COMPARISON OF EXISTING FIRE PROTECTION PROVISIONS TO THE GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

NORTHERN STATES POWER COMPANY

MONTICELLO NUCLEAR GENERATING PLANT

December 10, 1976

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guidelin
1	APCSB 9.5-1 IV.A.1	Overall Requirements of Plant Program Responsibility for the overall fire protection program should be assigned to a designated person in the upper level of management.	There is presently no document that designates a person in management as having overall responsibility for the nuclear plant fire protection program.	Directives will be prepared to designate responsibilities for the nuclear plant fire protection program.
2	APCSB 9.5-1 IV.A.1	Person responsible for overall fire protection program should retain ultimate responsibility even though formulation and assurance of program implementation is delegated.	See item (1) above.	This requirement will be satisfied in directives designating responsibilities for the nuclear plant fire protection program.
3	APCSB 9.5-1 IV.A.1	Delegation of authority by person responsible for overall fire protection program should be to staff personnel prepared by training and experience in fire protection and nuclear plant safety to provide a balanced approach in directing a nuclear plant fire protection program.	See item (1) above.	This requirement will be satisfied in directives designating responsibilities for the nuclear plant fire protection program.
4	APCSB 9.5-1 IV.A.1	The PSAR should state the qualification requirements for the fire protection engineer or consultant who will assist in the design and selection of equipment, inspect and test the completed physical aspects of the system, develop the fire protection program, and assist in the fire-fighting training for the operating plant.	This guideline is not applicable to an operating nuclear power plant.	
5	APCSB 9.5-1 IV.A.1	The PSAR should discuss the training and the updating provisions such as fire drills provided for maintaining the competence of the station fire-fighting and operating crew, including personnel responsible for maintaining and inspecting the fire protection equipment.	This guideline is not applicable to an operating nuclear power plant.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

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6	APCSB 9.5-1 IV.A.1	The staff to whom authority for formulation and assurance of program implementation has been delegated should be responsible for: a. Coordination of building layout and systems design with fire requirements, including consideration of potential hazards associated with postulated design basis fires. b. Design and maintenance of fire detection, suppression, and extinguishing systems. c. Fire prevention activities. d. Plant personnel and fire brigade training and manual fire fighting activities.	a) Fire detection and protection systems were designed by Bechtel Corporation and NSP Engineering in close cooperation with the NSP safety and insurance groups and NELPIA. The design required all areas containing combustible material to meet criteria contained in NFPA standards in effect at the time of construction. b) Maintenance of protection and detection equipment is under the direction of the plant maintenance staff. c) Fire prevention activities are under the direction of the plant Superintendent Operation and Maintenance. d) Fire training is under the direction of the plant Superintendent Operation and Maintenance and the plant Training Supervisor.	
7	APCSB 9.5-1 IV.A.2	The overall fire protection program should be based upon evaluation of potential fire hazards throughout the plant and the effect of postulated design basis fires relative to maintaining ability to perform safety shutdown functions and minimize radioactive releases to the environment.	The fire protection program is based on applicable standards and NELPIA recommendations in effect when the plant was designed.	A fire hazards analysis using updated criteria will be done for the plant to evaluate the effects of the design basis fires. Revisions will be made in the fire protectic program where they are found to be required
8	APCSB 9.5-1 IV.A.3	Total reliance should not be placed on a single automatic fire suppressior system. Appropriate backup fire suppression capability should be provided. (In each area containing safety related systems and equipment where automatic fire suppression equipment is installed, suitable backup suppression capability should be available.)	All automatic fire suppression systems are backed up by fire hose stations.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

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9	APCSB 9.5-1 IV.A.4	A single failure in the fire suppression system should not impair both the primary and backup fire suppression capability (in any area containing safety related systems and equipment). Postulated fires or fire protection system failures need not be considered concurrent with other plant accidents or the most severe natural phenomena. In the event of a SSE, however, the fire suppression system should be capable of delivering water to manual hose stations located within hose reach of areas containing equipment required for safe plant shutdown. The fire protection systems should, however, retain their original design capability for: (1) natural phenomena of less severity and greater frequency (approximately once in ten years) such as tornadoes, hurricanes, floods, ice storms, or small intensity earthquakes which are characteristic of the site geographic region. (2) for potential man-created site related events such as oil barge collisions or aircraft crashes which have a reasonable probability of occurring at a specific plant site.	Hose stations are located throughout the reactor, turbine, and office buildings. They were installed in accordance with the requirements of the National Fire Code. Portable extinguishers have been located at various locations throughout the plant. The fire pumps have independent supplies and controls (see response to Item 107). As permitted in Appendix A to APCSB 9.5-1, the system has not been analyzed to withstand the SSE.	
10	APCSB 9.5-1 IV.A.4	The effects of lightning strikes should be included in the overall plant fire protection program.	The effects of lightning strikes were considered in the overall plant fire protection program. Lightning protection has been installed for the reactor building, the turbine building, the off-gas stack, and the cooling towers.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

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11	APCSB 9.5-1 IV.A.5	Failure or inadvertent operation of the fire suppression system should not incapacitate safety related systems or components.	Refer to Items 12, 42, and 118.	
12	APCSB 9.5-1 IV.A.5	Fire suppression systems that are pressurized during normal plant operation should meet the guidelines contained in APCSB Branch Technical Position 3-1, "Protection Against Postulated Piping Failures in Fluid Systems Outside Containment." These guidelines include: B.1 Protection of essential systems and components against piping failures through plant arrangement or protective enclosures if practical B.2 Protective structures or compartments needed to implement (B.1) should be designed to seismic Category I requirements. The protective structures should be designed to withstand the effects of a postulated piping failure in combination with loading associated with the operating basis earthquake and SSE within the respective design load limits for structures. Protective measures, structures, and guard pipes should not prevent the access required to conduct inspections. B.3 The effects of each postulated pipe failure (BTP MEB 3-1 assumptions for moderate-energy fluid system) should be shown to result in offsite consequences within the guidelines of 10 CFR 100 under the conditions specified in BTP APCSB 3-1, Section B.3.b.	Section B.4.d of APCSB Branch Technical Position 3-1 states that, Designs of plants for which operating licenses are issued before July 1, 1975 are considered acceptable with regard to effects of piping failures outside containment on the basis of the analyses made and measures taken by applicants and licensees in response to the December 72 letter from A Giambusso, and the staff review and acceptance of these analyses and measures. Staff review and acceptance of the analyses performed and measures taken in response to the December, 1972 letter from A Giambusso is documented in the July 29, 1974 letter from Karl R Goller to Northern States Power Co. A summary of the analysis conducted on the fire protection piping was included in a letter from L O Mayer, NSP, to D L Ziemann, USAEC, dated August 24, 1973.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

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13	APCSB 9.5-1 IV.A.6	The fire protection program (plans, personnel, and equipment) for buildings storing new reactor fuel and for adjacent fire zones which could affect the fuel storage zone should be fully operational before fuel is received at the site.	This guideline is not applicable to an operating nuclear power plant.	
14	APCSB 9.5-1 IV.A.7	The fire protection program for an entire reactor unit should be fully operational prior to initial fuel loading in that reactor unit.	This guideline is not applicable to an operating nuclear power plant.	
15	APCSB 9.5-1 IV.A.8	On multiple reactor unit sites where there are operating reactor units and construction of remaining units is being completed, the fire protection program should provide continuing evaluation and include additional fire barriers, fire protection capability, and administrative controls necessary to protect the operating units from construction fire hazards. The operating plant superintendent should have the lead responsiblity for site fire protection.	This guideline is not applicable to a single unit nuclear power plant.	
16	APCSB 9.5-1 IV.B.1 (a) & (b)	General Guidelines for Plant Protection Building Design Plant layouts should be arranged to (1) Isolate safety related systems from unacceptable fire hazards. (2) Separate redundant safety related systems from each other so that both are not subject to damage from a single fire hazard. In order to accomplish this, safety related systems and fire hazards should be identified throughout the plant. Therefore, a detailed fire hazard analysis should be made during initial plant design.	A fire hazards analysis was not performed during the initial plant design.	As requested in the September 30, 1976 letter from Karl R Goller to Northern States Power Co. we have retained a qualified fire protection engineer (Bechtel Power Corp) to perform such an analysis. Decisions concerning modifications required to satisfy this guideline will be made following completion of the fire hazards analysis.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

