System Background (Detailed) Information on the Emergency Telecommunications System

In the aftermath of the Three Mile Island (TMI) accident, NRC established two dedicated telephone systems for emergency communications: the Emergency Notification System (ENS) and the Health Physics Network (HPN). The ENS, used by NRC to receive information from licensees on plant safety status, was a ring-down phone system that terminated at four different places on the licensee's end: the Control Room, the Technical Support Center (TSC), the Emergency Operations Facility (EOF), and the NRC Resident Inspector's office. Taking any one of these extensions "off the hook" automatically activated the dedicated circuit to the NRC Operations Center. The HPN, used for conveying radiological and dose projection information, consisted of eight multidrop (similar to a party line) dedicated circuits. Each HPN circuit terminated at a Regional office and at the NRC Operations Center, as well as at all power plants and fuel cycle facilities on each respective loop. In 1987, NRC transferred the unreliable and expensive HPN service from dedicated circuits to the public switched telephone network (PSTN).

ENS initially was designed by AT&T using equipment manufactured by WestCom, Inc. After divestiture, WestCom sold the rights to this equipment and design to Tellabs, Inc. By 1990, Tellabs was no longer manufacturing WestCom equipment, and the existing Tellabs equipment was becoming increasingly unreliable. In addition to these equipment concerns, NRC experienced communication problems during the agency's response to a 1990 event at the Vogtle facility; this raised additional questions as to the operational readiness of ENS.

Consequently by 1990, the cost of maintaining an increasingly obsolete dedicated network exceeded $5 million annually. As a result, the Federal Government included the ENS in the transition to the Federal Telecommunications System (FTS) 2000, Federal long distance service, along with the other emergency communications functions or circuits: HPN, Reactor Safety Counterpart Link (RSCL), Protective Measures Counterpart Link (PMCL), Emergency Response Data System (ERDS) Channel, Management Counterpart Link (MCL), and Local Area Network (LAN) Access. These circuits are known collectively as the Emergency Telecommunications System (ETS). This implementation occurred in 1991–1992 for all nuclear power plant licensees. The direct dedicated line service employed by ENS was discontinued because of the aging and obsolescence of the equipment, and the ENS was replaced by the Direct Access Lines (DALs) to FTS 2000. The move to the FTS for the other communication functions increased the reliability and ensured that each of the emergency communication functions bypassed the local central office of the PSTN, which experience had shown could become overwhelmed in an emergency and disrupt the communication pathway.

In SECY-98-0194, "Upgrading the NRC Operations Center Emergency Telecommunications System," the NRC staff identified options for more efficiently providing ETS services for nuclear power plants. The option supported by the staff and approved by the Commission in Staff Requirement Memorandum (SRM) dated December 9, 1998, involved using preexisting licensee communications networks to provide access to long distance service in a manner that would be independent of the local telephone company's switch. When reviewing the options for a post-FTS 2000 ETS, the staff identified a potential efficiency enhancement. The primary purpose of the DALs is to provide access to long distance networks independent of the local telephone switch. Booz-Allen Hamilton's (BAH's) study and NRC's survey of representative licensee sites indicated that most utilities had established corporate telecommunications

capabilities which already provided independent access to long distance networks (i.e., avoided the local telephone company's switch). Therefore, ETS functionality could be provided over corporate networks at minimal additional cost to licensees; this measure would eliminate the large recurring costs associated with NRC's dedicated circuits. This upgrade was implemented in FY 2001 as part of FTS 2001, a follow-on contract to FTS 2000. The recommendations advanced at that time did not consider a post-9/11 environment; rather, the upgrade focused on maintaining acceptable reliability and minimizing cost. As a result, the current FTS 2001 configurations do not support caller identification due to technical design obstacles, nor is there a requirement for licensee provided back-up power availability.

The staff also met with representatives of the National Communications System (NCS) to solicit recommendations on caller identification and verification capabilities. NCS offered a number of solutions; all of which introduced different communications channels than what the NRC Operations Center was using. At that time, the staff deemed the presented options as too costly.

Further, the staff also evaluated Privatel, a secure telephone device manufactured by L3 communications to assist with caller identification and verification. The device was successfully tested at two licensed facilities (one FTS 2001 and one non-FTS 2001). However, the Privatel device introduced unacceptable time delays in verifying the calls.

In response to an SRM dated August 18, 2004, the staff presented the Commission with several options and an interim solution (valid until the General Services Administration (GSA) Networx acquisitions will be awarded in March and May 2007) in a February 18, 2005, memorandum (see ML050340350). In January 2005, the staff formally requested the GSA include the requirements for caller identification and verification in the GSA-developed request for proposal for the Networx contracts. At the time of the memorandum, the staff believed that Automatic Number Identification (ANI) would function properly in the Networx environment. As an interim measure, the staff has a manual verification protocol between the NRC Operations Center and NRC licensees to provide caller identification and verification. The receiver of the call must initiate a second phone call to verify the caller's identity (i.e., call a different line to verify the origin of the call and to be assured of its authenticity).

Maintaining the current ETS design configuration under Networx will not address the ANI or caller identification issues. If the current configuration is changed, additional costs may be incurred. The staff also recognized that the need to verify callers' identities may extend beyond NRC and its licensees (e.g., when communicating with intelligence, emergency response, or command and control agencies at any level of Government). The configuration of the current phone system is unable to support ANI. Although the ETS system is a two-wire system, similar to a domestic phone system which can support ANI, ETS is configured as a "non-local serving wire center" analog telephone path that makes ANI impossible. For caller ID or ANI to work, modems are used to supply and receive the information. There is a modem at the service provider's central office and a modem incorporated into the call recipient's caller ID device that communicate and transmit the information needed to produce the information display. The NRC Operations Center and the licensees' sites must have powered lines to enable ANI, which is not supported by the current ETS hardware.