APPENDIX A

PERMIT CONDITIONS, COL ACTION ITEMS, SITE CHARACTERISTICS, BOUNDING PARAMETERS, AND INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA

A.5 Inspections, Tests, Analyses, and Acceptance Criteria Table

A.1 Permit Conditions

Permit Condition: The Commission's regulation in 10 CFR 52.24 authorizes the inclusion of limitations and conditions in an ESP. A permit condition is not needed when an existing NRC regulation requires a future regulatory review of a matter to ensure adequate safety during design, construction, or inspection activities for a new plant. The staff is proposing that the Commission include two permit conditions, which are set forth below, to control various safety matters.

Permit Condition No.	SER Section	Description
2.4 - Hydrology		
1	2.4.8	The NRC staff proposes to include a condition in any ESP that might be issued in connection with this application requiring that the ESP holder or applicant referencing such an ESP not rely on any external water source for safety-related cooling water for VEGP Units 3 and 4 except for initial filling and occasional makeup water. This condition precludes the use of on-site surface and ground water for safety-related water supply, except for initial filling and occasional makeup water.
2.5 - Geology, Seismology, and Geotechnical Engineering		
2	2.5.4	The NRC staff proposes to include a condition in any ESP that might be issued in connection with this application requiring the ESP holder or an applicant referencing such an ESP perform geologic mapping of future excavations for safety-related structures, evaluate any unforseen geologic features that are encountered, and notify NRC no later than 30 days before any excavations for safety-related structures are open for NRC staff's examination and evaluation.

A.2 COL Action Items

COL Action Items: The COL action items set forth in the SER and incorporated herein identify certain matters that shall be addressed in the FSAR by an applicant who submits an application referencing the North Anna ESP. These items constitute information requirements but do not form the only acceptable set of information in the FSAR. An applicant may depart from or omit these items, provided that the departure or omission is identified and justified in the FSAR. In addition, these items do not relieve an applicant from any requirement in 10 CFR Parts 50 and 52 that govern the application. After issuance of a CP or COL, these items are not controlled by NRC requirements unless such items are restated in the preliminary safety analysis report or FSAR, respectively.

The staff identified the following COL action items with respect to individual site characteristics in order to ensure that particular significant issues are tracked and considered during the review of a later application referencing any ESP that might be issued for the VEGP site.

Action Item No.	SER Section	Subject To Be Addressed	Reason for Deferral
2.2 - Nearby Industrial, Transportation, and Military Facilities			
2.2-1	2.2.3.3	A COL or CP applicant should address the potential accidental release of hydrazine from onsite storage tanks that may have an impact on control room habitability for the new units	Since the design of control room at the proposed ESP site is not available, it is expected to be evaluated at the time of COL stage.

Action Item No.	SER Section	Subject To Be Addressed	Reason for Deferral
2.2-2	2.2.3.3	A COL or CP applicant should address the chemicals that will be used for the proposed Units 3 and 4 at VEGP that may potentially have an impact on the control room habitability.	Since the quantities of the chemicals used are not available, and the design of the control room is not available, it is expected to be evaluated at the time of COL stage.
2.3 - Meteorology			
2.3-1	2.3.1.3	If, at the COL or CP stage, the applicant chooses an alternative plant design that requires the use of a UHS cooling tower, the applicant will need to identify the appropriate meteorological site characteristics (i.e., maximum evaporation and drift loss and minimum water cooling conditions) used to evaluate the design of the chosen UHS cooling tower.	The applicant has chosen a reactor design that does not use a cooling tower to release heat to the atmosphere following a loss-of-coolant accident.
2.5 - Geology, Seismology, and Geotechnical Information			
2.5-1	2.5.4.3	A COL or CP applicant will need to confirm the absence of soft materials in the load bearing layers.	Limited drilling data at the ESP stage. If there is soft material, further excavation may be needed.
2.5-2	2.5.4.3	A COL or CP applicant will need to confirm the locations of the soft zones and evaluate the potential impact of the soft zones on the foundation and structures.	Lack of detailed subsurface soil properties and exact new unit location unknown.
2.5-3	2.5.4.3	A COL or CP applicant will need to provide chemical test results on the backfill.	Exact fill materials undecided.
2.5-4	2.5.4.3	A COL or CP applicant will need to submit plot plans and profiles of all seismic Category I facilities for comparison with the subsurface profile and material properties.	Exact new unit locations unknown.
2.5-5	2.5.4.3	A COL or CP applicant will need to provide detailed excavation and backfill plans during the COL stage.	Exact new unit locations unknown.

Action Item No.	SER Section	Subject To Be Addressed	Reason for Deferral
2.5-6	2.5.4.3	A COL or CP applicant will need to provide sufficient information to show the backfills meet the minimum shear wave requirement.	Exact new unit locations unknown and exact fill materials undecided.
2.5-7	2.5.4.3	A COL or CP applicant will need to submit ground water condition evaluations and a detailed dewatering plan during the COL stage.	Exact new unit locations unknown.
2.5-8	2.5.4.3	A COL or CP applicant will need to demonstrate quantitatively whether the observed large settlement that occurred at the existing VEGP units will occur at the ESP site and have no impact on the new units.	Exact new unit locations unknown.
2.5-9	2.5.4.3	A COL or CP applicant will need to provide more details regarding the bearing capacity during the COL stage.	Exact new unit locations unknown.
2.5-10	2.5.4.3	A COL or CP applicant will need to describe the design criteria and design methods, including the factor of safety for slope stability at the COL stage.	Exact new unit locations unknown.
2.5-11	2.5.4.3	A COL or CP applicant will need to provide information regarding ground improvement after removal of Upper Sand Stratum for the ESP site.	Exact new unit locations unknown.
2.5-12	2.5.5.3	A COL or CP applicant will need to provide a detailed slope stability analysis for permanent slopes at the ESP site.	Exact new unit locations unknown.
13.3 - Emergency Planning			
13.3-1	13.3	Revise the VEGP Unit 3 and 4 EALs, as a result of NEI 07-01 revisions.	The proposed EALs are based upon NEI 07-01, which is subject to change from the NRC's ongoing separate endorsement review.

Action Item No.	SER Section	Subject To Be Addressed	Reason for Deferral
13.3-2	13.3	Complete a fully developed set of EALs, which reflects the completed design details.	The proposed EALs are based upon NEI 07-01, which is subject to change from the NRC's ongoing separate endorsement review.
13.3-3	13.3	Establish the TSC consistent with NUREG-0696, and resolve the difference between the application's proposed common TSC and the TSC location specified in the AP1000 certified design.	The application proposes a future TSC that is not yet designed, and is proposed to be at a location that differs from the AP1000 certified reactor design location.
13.6 - Industrial Security			
13.6-1	13.6	The COL or CP applicant will need to provide the specific access control measures to address the existing rail spur.	Such measures are not required at the ESP stage.

A.3 Site Characteristics

Site Characteristics: Based on site investigation, exploration, analysis and testing, the applicant initially proposes a set of site characteristics. These site characteristics are specific physical attributes of the site, whether natural or man-made. Site characteristics, if reviewed and approved by the staff, are specified in the ESP. The staff proposes to include the following site characteristics in any ESP that might be issued for the Vogtle site.

Site Characteristic	Value	Definition
2.1 - Geography and Demography		
Exclusion Area Boundary	The EAB for the proposed Units 3 and 4 at the VEGP site is the same as the existing EAB for VEGP Units 1 and 2. The EAB is bounded by River Road, Hancock Landing Road, and 1.7 miles of the Savannah River (River miles 150.0 to 151.7). See Figure A3-1	The area surrounding the reactor(s), in which the reactor licensee has the authority to determine all activities including exclusion or removal of personnel and property from the area.
Low Population Zone	The area falling within a 2-mile radius circle from the midpoint between the Units 1 and 2 containment buildings.	The area immediately surrounding the exclusion area that contains residents.
Population Center Distance	- 2-2/3 miles (minimum allowable distance) - 26 miles (Augusta, GA) (current actual distance)	- The minimum allowable distance from the reactor to the nearest boundary of a densely populated center containing more than about 25,000 residents. - The current distance from the reactor to the nearest boundary of a densely populated center containing more than about 25,000 residents.