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17	APSCB 9.5-1 IV.B.1 (c)	For multiple reactor unit sites, cable spreading rooms should not be shared between reactors. Each cable spreading room should be separated from other areas of the plant by barriers (walls and floors) having a minimum fire resistance of three hours. Cabling for redundant safety divisions should be separated by walls having three hour fire barriers.	Monticello is a single reactor site. The concept of defined fire areas surrounded by fire barriers was not applied to the original plant design.	A fire hazards analysis which will identify fire area barriers and provide an analysis of the consequences of design basis fires in each area is being performed.
18	APCSB 9.5-1 IV.B.1 (d)	Interior wall and structural components, thermal insulation materials, radiation shielding materials, and soundproofing should be noncombustible (in each area containing safety related systems and equipment). Interior finishes should be noncombustible or listed by a nationally recognized testing laboratory, such as Factory Mutual or Underwriters Laboratory, Incorporated, for flame spread, smoke and fuel contribution of 25 or less in its use configuration (ASTM E-84 Test, "Surface Burning Characteristics of Building Materials".	All areas containing safety related systems and equipment have interior walls of concrete and structural components of steel. Thermal insulation is used on piping and equipment and is composed of noncombustible material. Radiation shielding and soundproofing in the plant is provided by the concrete walls. The control room has a suspended ceiling which is noncombustible (See Item 20).	Investigation of acceptability of interior finishes is continuing.
19	APCSB 9.5-1 IV.B.1 (e)	Metal deck roof construction should be noncombustible (see Underwriters Laboratory, Incorporated building materials directory), or listed as Class I by Factory Mutual System Approval Guide.	Built-up roofing and insulation material for the plant is listed by Underwriter's Laboratories, Inc., as acceptable for Class A roof construction.	
20	APCSB 9.5-1 IV.B.1 (f)	Suspended ceiling and their supports (in each area containing safety related systems and equipment) should be of noncombustible construction. Concealed spaces should be devoid of combustibles.	The control room is the only area containing safety related equipment which has a suspended ceiling. This ceiling was chosen to qualify as a one-hour fire resistive ceiling conforming to Underwriters' Laboratories Retardant Report Series 4177, for non combustible materials, as listed under the Underwriters' Laboratories, Inc., Building Materials List. Concealed spaces in this ceiling are devoid of combustibles.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

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21	APCSB 9.5-1 IV.B.1 (g)	High voltage - high amperage transformers installed inside buildings containing safety related systems should be dry type or insulated and cooled with noncombustible liquid.	High voltage-high current transformers (specifically, the 4160/480 V load center transformers) located in the turbine building at Monticello are insulated and cooled with General Electric "Pyranol", a noncombustible liquid. No other high voltage-high current transformers are installed in buildings containing safety-related equipment.	
22	APCSB 9.5-1 IV.B.1 (h)	Buildings containing safety related systems should be protected from exposure or spill fires involving oil filled transformers by locating such transformers at least 50 feet distant or by assuring that such building walls within 50 feet of oil filled transformers are without openings and have a fire resistance rating of at least three hours.	The diesel generator building and the recombiner building have ventilation openings within 50 feet of a transformer.	A decision concerning any modifications will be made following completion of the fire hazards analysis.
23	APCSB 9.5-1 IV.B.1 (i)	Floor drains, sized to remove expected fire fighting water flow, should be provided in those areas where fixed water fire suppression systems are installed. Drains should also be provided in other areas where hand hose lines may be used if such fire fighting water could cause unacceptable damage to other (safety related) equipment in the area.	Adequately sized floor drains are provided in those areas where fixed water fire suppression systems are installed except for the recirculation M-G set area and the lube oil drum storage area. There is no safety related equipment in the vicinity of the lube oil drum storage area. Accumulation of water in this area would not create an unacceptable consequence. All safety related equipment is installed such that it will not be affected by fire fighting water buildup.	Adequately sized floor drains will be installed in the recirculation M-G set room.
24	APCSB 9.5-1 IV.B.1 (j)	(Safety related) equipment should be either installed on pedestals, or curbs should be provided as required to contain water and direct it to floor drains (NFPA 92, "Waterproofing and Draining of Floors.")	All safety related equipment is installed on pedestals, or mounted high enought above the floor to not be affected by water, or protected by curbs.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

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25	APCSB 9.5-1 IV.B.1 (i)	Drains in areas containing combustible liquids should have provisions for preventing the spread of the fire throughout the drain system.	All drains are discharged to sumps below the sump water levels except the lube oil storage tank area drain. This drain discharges to the emergency dump tank. These drain provisions prevent the spread of fire.	
26	APCSB 9.5-1 IV.B.1 (i)	Water drainage from areas which may contain radioactivity should be sampled and analyzed before discharge to the environment.	All drainage from areas which may contain radioactivity is directed to the liquid radwaste system where it is either reclaimed or would be sampled and analyzed before discharge to the environment.	
27	APCSB 9.5-1 IV.B.1 (j)	Floors, walls, and ceilings enclosing separate fire areas should have minimum three-hour fire ratings.	See response to Item 17.	
28	APCSB 9.5-1 IV.B.1 (j)	Penetrations in fire area barriers, including conduits and piping, should be sealed or closed to provide a fire resistance rating at least equal to that of the barrier itself.	See response to Item 17.	
29	APCSB 9.5-1 IV.B.1 (k)	Door openings in fire area barriers should be protected with equivalent rated doors, frames, and hardware that have been tested and approved by a nationally recognized laboratory. Such door should be normally closed and locked or provided with an alarm and annunciation in the control room.	See response to Item 17.	
30	APCSB 9.5-1 IV.B.1 (i)	Penetrations in fire area barriers for ventilation systems should be protected by a standard "fire door damper" where required (NFPA 80, "Fire Doors and Windows.")	See response to Item 17.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

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31	APCSB 9.5-1 IV.B.2 (a)	Control of Combustibles Safety related systems should be isolated or separated from combustible materials. When this is not possible due to the nature of the safety system or the combustible material, special protection will be required to prevent a fire defeating the safety system function. Such protection may involve a combination of automatic fire suppression, and construction capable of withstanding and containing a fire that consumes all combustibles present. Examples of such combustible materials which may not be separable from the remainder of its system are: (1) Emergency diesel generator fuel oil day tanks. (2) Turbine-generator oil and hydraulic control fluid systems. (3) Reactor coolant pump lube oil system.	In general there is very little combustible material in the vicinity of safety related systems. Control of storage of combustible material is addressed in Item 73. With respect to the specific examples: 1) See response to Item 186. 2) Turbine generator lube oil piping and storage areas are protected by automatic sprinkler systems. 3) Reactor recirculation pumps are located inside primary containment which is inerted during operation (See Item 138).	The fire hazards analysis will identify any need for additional special protection measures.
32	APCSB 9.5-1 IV.B.2 (b)	Bulk gas storage (either compressed or cryogenic), should not be permitted inside structures housing safety related equipment.	Bulk gas storage is located outside structures housing safety related equipment.	
33	APCSB 9.5-1 IV.B.2 (b)	Flammable gas storage such as hydrogen should be located outdoors or in separate detached buildings so that a fire or explosion will not adversely affect any safety related systems or equipment (NFPA 50A, "Gaseous Hydrogen Systems.")	Flammable gases are stored in the hydrogen storage building and the hot machine shop. These are both separate, but attached buildings. It is extremely unlikely that a fire or explosion would adversely affect safety related equipment.	
34	APCSB 9.5-1 IV.B.2 (b)	Care should be taken to locate high pressure gas storage containers with the long axis parallel to building walls. This will minimize the possibility of wall penetration in the event of a container failure.	All gas storage containers located in buildings housing safety related equipment are oriented such that the long axis is parallel to the building walls.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

