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I. ACCIDENT ASSESSMENT

To assure the adequacy of methods, systems and equipment for assessing and monitoring actual or potential off-site consequences of a radiological emergency condition.

I.1 Emergency Action Level Procedures

Emergency Action Level procedures have been established in accordance with NUMARC/NESP-007 (Rev. 2) that was approved by the NRC in Revision 3 of Regulatory Guide 1.101, and subsequent guidance provided in NRC Bulletin 2005-02, the guidance endorsed in RIS 2006-12 and to support implementation of NEI 03-12. Subsequently, Revision 6 of NEI 99-01 has been issued which incorporates resolutions to numerous implementation issues including the NRC EAL Frequently Asked Questions (FAQs).

Using NEI 99-01 Revision 6, "Methodology for the Development of Emergency Action Levels for Non-Passive Reactors," November 2012 , CNS conducted an EAL implementation upgrade project that produced the EALs discussed Section D. See Discussion in Section D.

Procedure RP/0/A/5000/001, Classification of Emergency, AD-EP-ALL-0101, Emergency and NEI 99-01 Revision 6 EAL Wallboard will identify the system parameter and effluent parameter values which can be used to determine the emergency condition.

I.2 On-site Capability and Resources to Provide Initial Values and Continuing Assessment

I.2.a. Post Accident Sampling

Changes have been made to reflect the NRC approved License Amendment Request received from the NRC via letter dated 9/11/01. The NRC issued Amendments No. 193 (Facility Operating License NPF-35) and No. 185 (Facility Operating License NPF-52). The amendments delete TS section 5.5.4, "Post Accident Sampling," for Catawba Nuclear Station, Units 1 and 2, and thereby eliminate the requirements to have and maintain the post-accident sampling systems (PASS - Palss/Pacs).

Chemistry Management Procedure 3.4.12 describes current post accident contingency plans for obtaining NC and ND/Containment Sump samples. It indicates that procedures OP/1(2)/A/6200/011 have been revised to take required samples during accident conditions utilizing the NM Sampling System. The samples are cooled by the normal NM sample HXs cooled by YN, thus eliminating the need for the PALS Sample Cooler.

The following procedures are in place to assess core damage and take containment atmosphere samples under accident condition. Emergency Planning Implementing Procedure RP/0/A/5000/015 is used to assess core damage using EMF 53 response. HP/0/B/1001/018 was revised to allow for use of EMF 38 and 39 containment atmosphere sampling capability under emergency conditions.

Also as a result of NRC License Amendments 193/185, OP/0/B/6200/021, "PALSS Operation for Accident Sampling," has been deleted from the Emergency Plan as an Emergency Plan Implementing Procedure. Procedures OP/1(2)/A/6200/011 are **not** EPIPs or a part of the Emergency Plan. They are listed in this section for reference purposes only. Also, Emergency Plan Implementing Procedures HP/1/B/1009/017, "Unit 1 Nuclear Post-Accident Containment Air Sampling System Operating Procedure," and HP/2/B/1009/017, "Unit 2 Nuclear Post-Accident Containment Air Sampling System Operating Procedure," have been deleted. HP/0/B/1001/018, "RP Compliance Sampling," is **not** an EPIP or a part of the Emergency Plan. It is listed in this section for reference purposes only. (PIPs C-01-00384, C-01-04478)

I.2.b. Radiation and Effluent Monitors

Radiological monitoring capabilities include process and effluent monitoring systems (UFSAR 11.5); area monitoring system (UFSAR 12.3.4); plus station portable monitoring instruments, laboratory counters and analyzers (UFSAR 12.5.2), including emergency high-range instruments with a range up to 1000 R/hr and air samplers.

In addition, there are two (2) high range containment monitors, one (1) high range unit vent monitor, and four (4) steam line monitors per unit.

I.2.c In-plant Iodine Instrumentation

Silver Zeolite radioiodine or equivalent sampling cartridges are used for sampling air when the presence of noble gases is suspected. Radiation Protection personnel are knowledgeable in the appropriate station procedures required and are trained in the equipment required to determine airborne iodine concentrations in the plant under all conditions. Procedures to determine airborne iodine concentrations will cover analyses to be done if counting room capabilities are not available.