Site Characteristic		Value	Definition
2.3 - Meteorology			
Ambient Air Temperature and Humidity			
Maximum Dry-Bulb Temperature	2% annual exceedance	92 °F	The ambient dry-bulb temperature that will be exceeded 2% of the time annually.
	0.4% annual exceedance	97 °F	The ambient dry-bulb temperature that will be exceeded 0.4% of the time. annually
	100-year return period	115 °F	The ambient dry-bulb temperature that has a 1% annual probability of being exceeded (100-year mean recurrence interval).
Minimum Dry-Bulb Temperature	99% annual exceedance	25 °F	The ambient dry-bulb temperature below which dry-bulb temperatures will fall 1% of the time annually.
	99.6% annual exceedance	21 °F	The ambient dry-bulb temperature below which dry-bulb temperatures will fall 0.4% of the time annually.
	100-year return period	-8 °F	The ambient dry-bulb temperature for which a 1% annual probability of a lower dry-bulb temperature exists (100-year mean recurrence interval).
Maximum Wet-Bulb Temperature	2% annual exceedance	79 °F	The ambient wet-bulb temperature that will be exceeded 2% of the time annually.
	0.4% annual exceedence	88 °F	The ambient wet-bulb temperature that will be exceeded 0.4% of the time annually.

Site Characteristic	Value	Definition
Site Temperature Basis for AP1000		
Maximum Safety Dry-Bulb and Coincident Wet-Bulb	(See Open Item 2.3-1)	These AP1000 specific site characteristics values represent a maximum dry-bulb temperature that exists for 2 hours or more, combined with the maximum wet-bulb temperature that exists in that population of dry-bulb temperatures.
Maximum Safety Wet-Bulb (Non-Coincident)	(See Open Item 2.3-1)	This AP1000 specific site characteristic value represents a maximum wet-bulb temperature that exists within a set of hourly data for a duration of 2 hours or more.
Maximum Normal Dry-Bulb and Coincident Wet-Bulb	94 °F and 78 °F	The dry-bulb temperature component of this AP1000 specific site characteristics pair is represented by a maximum dry-bulb temperature that exists for 2 hours or more, excluding the highest 1 percent of the values in an hourly data set. The wet-bulb temperature component is similarly represented by the highest wet-bulb temperature excluding the highest 1 percent of the data, although there is no minimum 2-hour persistence criterion associated with this wet-bulb temperature.
Maximum Normal Wet-Bulb (Non-Coincident)	78 °F	This AP1000 specific site characteristic value represents a maximum wet-bulb temperature, excluding the highest 1 percent of the values in an hourly data set (i.e., a 1 percent exceedance), that exists for 2 hours or more.
Basic Wind Speed		
3-s Gust	104 mi/hr	The 3-second gust wind speed to be used in determining wind loads, defined as the 3-second gust wind speed at 33 feet above the ground that has a 1% annual probability of being exceeded (100-year mean recurrence interval).

Site Characteristic	Value	Definition
Design-Basis Tornado		
Maximum Wind Speed	300 mi/hr	Maximum wind speed resulting from passage of a tornado having a probability of occurrence of 10^{-7} per year.
Translational Speed	60 mi/hr	Translation component of the maximum tornado wind speed.
Rotational Speed	240 mi/hr	Rotation component of the maximum tornado wind speed.
Radius of Maximum Rotational Speed	150 ft	Distance from the center of the tornado at which the maximum rotational wind speed occurs.
Maximum Pressure Drop	2.0 lbf/in²	Decrease in ambient pressure from normal atmospheric pressure resulting from passage of the tornado.
Maximum Rate of Pressure Drop	1.2 lbf/in²/s	Rate of pressure drop resulting from the passage of the tornado.
Winter Precipitation		
100-Year Snowpack	10 lb/sq ft	Weight of the 100-year return period snowpack (to be used in determining extreme winter precipitation loads for roofs).
48-Hour Probable Maximum Winter Precipitation	28.3 in. of water	Probable maximum precipitation during the winter months (to be used in conjunction with the 100-year snowpack in determining extreme winter precipitation loads for roofs).

Site Characteristic	Value	Definition
Short-Term (Accident Release) Atmospheric Dispersion		
0–2 hr χ/Q Value @ EAB	3.49×10^{-4} s/m³	The 0–2 hour atmospheric dispersion factor to be used to estimate dose consequences of accidental airborne releases at the EAB.
0–8 hr χ/Q Value @ LPZ outer boundary	7.04×10^{-5} s/m³	The 0–8 hour atmospheric dispersion factor to be used to estimate dose consequences of accidental airborne releases at the LPZ.
8–24 hr χ/Q Value @ LPZ outer boundary	5.25×10^{-5} s/m³	The 8–24 hour atmospheric dispersion factor to be used to estimate dose consequences of accidental airborne releases at the LPZ.
1–4 day χ/Q Value @ LPZ outer boundary	2.77×10^{-5} s/m³	The 1–4 day atmospheric dispersion factor to be used to estimate dose consequences of accidental airborne releases at the LPZ.
4–30 day χ/Q value @ LPZ outer boundary	1.11×10^{-5} s/m^3	The 4–30 day atmospheric dispersion factor to be used to estimate dose consequences of accidental airborne releases at the LPZ.
Long-Term (Routine Release) Atmospheric Dispersion		
Annual Average Undepleted/No Decay χ/Q Value @ EAB, northeast, 0.5 mile	5.5×10^{-6} s/m^3	The maximum annual average EAB undepleted/no decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual.
Annual Average Undepleted/2.26-Day Decay χ/Q Value @ EAB, northeast, 0.5 mile	5.5×10^{-6} s/m^3	The maximum annual average EAB undepleted/2.26 day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual.
Annual Average Depleted/8.00-Day Decay χ/Q Value @ EAB, northeast, 0.5 mile	5.0×10^{-6} s/m^3	The maximum annual average EAB depleted/8.00 day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual.

Site Characteristic	Value	Definition
Annual Average D/Q Value @ EAB, northeast and east-northeast, 0.5 mile	1.7×10^{-8} 1/m^2	The maximum annual average EAB relative deposition factor (D/Q) value for use in determining gaseous pathway doses to the maximally exposed individual.
Annual Average Undepleted/No Decay χ/Q Value @ Nearest Resident, northeast, 0.67 mile	3.4×10^{-6} s/m^3	The maximum annual average resident undepleted/no decay atmospheric dispersion factor (χ/Q) value for use in determining gaseous pathway doses to the maximally exposed individual.
Annual Average Undepleted/2.26-Day Decay χ/Q Value @ Nearest Resident, northeast, 0.67 mile	3.4×10^{-6} s/m^3	The maximum annual average resident undepleted/2.26-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual.
Annual Average Depleted/8.00-Day Decay χ/Q Value @ Nearest Resident, northeast, 0.67 mile	3.0×10^{-6} s/m^3	The maximum annual average resident depleted/8.00-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual.
Annual Average D/Q Value @ Nearest Resident, northeast, east-northeast, and east, 0.67 mile	1.0×10^{-8} 1/m^2	The maximum annual average resident relative deposition factor (D/Q) value for use in determining gaseous pathway doses to the maximally exposed individual.
Annual Average Undepleted/No Decay χ/Q Value @ Nearest Meat Animal, northeast, 0.67 mile	3.4×10^{-6} s/m^3	The maximum annual average meat animal undepleted/no decay atmospheric dispersion factor (χ/Q) value for use in determining gaseous pathway doses to the maximally exposed individual.
Annual Average Undepleted/2.26-Day Decay χ/Q Value @ Nearest Meat Animal, northeast, 0.67 mile	3.4×10^{-6} s/m^3	The maximum annual average meat animal undepleted/2.26-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual.
Annual Average Depleted/8.00-Day Decay χ/Q Value @ Nearest Meat Animal, northeast, 0.67 mile	3.0×10^{-6} s/m^3	The maximum annual average meat animal depleted/8.00-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual.

Site Characteristic	Value	Definition
Annual Average D/Q Value @ Nearest Meat Animal, northeast, east-northeast, and east, 0.67 mile	1.0×10^{-8} $1/m^2$	The maximum annual average meat animal relative deposition factor (D/Q) value for use in determining gaseous pathway doses to the maximally exposed individual.
Annual Average Undepleted/No Decay χ/Q Value @ Nearest Vegetable Garden, northeast, 0.67 mile	3.4×10^{-6} s/m^3	The maximum annual average vegetable garden undepleted/no decay atmospheric dispersion factor (χ/Q) value for use in determining gaseous pathway doses to the maximally exposed individual.
Annual Average Undepleted/2.26-Day Decay χ/Q Value @ Nearest Vegetable Garden, northeast, 0.67 mile	$3.4\times10^{-6}$$s/m^3$	The maximum annual average vegetable garden undepleted/2.26-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual.
Annual Average Depleted/8.00-Day Decay χ/Q Value @ Nearest Vegetable Garden, northeast, 0.67 mile	3.0×10^{-6} s/m^3	The maximum annual average vegetable garden depleted/8.00-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual.
Annual Average D/Q Value @ Nearest Vegetable Garden, northeast, east-northeast, and east, 0.67 mile	1.0×10^{-8} $1/m^2$	The maximum annual average vegetable garden relative deposition factor (D/Q) value for use in determining gaseous pathway doses to the maximally exposed individual.
2.4 - Hydrology		
Hydrology		
Proposed Facility Boundaries	Appendix A Figure A3-1 (Figure 2.4.14-1)	The site boundary within which all safety-related SSC will be located.
Highest Ground Water Elevation	165 feet MSL at the Water Table Aquifer	The highest elevation of the water table within the site boundaries.

