivery of diesel fuel, a large mobile diesel generator, and operating crews during a simulated flood. During the 2013 exercise, the 13 Armoured Brigade performed monitoring and decontamination for 60 employees. It also arranged an emergency communication network. In November 2014, a third exercise is planned, which will involve radiation protection support on-site, and the off-site decontamination of vehicles that evacuated from the plant. The annual exercises also integrate a security component. These arrangements increase the robustness of the mitigation measures that were put in place by the plant as part of the Complementary Safety-margin Assessment – the European Union stress-test.

Flamanville, France

Mission Date; 6-23 Oct., 2014

Effective documentation management system for ready access to updated EPP documents wherever they are needed.

In EPP some 400 binders are used in approx. 40 rooms/facilities requiring the presence of EPP documentation. A system was set up in 2012 to manage this bank of documentation. At his/her action point, each emergency team member has 2 binders. The red binders are sealed in transparent vinyle to ensure that their content has not been modified since issue by the documentation department. The red binders are used by the EP members in case of an actual emergency, whereas the yellow binders are used during exercises only.

Each binder has a summary of contents describing it as a unique/autonomous document. The binder is referenced with a package code. Some binders can be used by all command post members. If 2 binders have the same content, they are identified by the same package code (e.g. SDD01).

The package code enables the documentation department and the contractor in charge of updating the binders (renewal of binder after a drill, revision of current document, etc.) to locate the binder. In the example mentioned above, SDD01 stands for S (BDS or bunker) as the EP member's first action point, D for (PCD), D for (decision making room for PCD) and 01 as a chronological number of the binder located in the room.

All documents referenced in the document management system are recorded with their package number indicating where there are located in the distribution list.

The documentation department has an EPP reference cabinet and also a backup of the content of each binder. In an emergency, the update of the binder can be done promptly. Following drills or actual emergency situations, the documentation department has the full content of the binder replaced promptly and recovers the container used for document recycling of the binder that has not been hand amended by an EPP member.

Advantages and benefits

- Prompt update of EPP binders that are part of the documentation management system.
- Autonomous and efficient management of EPP documents (if the EPP officer is away from the station, the update can be done promptly and as soon as necessary).
- Documents that are 100% guaranteed updated are a fundamental to emergency management. With this system, the EPP members know that the documents they need are always up-to-date.
- In case of actual emergency during a drill, each EPP member has a complete binder for use during the real emergency situation.

Station results demonstrating that the potential good practice meets expectations:

- Before this new organization, EPP members reported deviations on missing, non updated or incomplete document.
- The organization has been in place for 2 years and all EPP members have expressed satisfaction on the documentation system. They now have full trust in the documentation provided.
- Various verifications at all levels (documentation department, contractors, command post managers, EP officer) have shown that documents are indeed up to date.

Flamanville, France

Mission Date; 6-23 Oct., 2014

Training for evacuation of disabled personnel from buildings

The plant deliberately employs disabled persons. In order to assist them in emergencies a specific evacuation plan was established for each disabled member of personnel. It is signed by the disabled person and their line manager.

An evacuation chair is provided for persons with reduced mobility.

This evacuation chair is located in a stairwell which offers fire/smoke resistance of one hour. The chair can be deployed by one person, and enables a person with reduced mobility to be evacuated safely.

The person with reduced mobility and his/her colleagues have been trained in the use of the chair within the scope of the specific evacuation plan.

Kashiwazaki 6/7, Japan

Mission Date; 29 Jun.-13 Jul., 2015

Intensive Emergency Response Organization exercise programme

The station has implemented a detailed programme of monthly exercises for the full Emergency Response Organization.

The exercise scenarios systematically cover a wide range of severe conditions and complex challenges. Exercises are conducted to simulate, to the extent practicable, realistic conditions. This includes exercises conducted in low light level conditions (to simulate loss of normal lighting during SBO conditions and events during the hours of darkness) and using protective equipment that would be used during extreme weather conditions such as very high rainfall (to practice performing activities that could be hindered by the additional protective equipment

The results of the detailed programme of exercises and the high degree of realism gives greater confidence that the station ERO will be able to discharge its responsibilities in all credible accident conditions.

Sizewell B, UK

Mission Date; 5-22 Oct., 2015

The range of emergency exercise constraints that are tracked is very comprehensive

In conformity with IAEA standards, the station implemented an exercise programme that covers all response functions required during an emergency, and tests the associated exercise objectives and the emergency personnel regularly.

