UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, DC 20555-0001

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NRC INFORMATION NOTICE 2007-12: TACTICAL COMMUNICATIONS INTEROPERABILITY BETWEEN NUCLEAR POWER REACTOR LICENSEES AND FIRST RESPONDERS

ADDRESSEES

All holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

PURPOSE

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice (IN) to provide addressees information for achieving tactical communications interoperability between licensees, Federal, State, and local first responders in the event of an emergency at a nuclear power reactor. It is expected that recipients of this document will review the information for applicability to their facilities and consider actions, as appropriate, to enhance tactical communications interoperability. However, suggestions contained in this IN are not NRC regulatory requirements; therefore, no specific action or written response is required.

DESCRIPTION OF CIRCUMSTANCES

For the purpose of this IN, interoperability and tactical interoperable communications are terms defined by the U.S. Department of Homeland Security (DHS). In general, interoperability refers to the ability of emergency responders to work seamlessly with other systems or products without any special effort. Wireless communications interoperability specifically refers to the ability of emergency response officials to share information via voice and data signals on demand, in real time, when needed, and as authorized (Ref. 1). Tactical interoperable communications is defined as the rapid provision of on-scene, incident-based, mission-critical voice communications among all first responder agencies (i.e., emergency medical services [EMS], fire, and law enforcement), as appropriate for the incident (Ref. 2).

There may be unforeseen instances where licensees may deplete their typical communication resources such as land lines, cellular phones, or radio frequencies to the point where they need to rely on a more robust system to maintain tactical communications interoperability with their stakeholders, especially first responders. Policies, training, exercises, and procedures also play a vital role in achieving tactical communications interoperability and ensure that a steady flow of critical information is maintained between the licensee and first responders.

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Various examples of lapses in effective tactical communications interoperability have been documented by response organizations. Specific examples include the responses to the terrorist attacks of September 11, 2001, and to Hurricane Katrina in late August 2005. These events have generated valuable lessons for Federal, State, and local response organizations. These lessons learned can apply to a major event response at a nuclear power reactor site (i.e., hurricane, terrorist attack).

The following examples of enhanced communications are provided as a means for other licensees, in coordination with State and local response agencies, to self-identify ways to improve tactical communications interoperability. Each of the examples is intended to describe different scenarios and challenges, and solutions implemented through collaboration with Federal, State, and local public safety officials.

Exelon Nuclear (Mid-West)

Exelon Nuclear (Mid-West) sites have enhanced tactical communications interoperability by integrating their systems and processes in partnership with a broad range of State-wide communications enhancements implemented by the State of Illinois. These enhancements were coordinated by the State of Illinois Communications Committee using funding available through the DHS Office of Training and Grants. Enhancements made to communications capabilities to ensure interoperability include:

- Deploying mobile command vehicles around the State to provide work space for various response agencies at the incident scene, as well as communications gear to patch together local agency radio frequencies;
- Providing 700/800 MHz radios and digital very high frequency (VHF) radios to response agencies in the State of Illinois to facilitate communications with first responders;
- Providing a satellite-based warning and alert system, capable of receiving simultaneous, authenticated text messages from the State Emergency Operations Center, to county emergency management agencies and other public safety agencies;
- Providing all hospitals in the State of Illinois with Medical Emergency Radio System of Illinois radio units; and
- Providing transmitters and equipment to counties that did not have access to the State's inter-agency radio system (Illinois Radio Emergency Assistance Channel) to allow response agencies within that county to communicate with each other.

Since the terrorist events of September 11, 2001, the State of Illinois has opened a new State Emergency Operations Center. This center merges the State Incident Response Center, the Illinois Emergency Management Agency 24-hour Communications Center, the Statewide Terrorism and Intelligence Center, and the State Radiological Emergency Assessment Center under a common facility.