Site Characteristic	Value	Definition
Highest Flood Level (maximum hydrostatic water surface elevation due to a postulated upstream dam breach scenario)	170.1 feet MSL	The stillwater elevation, without accounting for wind-induced waves, that the water surface reaches during a flood event.
Wind run-up (to add to the highest flood elevation)	19 feet	The water surface elevation reached by wind-induced waves running up on the shore.
Combined Effects Maximum Flood Elevation	189.1 feet MSL; the proposed site grade is 220ft MSL, therefore, the VEGP site is “dry”	The water surface elevation obtained by adding wind run-up to the highest flood level.
Local Intense Precipitation	19.2 inches during 1 hour 6.2 inches in 5 minutes	The depths of PMP for a duration of one hour, and of 5 minutes on a one square-mile drainage area. The surface water drainage system should be designed for a flood produced by the local intense precipitation. The local intense precipitation is specified by SSAR Table 2.4.2-3 (see Table 2.4.2-1 of this SER).
Frazil Ice	The ESP site does not have the potential for the formation of frazil and anchor ice	Ice crystals that form in turbulent, open waters in presence of supercooling. Frazil ice is very sticky and may lead to blockages of intake screens and trash racks.
2.5 - Geology, Seismology, and Geotechnical Engineering		
Basic Geologic and Seismic Information		
Capable Tectonic Structures	See Open Item 2.5-10	Fault displacement potential within the investigative area.
Vibratory Ground Motion		
Ground Motion Response Spectra (Site Safe Shutdown Earthquake)	See Open Item 2.5-1, 2, 3, 4, 5, 6, 7, 8, 9, 18, and 19	Site specific response spectra.

Site Characteristic	Value	Definition
Stability of Subsurface Materials and Foundations		
Liquefaction	See Open Item 2.5-13	Liquefaction potential for the subsurface material at the site.
Minimum static bearing capacity	See Open Item 2.5-24	Load-bearing capacity of bearing soil layer for plant structures.
Minimum shear wave velocity of the load bearing soil layers	See Open Item 2.5-18	Soil property.

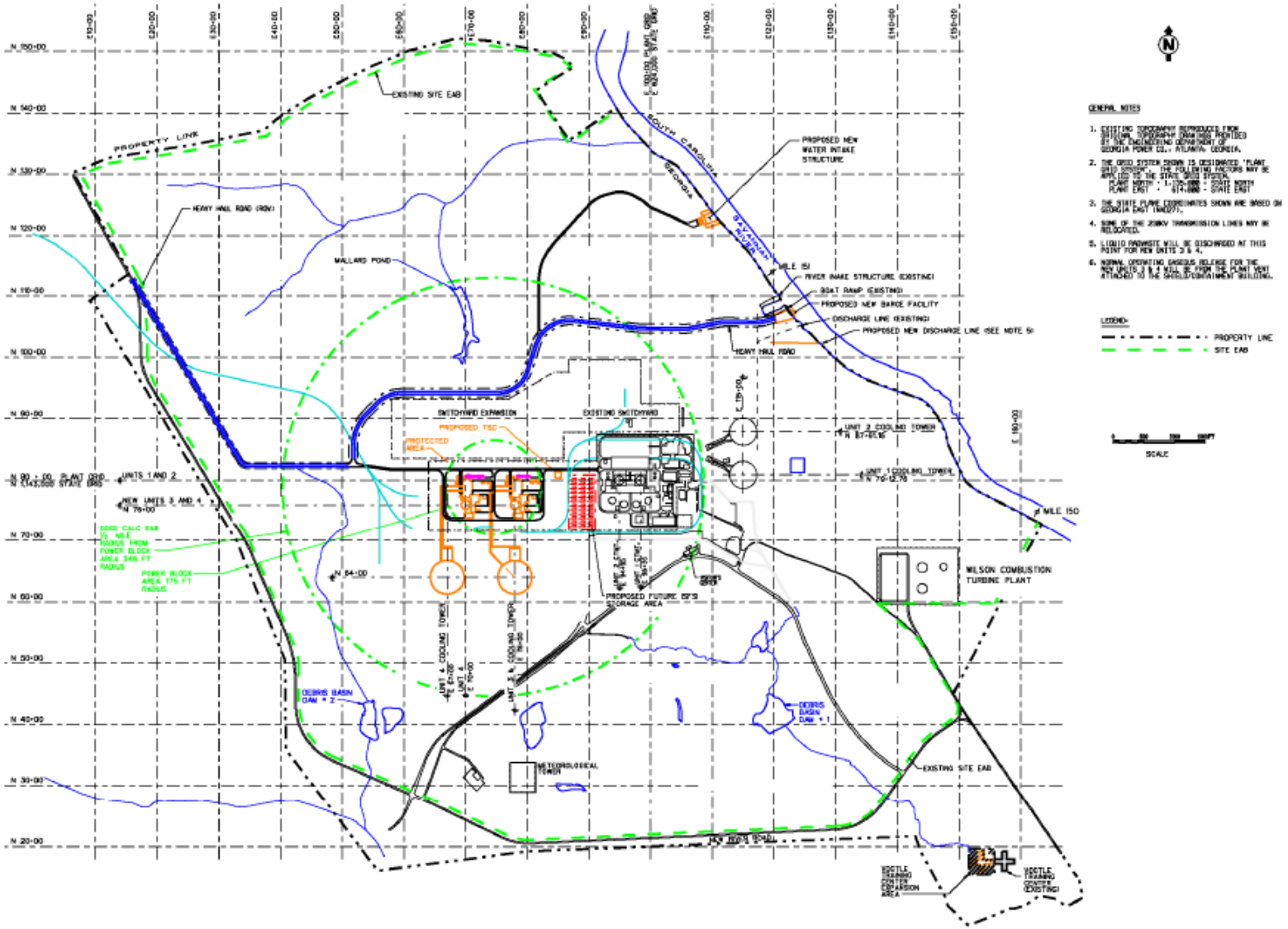

Figure A3-1 (Figure 2.4.14-1) - The proposed facility boundary for the VEGP site (Taken from SSAR Figure 1-4)

A.4 Bounding Parameters (Including Accident Source Term)

Bounding Parameters: The bounding parameters set forth postulated values of design parameters that provide design details to support the NRC staff's review of an ESP application. Because the NRC staff is relying on certain design parameters specified in the ESP application to reach its conclusions on site suitability, these bounding parameters would be included in any ESP that might be issued for the VEGP site. A COL or CP application referencing an ESP must contain information sufficient to demonstrate that the actual characteristics of the design chosen by the COL or CP applicant falls within the bounding design parameters specified in the ESP.

Bounding Parameters	Value	Definition
2.4 - Hydrology		
Site Grade	220 feet MSL	The elevation of the finished ground surface that prevents the flood produced by the local intense precipitation from affecting the safety-related SSCs.

