

2000 NRC BIENNIAL GRADED EXERCISE

March 29, 2000

About 5 minutes after the Alert declaration a report is received that two individuals are contaminated and possibly injured. Search and rescue personnel are dispatched to the last known location (spent fuel pool) to render first aid. One person is injured with contamination and the other is only contaminated. The injured person will exit the protected area via Burke County EMS approximately 35 minutes after the request for ambulance support.

One hour after the alert declaration, a check valve from loop #4 RCS cold leg mechanically fails releasing loose parts into the RCS. This is followed by digital metal impact monitoring system (DMIMS) alarms. Engineering analyzes the DMIMS and reports multiple impacts in the reactor vessel lower plenum region. Fuel failure (approximately 1%) occurs due to the mechanical damage from the Reactor Coolant Pump (RCP) check valve. Chemistry personnel confirm the fuel damage with sampling. A Site Area Emergency is declared due to *"Potential Loss of RCS barrier from the steam generator tube rupture and a Loss of a second barrier (fuel clad)."* The EOF is activated due to this declaration. The States, the four counties, SRS and the NRC are notified.

About an hour later, Steam Generator #3 main steam safety valve PSV 3021 fails open providing a release path to the environment. Field monitoring teams are directed to monitor the environment and locate the plume. A General Emergency is declared due to loss of three barriers. The Emergency Director will notify states, the four counties, SRS and the NRC. Protective action recommendations are made to state agencies. About 45 minutes after the General Emergency is declared an OSC repair team gags the safety. The emergency will terminate after the safety is gagged and the exercise lead controller has determined that the emergency response organization has had the opportunity to meet all objectives.

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SCOPE

To ensure that the health and safety of the general public is protected in the event of an accident at the Vogtle Electric Generating Plant (VEGP), Southern Nuclear Operating Company (SNC) conducts an biennial NRC graded emergency preparedness exercise. This exercise will be conducted on Wednesday, March 29, 2000, and evaluated by the NRC and FEMA.

The exercise involves mobilization of VEGP, SNC and Georgia Power Company (GPC) personnel and resources in response to simulated accident conditions. All VEGP on-site Emergency Response Facilities will be activated including the TSC, OSC, and EOF. The Simulator will be used in place of the actual Control Room. The Emergency News Center (ENC) in Waynesboro will be activated. Due to the compressed time line, some GPC and SNC participants will be pre-positioned. The General Office Operation Center (GOOC) in Birmingham will be operational to support on site activities. Exercise participants will not have prior knowledge of the exercise scenario accident condition to be simulated or radiological data. A semiannual health physics drill, annual medical drill, biennial communications drill, annual assembly and accountability drill and an annual radiological monitoring drill, will be conducted in conjunction with the exercise.

There will be full participation by the State of Georgia, State of South Carolina along with Aiken County, Allendale County, Barnwell County and Burke County. Savannah River Site will participate in the communications only. Georgia Emergency Management Agency (GEMA) and the South Carolina Emergency Preparedness Division (SCEPD) will activate their Forward Emergency Operations Center (FEOC). The Georgia Department of Natural Resources (DNR) will operate from the GEMA FEOC with DNR field monitoring teams in support of GEMA. NRC region IV personnel will dispatch a small contingency to participate in the EOF, TSC, ENC, simulator and the GEMA FEOC.

The Public Alerting System (Sirens and NOAA Weather Radio System) will be operationally tested on Wednesday, March 29 and a telephone survey will be conducted shortly after the conclusion of the exercise to determine the effectiveness of the system.

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SCENARIO ABSTRACT

The initial conditions have Units 1 and 2 at 100% power. Unit 1 is in a 72 hour LCO due to a problem with 1 Alpha diesel generator and 1 Alpha motor driven auxiliary feed water pump. All control systems are in automatic with Unit 1 at normal operating temperature and pressure. Unit 1 has been on line for 199 days.

The exercise scenario creates conditions for an off site release through the failure of the three fission product barriers. The sequence is initiated when Steam Generator #3 on unit 1 develops a 10 GPM tube leak. (Release to the environment begins through the steam jet air ejector, normal RCS radioactivity). Ten minutes after the 10 gallons per minute (GPM) leak starts, the steam generator tube ruptures, resulting in a 500 GPM Reactor Coolant System (RCS) leak. The steam generator tube rupture (SGTR) requires a manual reactor trip and a safety injection (SI). The unit 1 Bravo diesel generator fails to start. An Alert Emergency is declared due to a *"Non-Isolable RCS leak (including SG leakage) GREATER THAN the capacity of one Centrifugal Charging Pump in normal charging mode."* Upon declaration of the Alert Emergency, the shift superintendent will implement the emergency plan implementing procedures and assume the position of the Emergency Director. Offsite notifications will include the warning points for the states of Georgia and South Carolina and the counties Burke, Allendale, Aiken, and Barnwell. Savannah River Site (SRS) operation center will also receive notification. Other activities that will occur include the activation of the Emergency Response Data System (ERDS), the Technical Support Center (TSC), Operational Support Center (OSC), General Office Operations Center (GOOC) and the Emergency Operations Facility (EOF) is brought to a standby. Assembly and accountability are actually performed.