In addition, the station created a comprehensive list of exercise constraints that must be tested over a five year period:

- Normal working hours; outside working hours
- Normal operation; outage
- Mustering with automatic system; mustering with manual system
- Alerting with automatic system; alerting with cascade of telephone calls
- With main communication network available; without main communication network available
- With public address system available; without public address system available
- With Main Control Room available; without Main Control Room available
- With Emergency Control Centre available; without Emergency Control Centre available
- With Access Control Point available; without Access Control Point available
- With Shift Manager; without Shift Manager
- With Emergency Controller; without Emergency Controller
- With external services (police liaison) at Emergency Control Centre; without external services
- Fire with off-site fire service support; without off-site fire service support
- Security event with off-site police service support; without off-site police service support
- Release monitoring with off-site survey available; without off-site survey available
- With electrical grid available; without electrical grid available
- Slow reactor depressurization; Fast reactor depressurization
- With contained accident; with release to the environment
- With high radiation environment for emergency response teams; without high radiation environment

Tracking such a comprehensive list of constraints ensures that the emergency plan is tested under the full range of conditions that could arise during an emergency.

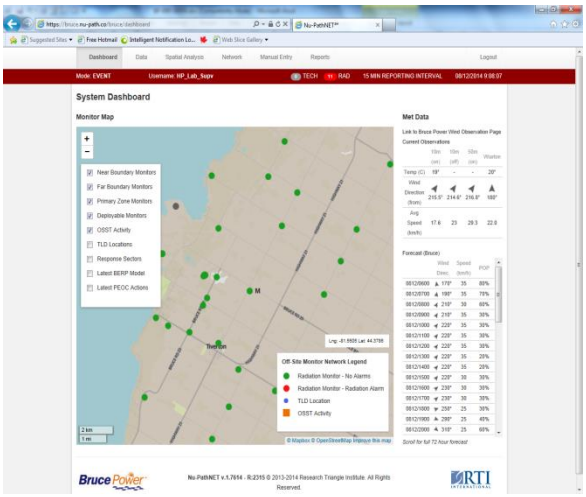
Result: By implementing this process, the station identified corrective actions to cover gaps in the emergency arrangements that would not have been detected otherwise.

Bruce B, Canada

Mission Date; 30 Nov.-17 Dec., 2015

Self-Sufficient Off-Site Remote Monitoring

Offsite remote monitoring of the plant comprises of a series of 44 static monitors that transmit gamma dose-rate data to a software application called NuPathNET. Each monitor operates independently. Each monitor transmits its data in near-real-time through the cellular network and would automatically switch to satellite phone back-up if required. Each monitor is powered by batteries, with solar panels recharging the batteries. NuPathNET provides a user-friendly interface and also permits the data to be shared over the internet with anyone who is given access rights. Currently, the Bruce Power remote monitoring system provides its data to the province of Ontario, the regulator and health services. The monitors also provide basic weather data to assist with plume modelling. The system is in continuous use but also has a “training mode” where scenario data can be used to drive exercises and drills. In addition to the 44 static units, there are 8 mobile monitors that can be used to enhance coverage, compensate for any defective monitors, or used for unforeseen circumstances. The 44 monitors provide excellent coverage on site and within the entire primary zone. Finally, the monitors provide not only dose-rate data but also detailed information on up to 18 different nuclides, as determined by the user.The next enhancement to the system will see 8 air samplers that will provide real time data on air particulate and iodine. The system is extremely rugged with no failures in 18 months despite the harsh climatic conditions that exist around the plant.



Cernavoda, Romania

Mission Date; 7-24 Nov., 2016

Gamma dose rate simulation software incorporated into the On-site/Off-site on-line Gamma Monitoring System.

The On-site/Off-site on-line Gamma Monitoring System contains fifteen on-site and off-site gamma monitoring stations that provide accurate, real-time data to the main control rooms and emergency response centres computers. Data are transmitted to these facilities through radio system or by Satellite system as back-up.

This on-line monitoring system has a software capability to simulate gamma radiation fields at all gamma stations. The simulation software has a feature to simulate gamma dose rate evolution over unlimited time periods. The operators and emergency response personnel use these inputs to quickly determine emergency classifications (Emergency Action Levels), to assist in dose assessment and to develop protective action recommendations. Consequently this software is a very good tool that can be used during emergency exercises to make the scenarios more realistic.