Activity Releases for Steam System Piping Failure with Pre-Existing Iodine Spike

	Activity Release (Ci)				
Isotope	0-2 hr	2-8 hr	8-24 hr	24-72 hr	Total
Kr-85m	6.86E-02	1.14E-01	6.80E-02	6.18E-03	2.57E-01
Kr-85	2.82E-01	8.46E-01	2.25E+00	6.69E+00	1.01E+01
Kr-87	2.76E-02	1.34E-02	5.29E-04	8.60E-08	4.15E-02
Kr-88	1.12E-01	1.37E-01	4.04E-02	8.27E-04	2.91E-01
Xe-131m	1.28E-01	3.79E-01	9.81E-01	2.70E+00	4.19E+00
Xe-133m	1.59E-01	4.51E-01	1.04E+00	2.05E+00	3.70E+00
Xe-133	1.18E+01	3.45E+01	8.64E+01	2.16E+02	3.49E+02
Xe-135m	3.04E-03	1.33E-05	0.00E+00	0.00E+00	3.06E-03
Xe-135	3.10E-01	6.90E-01	8.35E-01	3.38E-01	2.17E+00
Xe-138	3.99E-03	1.14E-05	0.00E+00	0.00E+00	4.00E-03
I-130	3.59E-01	1.42E-01	2.09E-01	1.33E-01	8.44E-01
I-131	2.40E+01	1.21E+01	3.10E+01	8.22E+01	1.49E+02
I-132	3.05E+01	4.14E+00	8.06E-01	6.55E-03	3.55E+01
I-133	4.34E+01	1.90E+01	3.53E+01	3.98E+01	1.37E+02
I-134	6.74E+00	1.63E-01	1.43E-03	4.54E-09	6.91E+00
I-135	2.60E+01	8.16E+00	7.54E+00	1.71E+00	4.34E+01
Cs-134	1.90E+01	1.95E-01	5.19E-01	1.54E+00	2.12E+01
Cs-136	2.82E+01	2.86E-01	7.43E-01	2.06E+00	3.13E+01
Cs-137	1.37E+01	1.41E-01	3.74E-01	1.11E+00	1.53E+01
Cs-138	1.01E+01	1.02E-03	4.42E-07	0.00E+00	1.01E+01
Total	2.15E+02	8.15E+01	1.68E+02	3.56E+02	8.21E+02

Figure A4-1 (SSAR Figure 15-2)

Activity Releases for Steam System Piping Failure with Accident-Initiated Iodine Spike

	Activity Release (Ci)				
Isotope	0-2 hr	2-8 hr	8-24 hr	24-72 hr	Total
Kr-85m	6.86E-02	1.14E-01	6.80E-02	6.18E-03	2.57E-01
Kr-85	2.82E-01	8.46E-01	2.25E+00	6.69E+00	1.01E+01
Kr-87	2.76E-02	1.34E-02	5.29E-04	8.60E-08	4.15E-02
Kr-88	1.12E-01	1.37E-01	4.04E-02	8.27E-04	2.91E-01
Xe-131m	1.28E-01	3.79E-01	9.81E-01	2.70E+00	4.19E+00
Xe-133m	1.59E-01	4.51E-01	1.04E+00	2.05E+00	3.70E+00
Xe-133	1.18E+01	3.45E+01	8.64E+01	2.16E+02	3.49E+02
Xe-135m	3.04E-03	1.33E-05	0.00E+00	0.00E+00	3.06E-03
Xe-135	3.10E-01	6.90E-01	8.35E-01	3.38E-01	2.17E+00
Xe-138	3.99E-03	1.14E-05	0.00E+00	0.00E+00	4.00E-03
I-130	4.20E-01	9.95E-01	1.58E+00	1.01E+00	4.01E+00
I-131	2.60E+01	5.73E+01	1.56E+02	4.13E+02	6.53E+02
I-132	4.62E+01	9.74E+01	2.24E+01	1.82E-01	1.66E+02
I-133	4.91E+01	1.14E+02	2.27E+02	2.55E+02	6.45E+02
I-134	1.34E+01	1.86E+01	2.65E-01	8.42E-07	3.23E+01
I-135	3.24E+01	7.74E+01	7.83E+01	1.77E+01	2.06E+02
Cs-134	1.90E+01	1.95E-01	5.19E-01	1.54E+00	2.12E+01
Cs-136	2.82E+01	2.86E-01	7.43E-01	2.06E+00	3.13E+01
Cs-137	1.37E+01	1.41E-01	3.74E-01	1.11E+00	1.53E+01
Cs-138	1.01E+01	1.02E-03	4.42E-07	0.00E+00	1.01E+01
Total	2.51E+02	4.03E+02	5.78E+02	9.20E+02	2.15E+03

Figure A4-2 (SSAR Figure 15-3)

Activity Releases for Reactor Coolant Pump Shaft Seizure

	Activity Release (Ci)				
	No Feedwater	Feedwater Available			
Isotope	0-1.5 hr	0-2 hr	2-8 hr	6-8 hr	Total
Kr-85m	8.16E+01	1.05E+02	1.74E+02	4.13E+01	2.79E+02
Kr-85	7.58E+00	1.01E+01	3.03E+01	1.01E+01	4.04E+01
Kr-87	1.20E+02	1.43E+02	6.97E+01	5.43E+00	2.13E+02
Kr-88	2.08E+02	2.62E+02	3.20E+02	6.05E+01	5.82E+02
Xe-131m	3.77E+00	5.03E+00	1.49E+01	4.95E+00	1.99E+01
Xe-133m	2.02E+01	2.69E+01	7.64E+01	2.48E+01	1.03E+02
Xe-133	6.66E+02	8.87E+02	2.60E+03	8.57E+02	3.49E+03
Xe-135m	3.24E+01	3.28E+01	1.43E-01	2.68E-06	3.30E+01
Xe-135	1.59E+02	2.08E+02	4.64E+02	1.32E+02	6.72E+02
Xe-138	1.29E+02	1.30E+02	3.72E-01	3.01E-06	1.30E+02
I-130	8.45E-01	1.17E-01	1.33E+00	5.65E-01	1.46E+00
I-131	3.77E+01	5.39E+00	7.51E+01	3.46E+01	8.05E+01
I-132	2.79E+01	3.45E+00	1.48E+01	3.95E+00	1.83E+01
I-133	4.86E+01	6.86E+00	8.29E+01	3.64E+01	8.98E+01
I-134	2.88E+01	2.76E+00	2.98E+00	2.09E-01	5.74E+00
I-135	4.19E+01	5.68E+00	5.22E+01	2.05E+01	5.79E+01
Cs-134	1.29E+00	1.82E-01	2.40E+00	1.11E+00	2.59E+00
Cs-136	5.63E-01	8.45E-02	7.79E-01	3.47E-01	8.63E-01
Cs-137	7.74E-01	1.10E-01	1.41E+00	6.51E-01	1.52E+00
Cs-138	6.08E+00	7.29E-01	3.35E+00	1.13E+00	4.08E+00
Rb-86	1.33E-02	1.83E-03	2.73E-02	1.27E-02	2.91E-02
Total	1.62E+03	1.84E+03	3.99E+03	1.23E+03	5.82E+03

Note: The release period of 6-8 hr yields the maximum 2-hr EAB dose with feedwater available.

Figure A4-3 (SSAR Figure 15-4)

Activity Releases for Spectrum of Rod Cluster Control Assembly Ejection Accidents

	Activity Release (Ci)					
Isotope	0-2 hr	2-8 hr	8-24 hr	24-96 hr	96-720 hr	Total
Kr-85m	1.12E+02	6.48E+01	3.87E+01	1.77E+00	2.51E-05	2.18E+02
Kr-85	5.01E+00	5.60E+00	1.49E+01	3.35E+01	2.88E+02	3.47E+02
Kr-87	1.82E+02	2.60E+01	1.03E+00	8.37E-05	0.00E+00	2.09E+02
Kr-88	2.91E+02	1.18E+02	3.49E+01	3.59E-01	8.41E-09	4.45E+02
Xe-131m	4.94E+00	5.46E+00	1.42E+01	2.86E+01	1.16E+02	1.69E+02
Xe-133m	2.67E+01	2.81E+01	6.49E+01	8.45E+01	5.31E+01	2.57E+02
Xe-133	8.79E+02	9.58E+02	2.40E+03	4.27E+03	8.45E+03	1.70E+04
Xe-135m	7.34E+01	5.30E-02	4.33E-09	0.00E+00	0.00E+00	7.35E+01
Xe-135	2.15E+02	1.72E+02	2.09E+02	4.35E+01	1.79E-01	6.39E+02
Xe-138	2.99E+02	1.38E-01	3.19E-09	0.00E+00	0.00E+00	2.99E+02
I-130	4.90E+00	7.28E+00	4.32E+00	2.03E-01	2.95E-04	1.67E+01
I-131	1.36E+02	2.45E+02	2.31E+02	3.10E+01	1.68E+01	6.60E+02
I-132	1.53E+02	9.94E+01	9.85E+00	8.24E-03	0.00E+00	2.62E+02
I-133	2.72E+02	4.40E+02	3.18E+02	2.28E+01	2.41E-01	1.05E+03
I-134	1.66E+02	2.85E+01	1.37E-01	4.48E-08	0.00E+00	1.95E+02
I-135	2.39E+02	2.97E+02	1.19E+02	2.39E+00	7.32E-05	6.57E+02
Cs-134	3.08E+01	6.22E+01	6.03E+01	7.76E+00	5.16E+00	1.66E+02
Cs-136	8.79E+00	1.75E+01	1.67E+01	2.05E+00	6.58E-01	4.57E+01
Cs-137	1.79E+01	3.62E+01	3.51E+01	4.52E+00	3.05E+00	9.68E+01
Cs-138	1.09E+02	7.05E+00	1.68E-03	0.00E+00	0.00E+00	1.16E+02
Rb-86	3.62E-01	7.27E-01	6.96E-01	8.67E-02	3.42E-02	1.91E+00
Total	3.23E+03	2.62E+03	3.58E+03	4.53E+03	8.93E+03	2.29E+04