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35	APCSB 9.5-1 IV.B.2 (b)	Use of compressed gases (especially flammable and fuel gases) inside buildings should be controlled (NFPA 6, "Industrial Fire Loss Prevention.")	In most instances use of compressed gases is governed by the existing work control process.	The use of compressed gases will be reviewe to determine if additional administrative controls are required (See also response to Items 73 and 223).
36	APCSB 9.5-1 IV.B.2 (c)	The use of plastic materials should be minimized. Haloginated plastics especially, such as PVC and neoprene, should be used only where substitute noncombustible materials are not available.	Plastic materials are used for radiation protection purposes, however, the use of this material is minimized to the extent practical. Some electrical cables are constructed with a PVC outer jacket (See response to Item 46).	
37	APCSB 9.5-1 IV.B.2 (d)	Flammable liquids storage should, as a minimum, comply with the requirements of NFPA 30, "Flammable and Combustible Liquids Code."	Flammable liquids storage at Monticello complies with all applicable requirements of NFPA 30 with minor exceptions. The lines from each diesel engine day tank to the diesel engines do not have shutoff valves located as specified in paragraph 1342. It is felt that installation of such valves is undesireable because transfer of oil to the diesel depends on a syphoning action which could be affected by the additional valves. There are isolation valves on these lines located near the diesel generator.	Investigation of emergency relief venting f fire exposure of above-ground tanks is continuing. The fill line for the underground fuel oil storage tank is not properly identified. This line will be identified. The steel supports for the heating boiler and diesel fire pump day tanks are not protect as outlined in paragraph 2430 Modificatio will be made to comply with this requiremen
38	APCSB 9.5-1 IV.B.3 (a)	Cable Construction, Cable Trays, & Penetrations Only noncombustible materials should be used for cable tray construction.	Cables are routed in steel trays.	
39	APCSB 9.5-1 IV.B.3 (c)	Automatic water sprinkler systems should be provided for cable trays outside the cable spreading room.	There are no automatic sprinkler systems provided for cable trays outside the cable spreading room.	A decision concerning installation of such systems will be made following completion o the fire hazards analysis.
40	APCSB 9.5-1 IV.B.3 (c)	Cables should be designed to allow wetting down with deluge water without electrical faulting.	Electrical cables at the Monticello facility are insulated with waterproof synthetic materials such as butyl rubber, neoprene, or polyethylene. By design, splices are not permitted in trays, conduits, or raceways. Thus electrical faulting would not be expected to occur if the cables were wetted with deluge water.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
41	APCSB 9.5-1 IV.B.3 (c)	Manual hose stations and portable hand extinguishers should be provided as a backup means of wetting down cable trays outside the cable spreading room.	Manual hose stations and portable hand extinguishers are provided for fighting cable tray fires outside the cable spreading room.	
42	APCSB 9.5-1 IV.B.3 (c)	Safety related equipment in the vicinity of cable trays, which does not itself require water fire protection, but is subject to unacceptable damage if wetted by sprinkler (or hose or extinguisher) water discharge, should be protected from sprinkler system (or hose or extinguisher) operation or malfunction.	While some exceptions have been identified, safety related equipment is generally not subject to water damage.	Additional protection may be needed for the the following equipment to comply with this item: 1. Yarway reactor level switches 2. Scram discharge volume level switch 3. Secondary containment isolation damper actuators Appropriate protection will be provided.
43	APCSB 9.5-1 IV.B.3 (d)	Cable and cable tray penetration of fire barriers (vertical and horizontal) should be sealed to give protection at least equivalent to the fire barrier. The design of fire barriers for horizontal and vertical cable trays should, as a minimum, meet the requirements of ASTM E-119, "Fire Test of Building Construction and Materials," including the hose stream test.	See response to Item 17.	
44	APCSB 9.5-1 IV.B.3 (e)	Fire breaks should be installed at every 10 feet along horizontal and vertical cable routings to prevent the propagation of a fire. Flame or fire retardant coatings may be used as a fire break for grouped electrical cables to limit spread of a fire in cable routings.	Cable runs at Monticello were not installed with fire breaks in the cable trays.	A decision concerning installation of such breaks will be made following completion of the fire hazards analysis.
45	APCSB 9.5-1 IV.B.3 (f)	Electric cable constructions should at least pass the current IEEE No. 383 flame test.	The electrical cables at Monticello were manufactured and installed prior to issuance of the IEEE-383 Standard. The cables do, however, meet the applicable Insulated Power Cable Engineers Association (IPCEA) standards in effect at the time of manufacture; specifically, S-19-81 for rubber insulated cable and S-61-402 for thermoplastic insulated cable. These standards include flame tests of single cables in horizontal or vertical configura-	Investigation to determine the status of our cables with respect to the IEEE-383 standard is continuing.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
46	APCSB 9.5-1 IV.B.3 (g)	To the extent practical, cable construction that does not give off corrosive gases while burning should be used.	In accordance with Appendix A to Branch Technical Position APCSB 9.5-1, this guideline is applicable to new cable installations.	
47	APCSB 9.5-1 IV.B.3 (h)	Cable trays, raceways, conduit, trenches, or culverts should be used only for cables. Miscellaneous storage should not be permitted. Piping for flammable or combustible liquids or gases should not be installed in these areas.	Cable trays, raceways, conduits, trenches or culverts are used only for cables. Diesel oil, turbine oil, and hydrogen gas piping is not installed in these areas.	Miscellaneous storage in these areas will be prohibited by administrative directives.
48	APCSB 9.5-1 IV.B.3 (i)	Areas containing significant concentrations of plastic insulated electric cables such as cable tunnels, culverts, and spreading rooms should be provided with automatic or manual smoke venting as required to facilitate manual fire fighting capability.	All plant ventilation units are capable of being manually controlled to allow smoke venting as required.	
49	APCSB 9.5-1 IV.B.3 (j)	Cables in the control room should be kept to the minimum necessary for operation of the control room. All cables entering the control room should terminate there. Cables should not be installed in floor trenches or culverts in the control room.	All cables entering the control room are for control room use and terminate there. There are no concealed floor and ceiling spaces used for cable routing except for control room lighting power cables which are run in conduits above the ceiling tile.	
50	APCSB 9.5-1 IV.B.4 (a)	Ventilation Products of combustion which need to be removed from a specific fire area should be evaluated to determine how they will be controlled. Smoke and corrosive gases should generally be automatically discharged directly outside to a safe location. Smoke and gases containing radioactive materials should be monitored in the fire area to determine if release to the environment is within the permissible limits of the plant Technical Specifications.	Ventilation from areas with potential for release of radioactive material is monitored.	This evaluation will be made in conjunction with the fire hazards analysis now underway.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
51	APCSB 9.5-1 IV.B.4 (b)	Any ventilation system designed to exhaust smoke or corrosive gases should be evaluated to assure that inadvertent operation or single failures will not violate the controlled areas of the plant design. This requirement includes containment functions for protection of the public and maintaining habitability for operations personnel.	The isolation systems for primary and secondary containment are designed to meet single failure criteria. The ventilation system for the control room is designed to allow recirculation to maintain habitability. No special smoke or gas exhausting systems are required or installed.	
52	APCSB 9.5-1 IV.B.4 (c)	The power supply and controls for mechanical ventilation systems should be run outside the fire area served by the system.	The plant was not designed with specific fire areas. We have reviewed the locations of the ventilation system power supplies and controls. We have identified several plant areas where power supplies and controls are located within the ventilated area. This includes diesel generator area, reactor building ventilation power supply and control areas, and intake structure pump room area.	A decision concerning any required modifications will be made following completion of the fire hazards analysis.
53	APCSB 9.5-1 IV.B.4 (d)	Fixed automatic sprinkler systems should be installed to protect charcoal filters.	There are no fixed automatic sprinkler systems installed to protect charcoal filters.	A decision concerning the installation of such systems will be made following completion of the fire hazards analysis.
54	APCSB 9.5-1 IV.B.4 (e)	The fresh air supply intakes to areas containing safety related equipment or systems should be located remote from the exhaust air outlets and smoke vents of other fire areas. This is to minimize the possibility of contamination of the intake air with the products of combustion.	The fresh air intakes are located remote from the exhaust air outlets except for the switch gear area. Modifications are unnecessary as gravity venting of this area is adequate (See response to Item 60).	
55	APCSB 9.5-1 IV.B.4 (f)	Stairwells should be designed to minimize smoke infiltration during a fire.	The administrative building stairwells are designed to minimize smoke infiltration. The stairwells in the reactor and turbine buildings are of open metal construction. They need not be redesigned to minimize smoke infiltration because: 1. Each level of these buildings communicate freely via open equipment hatches and other openings. Therefore enclosure of the stairwells will not prevent the spread of smoke between levels.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD ... V PLAN 9.5.1

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			2. The heating and ventilating systems for the reactor and turbine buildings were designed with considerations given to the communicating levels. Isolation of these levels would degrade the ventilation and smoke removal capacity of these sytems. 3. All communicating floor levels are sufficiently open and unobstructed so that it may be assumed that a fire or other dangerous condition in any part will be immediately obvious to the occupants of all communicating levels and areas. Exit stairways are well separated and sufficient to provide simultaneous evacuation for all the occupants of all the communicating levels and areas.	
56	APCSB 9.5-1 IV.B.4 (f)	Staircases should serve as escape routes and access routes for fire fighting.	Staircases are provided throughout the plant and serve as escape routes and access routes for fire fighting.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