By using this software during emergency exercises, improvements were noted in the timely recognition and classification of radiological events (achieving the performance criteria of 15 minutes for classification). This also contributes to a significant reduction of field monitoring teams' simulated exposure, and to improving accuracy and timeliness of dosimetry data transmission to emergency response personnel. This software also helps train the On-site Emergency Response Organization to inform and make recommendations to the Public Authorities in a timely and user-friendly manner.

Loviisa, Finland

Mission Date; 5-22 Mar., 2018

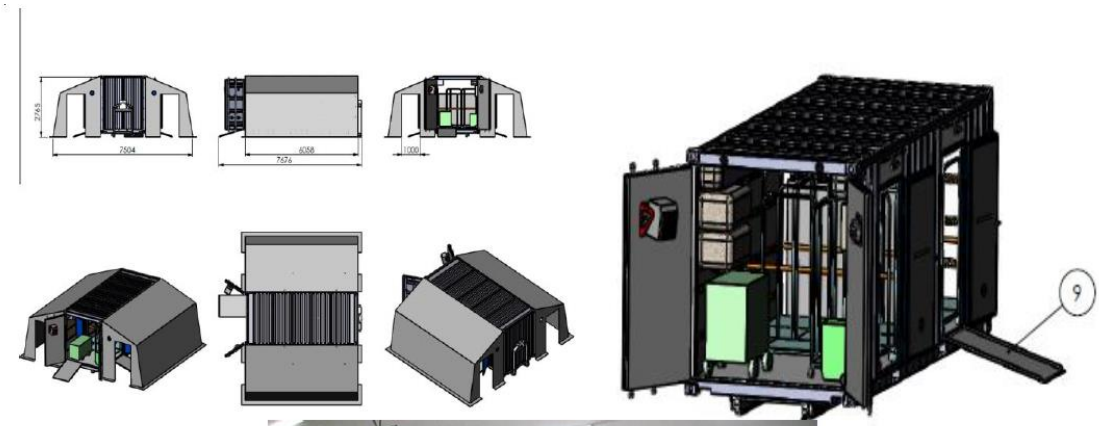
Container for personal protective equipment and radiation monitoring measuring instruments

The plant together with other Finnish nuclear power plants, State Rescue and Police department, National emergency supply agency and STUK have designed and purchased a transportable container for personal protective equipment. It is possible to use this container in both nuclear power plant sites in Finland in an emergency. The container is located at the premises of the local Rescue department and they arrange the transportation of the container.

The container holds personnel protective equipment and radiation measuring instruments for 100 people for one week (masks, filters, coveralls, gloves, footwear, dosimeters, and dose rate meters etc.).

Protective equipment is suitable for normal use by the nuclear power plants, the State Rescue or Police departments. The power supply for the container can be provided either from the grid or from the container's own portable power generator. Heat insulation, lighting, heating, moisture removal, side tents, loading ramps etc. are included for each group's needs. The container can be fully activated by four persons in one hour.

The positive contribution of the container is its mobility, familiarity and readiness of emergency equipment.



Flamanville 3, France

Mission Date; 17 Jun. - 4 Jul., 2019

On-site Emergency Control Centre designed to withstand extreme external hazards and adverse radiological conditions.

The Flamanville 3 On-Site Emergency Control Centre (CCL) houses the facilities from where the teams perform their emergency response tasks. It also provides protection from radiological hazards.

The CCL is designed to resist any type of extreme external hazard (earthquakes, flooding, natural phenomenon associated to flooding and tornadoes).

The CCL is also self-contained in the eventual need for:

- Electrical supply: the CCL has an emergency backup generator (GES) for electrical supply. This GES can run at full load for 72 hours before refuelling.
- Food and water: the CCL contains a supply of drinking water and a stock of food that can last 72 hours;
- Protective equipment for the staff.

The CCL is designed to ensure the protection of the staff and equipment inside against radiation, irradiation and contamination, caused by events that have led to the on-site emergency response plan being triggered.

Since high efficiency filter to filer air from outside, the intake flow can be maintained at all times, there is no need to isolate the CCL building, which means that habitability is ensured in the long term without any restrictions even under severe accident conditions.

The CCL can accommodate the 120 on-site command posts that are needed to manage an emergency situation. A large amount of information concerning the unit parameters arrives to the facility, directly sent from the installations through secure communication links. The size also makes it possible to accommodate the command post of the FARN (Rapid Response Nuclear Task Force).