Figure A4-4 (SSAR Figure 15-5)

Activity Releases for Failure of Small Lines Carrying Primary Coolant Outside Containment

	Activity Release (Ci)
Isotope	0-2 hr
Kr-85m	1.24E+01
Kr-85	4.40E+01
Kr-87	7.05E+00
Kr-88	2.21E+01
Xe-131m	1.99E+01
Xe-133m	2.50E+01
Xe-133	1.84E+03
Xe-135m	2.59E+00
Xe-135	5.20E+01
Xe-138	3.65E+00
I-130	1.89E+00
I-131	9.26E+01
I-132	3.49E+02
I-133	2.01E+02
I-134	1.58E+02
I-135	1.68E+02
Cs-134	4.16E+00
Cs-136	6.16E+00
Cs-137	3.00E+00
Cs-138	2.21E+00
Total	3.02E+03

Figure A4-5 (SSAR Figure 15-6)

Activity Releases for Steam Generator Tube Rupture with Pre-Existing Iodine Spike

	Activity Release (Ci)			
Isotope	0-2 hr	2-8 hr	8-24 hr	Total
Kr-85m	5.53E+01	1.93E+01	7.53E-03	7.46E+01
Kr-85	2.20E+02	1.09E+02	1.34E-01	3.29E+02
Kr-87	2.39E+01	3.61E+00	9.12E-05	2.75E+01
Kr-88	9.22E+01	2.65E+01	5.43E-03	1.19E+02
Xe-131m	9.96E+01	4.88E+01	5.91E-02	1.48E+02
Xe-133m	1.24E+02	5.91E+01	6.61E-02	1.83E+02
Xe-133	9.19E+03	4.47E+03	5.29E+00	1.37E+04
Xe-135m	3.44E+00	5.86E-03	0.00E+00	3.45E+00
Xe-135	2.46E+02	1.02E+02	7.10E-02	3.47E+02
Xe-138	4.56E+00	5.07E-03	0.00E+00	4.57E+00
I-130	1.79E+00	5.39E-02	2.68E-01	2.12E+00
I-131	1.21E+02	5.27E+00	3.06E+01	1.56E+02
I-132	1.42E+02	7.43E-01	1.92E+00	1.44E+02
I-133	2.16E+02	7.63E+00	4.06E+01	2.64E+02
I-134	2.74E+01	4.40E-03	4.23E-03	2.74E+01
I-135	1.27E+02	2.70E+00	1.17E+01	1.42E+02
Cs-134	1.63E+00	6.05E-02	2.16E-01	1.90E+00
Cs-136	2.42E+00	8.86E-02	3.14E-01	2.82E+00
Cs-137	1.17E+00	4.37E-02	1.56E-01	1.37E+00
Cs-138	5.64E-01	2.91E-06	5.73E-07	5.64E-01
Total	1.07E+04	4.85E+03	9.14E+01	1.56E+04

Figure A4-6 (SSAR Figure 15-7)

Activity Releases for Steam Generator Tube Rupture with Accident-Initiated Iodine Spike

	Activity Release (Ci)			
Isotope	0-2 hr	2-8 hr	8-24 hr	Total
Kr-85m	5.53E+01	1.93E+01	7.53E-03	7.46E+01
Kr-85	2.20E+02	1.09E+02	1.34E-01	3.29E+02
Kr-87	2.39E+01	3.61E+00	9.12E-05	2.75E+01
Kr-88	9.22E+01	2.65E+01	5.43E-03	1.19E+02
Xe-131m	9.96E+01	4.88E+01	5.91E-02	1.48E+02
Xe-133m	1.24E+02	5.91E+01	6.61E-02	1.83E+02
Xe-133	9.19E+03	4.47E+03	5.29E+00	1.37E+04
Xe-135m	3.44E+00	5.86E-03	0.00E+00	3.45E+00
Xe-135	2.46E+02	1.02E+02	7.10E-02	3.47E+02
Xe-138	4.56E+00	5.07E-03	0.00E+00	4.57E+00
I-130	8.87E-01	1.62E-01	8.24E-01	1.87E+00
I-131	4.36E+01	1.14E+01	6.76E+01	1.23E+02
I-132	1.47E+02	4.86E+00	1.29E+01	1.65E+02
I-133	9.33E+01	2.00E+01	1.08E+02	2.22E+02
I-134	5.59E+01	6.04E-02	5.94E-02	5.60E+01
I-135	7.61E+01	9.88E+00	4.38E+01	1.30E+02
Cs-134	1.63E+00	6.05E-02	2.16E-01	1.90E+00
Cs-136	2.42E+00	8.86E-02	3.14E-01	2.82E+00
Cs-137	1.17E+00	4.37E-02	1.56E-01	1.37E+00
Cs-138	5.64E-01	2.91E-06	5.73E-07	5.64E-01
Total	1.05E+04	4.88E+03	2.40E+02	1.56E+04

Figure A4-7 (SSAR Figure 15-8)

Activity Releases for Loss-of-Coolant Accident Resulting from a Spectrum of Postulated Piping Breaks Within the Reactor Coolant Pressure Boundary

	Activity Release (Ci)					
Isotope	1.4-3.4 hr	0-8 hr	8-24 hr	24-96 hr	96-720 hr	Total
I-130	5.64E+01	1.12E+02	5.37E+00	7.10E-01	1.27E-02	1.18E+02
I-131	1.68E+03	3.49E+03	2.66E+02	2.39E+02	7.19E+02	4.71E+03
I-132	1.23E+03	2.14E+03	1.64E+01	1.46E-02	0.00E+00	2.15E+03
I-133	3.23E+03	6.54E+03	3.83E+02	1.04E+02	1.04E+01	7.04E+03
I-134	6.60E+02	1.14E+03	2.96E-01	6.79E-08	0.00E+00	1.14E+03
I-135	2.56E+03	4.89E+03	1.58E+02	6.09E+00	3.16E-03	5.06E+03
Kr-85m	1.42E+03	3.77E+03	1.87E+03	8.56E+01	1.22E-03	5.73E+03
Kr-85	8.31E+01	2.97E+02	7.06E+02	1.59E+03	1.36E+04	1.62E+04
Kr-87	1.10E+03	1.95E+03	4.97E+01	4.05E-03	0.00E+00	1.99E+03
Kr-88	3.11E+03	7.26E+03	1.70E+03	1.75E+01	4.09E-07	8.97E+03
Xe-131m	8.26E+01	2.94E+02	6.79E+02	1.37E+03	5.57E+03	7.91E+03
Xe-133m	4.43E+02	1.54E+03	3.15E+03	4.11E+03	2.58E+03	1.14E+04
Xe-133	1.47E+04	5.19E+04	1.16E+05	2.06E+05	4.07E+05	7.80E+05
Xe-135m	1.06E+01	3.59E+01	2.14E-07	0.00E+00	0.00E+00	3.59E+01
Xe-135	3.15E+03	9.64E+03	1.01E+04	2.11E+03	8.68E+00	2.19E+04
Xe-138	3.11E+01	1.20E+02	1.58E-07	0.00E+00	0.00E+00	1.20E+02
Rb-86	3.04E+00	6.32E+00	2.99E-01	9.83E-02	5.13E-01	7.23E+00
Cs-134	2.58E+02	5.38E+02	2.57E+01	9.11E+00	7.74E+01	6.50E+02
Cs-136	7.33E+01	1.52E+02	7.16E+00	2.28E+00	9.88E+00	1.72E+02
Cs-137	1.51E+02	3.13E+02	1.50E+01	5.32E+00	4.57E+01	3.79E+02
Cs-138	1.50E+02	3.30E+02	2.18E-03	0.00E+00	0.00E+00	3.30E+02
Sb-127	2.42E+01	4.80E+01	2.29E+00	5.67E-01	7.82E-01	5.16E+01
Sb-129	5.10E+01	8.94E+01	1.51E+00	4.95E-03	4.90E-08	9.09E+01
Te-127m	3.15E+00	6.30E+00	3.16E-01	1.11E-01	8.71E-01	7.60E+00
Te-127	2.05E+01	3.83E+01	1.15E+00	2.75E-02	1.33E-04	3.94E+01
Te-129m	1.07E+01	2.15E+01	1.07E+00	3.65E-01	2.36E+00	2.52E+01