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57	APCSB 4.5-1 IV.B.4 (f)	Fire exit routes should be clearly marked.	Some fire exit routes are not clearly marked. Plant employees are familiar with exit routes. Plant visitors not familiar with the plant layout and exit routes are escorted.	Appropriate areas of the plant will be supplied with fire exit signs.
58	APCSB 9.5-1 IV.B.4 (f)	Stairwells, elevators, and chutes should be enclosed in masonry towers with minimum three hour fire rating and automatic fire doors at least equal to the enclosure construction, at each opening into the building.	Stairwells, elevators, and chutes are not enclosed in masonry towers with a minimum three hour fire rating. Fire exit routes will be appropriately marked (see response to Item 57). Practice evacuation and re-entry are included in the semi-annual emergency drill.	
59	APCSB 9.5-1 IV.B.4 (f)	Elevators should not be used during fire emergencies.	It is general plant practice not to use elevators in a fire emergency.	Signs will be installed at each elevator entrance to assure that the elevator is not used during a fire emergency.
60	APCSB 9.5-1 IV.B.4 (g)	Smoke and heat vents may be useful in specific areas such as cable spreading rooms and diesel fuel oil storage areas and switchgear rooms. When used, they should be installed at a minimum ratio of 1 square foot of venting area per 200 square feet of floor area (the conversion factor for power venting is 300 CFM equals 1 square foot of gravity venting area). Refer to NFPA No. 204 for additional guidance on smoke control.	The cable spreading room ventilation meets the power venting criteria. The switchgear area ventilation meets the power venting and gravity venting criteria. The diesel fuel oil day tank areas do not meet this criteria We feel that smoke and heat venting of the day tank areas is not required or desireable because these areas are small and could not be entered during a fire. Venting would tend to increase the fire intensity by providing oxygen.	Investigation of other plant areas with respect to this criteria is continuing. Any deficiencies revealed by this investigation will be reported.
61	APCSB 9.5-1 IV.B.4 (h)	Self-contained breathing apparatus, using full face positive pressure masks, approved by NIOSH, should be provided for fire brigade, damage control, and control room personnel. Control room personnel may be furnished breathing air by a manifold system piped from a storage reservoir if practical.	We presently have six Scott Presur-Pak II units and two Scott Rescue-Pak units. The Scott Presur-Pak is approved by NIOSH.	Additional Scott Presur-Pak units will be obtained to assure an adequate supply.
62	APCSB 9.5-1 IV.B.4 (h)	Service or operating life for self-contained breathing apparatus should be a minimum of 1/2 hour.	The Presur-Pak II is rated at 30 minutes duration (Bureau of Mines approval #13E-08). The Scott Rescue-Pak is rated at 4 hours duration (Bureau of Mines approval #13E-25).	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
63	APCSB 9.5-1 IV.B.4 (h)	At least two extra air bottles should be located onsite for each self-contained breathing unit.	The number of extra bottles does not meet this criteria.	We will obtain additional air bottles such that there are two extra bottles for each self-contained breathing unit.
64	APCSB 9.5-1 IV.B.4 (h)	An onsite reserve air supply should be provided and so arranged to quickly and fully replenish exhausted supply air bottles as they are returned (6-hours per breathing unit).	We have a recharge system consisting of three cascaded 300-cubic foot cylinders plus 6 spare cylinders.	Additional spare cylinders will be obtained to meet this requirement.
65	APCSB 9.5-1 IV.B.4 (h)	If compressors are used as a source of breathing air, only units approved for breathing air should be used. Also, special care must be taken to locate the compressor in areas free of dust and contaminants.	All self-contained breathing units are supplied by reserve cylinders obtained from a commercial recharge source.	
66	APCSB 9.5-1 IV.B.4 (i)	Where total flooding gas extinguishing systems are used, area intake and exhaust ventilation dampers should close upon initiation of gas flow to maintain necessary gas concentration (See NFPA No. 12, "Carbon Dioxide Systems," and NFPA No. 12A, "Halon 1301 Systems.")	There are no total gas extinguishing systems installed. Any systems which may be installed in the future will meet this requirement.	
67	APCSB 9.5-1 IV.B.5 (a)	Lighting and Communication Fixed emergency lighting should be provided consisting of sealed beam units with individual 8-hour minimum battery power supplies.	Emergency DC lighting is provided by two systems; one system illuminates exit paths from the administration building and the other system illuminates the control room and pathways to the diesel generator and 4 KV switchgear areas. The probability of a complete loss of essential AC power is extremely low. In the remote chance that AC power is lost, the emergency DC lighting systems provide adequate time for the evacuation of the administration building and restoration of AC power.	
68	APCSB 9.5-1 IV.B.5 (b)	Portable emergency lighting should be provide consisting of suitable sealed beam battery powered portable hand lights.	Two portable sealed beam battery powered hand lights are maintained in the control room emergency locker, and one is maintained in shift supervisors locker. In addition, portable hand lights are maintained in the 115 KV and 345 KV control houses at the substation.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
69	APCSB 9.5-1 IV.B.5 (c)	Fixed emergency communication should be installed using voice powered head sets at pre-selected stations.	Primary emergency communications at the Monticello facility are provided by a fixed public address system with stations located throughout the plant and a PABX telephone system with extensions throughout the plant. The public address system is powered by the uninterruptible AC system while the PABX system is powered by a separate battery. Secondary emergency communications are provided by a voice powered phone system with jacks installed throughout the plant. Handsets may be connected at any location.	
70	APCSB 9.5-1 IV.B.5 (d)	Fixed repeaters installed to permit use of portable radio communication units should be protected from exposure to fire damage.	No fixed radio communication repeaters are required at the Monticello facility.	
71	APCSB 9.5-1 IV.B.6 (a)	Administrative Procedures, Administrative Controls, and Fire Brigade Administrative procedures consistent with the need for maintaining the performance of the fire protection system and personnel in nuclear power plants should be provided. Guidance is contained in the following NFPA publications: No. 4 Organization for Fire Services No. 4A Organization of a Fire Department No. 6 Industrial Fire Loss Prevention No. 7 Management of Fire Emergencies No. 8 Management Responsibility for Effects of Fire on Operations No. 27 Private Fire Brigades	The plant emergency plan currently specifies the makeup and directs the actions of emergency teams.	Procedural modifications to incorporate the specific guidance contained in the NFPA publications are currently under review.
72	APCSB 9.5-1 IV.B.6 (b)	Effective administrative measures should be implemented to prohibit bulk storage of combustible materials inside or adjacent to safety related buildings or systems during operation or maintenance periods.	See response to Item 73.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
73	APCSB 9.5-1 IV.B.6 (c)	Normal and abnormal conditions or other anticipated operations such as modifications (e.g., breaking fire stops, impairment of fire detection and suppression systems) and refueling activities should be reviewed by appropriate levels of management and appropriate special action and procedures such as fire watches or temporary fire barriers implemented to assure adequate fire protection and reactor safety. In particular: (1) Work involving ignition sources such as welding and flame cutting should be done under closely controlled conditions. Procedures governing such work should be reviewed and approved by persons trained and experienced in fire protection. Persons performing and directly assisting in such work should be trained and equipped to prevent and combat fires. A person trained in fire protection should directly monitor the work and function as a fire watch. (2) Leak testing, and similar procedures such as air flow determination, should use one of the commercially available aeresol techniques. Open flames or combustion generated smoke should not be permitted. (3) Use of combustible material (e.g., HEPA and charcoal filters, dry ion exchange resins, or other combustible supplies) in safety related areas should be controlled. Use of wood inside buildings containing safety related systems or equipment should be permitted only when suitable non-combustible substitutes are not available. If wood must be used, only fire retardant treated wood (scaffolding, lay down blocks) should be permitted. Such materials should be allowed into safety related areas only when they are to be used immediately. Their possible and probable use should be considered in the fire hazard analysis to determine adequacy of the installed fire protection systems.	Existing work control processes include consideration of the need for special action and procedures, such as fire watches. Almost all work involving ignition sources, such as welding and cutting, is governed by the existing work control processes. The NSP Safety Practices Manual establishes general housekeeping practices. Existing work control processes include consideration of control of combustible material. Maintenance personnel involved in such work have received fire protection training and all NSP personnel participate in periodic safety meetings which include training in fire prevention and fire fighting. Personnel from offsite organizations are required to attend an indoctrination which includes fire protection training. Equipment necessary to prevent or combat fires, such as asbestos blankets and fire extinguishers, is provided.	A permit system which will encompass all welding or torch use in the plant is being developed to prevent unauthorized use of welding or flame cutting equipment and further assure that special precautions, such as fire watches, or temporary fire barriers, are implemented when necessary. Use of open flames will be prohibited by administrative directive. Use of combustion generated smoke (except use with an approved procedure) will be prohibited by administrative directive. All wood presently used in the plant will be treated with fire retardant. Only fire retardant treated wood will be used in the future. Requirements related to storage of combustible materials and restrictions on the use of combustible material in safety related areas will be included in administrative directives. The fire hazards analysis will consider the possible and probable use of combustible materials to determine adequacy of installed fire protection systems.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
74	APCSB 9.5-1 IV.B.6 (d)	Public fire department response should be in the overall fire protection program. However, the plant should be designed to be self sufficient with respect to fire fighting activities and rely on the public response only for supplemental or backup capability.	The plant is designed to be self-sufficient with respect to fire fighting activities. The Plant Emergency Plan provides for response by the local fire department if requested by the Emergency Director.	
75	APCSB 9.5-1 IV.B.6 (e)	The site Emergency Plan and specific emergency procedures should follow the guidance contained in Regulatory Guide 1.101, "Emergency Planning for Nuclear Power Plants," where applicable.	The Monticello Emergency Plan and specific emergency procedures follw the guidance contained in Regulatory Guide 1.101.	
76	APCSB 9.5-1 IV.B.6 (e)(1)	A test plan should be developed which lists the individuals and their responsiblities in connection with routine tests and inspections of the fire detection and protection systems. The test plan should contain the types, frequency, and detailed procedures for testing. Procedures should also contain instructions on maintaining fire protection during those periods of fire protection system impairment or maintenance such as fire watches or temporary hose connections to water systems.	There is no test plan specifically for fire detection and protection system tests and inspections, however all of the desired elements of a fire detection and protection system test plan are provided. The schedule for all surveillance requirements identifies the type, frequency, and group responsible. Detailed procedures for testing and other record documents are kept in controlled files. Records Management Procedures, Document Control Procedures, and a Surveillance Program document specify individual responsibilities and administrative procedures for surveillance. All types of surveillance are scheduled, assigned, performed, reviewed and documented by the same method. Preparation of a separate test plan for fire detection and protection systems would be totally redundant to existing documents and procedures. Experience has shown that it is impractical to include detailed test procedures, which may require frequent and individual revision, as part of a plan document.	