Lastly, the CCL is used to store the on-site mobile emergency equipment to ensure its protection from any external hazards and minimize the movement of responders for its deployment. It is also equipped with telecommunication systems and support equipment for the command posts, body contamination monitoring and radiological condition measurements.

Paluel, France

Mission Date; 20 Sep. - 7 Oct., 2021

Measures to prevent a false alert during an exercise

The plant organizes emergency exercises that involve the participation of corporate, off-site authorities, off-site fire-fighters and off-site medical services. During these exercises, several messages are sent to these external organizations.

In many countries, there have been examples of false alerts that have been triggered during training, exercises and tests.

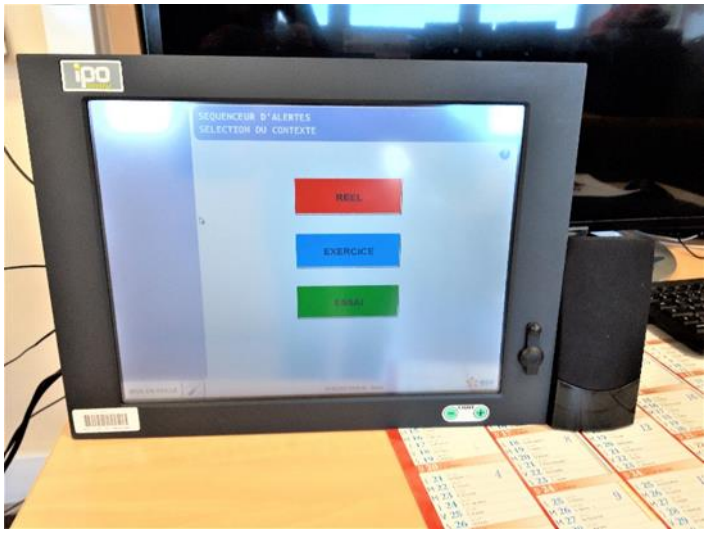
To avoid triggering false alerts, the plant has devised several measures:

– There are two separate consoles for issuing a recall message to the ERO: a real console that sends the recall message, and a practice console that is used for training. The practice console is in a training room, not at the duty officer desk.

– There is a training phone number that allows the emergency director to practice navigating the menu of options for sending a voice message to off-site authorities without actually sending a false alert message.

– During an exercise, the units are numbered TR11 to TR14 instead of TR1 to TR4. As a result, if a message was intercepted or misinterpreted, it would be clear that the real units are not in accident condition.

Benefit: There have been no instances of false alerts triggered during training, tests, and exercises. The plant personnel can gain proficiency in the tools that are used during an emergency without worrying about triggering a false alert.



Saeul (Shin-Kori 3&4), Korea, Rep. of

Mission Date; 31 Oct. - 17 Nov., 2022

The use of self-sufficient portable backpacks for monitoring of environmental radiation in case of radiological emergency.

The backpack consists of scintillation detector portable battery, GPS and tablet. It provides real time measurement of environment radiation status in the field by use of scintillation and real time monitoring by use of a tablet.
The measured values as well as locations of measurements are transferred to a Environment Radiation Integrated Monitoring System (ERIMS) and shared with those who have access to the ERIMS.
The measured radiation dose rate and the location can be mapped as reference for better response in the field. The field status can be explored and checked to support decision making on different options of transportation, such as on-foot, by vehicle, helicopter and boat.

Benefits:

- Technicians can stay in the field to check the radiation dose rate for the duration of an event by only replacing batteries.
- The information can be shared with other organizations for better cooperation and more effective response to an emergency.
- In the absence of an official environmental monitoring vehicle, a common vehicle can perform as the monitoring vehicle with the backpack monitoring system.

Self-sufficient portable backpack

HEYSHAM 2, United Kingdom

Mission Date; 2 - 19 Oct., 2023

Live White Board Sharing Approach

A digital system was used in the plant that allows direct sharing of whiteboard content across all facilities. The system includes a conventional whiteboard and a stem mounted camera. The camera detects changes in the content of the whiteboard and saves a timestamped snapshot of the whiteboard in a timeline ribbon that can be accessed remotely from the various emergency response facilities.

Previous whiteboards allowed for local printing of hardcopies but had no sharing capability. Web cameras pointed at whiteboards have been used in the past to share the content of the whiteboards across facilities, but they did not allow for electronic ‘time-stamp’ records to be maintained. Screen captures of the video feed could be printed, but the hardcopies were of low quality due to the limitations of the technology. Smart boards can share information, but they require special pens and are more difficult to use.