Figure A4-8 (SSAR Figure 15-9)

(cont.) Activity Releases for Loss-of-Coolant Accident Resulting from a Spectrum of Postulated Piping Breaks Within the Reactor Coolant Pressure Boundary

	Activity Release (Ci)					
Isotope	1.4-3.4 hr	0-8 hr	8-24 hr	24-96 hr	96-720 hr	Total
Te-129	1.88E+01	2.83E+01	2.69E-02	3.54E-08	0.00E+00	2.84E+01
Te-131m	3.17E+01	6.20E+01	2.64E+00	3.35E-01	7.81E-02	6.50E+01
Te-132	3.23E+02	6.40E+02	3.02E+01	7.04E+00	7.83E+00	6.85E+02
Sr-89	9.23E+01	1.85E+02	9.24E+00	3.19E+00	2.26E+01	2.20E+02
Sr-90	7.95E+00	1.59E+01	7.99E-01	2.84E-01	2.44E+00	1.94E+01
Sr-91	9.68E+01	1.81E+02	5.46E+00	1.35E-01	7.06E-04	1.87E+02
Sr-92	6.83E+01	1.13E+02	1.01E+00	5.15E-04	0.00E+00	1.14E+02
Ba-139	5.44E+01	8.30E+01	1.49E-01	9.91E-07	0.00E+00	8.32E+01
Ba-140	1.63E+02	3.25E+02	1.61E+01	5.11E+00	2.17E+01	3.68E+02
Mo-99	2.15E+01	4.25E+01	1.98E+00	4.29E-01	3.78E-01	4.53E+01
Tc-99m	1.47E+01	2.66E+01	6.05E-01	5.27E-03	1.33E-06	2.72E+01
Ru-103	1.73E+01	3.46E+01	1.73E+00	5.93E-01	3.99E+00	4.09E+01
Ru-105	8.18E+00	1.44E+01	2.48E-01	8.86E-04	1.17E-08	1.46E+01
Ru-106	5.70E+00	1.14E+01	5.73E-01	2.03E-01	1.70E+00	1.39E+01
Rh-105	1.03E+01	2.02E+01	8.81E-01	1.29E-01	4.14E-02	2.12E+01
Ce-141	3.89E+00	7.78E+00	3.88E-01	1.32E-01	8.45E-01	9.15E+00
Ce-143	3.46E+00	6.78E+00	2.93E-01	4.05E-02	1.14E-02	7.13E+00
Ce-144	2.94E+00	5.89E+00	2.96E-01	1.05E-01	8.68E-01	7.15E+00
Pu-238	9.16E-03	1.83E-02	9.21E-04	3.27E-04	2.82E-03	2.24E-02
Pu-239	8.06E-04	1.61E-03	8.10E-05	2.88E-05	2.48E-04	1.97E-03
Pu-240	1.18E-03	2.37E-03	1.19E-04	4.22E-05	3.63E-04	2.89E-03
Pu-241	2.66E-01	5.31E-01	2.67E-02	9.48E-03	8.14E-02	6.49E-01
Np-239	4.48E+01	8.87E+01	4.08E+00	8.15E-01	5.70E-01	9.41E+01
Y-90	8.08E-02	1.60E-01	7.44E-03	1.59E-03	1.35E-03	1.70E-01
Y-91	1.19E+00	2.37E+00	1.19E-01	4.12E-02	3.00E-01	2.83E+00
Y-92	7.89E-01	1.35E+00	1.80E-02	2.86E-05	0.00E+00	1.37E+00

Figure A4-8 Cont. (SSAR Figure 15-9 cont)

(cont.) Activity Releases for Loss-of-Coolant Accident Resulting from a Spectrum of Postulated Piping Breaks Within the Reactor Coolant Pressure Boundary

	Activity Release (Ci)					
Isotope	1.4-3.4 hr	0-8 hr	8-24 hr	24-96 hr	96-720 hr	Total
Y-93	1.21E+00	2.28E+00	7.08E-02	1.98E-03	1.42E-05	2.35E+00
Nb-95	1.60E+00	3.19E+00	1.59E-01	5.44E-02	3.55E-01	3.76E+00
Zr-95	1.59E+00	3.18E+00	1.59E-01	5.52E-02	4.08E-01	3.80E+00
Zr-97	1.43E+00	2.74E+00	1.03E-01	6.73E-03	3.71E-04	2.85E+00
La-140	1.67E+00	3.29E+00	1.46E-01	2.36E-02	9.62E-03	3.47E+00
La-141	1.03E+00	1.79E+00	2.71E-02	6.41E-05	2.01E-10	1.81E+00
La-142	5.38E-01	8.31E-01	2.09E-03	3.39E-08	0.00E+00	8.33E-01
Nd-147	6.16E-01	1.23E+00	6.06E-02	1.90E-02	7.29E-02	1.38E+00
Pr-143	1.39E+00	2.78E+00	1.37E-01	4.40E-02	1.94E-01	3.15E+00
Am-241	1.20E-04	2.39E-04	1.20E-05	4.27E-06	3.68E-05	2.92E-04
Cm-242	2.82E-02	5.65E-02	2.83E-03	9.98E-04	8.08E-03	6.84E-02
Cm-244	3.46E-03	6.93E-03	3.48E-04	1.24E-04	1.06E-03	8.47E-03
Total	3.53E+04	9.85E+04	1.35E+05	2.15E+05	4.30E+05	8.79E+05

Figure A4-8 Cont. (SSAR Figure 15-9 cont)

Activity Releases for Fuel Handling Accident

Isotope	Activity Release (Ci) 0-2 hr
Kr-85m	3.42E+02
Kr-85	1.11E+03
Kr-87	6.00E-02
Kr-88	1.07E+02
Xe-131m	5.54E+02
Xe-133m	2.80E+03
Xe-133	9.66E+04
Xe-135m	1.26E+03
Xe-135	2.49E+04
I-130	2.51E+00
I-131	3.76E+02
I-132	3.01E+02
I-133	2.40E+02
I-135	3.94E+01
Total	1.29E+05

Figure A4-9 (SSAR Figure 15-10)

A.5 INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA

Inspections, Tests, Analyses, and Acceptance Criteria: An ESP application proposing complete and integrated emergency plans for review and approval should propose the inspections, tests, and analyses that the holder of a COL referencing the ESP shall perform, and the acceptance criteria that are necessary and sufficient to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, the facility has been constructed and will be operated in conformity with the emergency plans, the provisions of the Atomic Energy Act, and the Commission's rules and regulations.

VEGP, UNIT 3

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
D. Emergency Classification System		
1.1 An emergency classification and EAL scheme must be established by the licensee. The specific instruments, parameters, or equipment status shall be shown for establishing each emergency class, in the in-plant emergency procedures. The plan shall identify the parameter values and equipment status for each emergency class. [**D.1**]	1.1 An inspection of the control room, TSC, and EOF will be performed to verify that they have displays for retrieving system and effluent parameters specified in Table Annex V2D.2-1, "Hot Initiating Condition Matrix, Modes 1, 2, 3, and 4," Table V2D.2-2, "Cold Initiating Condition Matrix, Modes 5, 6, and De-fueled," and EIPs.	1.1 The parameters specified in Table Annex V2H-1, "Post Accident Monitoring Variables," are retrievable in the control room, TSC, and EOF. The ranges encompass the values specified in the emergency classification and EAL scheme.
F. Emergency Communications		
3.1 The means exist for communications between the control room, OSC, TSC, EOF, principal State and local EOCs, and radiological field monitoring teams. [**F.1.d**]	3.1 A test will be performed of the capabilities.	3.1 Communications are established between the control room, OSC, TSC, and EOF. Communications are established between the control room, TSC, and GEMA Operation Center; Burke County EOC; SRS Operations Center; South Carolina Warning Point; and Aiken, Allendale, and Barnwell County Dispatchers. Communications are established between the TSC and radiological monitoring teams.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
3.2 The means exist for communications from the control room, TSC, and EOF to the NRC headquarters and regional office EOCs, including establishment of the ERDS between the onsite computer system and the NRC operations center. [**F.1.f**]	3.2 A test will be performed of the capabilities.	3.2 Communications are established from the control room, TSC, and EOF to the NRC headquarters and regional office EOCs, and an access port for ERDS is provided.
H. Emergency Facilities and Equipment		