I.3.a/ I.3.b Method For Determining Release Source Term

Procedures AD-EP-ALL-0203, AD-EP-CNS-0202, HP/0/B/1009/006, HP/0/B/1009/007, HP/0/B/1009/014, and AD-EP-ALL-0202 are used on-shift, in the TSC and/or EOF for the calculation of potential off-site doses based on a Design Basis Accident, release of primary coolant, or release of GAP activity situation scaled to actual containment monitor readings. Provisions for use of actual source terms exist in the procedures.

The magnitude of the release is based on actual effluent monitoring readings, plant system parameters (containment pressure), area meteorology and the duration of the release.

I.4 Effluent Monitor Readings Vs On-site/Off-site Exposure

The procedures referenced in I.3.a/I.3.b establish the relationship between effluent monitor readings and on-site/off-site exposures and contamination for various meteorological conditions.

I.5 Meteorological Information Availability

Meteorological information will be available to the Emergency Operations Facility, the Technical Support Center, the Control Room through use of the Station Operator Aid Computer (OAC) and by direct telephone communication. Meteorological information will be available to the NRC through the Emergency Response Data System (ERDS), the FTS Health Physics Network (HPN) phone or by direct telephone communications with the individual responsible for making off-site dose assessments either at the Technical Support Center or the Emergency Operations Facility.

Meteorological information will also be given to both the county Emergency Operations Centers, the State of South Carolina and the State of North Carolina during initial and follow-up information via the message format in Figure E-1.

I.6 Release Rates/Projected Dose For Off-scale Instrumentation

If instrumentation used for dose assessment are off-scale or inoperable, dose rates within the Reactor Building will be determined using procedure HP/0/B/1009/006, Alternative Method for Determining Dose Rate within the Reactor Building.

I.7/ I.8 Field Monitoring Within E.P.Z.

Field monitoring within the Catawba Emergency Planning Zone will be performed in accordance with AD-EP-ALL-0203, Field Monitoring During Declared Emergency and AD-EP-CNS-0203, CNS Site Specific Field Monitoring Information.

Four off-site field monitoring teams are comprised from station personnel and are under the direction of the Field Monitoring Coordinator. Procedure AD-EP-ALL-0203, Field Monitoring During Declared Emergency and AD-EP-CNS-0203, CNS Site Specific Field Monitoring Information, describes how to obtain the vehicles to be used, routes to be used, sampling and monitoring equipment to be used, locations of TLD's and directions for taking KI tablets.

In addition, one on-site (out of plant) survey team is available from the Operations Support Center.

An emergency radio system is available for the field monitoring teams to use to relay information to the Control Room/TSC/EOF. The states will be able to monitor the results of the field monitoring teams.

I.9 Detect and Measure Radioiodine Concentration in the EPZ

Appropriate instrumentation to measure radioactivity in counts per minute (cpm) and determine dose rate in mrem/hr shall be used for detection and measurement of radioiodine concentration. The air sample will be taken with a Portable Air Sampler equipped with a Silver Zeolite or equivalent cartridge and particulate filter. Air sampling results will be obtained through the use of a portable single channel Analyzer and appropriate gamma sensitive detector OR a count rate meter utilizing direct corrected count rate (ccpm) of Silver Zeolite or equivalent cartridge cross referenced against an estimated Iodine 131 μCi/cc (microcuries per cubic centimeter) concentration attachment.

Interference from the presence of noble gas and background radiation shall not decrease the minimum detectable activity of 1E-7 μCi/cc (microcuries per cubic centimeter) under field conditions.

These samples taken by the off-site monitoring teams will be evaluated further by one of the available laboratory facilities described in Section C.3. A multi-channel analyzer will be used to perform this evaluation.

I.10 Relationship Between Contamination Levels and Integrated Dose/Dose Rates

Provisions for assessing contamination levels, water, and air to dose rates for key isotopes is found in procedure HP/0/B/1009/024.

I.11 Plume Tracking

The states of North Carolina and South Carolina have arrangements to locate and track an airborne plume of radioactive materials. Duke Energy will have monitoring teams in the field, fixed TLD sites and the capability for obtaining airborne monitoring to assist in plume tracking