The Live White Board Sharing Approach is simple to use, enhances the usefulness of the status boards, and provides a record of the information posted during an emergency.

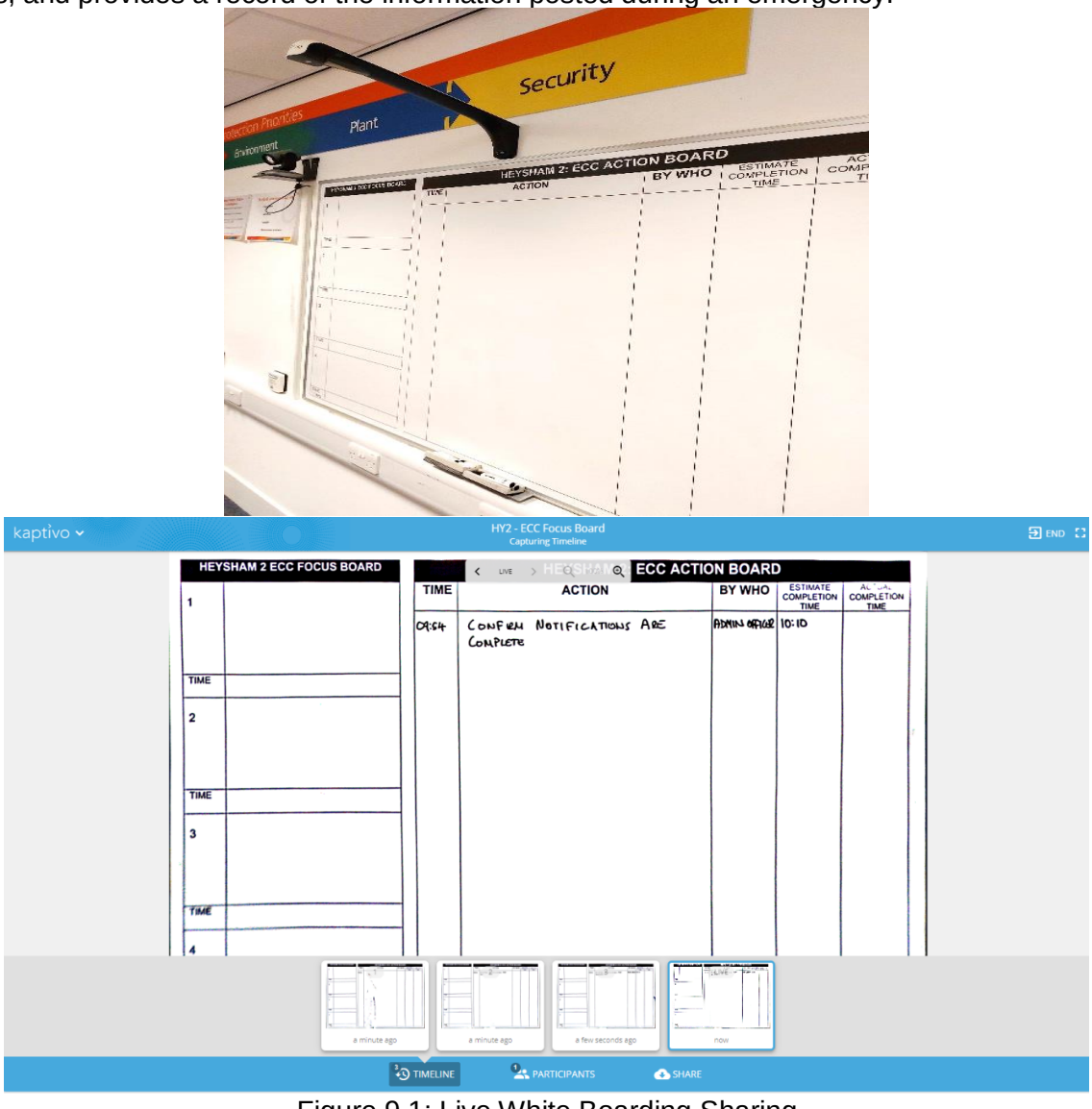


Figure 9.1: Live White Boarding Sharing

HEYSHAM 2, United Kingdom

Mission Date; 2 - 19 Oct., 2023

METHANE emergency briefing mnemonic

The plant adopted a method of briefing off-site personnel during emergencies using the ‘METHANE’ mnemonic. METHANE represents a standard way to share important information about an incident in a clear and consistent way.