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
5.1 The licensee has established a TSC and an onsite OSC. [**H.1**]	5.1 An inspection of the as-built TSC and OSC will be performed, including a test of the capabilities.	5.1.1 The TSC has at least 2175 square feet of floor space. 5.1.2 Communication equipment is installed in the TSC and OSC, and voice transmission and reception are accomplished. 5.1.3 The plant parameters listed in Table Annex V2H-1, “Post Accident Monitoring Values,” can be retrieved and displayed in the TSC. 5.1.4 The TSC is located within the protected area, and no major security barriers exist between the TSC and control room. 5.1.5 The OSC is located adjacent to the passage from the annex building to the control room. 5.1.6 The TSC ventilation system includes a high-efficiency particulate air (HEPA) and charcoal filter, and radiation monitors are installed. 5.1.7 A reliable and backup electrical power supply is available for the TSC.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
5.2 The licensee has established an EOF. [**H.2**]	5.2 An inspection of the EOF will be performed, including a test of the capabilities.	5.2.1 Voice transmission and reception are accomplished between the EOF and the control room. 5.2.2 The plant parameters listed in Table Annex V2H-1, "Post Accident Monitoring Values," can be retrieved and displayed in the EOF.
I. Accident Assessment		

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
6.1 The means exist to provide initial and continuing radiological assessment throughout the course of an accident. [**I.2**]	6.1 A test of the emergency plan will be conducted by performing a drill to verify the capability to perform accident assessment.	6.1 Using selected monitoring parameters listed in Table Annex V2H-1 of the VEGP Emergency Plan, simulated degraded plant conditions are assessed and protected actions are initiated in accordance with the following criteria: A. Accident Assessment and Classification: 1. Demonstrate the ability to identify initiating condition, determine emergency action level (EAL) parameters, and correctly classify the emergency throughout the drill. B. Radiological Assessment and Control: 1. Demonstrate the ability to obtain onsite radiological surveys and samples. 2. Demonstrate the ability to continuously monitor and control radiation exposure to emergency workers. 3. Demonstrate the ability to assemble and deploy field monitoring teams in a timely manner. 4. Demonstrate the ability to satisfactorily collect and disseminate field team data. 5. Demonstrate the ability to develop dose projections.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
		6. Demonstrate the ability to make the decision whether to issue radio-protective drugs (KI) to emergency workers. 7. Demonstrate the ability to develop appropriate PARs and expeditiously notify appropriate authorities.
6.2 The means exist to determine the source term of releases of radioactive material within plant systems, and the magnitude of the release of radioactive materials based on plant system parameters and effluent monitors. [**I.3**]	6.2 An analysis of the EPIPs and the ODCM will be completed to verify ability to determine the source term and magnitude of releases.	6.2 The administrative procedures and ODCM correctly calculate source terms and magnitudes of postulated releases.
6.3 The means exists to continuously assess the impact of the release of radioactive materials to the environment, accounting for the relationship between effluent monitor readings, and onsite and offsite exposures and contamination for various meteorological conditions. [**I.4**]	6.3 An analysis of the EPIPs and ODCM will be completed to verify the establishment of the relationship between effluent monitor readings and offsite exposures and contaminations.	6.3 The administrative procedures and ODCM calculate the relationship between effluent monitor readings and offsite exposures and contamination.
6.4 The means exist to acquire and evaluate meteorological information. [**I.5**]	6.4 A test will be performed to verify the ability to access meteorological information in the TSC and control room.	6.4 The following parameters are displayed in the TSC and control room: a. windspeed (at 10 and 60 meters) b. wind direction (at 10 and 60 meters) c. standard deviation of horizontal wind direction (at 10 meters) d. vertical temperature difference (between 10 and 60 meters) e. ambient temperature (at 10 meters) f. dewpoint temperature (at 10 meters) g. precipitation (at the tower base)

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
6.5 The means exist to make rapid assessments of actual or potential magnitude and locations of any radiological hazards through liquid or gaseous release pathways, including activation, notification means, field team composition, transportation, communication, monitoring equipment, and estimated deployment times. [**I.8**]	6.5 An analysis of the methodology contained in the EIP for estimating offsite dose and in the ODCM will be performed to verify the ability to determine release rates and projected doses if instrumentation used for assessment is off scale or inoperable. [**I.6**]	6.5 The EIP and ODCM estimate release rates and doses when monitors are off scale or inoperable. [**I.6**]
6.7 The means exist to estimate integrated dose from the projected and actual dose rates, and to compare these estimates with the EPA PAGs. [**I.10**]	6.7 An analysis of the methodology contained in the EIPs for estimating dose and, preparing PARs, and in the ODCM will be performed to verify the ability to estimate an integrated dose from projected and actual dose rates.	6.7 The EIPs and ODCM estimate an integrated dose.
J. Protective Response		

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
7.1 The means exist to warn and advise onsite individuals of an emergency, including those in areas controlled by the operator. Individuals to be warned include the following: [**J.1**] a. Employees not having emergency assignments b. Visitors c. Contractor and construction personnel d. Other persons who may be in the public access area, on or passing through the site, or within the OCA	7.1 A test of the onsite warning and communication capability EIPs including PAGs, assemble and accountability, and site dismissal will be performed during a drill.	7.1 The organization will satisfy the following objectives during the drill: 7.1.1 Demonstrate the capability to direct and control emergency operations. 7.1.2 Demonstrate the ability to transfer emergency direction from the control room (simulator) to the TSC, and from the TSC to the EOF, in a timely manner. 7.1.3 Demonstrate the ability to prepare for around-the-clock staffing requirements. 7.1.4 Demonstrate the ability to perform assembly and accountability in a timely manner. 7.1.5 Demonstrate the ability to perform site dismissal.
N. Exercises and Drills		