REVIEW OF GUIDELINES CONTAINED, IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guidelin
77	APCSB 9.5-1 IV.B.6 (e)(2)	Drills for the fire brigade should be conducted at least quarterly so that all members of the brigade have had the opportunity to train as a team, testing itself in the major areas of the plant. The drills should include the simulated use of equipment in each area and should be preplanned and post-critiqued to establish the training objective of the drills and determine how well these objectives have been met.	No formal program exists that requires periodic drills for the emergency team assigned fire fighting responsibilities. On June 4, 1975 a semi-annual Emergency Procedures Test was conducted. This test simulated a fire in the recombiner building which required a response by the plant emergency teams and the Monticello Fire Department. The Semi-annual Emergency Procedures Test conducted October 27, 1976 included a simulated fire in the deisel generator day tank room. These drills involved simulated use of equipment and performance during the drills was post-critiqued.	Semi-annual drills for the emergency team assigned fire fighting responsibilities wil be conducted. Drill guides will be prepare to establish the training objectives and anticipated response, including simulated u of equipment, for the drills. Drill perfor ance will be monitored and post critiqued. This drill frequency is consistent with tha established for emergency procedures drills.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
78	APCSB 9.5-1 IV.B.6 (e)(2)	Drills should periodically (at least annually) include local fire department participation where possible.	A drill has been conducted with the local fire department (See Item 77).	Plant fire drills will be formalized to include annual participation of the local fire department.
79	APCSB 9.5-1 IV.B.6 (e)(3)	Members of each shift crew should be trained in fire protection.	Members of the operating shifts conduct and document monthly safety group meetings. The Safety Group chairman acquaints new members with standard safety practices, conducts refresher training in standard safety practices for group memebers, and reports instances of unsafe practices or conditions. The safety practices that are discussed include fire prevention measures and fire fighting techniques. The discussions are supplemented with review of relevant published material. Additionally, members of the operating shifts receive annual training in fire prevention and fire fighting techniques. This training includes a review of the facility fire protection system and its function. The training is supplemented by films and review of relevant published material.	
80	APCSB 9.5-1 IV.B.6(e)(3)	Training of the plant fire brigade should be coordinated with the local fire department so that responsibilities and duties are delineated in advance.	See response to Item 81.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
81	APCSB 9.5-1 IV.B.6(e)(3)	Coordination with the plant fire brigade should be part of the training course and implemented into the training of the local fire department staff.	The organization and actions concerning site and offsite activities during an emergency are delineated in the emergency procedures. During fire emergencies the Monticello volunteer fire department may be requested to provide assistance, however their actions will be directed by site personnel. Local fire department personnel have been given tours of the plant and have received training in the special hazards and precautions associated with a nuclear power plant site, however it has not been on a regularly scheduled basis.	nnual training of the local fire departmen will be provided to include: 1) designation of responsibilities and authority 2) tour of the plant with emphasis on fire fighting capabilities and potential fire hazards 3) appropriate radiation protection training 4) discussion of operational precautions
82	APCSB 9.5-1 IV.B.6 (e)(3)	Local fire departments should be educated in the operational precautions when fighting fires on nuclear power plant sites.	See response to Item 81.	
83	APCSB 9.5-1 IV.B.6 (e)(3)	Local fire departments should be made aware of the need for radioactive protection of personnel and the special hazards associated with a nuclear power plant site.	See response to Item 81.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
84	APCSB 9.5-1 IV.B.6 (e)(4)	NFPA No. 27, "Private Fire Brigade," should be followed in organization, training, and fire drills. This standard also is applicable for the inspection and maintenance of fire fighting equipment. Standards referenced from this document which should be utilized are: NFPA 194 NFPA 196 NFPA 197 NFPA 601 NFPA booklets and pamphlets listed on page 27-11 of Volume 8, 1971 - 72 are also applicable for good training references.	NFPA No. 27 and references have been reviewed. Plant procedures depart from recommended practice in a number of areas.	The following actions will be taken to assure conformance: 1. Fire brigade chiefs and assistant chiefs will be appointed to provide 24 hour coverage. 2. A training program will be formulated. 3. Drills will be performed on a periodic basis. 4. A survey will be conducted to determine equipment adequacy. 5. Special fire fighting equipment will be listed in the emergency procedures.
85	APCSB 9.5-1 IV.B.6 (e)(4)	Courses in fire prevention and fire suppression which are recognized and/or sponsored by the fire protection industry should be utilized.	The Power Production Department safety coordinator has attended fire prevention and fire suppression courses sponsored by the fire protection industry. The services of this individual have been utilized in conducting training for the plant emergency teams. This training will continue on an annual basis to update emergency teams with respect to current practice.	
86	APCSB 9.5-1 IV.B.7	Quality Assurance Program QA Program should be developed and implemented to assure that the requirements for design, procurement, installation, and testing and administrative controls for the fire protection program for safety-related areas are satisfied.	The present directives on design changes provide for the design of all modifications to applicable standards which include fire protection standards. These directives address design, procurement, installation and testing of all changes and additions to the original plant design.	
87	APCSB 9.5-1 IV.B.7	The QA Program (related to fire protection) should be under the management control of the QA organization.	The QA program related to fire protection is under the management control of the NSP Operational QA organization.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
88	APCSB 9.5-1 IV.B.7 (a)	The QA Program criteria that apply to the fire protection program should include design control and procurement document control. Measures should be established to assure that all design-related guidelines of BTP APCSB 9.5-1 are included in design and procurement documents and that deviations therefrom are controlled.	See response to Item 86.	Design Change directives will be revised to include reference to BTP APCSB 9.5-1.
89	APCSB 9.5-1 IV.B.7 (b)	The QA Program criteria that apply to the fire protection program should include instructions, procedures, and drawings. Inspections, tests, administrative controls, fire drills, and training which govern the fire protection program should be prescribed by documented instructions, procedures, or drawings and should be accomplished in accordance with these documents.	Plant administrative controls and procedures address testing, maintenance, training and inspections in all safety related areas.	A review of documents will be performed to insure that fire protection procedures and controls are adequate.
90	APCSB 9.5-1 IV.B.7 (c)	The QA Program criteria that apply to the fire protection program should include control of purchased material, equipment, and services. Measures should be established to assure that purchased material, equipment, and services conform to the procurement documents.	Normal procedures and directives insure that purchase order specifications are complied with when material is received.	
91	APCSB 9.5-1 IV.B.7 (d)	The QA Program criteria that apply to the fire protection program should include provision for inspection. A program for independent inspection of activities affecting fire protection should be established and executed by, or for, the organization performing the activity to verify conformance with documented installation drawings and test procedures for accomplishing the activities.	Periodically, representatives from NELPIA, NSP insurance carriers, and NSP insurance department representatives inspect the plant. These inspections insure that the fire protection program is adhered to.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
92	APCSB 9.5-1 IV.B.7 (e)	The QA Program criteria that apply to the fire protection program should include provision for test and control. A test program should be established and implemented to assure that testing is performed and verified by inspection and audit to demonstrate conformance with design and system readiness requirements. The tests should be performed in accordance with written test procedures and test results properly evaluated and acted on.	Present plant written surveillance procedures ensure adequate testing of the plants fire protection provisions.	
93	APCSB 9.5-1 IV.B.7 (f)	The QA Program criteria that apply to the fire protection program should include provision for identification of items which have satisfactorily passed required tests and inspections.	Plant surveillance procedures normally contain acceptance criteria and instructions on what to do if the criteria are not met.	
94	APCSB 9.5-1 IV.B.7 (g)	The QA Program criteria that apply to the fire protection program should include measures to control items which do not conform to specified requirements to prevent inadvertent use or installation.	Purchasing and receiving procedures provide for identification of non-conforming material and subsequent disposal of such material.	
95	APCSB 9.5-1 IV.B.7 (h)	The QA Program criteria that apply to the fire protection program should include measures to assure that conditions adverse to fire protection, such as failures, malfunctions, deficiencies, deviations, defective components, uncontrolled combustible material, and nonconformances, are promptly identified, reported, and corrected.	Inspections and plant surveillance testing identify conditions adverse to fire protection. Work requests are issued and acted upon to correct these deficiencies.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
96	APCSB 9.5-1 IV.B.7 (i)	The QA Program criteria that apply to the fire protection program should include provision for records. Records should be prepared and maintained to furnish evidence that the criteria contained in the program are being met.	All testing procedures and inspection reports are retained for the required length of time. Corrective action reports are retained.	
97	APCSB 9.5-1 IV.B.7 (j)	The QA Program criteria that apply to the fire protection program should include provision for audits. Audits should be conducted and documented to verify compliance with the fire protection program, including design and procurement documents, instructions, procedures, drawings, and inspection and test activities.	Audits are performed by NELPIA, NSP insurance underwriters, and NSP insurance department representatives. These audits cover all aspects of fire protection.	
98	APCSB 9.5-1 IV.C.1 (a)	Fire Detection Fire detection systems should as a minimum comply with NFPA No. 72D, "Standard for the Installation , Maintenance, and Use of Proprietary Protective Signaling Systems."	The fire detection systems installed at Monticello comply with the requirements of NFPA standard 72D with one exception. The trouble signal from the smoke detector devices is not connected to an annunciator separate from the alarm signal; instead, the two signals share a common annunciator. This conditions does not, however, detract from the effectiveness of the alarm system since any alarm would be treated as a fire alarm until the condition is verified locally. Each local smoke detector control unit has separate indications for alarm or trouble conditions which would be used for determining the cause of the control room alarm.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guidelin