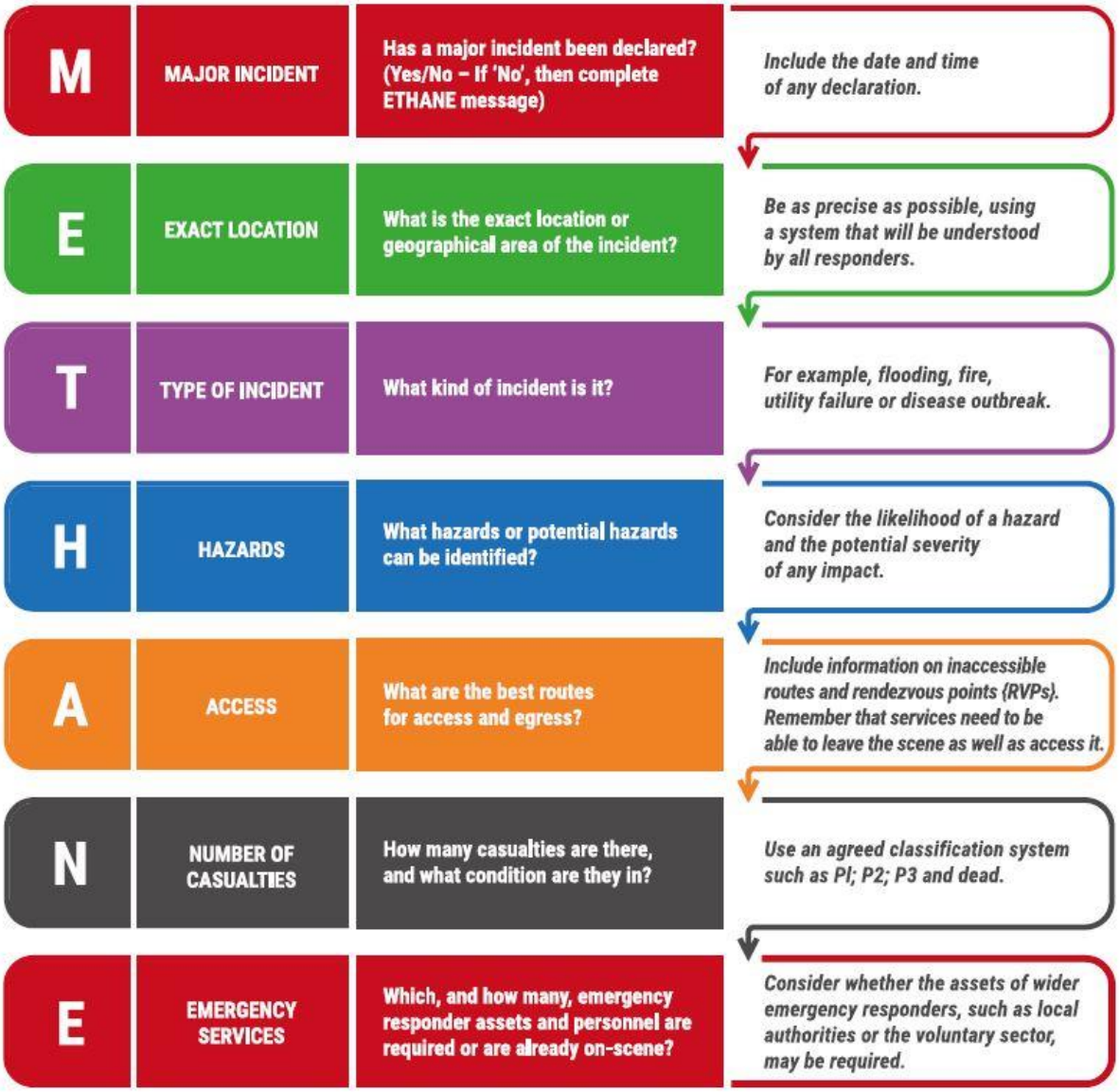


Figure 9.2: METHANE method details

The process aligns with the UK Emergency Services Joint Emergency Services Inter-Operability Principles (JESSIP) and ensures sharing situational awareness across the EDF and the local authority emergency response throughout an event.

The METHANE report should not be used just once. It is the standard format for passing information about an incident. This will make sure that all agencies get the information they need. It will also act as a trigger if an incident condition deteriorates over time.