Turkey Point Nuclear Plant

Following Hurricane Andrew in 1992, the Turkey Point Nuclear Plant (TPNP), in the State of Florida, installed dedicated phone lines and other wireless communication methods to improve tactical communications interoperability with local law enforcement agencies (LLEAs) and State and local response organizations. These modifications were subsequently evaluated following

the terrorist attacks of September 11, 2001. This evaluation revealed that responding organizations' communication equipment, in many cases, were not compatible or interoperable. TPNP subsequently procured a modular interface/interconnect system, available on-site, that allowed for the patching of various licensee and first responder radio frequencies, cellular phones, satellite phones, and land lines. A few challenges surfaced during the implementation of this patching process. The licensee recognized the need to collaborate with the vendor in developing procedures, installing the equipment in a weather-tight enclosure, testing the equipment, and training of TPNP staff on equipment and procedural usage. An in-house subject matter expert collaborated with the vendor and resolved these issues. Another challenge related to site-shared frequencies with the LLEA was resolved when the LLEA recognized the benefits of sharing radio frequencies with the licensee.

Fermi 2 Nuclear Generating Station

Prior to 2000, Fermi 2 had one base station on the same frequency as Monroe County, Michigan, the site's host county. In preparation for millennial computer problems (i.e., Y2K or year 2000 problems), the licensee purchased radio units, similar to ones owned by the Michigan State Police, to aid in communications interoperability. This acquisition supported a similar investment by Monroe County. The County used DHS grant resources to acquire the same 800 MHz radio system as the Michigan State Police and thus achieved interoperability between local response units in the county and within the State. Subsequently, Fermi 2 purchased base stations and additional portable units similar to the Michigan State Police radio system, thereby further enhancing the site's tactical communications interoperability with the county and the State.

Currently, the Fermi 2 security organization performs daily system radio checks with the county. Fermi 2 intends to assess the system performance and user proficiency during upcoming security-related emergency preparedness drills.

Calvert Cliffs Nuclear Power Plant

The Calvert Cliffs Nuclear Power Plant (CCNPP) security organization has achieved a higher level of tactical communications interoperability through enhancements to its 800-MHz communication system. These enhancements involved the reprogramming of LLEA radios with licensee communication software that improved communications with the licensee. The LLEA was able to re-configure the channel frequency which the licensee was using into their existing and newly purchased portable radios. The communications system works by creating an additional CCNPP security channel for LLEA to switch to when they are enroute to respond to an incident at the plant. These enhancements allow for the lines of communication with LLEA responders to remain open and facilitate the appropriate handling of incident command and control. This communications system can also be used to improve outside response to the site by incorporating another frequency for local fire departments and EMS personnel.

Perry Nuclear Power Plant

For the initial licensing of the Perry Nuclear Power Plant (PNPP), the licensee acquired radios, as part of its site-trunked 800-MHz radio system, which shared at least one frequency with the local fire department to ensure better communications during incident responses. More

recently, local county authorities upgraded their radios to a digital (i.e., more efficient) 800-MHz system and partnered with the PNPP site to ensure compatibility. In a joint effort between PNPP and Lake County, Ohio, county departments reprogrammed their digital radios so that both PNPP and the local fire department had at least two channels that were programmed to operate in their common frequencies. PNPP further enhanced its capability to create additional patched frequencies by using the county's "Viper" frequency matching system and the State of Ohio's Buckeye State Sheriff Association Communication Vehicle. This capability was available to patch in additional responders into PNPP's security and the fire brigade common tracked frequencies, such as county LLEAs, and fire, medical, and FBI responders.