99	APCSB 9.5-1 IV.C.1 (b)	Fire detection systems should give audible and visual alarm and annunciation in the control room. Local audible alarms should also sound at the location of the fire.	All fire detection systems give audible and visual alarm and annunciate in the control room except for the detection systems for the recirculation M-G set room and the cooling towers. Local audible alarms sound near the location of all detectors.	Control room audible and visual alarm and annunciation will be provided for the recirculation M-G set room and the cooling towers.
100	APCSB 9.5-1 IV.C.1 (c)	Fire alarms should be distinctive and unique. They should not be capable of being confused with any other plant working system.	The local audible alarms initiated by the fire protection system are bells which are easily distinguishable from the sounds of other plant systems. Alarms in the control room are unique by their grouping and location.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
101	APCSB 9.5-1 IV.C.1 (d)	Fire detection and actuation systems should be connected to the plant emergency power supply.	The fire detection and deluge actuation systems at Monticello are powered from sources connected to the plant emergency AC power supply or from the station batteries.	
102	APCSB 9.5-1 IV.C.2 (a)	Fire Protection Water Supply Systems An underground yard fire main loop should be installed to furnish anticipated fire water requirements.	The installed underground yard fire main loop is capable of furnishing anticipated water requirements to all potential fire locations.	
103	APCSB 9.5-1 IV.C.2 (a)	Lined steel or cast iron pipe should be used in the yard fire main loop to reduce internal tuberculation. Means for treating and flushing should be provided.	The installed yard fire main loop is cast iron. The yard fire main is periodically flushed through the installed hydrants.	
104	APCSB 9.5-1 IV.C.2 (a)	The yard fire main loop should use approved visually indicating sectional control valves, such as Post Indicator Valves, to isolate portions of the main for maintenance or repair without shutting off the entire system.	The yard system is fitted with post indicator valves for isolation of any portion of the loop, branches, or hydrants for maintenance or repair without shutting off the entire system.	
105	APCSB 9.5-1 IV.C.2 (a)	The fire main system piping should be separate from service or sanitary water system piping.	There is no connection between the fire system and the sanitary water system. The only connection between the fire main and the service water system is through a Jockey Pump This pump uses service water as the source for maintaining the fire system pressurized during standby operation. This pump and service water connection are automatically isolated upon startup of the fire system pumps by means of a check valve. Also, the pump and service water connection can be isolated by closure of two isolation valves installed in the connection line. This installation and capacity to isolate is acceptable according to Appendix A to Branch Technical Position APCSB 9.5-1.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
106	APCSB 9.5-1 IV.C.2 (b)	A common yard fire main loop may serve multi-unit nuclear power plant sites, if cross-connected between units. Sectional control valves should permit maintaining independence of the individual loop around each unit. For such installations, common water supplies may also be utilized. The water supply should be sized for the largest single expected flow. Simultaneous fires in more than one reactor unit need not be considered. Due to separation requirements, a fire involving more than one reactor unit need not be considered except for facilities shared between units.	Monticello is a single unit nuclear power plant site and this guideline does not apply.	
107	APCSB 9.5-1 IV.C.2 (c)	If pumps are required to provide pressure and/or flow requirements (for a fire protection water supply system), redundant 100% capacity pumps should be provided. Each pump should have its own independent water supply. The connection to the yard fire main loop from each fire pump should be widely separated, preferably located on opposite side of the plant. Each pump should have its own driver with independent power supplies and control. At least one pump should be driven by non-electrical means, preferably diesel engine. Pumps and drivers should be located in rooms, separated from the remaining pumps and equipment by a minimum three-hour fire wall. Alarms indicating pump running, driver availability, or failure to start should be provided in the control room. Details of the fire pump installation should as a minimum conform to NFPA No. 20, "Standard for the Installation of Centrifugal Fire Pumps."	There are three 100% capacity pumps; a 1500 gpm electric motor-driven vertical centrifugal fire pump, a 1500 gpm diesel driven vertical centrifugal fire pump, and an additional back-up 1500 gpm electric motor driven vertical centrifugal pump normally assigned as a screen wash pump. The diesel driven pump takes its suction from a different intake bay than the electrically driven pumps. The connections to the yard fire main loop for the diesel fire pump and the electrically driven pumps are separated by approximately 50 feet. Each pump has its own driver with independent power supplies and controls. The diesel fire pump and driver are located in structures which are separated from the remaining pumps and equipment by a minimum three-hour fire wall. Both fire pumps have alarms in the control room indicating pump running and loss of power (driver availability). Details of the fire pump installation conform to NFPA No. 20 "Standard for the Installation of Centrifugal Fire Pumps".	
108	APCSB 9.5-1 IV.C.2 (d)	Two separate reliable water supplies should be provided (for the fire protection water supply system).	The fire system utilizes one source of water (the Mississippi River) for its supply. There are two paths by which water can be taken from the river; the normal plant intake and the cooling tower return line to the plant.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
109	APCSB 9.5-1 IV.C.2 (e)	The fire water supply (total capacity and flow rate) should be calculated on the basis of largest expected flow rate for a period of two hours, but not less than 300,000 gallons. This flow rate should be based (conservatively) on 1000 gpm for manual hose streams plus the greater of: (1) all sprinkler heads opened and flowing in the largest designed fire area; or (2) the largest open head deluge system(s) operating.	The fire water supply is the Mississippi River.	
110	APCSB 9.5-1 IV.C.2 (f)	Lakes or fresh water ponds of sufficient size may qualify as sole source of water for fire protection, but require at least two intakes to the pump supply.	No lakes or ponds are utilized as the source of water for fire protection. There are two methods of supplying river water for fire protection. Refer to Item 108.	
111	APCSB 9.5-1 IV.C.2 (f)	When a common water supply is permitted for fire protection and the ultimate heat sink, the following conditions should also be satisfied: (1) the additional fire protection water requirements are designed into the total storage capacity; and (2) failure of the fire protection system should not degrade the function of the ultimate heat sink.	The water supply for fire protection and the ultimate heat sink is the Mississippi River. The additional fire protection water requirements do not affect the capacity of the water supply. Failure of the fire protection system will not degrade the function of the ultimate heat sink.	
112	APCSB 9.5-1 IV.C.2 (g)	Outside manual hose installation should be sufficient to reach any location with an effective hose stream. To accomplish this, hydrants should be installed approximately every 250 feet on the yard main system.	Outside manual hose stations are sufficient to reach any location with an effective hose stream. The hydrants are installed at approximately 220 feet intervals along our yard main system.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
113	APCSB 9.5-1 IV.C.2 (g)	The lateral to each hydrant on the yard main system should be controlled by a visually indicating or key operated (curb) valve.	The laterals from our yard main are controlled by visually indicating valves.	
114	APCSB 9.5-1 IV.C.2 (g)	A hose house, equipped with hose and combination nozzle and other auxiliary equipment recommended in NFPA No. 24, "Outside Protection," should be provided as needed, but at least every 1000 feet.	The hose houses are built around hydrants which are spaced at 220' intervals. The equipment furnished with each hose house does not correspond to the list suggested by NFPA 24, however, the equipment provided meets NELPIA requirements.	
115	APCSB 9.5-1 IV.C.2 (g)	Threads compatible with those used by local fire departments should be provided on all hydrants, hose couplings, and standpipe risers.	All threads are compatible with those used by the local fire department.	
116	APCSB 9.5-1 IV.C.3 (a)	Water Sprinkler and Hose Standpipe Systems Each automatic sprinkler system and manual hose station should have an independent connection to the plant underground water main. Headers fed from each end are permitted inside buildings to supply multiple sprinkler and standpipe systems. When provided, such headers are considered an extension of the yard main system. Such headers should be located in seperate valve rooms with three-hour fire rated walls and with interior and exterior access.	The automatic sprinkler systems and manual hose stations inside the plant do not meet these requirements.	Any decisions made concerning modifications t the sprinkler systems, hose stations, or supply piping will be made following completion of the fire hazards analysis.
117	APCSB 9.5-1 IV.C.3 (a)	Each sprinkler and standpipe system should be equipped with OS&Y (outside screw and yoke) gate valve, or other approved shut off valve, and water flow alarm.	All shutoff valves for our sprinkler system are OS&Y gate valves. Also, all of our sprinkler systems have a water gong with the exception of the M-G set room which has an alarm bell operated by the trip weight in the clapper valve.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
118	APCSB 9.5-1 IV.C.3 (a)	Safety related equipment which does not itself require sprinkler water fire protection, but is subject to unacceptable damage if wetted by sprinkler water discharge, should be protected by water shields or baffles.	There is no safety related equipment which is subject to unacceptable damage if wetted by sprinkler water discharge. The equipment listed in response to Item 42 is subject only to hose or extinguisher water discharge.	
119	APCSB 9.5-1 IV.C.3 (b)	All valves in the fire water systems should be electrically supervised. The electrical supervision signal should indicate in the control room and other appropriate command locations in the plant. Refer to NFPA No. 26, "supervision of Valves."	The isolation valves for each sprinkler system in the plant (except for the Recirc M-G set sprinklers and the lube oil piping sprinkler system under the turbine floor) are electrically supervised in the control room. The Recirc M-G set sprinkler system isolation valves are electrically supervised locally. The lube oil piping sprinkler system isolation valve is maintained locked open and the key is controlled by the shift supervisor. The deluge header to the main transformer, 1R startup transformer, #11 auxiliary transformer, and turbine building siding deluges contains an isolation valve that is also electrically supervised and indicates in the control room. No other valves in the fire water system are electrically supervised.	Electrical supervision of the remaining valves in the fire water system is not practical due to the large number of valves involved. As an alternative, the present management supervision program of the valves will be upgraded with the addition of the following: 1) Where not presently provided, tamper proof seals will be installed on fire water system valves. 2) Every valve in the fire water system will be inspected on a more frequent basis. This will provide a reliable, appropriate, and practical alternative method of supervision. This is consistent with Appendix A to Branch Technical Position APCSB 9.5-1.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