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
8.1 The licensee conducts a full participation exercise to evaluate major portions of emergency response capabilities, which includes participation by each State and local agency within the plume exposure EPZ and each State within the ingestion pathway EPZ. [**N.1**]	8.1 A full participation exercise (test) will be conducted within the specified time periods of 10 CFR Part 50, Appendix E.	8.1.1 The exercise is completed within the specified time periods of 10 CFR Part 50, Appendix E; onsite exercise objectives listed below have been met, and there are no uncorrected onsite exercise deficiencies. A. Accident Assessment and Classification 1. Demonstrate the ability to identify initiating conditions, determine emergency action level (EAL) parameters, and correctly classify the emergency throughout the exercise. Standard Criteria: a. Determine the correct highest ECL based on events which were in progress, considering past events, and their impact on the current conditions. This ~~should be~~ [is] done within 15 minutes from the time the initiating condition(s) or EAL is identified.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
		B. Notifications 1. Demonstrate the ability to alert, notify, and mobilize site emergency response personnel. Standard Criteria: a. Complete the designated checklist and perform the announcement within 5 minutes of the initial event classification for an Alert or higher. b. Activate the emergency recall system within 5 minutes of the initial event classification for an Alert or higher. 2. Demonstrate the ability to expeditiously notify State, local, and Federal authorities (NRC) of emergency conditions. Standard Criteria: a. Transmit the designated checklist within 15 minutes of event classification. b. Transmit the designated checklist within 60 minutes of last transmittal for a followup notification to State and local authorities. c. Transmit information using the designated checklist within 60 minutes of event classification for an initial notification of the NRC.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
		3. Demonstrate the ability to warn or advise onsite individuals of emergency conditions. Standard Criteria: a. Complete the designated checklist within 15 minutes of notification (via plant page or telephone) from the control room. 4. Demonstrate the capability of the PNS for the public to operate properly when required. Standard Criteria: a. 90% of the sirens operate properly, as indicated by the Whelen feedback system. b. A NOAA tone alert radio is activated. C. Emergency Response 1. Demonstrate the capability to direct and control emergency operations. Standard Criteria: a. Subjective evaluation of the command and control demonstrated by the control room in the early phase, and the TSC in the latter phase, of the emergency.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
		2. Demonstrate the ability to transfer emergency direction from the control room (simulator) to the TSC, and from the TSC to the EOF, in a timely manner. Standard Criteria: a. Subjective evaluation of briefings that were conducted prior to turnover responsibility. Personnel document transfer of duties. 3. Demonstrate the ability to prepare for around-the-clock staffing requirements. Standard Criteria: a. Complete 24-hour staff assignments. 4. Demonstrate the ability to perform assembly and accountability in a timely manner. Standard Criteria: a. PA personnel assembly and accountability is completed within 30 minutes of the Alert or higher emergency declaration via public address announcement.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
		D. ERFs 1. Demonstrate timely activation of the TSC, OSC, and EOF. Standard Criteria: a. The TSC, OSC, and EOF are activated within about an hour of the initial notification. 2. Demonstrate the adequacy of equipment, security provisions, and habitability precautions for the TSC, OSC, EOF, and ENC, as appropriate. Standard Criteria: a. Subjective evaluation of the adequacy of the emergency equipment in the ERFs. b. The security shift captain ~~should~~ implement[s] and follow[s] applicable EIPs. c. The (TSC) health physics supervisor ~~should~~ implement[s] the designated checklist if an onsite/offsite release has occurred.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
		3. Demonstrate the adequacy of communications for all emergency support resources. Standard Criteria: a. The emergency response communications listed in EIPs are available and operational. b. The communications systems are tested in accordance with TSC, OSC, and EOF activation checklists. c. The ERF personnel are able to operate all specified communication systems. d. Clear and timely communications links are established and maintained for the duration of the exercise. E. Radiological Assessment and Control 1. Demonstrate the ability to obtain onsite radiological surveys and samples. Standard Criteria: a. Health physics technicians ~~should~~ demonstrate the ability to obtain appropriate instruments (range and type) and take surveys.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
		b. Airborne samples ~~should be~~ [are] taken when the conditions indicate the need for the information. 2. Demonstrate the ability to continuously monitor and control radiation exposure to emergency workers. Standard Criteria: a. Emergency workers ~~should be~~ [are] issued self-reading dosimeters when required by radiation levels, and exposures ~~should be~~ [are] controlled to 10 CFR Part 20 limits unless the emergency director authorizes emergency limits. b. Exposure records ~~should be~~ [are] available, either from the ALARA computer or a hard copy dose report. c. Emergency workers include security, and other personnel within all emergency facilities.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
		3. Demonstrate the ability to assemble and deploy field monitoring teams in a timely manner. Standard Criteria: a. One field monitoring team ~~should be~~ [is] ready to be deployed within 1 hour of being requested from the OSC, and no later than 90 minutes from the declaration of an Alert or higher emergency. 4. Demonstrate the ability to satisfactorily collect and disseminate field team data. Standard Criteria: a. Field data to be collected is dose rate or cpm from the plume, both open and closed window, and air sample gross/net cpm for particulate and iodine, if applicable. b. Satisfactory dissemination is from the field team to the dose assessment supervisor via the field team communicator and field team coordinator.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
		5. Demonstrate the ability to develop dose projections. Standard Criteria: a. The on-shift HP/chemistry shared foreman or dose assessment supervisor ~~should~~ perform[s] timely and accurately dose projections, in accordance with EIPs. 6. Demonstrate the ability to make the decision whether to issue radioprotective drugs (KI) to emergency workers. Standard Criteria: a. KI ~~should be~~ [is] taken [(simulated)] if the estimated dose to the thyroid will exceed 25 rem CDE. 7. Demonstrate the ability to develop appropriate PARs and expeditiously notify appropriate authorities. Standard Criteria: a. TEDE and CDE dose projections from the dose assessment computer code ~~should be~~ [are] compared to EIPs.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
		b. PARs are developed within 15 minutes of data availability. c. PARs are transmitted [*to whom?*] via voice or fax within 15 minutes of event classification and/or PAR development. F. Public Information 1. Demonstrate the capability to develop and disseminate clear, accurate, and timely information to the news media. Standard Criteria: a. Media information (e.g., press releases, press briefings, electronic media) ~~should be~~ [is] made available within 60 minutes of notification of the on-call media representative. b. Followup information ~~should be~~ [is] provided at a minimum within 60 minutes of an emergency classification or protective action recommendation change.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
		2. Demonstrate the capability to establish and effectively operate rumor control in a coordinated fashion. Standard Criteria: a. Calls ~~should be~~ [are] answered in a timely manner with the correct information. b. Calls ~~should be~~ [are] returned or forwarded (as appropriate) to demonstrate responsiveness. c. Rumors ~~should be~~ [are] identified and addressed. G. Evaluation 1. Demonstrate the ability to conduct a post-exercise critique to determine areas requiring improvement and corrective action. Standard Criteria: a. An exercise time line ~~should be~~ [is] developed followed by an evaluation of the objectives. b. Significant problems in achieving the objectives ~~should be~~ [are] discussed to ensure an understanding of why the objective was not achieved. c. Recommendations for improvement in non-objective areas **should** be discussed.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
		8.1.2 Onsite emergency response personnel are mobilized in sufficient number to fill the emergency positions identified in the emergency plan Section B, and they successfully perform their assigned responsibilities, as outlined in Acceptance Criterion 8.1.1.D, above. 8.1.3 The exercise is completed within the specified time periods of 10 CFR Part 50, Appendix E; offsite exercise objectives have been met; and there are either no uncorrected offsite deficiencies or a license condition requires offsite deficiencies to be corrected prior to operation above 5% of rated power.
Implementing Procedures		
9.1 The licensee has submitted detailed implementing procedures for its emergency plan no less than 180 days prior to fuel load. [**A.1.b**]	9.1 An inspection of the submittal letter will be performed.	9.1 The licensee has submitted detailed implementing procedures for the onsite emergency plan no less than 180 days prior to fuel load.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
1.1 An emergency classification and EAL scheme must be established by the licensee. The specific instruments, parameters, or equipment status shall be shown for establishing each emergency class, in the in-plant emergency procedures. The plan shall identify the parameter values and equipment status for each emergency class. [**D.1**]	1.1 An inspection of the control room will be performed to verify that it has the displays for retrieving system and effluent parameters specified in Table Annex V2 D.2-1, "Hot Initiating Condition Matrix, Modes 1, 2, 3, and 4," Table V2 D.2-2, "Cold Initiating Condition Matrix, Modes 5, 6, and De-fueled," and EIPs.	1.1 The parameters specified in Table Annex V2H-1, "Post Accident Monitoring Variables," are retrievable in the control room. The ranges encompass the values specified in the emergency classification and EAL scheme.
3.1 The means exist for communications between the control room, OSC, TSC, and EOF. [**F.1.d**]	3.1 A test will be performed of the capabilities.	3.1 Communications are established between the control room, OSC, TSC, and EOF. Communications are established between the control room, GEMA Operation Center; Burke County EOC; SRS Operations Center; South Carolina Warning Point; and Aiken, Allendale, and Barnwell County Dispatchers.
3.2 The means exist for communications from the control room to the NRC headquarters and regional office EOC. [**F.1.f**]	3.2 A test will be performed of the capabilities.	3.2 Communications are established from the control room, TSC, and EOF, to the NRC headquarters and regional office EOCs, and an access port for ERDS is provided.

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
5.1 The licensee has established an onsite OSC. [**H.1**]	5.1 An inspection of the as-built OSC will be performed, including a test of the capabilities.	5.1.1 Communication equipment is installed in the OSC, and voice transmission and reception are accomplished. 5.1.2 The plant parameters listed in Table Annex V2H-1, "Post Accident Monitoring Values," can be retrieved and displayed in the TSC. 5.1.3 The OSC is located adjacent to the passage from the annex building to the control room.
5.2 The licensee has established an EOF. [**H.2**]	5.2 An inspection of the EOF will be performed, including a test of the capabilities.	5.2.1 Voice transmission and reception are accomplished between the EOF and the control room. 5.2.2 The plant parameters listed in Table Annex V2H-1, "Post Accident Monitoring Values," can be retrieved and displayed in the EOF.
6.4 The means exist to acquire and evaluate meteorological information. [**I.5**]	6.4 A test will be performed to verify the ability to access meteorological information in the control room.	6.4 The following parameters are displayed in the control room: a. windspeed (at 10 and 60 meters) b. wind direction (at 10 and 60 meters) c. standard deviation of horizontal wind direction (at 10 meters) d. vertical temperature difference (between 10 and 60 meters) e. ambient temperature (at 10 meters) f. dewpoint temperature (at 10 meters) g. precipitation (at the tower base)

EP Program Elements	Inspections, Tests, Analyses	Acceptance Criteria
7.1 The means exist to warn and advise onsite individuals of an emergency, including those in areas controlled by the operator including: [**J.1**] a. Employees not having emergency assignments b. Visitors c. Contractor and construction personnel d. Other persons who may be in the public access areas, on or passing through the site, or within the OCA	7.1 A test of the onsite warning and communication capability EIPs including PAGs, assemble and accountability, and site dismissal will be performed during a drill.	7.1 The organization will satisfy the following objectives during the drill: 7.1.1 Demonstrate the capability to direct and control emergency operations. 7.1.2 Demonstrate the ability to transfer emergency direction from the control room (simulator) to the TSC, and from the TSC to the EOF, in a timely manner. 7.1.3 Demonstrate the ability to prepare for around the clock staffing requirements. 7.1.4 Demonstrate the ability to perform assembly and accountability in a timely manner. 7.1.5 Demonstrate the ability to perform site dismissal.