Commonwealth of Pennsylvania

In addition to the examples provided above, the Commonwealth of Pennsylvania (Pennsylvania) has upgraded its communications capabilities since September 11, 2001. Pennsylvania deployed an 800-MHz, non-scannable, encrypted data and voice system, which uses a virtual Internet protocol network to create stable platforms for interoperable communications. Pennsylvania has offered nuclear power reactor licensees within the Commonwealth access to the system by means of providing a secure user profile that allows the site to become a party to the Talk Group involved in the overall response to an incident. These prearranged Talk Groups include the Pennsylvania Emergency Management Agency, LLEAs, fire departments, emergency medical services, hospitals, and other local response organizations. This system, as designed, allows continuous communication with all stakeholders making possible the exchange of voice and data, as needed. For example, the Pennsylvania Department of Environmental Protection through its Bureau of Radiation Protection is currently structured to use this system to maintain interoperability between field teams during any response to incidents at a commercial power reactor facility.

BACKGROUND

Following the terrorist attacks of September 11, 2001, communications interoperability has gradually improved nationally (Ref. 3). This improvement is partially due to financial support by DHS and through coordinated efforts among Federal, State, and local first responders and public safety officials. Nuclear power reactor sites rely on Federal, State and local first responder resources to support the licensee's response to an emergency. As such, effective tactical communications is essential in the coordination of these offsite resources.

The DHS Office of Grants and Training (G&T) Interoperable Communications Technical Assistance Program (ICTAP) is designed to enhance interoperable communications between Federal, State, and local emergency responders and public safety officials (Ref. 4). The goal of ICTAP is to enable local public safety agencies to communicate as they prevent or respond to weapons of mass destruction attacks. ICTAP is associated with the Urban Area Security Initiative (UASI) program. ICTAP works with State and local coordinating bodies to assess gaps in the current communications infrastructure and determine the technical requirements for designing an interoperable communications system. Recently, ICTAP has supported the development of a Tactical Interoperable Communications Plan (TICP) for 75 urban areas and designated multi-jurisdictional metropolitan areas.

ICTAP and G&T are working together with SAFECOM to develop national interoperable communications guidance. SAFECOM, a DHS program within the Under Secretary for Science and Technology, has dedicated its resources to the selected UASI sites. Therefore these resources are unavailable for private entities (Ref. 5). For example; under these guidelines, SAFECOM has partnered with the Commonwealth of Virginia and developed a strategic plan for improving Statewide communications interoperability, which is identified as the Statewide Interoperability Communications Planning (SICP) methodology. SICP methodology uses a 10-phase collaborative planning process, shadowed by SAFECOM as the technical expert, to develop and adopt key essential initiatives for a Statewide strategic plan (Ref. 6).

Nuclear power reactor licensees that are located near the selected UASI sites could benefit from the ongoing efforts to improve communications interoperability. However, these benefits are currently hampered by the existing variations of governance structures, interoperable equipment, equipment policies and procedures, incident communications resource plans, and communications unit leadership (Ref. 7). Nevertheless, key essential initiatives, such as the SICP methodology plan template, can be used as a tool by any organization committed to improve communications interoperability, including NRC power reactor licensees and their respective stakeholders.

In addition to the references provided in this IN, addressees can access more information related to improving tactical communications interoperability at the following Web sites:

- Interoperable Communications Technical Assistance Program
  http://www.ojp.usdoj.gov/odp/ta_ictap.htm

- Office of Grants and Training
  http://www.ojp.usdoj.gov/odp/

- Interoperable Communications User's Handbook
  http://www.ojp.usdoj.gov/odp/equipment_interopcomm.htm

- Lessons Learned Information Sharing
  https://www.llis.dhs.gov/

- SAFECOM
  http://www.safecomprogram.gov/SAFECOM/

- Interoperability Continuum
  http://www.safecomprogram.gov/SAFECOM/library/interoperabilitybasics/1190_interoperabilitycontinuum.htm

- Interoperability Library (Interoperability in Virginia)
  http://www.interoperability.virginia.gov/library.html

DISCUSSION

Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.54(q) requires nuclear power plant licensees to follow and maintain in effect emergency plans that meet the standards in 10 CFR 50.47(b) and the requirements in Appendix E to 10 CFR Part 50. Planning standard 10 CFR 50.47(b)(6) states that provisions exist for prompt communications among principal response organizations to emergency personnel and to the public.