120	APCSB 9.5-1 IV.C.3 (c)	Automatic sprinkler systems should as a minimum conform to the requirements of appropriate NFPA Standards such as NFPA No. 13, "Standard for the Installation of Sprinkler Systems," and NFPA No. 15, "Standard for Water Spray Fixed Systems."	The original design specifications required that systems comply with the requirements of NFPA No. 13 and NFPA No. 15. The sprinklers in the recirculation pump M-G set room were not involved in the original plant design, however, they also comply with these standards.	
121	APCSB 9.5-1 IV.C.3 (d)	Interior manual hose installation should be able to reach any location with at least one effective hose stream. To accomplish this, standpipes with hose connections, equipped with a maximum of 75 feet of 1-1/2 inch woven jacket-lined fire hose and suitable nozzles should be provided in all buildings, including containment, on all floors and should be spaced at not more than 100 foot intervals. Individual standpipes should be of at least 4-inch diameter for multiple hose connections and 2-1/2 inch diameter for single hose connections. These systems should follow the requirements of NFPA No. 14, "Standpipe and Hose Systems," for sizing, spacing, and pipe support requirements.	Our hose connections are equipped with 75' of 1½" unlined linen hose. All hoses are inspected for servicability on an annual basis. Hoses showing signs of deterioration will be replaced. All nozzles are designed for fighting electrical fires. In some cases the hose stations are spaced at slightly more than 100' intervals, however effective hose stream coverage is available at all locations as required by NFPA No. 14, with the exception of the torus area. In some cases we do not meet 4" diameter multiple connection and 2½" diameter single connection standpipe requirements. However, the system was designed to meet National Fire Code requirements and we believe the standpipe sizing is adequate. Hose stations are not provided in primary containment. Refer to Items 138 and 139.	Additional hose stations will be installed in the torus area.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
122	APCSB 9.5-1 IV.C.3 (d)	Hose stations should be located outside entrances to normally unoccupied areas and inside normally occupied areas.	We meet this requirement with the exception of the control room. Refer to Item No. 142.	
123	APCSB 9.5-1 IV.C.3 (d)	Standpipes serving hose stations in areas housing safety related equipment should have shut-off valves and pressure reducing devices (if applicable) outside the area.	We do not use pressure reducing devices since they are not required if the system pressure doesn't exceed 100 psi (NFPA #14). There are shut-off valves located at each of the hose stations. All supply headers off the yard ring header have post indication valves located outside the areas being served.	
124	APCSB 9.5-1 IV.C.3 (d)	Provisions should be made to supply water at least to standpipes and hose connections for manual fire fighting in areas within hose reach of equipment required for safe plant shutdown in the event of a SSE.	See response to Item 121.	
125	APCSB 9.5-1 IV.C.3 (d)	The standpipe system serving hose stations in areas within hose reach of equipment required for safe plant shutdown should be analyzed for SSE loading and be provided with supports to assure system pressure integrity. Associated piping and valves should at least satisfy ANSI B31.1, "Power Piping." The water supply for this condition may be obtained by manual operator actuation of valve(s) in a connection to the hose standpipe header from a normal seismic Category I water system such as the Essential Service Water System. In this case, the cross connection should be: (a) capable of providing flow to at least two hose stations (approximately 150 gpm per hose station). (b) designed to the same standards as the seismic Categroy I water system and should not degrade the performance of the seismic Category I water system.	Appendix A to Branch Technical Position APCSB 9.5-1 indicates that this item is not applicable for operating plants.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
126	APCSB 9.5-1 IV.C.3 (e)	The proper type of hose nozzle to be supplied in each area should be based on the fire hazard analysis. The usual combination spray straight stream may cause unacceptable mechanical damage, (for instance delicate electronic equipment in the control room) and be unsuitable. Electrically safe nozzles should be provided at locations where electrical equipment or cabling is located.	We use electrically safe nozzles throughout the plant.	
127	APCSB 9.5-1 IV.C.3 (f)	Consideration should be given to the use of any of the available foams for specialized protection application (flammable liquids).	Foams are not currently used.	The use of available foams is being considered.
128	APCSB 9.5-1 IV.C.4	Halon Suppression Systems The use of Halon fire extinguishing agents should as a minimum comply with the requirements of NFPA No. 12A and No. 12B, "Halogenated Fire Extinguishing Agent Systems - Halon 1301 and Halon 1211."	Not applicable. No Halon systems or extinguishers are installed.	
129	APCSB 9.5-1 IV.C.4	Only UL or FM approved Halon fire extinguishing agents should be used.	Not applicable. No Halon systems or extinguishers are installed.	
130	APCSB 9.5-1 IV.C.4	Preventive maintenance and testing of Halon fire extinguishing systems, including check weighing of the Halon cylinders, should be done at least quarterly. Consideration should be given to: (a) minimum required Halon concentration and soak time. (b) toxicity of Halon. (c) toxicity and corrosive characteristics of thermal decomposition products of Halon.	Not applicable. No Halon systems or extinguishers are installed.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
131	APCSB 9.5-1 IV.C.5	Carbon Dioxide Suppression Systems The use of carbon dioxide extinguishing sytems should as a minimum comply with the requirements of NFPA No. 12, "Carbon Dioxide Extinguishing Systems." Particular consideration should also be given to: (a) minimum required CO_2 concentration and soak time. (b) toxicity of CO_2. (c) possibility of secondary thermal shock (cooling) damage. (d) offsetting requirements for venting during CO_2 injection to prevent overpressurization versus sealing to prevent loss of agent. (e) design requirements from overpressurization. (f) possibility and probability of CO_2 systems being out of service due to personnel safety consideration (CO_2 systems are disarmed whenever people are present in an area so protected).	Not applicable. No CO_2 systems are installed. Systems which may be installed in the future will comply with NFPA 12.	
132	APCSB 9.5-1 IV.C.6	Portable Extinguishers Portable extinguishers should be provided in accordance with guidelines of NFPA No. 10 and No. 10A, "Portable Fire Extinguishers, Installation" and "Portable Fire Extinguishers, Maintenance and Use." Dry chemical extinguishers should be installed with due consideration given to cleanup problems after use and possible adverse effects on equipment installed in the area.	Portable extinguishers were originally located in accordance with NFPA No 10.	We will evaluate all areas of the plant to determine that the proper type of extinguishe is still being utilized in each area.
133	APCSB 9.5-1 IV.D.1 (a)	Guidelines for Specific Plant Areas Primary and Secondary Containment Normal Operation Fire protection requirements for the primary and secondary containment areas should be provided on the bases of specific identified hazards. For example: (a) lubricating oil or hydraulic fluid (b) cable tray arrangements and cable penetrations (c) charcoal filters	Existing fire protection provisions for the primary and secondary containment are discussed in Items 138 and 139.	A decision concerning installation of additional provisions will be made following completion of the fire hazards analysis.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
134	APCSB 9.5-1 IV.D.1 (a)	Primary containment and secondary containment (if normally inaccessable) should be provided with fire protection from automatic fixed systems. Automatic sprinklers should be installed for those hazards identified as requiring fixed suppression.	Primary containment is inerted during normal operation, and therefore automatic fire suppression capability is not required.	The fire hazards analysis now in progress will determine if fire protection systems installed in the reactor building (secondary containment) are adequate.
135	APCSB 9.5-1 IV.D.1 (a)	Operation of the fire protection systems should not compromise containment integrity and/or other safety related systems. Fire protection activities in the containment areas should function in conjunction with total containment requirements such as ventilation, control of contaminated liquid, and gaseous release.	Operation of fire protection systems will not compromise containment integrity. Operation of fire protection equipment near safety related systems is discussed in Item 11. Control of ventilation and gaseous releases is not degraded by fire protection activities. All liquids entering drains in containment are controlled.	
136	APCSB 9.5-1 IV.D.1 (a)	Fire detection systems (installed in containment) should alarm and annunciate in the control room. These systems should utilize detection and location most suitable to the particular type of fire expected from the identified hazard.	There are currently no fire alarms located within the primary containment.	A decision concerning installation of such alarms will be made following completion of the fire hazards analysis.
137	APCSB 9.5-1 IV.D.1 (a)	A primary containment general area fire detection capability should be provided as backup for specific hazard detection alarms. To accomplish this, suitable smoke detectors should be installed in the air recirculation system ahead of any filters.	See Item No. 136.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
138	APCSB 9.5-1 IV.D.1 (a)	Automatic fire suppression capability need not be provided in the primary containment atmospheres that are inerted during normal operation. However, special fire protection requirements during refueling and maintenance operations must be satisfied.	Containment is inerted during normal operation. Special fire protection requirements during refueling and maintenance operations are considered in our work control processes (See response to Item #73).	
139	APCSB 9.5-1 IV.D.1 (b)	Refueling and Maintenance Manual fire fighting capability should be permanently installed in containment. Standpipes with hose stations, and portable fire extinguishers, should be installed at strategic locations throughout containment for any required manual fire fighting operations.	Standpipes with hose stations and portable fire extinguishers are installed at strategic locations throughout secondary containment. There is no fire fighting equipment installed inside primary containment. A hose station is located near the primary containment equipment hatch, which is normally open during refueling. Portable fire extinguishers are available for use inside containment during outages. Due to the primary containment environmental conditions and inaccessibility for inspection during normal operation, it is felt that permanent installation of hose stations and portable extinguishers is imprudent.	
140	APCSB 9.5-1 IV.D.1 (b)	Adequate self-contained breathing apparatus should be provided for fire fighting and damage control personnel and located near the containment entrances. These units should be independent of any breathing apparatus or air supply systems provided for general plant activities.	No self-contained breathing apparatus is currently located near the containment entrance.	Adequate self-contained breathing units will be located in the access control area to the reactor building. These units will not be used for general plant activities.