These requirements are amplified in NUREG 0654/FEMA REP 1, Rev.1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Section II, "Planning Standards and Evaluation Criteria," Subsection F, "Emergency Communications". Subsection F.1 states that: 1) Each organization shall establish reliable primary and backup means of communication for licensee, local, and State response organizations and 2) such systems should be selected to be compatible with one another. Additionally, Subsection F.3 states that each organization shall conduct periodic testing of the entire emergency communication system (i.e., to ensure prompt communications among principal response organizations to emergency personnel and to the public).

Currently, no NRC requirements directly address or mandate communications interoperability between nuclear power reactor licensees and first responders. Nevertheless, establishing such communications interoperability could enhance a licensee's ability to respond to an event or emergency.

NRC's phone line conferencing system through the Headquarters Operations Center (HOC) is available to all stakeholders who need to establish communications with each other, whenever a need arises to address matters related to NRC-licensed facilities or materials. The NRC HOC can always be reached on a 24-hours-a-day, 7-days-a-week basis.

REFERENCES

1. U.S. Department of Homeland Security. SAFECOM: Interoperability. http://www.safecomprogram.gov/SAFECOM/interoperability/default.htm.

2. U.S. Department of Homeland Security: Tactical Interoperable Communications Scorecards Summary Report and Findings, January 2007. http://www.dhs.gov/xlibrary/assets/grants-scorecard-report-010207.pdf

3. Chertoff, M. May 8, 2006, Remarks by Homeland Security Secretary Michael Chertoff at the Tactical Interoperable Communications Conference. http://www.dhs.gov/xnews/speeches/speech_0281.shtm.

4. U.S. Department of Homeland Security, Interoperable Communications Technical Assistance Program (ICTAP). http://www.ojp.usdoj.gov/odp/ta_ictap.htm

5. U.S. Department of Homeland Security: G&T Information Bulletin No. 205, March 23, 2006. http://www.ojp.usdoj.gov/odp/docs/info205.pdf

6. U.S. Department of Homeland Security, SAFECOM, Interoperability Case Studies: Statewide Communications Interoperability Planning (SCIP) Methodology. http://www.safecomprogram.gov/SAFECOM/library/interoperabilitycasestudies/1223_statewidecommunications.htm

7. U.S. Department of Homeland Security, ICTAP Fact Sheet. http://www.ojp.usdoj.gov/odp/docs/ICTAP_Fact_Sheet.pdf

CONCLUSION

This IN is intended to provide information for achieving tactical communications interoperability and is presented solely to share information among nuclear industry stakeholders. It does not contain a definitive solution to the wide range of current challenges to tactical communications interoperability between power reactor licensees and Federal, State, and local first responders. This IN does not endorse specific tools, methods, or equipment that may be used to enhance tactical communications interoperability.

CONTACTS

This information notice requires no specific action or written response. Please direct any questions about this matter to the technical contacts listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

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Note: NRC generic communications may be found on the NRC public Web site, http://www.nrc.gov, under Electronic Reading Room/Document Collections.

5. Department of Homeland Security, (March 23, 2006), Homeland Security: G&T Information Bulletin No. 205, Retrieved on October 10, 2006, from http://www.ojp.usdoj.gov/odp/docs/info205.pdf

6. Department of Homeland Security, SAFECOM, Interoperability Case Studies: Statewide Communications Interoperability Planning (SCIP) Methodology, Retrieved on October 17, 2006, from http://www.safecomprogram.gov/SAFECOM/library/interoperabilitycasestudies/1223_statewidecommunications.htm

7. Department of Homeland Security, ICTAP Fact Sheet, Retrieved on October 10, 2006, from http://www.ojp.usdoj.gov/odp/docs/ICTAP_Fact_Sheet.pdf

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