141	APCSB 9.5-1 IV.D.2	Control Room The control room must be protected aginst disabling fire damage and should be separated from other areas of the plant by floors, walls, and roof having minimum fire resistance ratings of three hours.	The control room is located in a building separate from the turbine and reactor buildings. This affords a high degree of protection, however a specific analysis has not been done.	A fire hazards analysis is being performed to determine the adequacy of the barriers protecting the control room.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
142	APCSB 9.5-1 IV.D.2	Manual fire fighting capability should be provided in the control room to combat: (a) fire originating within a cabinet or console (b) exposure fires involving combustibles in the general room area Hose stations and portable extinguishers should be located in the control room to eliminate the need for operators to leave the control room.	Two portable fire extinguishers (CO_2) are located inside the control room. A hose station is located outside the control room approximately 15 feet from the door. This complies with Appendix A to Branch Technical Position APCSB 9.5-1.	
143	APCSB 9.5-1 IV.D.2	An additional hose piping shut-off valve and pressure reducing device should be installed outside the control room.	This item is not applicable. (See response to Item 142).	
144	APCSB 9.5-1 IV.D.2	Nozzles which are compatible with the hazards and equipment in the control room should be provided for the manual hose station(s). The nozzles chosen should satisfy actual fire fighting needs and satisfy electrical safety and minimize physical damage to electrical equipment from hose stream impingement.	See response to Item 126.	
145	APCSB 9.5-1 IV.D.2	Fire detection in the control room, cabinets, and consoles should be provided by smoke and heat detectors in each fire area. Alarm and annunciation should be provided in the control room. Fire alarms in other parts of the plant should also be alarmed and annunciated in the conrol room.	There are no smoke or heat detectors in the control room. Alarms in other parts of the plant are discussed in Item 99.	A decision concerning installation of smoke or heat detectors in the control room will be made following completion of the fire hazards analysis.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
146	APCSB 9.5-1 IV.D.2	Breathing apparatus for control room operators should be readily available.	There are two self-contained breathing units located in the control room.	
147	APCSB 9.5-1 IV.D.2	Control room floors, floor-ceiling structures, and walls including penetrations and doors, should be designed to a minimum three-hour fire rating. All penetration seals should be air tight.	See response to Item 141.	
148	APCSB 9.5-1 IV.D.2	The control room ventilation intake should be provided with smoke detection capability to automatically alarm locally and isolate the control room ventilation system to protect operators by preventing smoke from entering the control room. Manually operated venting of the control room should be available so that operators have the option of venting for visibility.	The control room ventilation intake is not provided with smoke detection.	Modifications to meet detection, alarm and isolation requirements will be made. A manual override will be included in this modification.
149	APCSB 9.5-1 IV.D.2	Cables should not be located in concealed floor and ceiling spaces in the control room. All cables which enter the conrol room should terminate in the control room. That is, no cabling should be simply routed through the control room from one area to another.	See Item 49.	
150	APCSB 9.5-1 IV.D.2	Safety related equipment should be mounted on pedestals or the control room should have curbs and drains to direct water away from such equipment. Such drains should be provided with means for closing to maintain integrity of the control room in event of other accidents requiring control room isolation.	According to Appendix A to Branch Technical Position APCSB 9.5-1, this item is not applicable to operating plants. It is noted that there are no terminal boards or other safety related equipment within 6" of the control room floor. A hose would have to come through the control room door which would provide a method of drainage.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
151	APCSB 9.5-1 IV.D.3	Cable Spreading Room The primary fire suppression in the cable spreading room should be an automatic water system such as closed head sprinklers, open head deluge, or open directional spray nozzles. Deluge and open spray systems should have provisions for manual operation at a remote station; however, there should be provision to preclude inadvertent operation. Location of sprinkler heads or spray nozzles should consider cable tray sizing and arrangements to assure adequate water coverage. (see Item No. 155)	There is no automatic water system installed in the cable spreading room.	We will install a fixed system utilizing either CO_2 or Halon. A decision concerning installation of a water spray system will be made following completion of the fire hazards analysis.
152	APCSB 9.5-1 IV.D.3	Cables (in the spreading room) should be designed to allow wetting down with deluge water without electrical faulting.	See response to Item 40.	
153	APCSB 9.5-1 IV.D.3	Open head deluge and open directional spray systems should be zoned so that a single failure will not deprive automatic fire suppression capability to the entire area.	See response to Item 151.	
154	APCSB 9.5-1 IV.D.3	The automatic water suppression system should be backed up. Manual hoses and portable extinguishing equipment is acceptable for this provided: (a) at least two remote and separate entrances are provided to the room for access by fire brigade personnel; and (b) aisle separation provided between tray stacks should be at least three feet wide and eight feet high.	See response to Items 151 and 155.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
155	APCSB 9.5-1 IV.D.3	Alternately, gas systems (Halon or CO_2) may be used for primary fire suppression in the cable spreading room if they are backed up by an installed water spray system and hose stations and portable extinguishers immediately outside the room. The access provisions noted in (Item 154) should also be satisfied.	There are two remote and separate entrances to the cable spreading room. The cable spreading room layout does not lend itself to an analysis of accessibility based on "aisles" and "tray stacks." However, the room layout is open and all cable tray areas are accessible for fire fighting. Two portable extinguishers are located inside the cable spreading room. Two hose stations are located immediately outside the room (one by each remote entrance). There are portable extinguishers located immediately outside the cable spreading room. All of this equipment can be effectively used in the room.	
156	APCSB 9.5-1 IV.D.3	Electric cable construction in the cable spreading room should as a minimum pass the IEEE 383 flame test.	See response to Item 45.	
157	APCSB 9.5-1 IV.D.3	Drains to remove fire fighting water should be provided in the cable spreading room with adequate sealing provided when gas extinguishing systems are also installed.	There are no drains in the cable spreading room. However drainage through doorways used for manual fire fighting with hoses is adequate for that purpose.	Additional drainage will be considered if a water sprinkler system is installed. (See response to Item 151.)
158	APCSB 9.5-1 IV.D.3	Redundant safety cable divisions should be separated by three-hour fire rated walls.	There is divisional cable separation. Concrete walls with sealed penetrations surround the cable spreading room. If these walls are found to have a sufficient fire rating on completion fo the fire hazards analysis, separation will meet requirements.	The fire hazards analysis will investigate the adequacy of the cable spreading room walls.
159	APCSB 9.5-1 IV.D.3	For multiple reactor unit sites, cable spreading rooms should not be shared between reactors. Each cable spreading room of each unit should have divisional cable separation and be separated from the other and the rest of the plant by a minimum three-hour rated fire wall (refer to NFPA No. 251, "Fire Tests, Building Construction and Materials" or ASTM E-119, "Fire Test of Building Construction and Materials" for fire test resistance rating).	Not applicable to a single unit site. Refer to Item 158 for discussion of divisional separation.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
160	APCSB 9.5-1 IV.D.3	The ventilation system to the cable spreading room should be designed to isolate the area upon actuation of any gas extinguishing system in the area.	There is presently no gas extinguishing system for the cable spreading room.	This requirement will be considered when the gas extinguishing system is installed. (See response to Item 151.)
161	APCSB 9.5-1 IV.D.3	Smoke venting of the cable spreading room may be desirable. Smoke venting systems should be controlled automatically by the fire detection and/or suppression system as appropriate. Capability for remote manual control should also be provided.	The ventilation system for the cable spreading room can be manually operated from a remote location for smoke venting.	Automatic control of the ventilation system will be considered in conjunction with the gas extinguishing system installation. (See response to Item 151.)
162	APCSB 9.5-1 IV.D.4	Computer Room Computer rooms should be separated from other areas of the plant by barriers having minimum three-hour fire resistance rating.	The computer room is not separated from other areas of the plant by barriers having a minimum 3 hour fire resistance rating. The process computer is not safety related. The rod worth minimizer computer is not required for safe plant shutdown. Therefore no modifications are considered necessary.	
163	APCSB 9.5-1 IV.D.4	Automatic fire detection should be provided in the computer room to alarm and annunciate in the control room and alarm locally.	Thermocouples are installed in all computer cabinets and alarm in the control room on high temperature. The high temperature alarms are considered adequate for early fire detection.	
164	APCSB 9.5-1 IV.D.4	Manual hose stations and portable water and halon fire extinguishers should be provided in the computer room.	There are no hose stations or portable extinguishers located in the computer room. There is a hose station and portable extinguisher located immediately outside the computer room. The process computer is not safety-related. The Rod Worth Minimizer computer is not required for safe shutdown of the plant. Considering the above and the small size of the computer room, it is felt that the existing fire suppression provisions are appropriate and adequate.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
165	APCSB 9.5-1 IV.D.5	Switchgear Rooms Switchgear rooms should be separated from the remainder of the plant by minimum three-hour rated fire barriers.	Switchgear is not located in distinct rooms. Fire protection for these areas is described in Items 167 and 170.	A decision concerning the need and practicality of providing fire barriers will be made following completion of the fire hazards analysis.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
166	APCSB 9.5-1 IV.D.5	Redundant switchgear safety divisions should be separated by three-hour fire rated barriers.	The redundant switchgear safety divisions are not separated by 3 hour fire barriers. The two divisions are located on separate levels of the turbine building.	A decision concerning the need and practicality of providing additional fire barriers will be made following completion of the fire hazards analysis.
167	APCSB 9.5-1 IV.D.5	Automatic fire detectors should be installed in switchgear rooms. They should alarm and annunciate in the control room and alarm locally.	Switchgear is not contained in distinct rooms. The switchgear areas are provided with fire detectors which alarm locally and annunciate in the control room.	
168	APCSB 9.5-1 IV.D.5	All cables which enter the switchgear rooms should terminate there.	There are no switchgear rooms but rather switchgear areas in the north-west corner of the turbine building on elevations 911' and 931'. The majority of cables that enter these areas are terminated in the switchgear. Cable runs through the switchgear areas are held to the minimum practical. The probability of these cables becoming an ignition source is extremely low since their energy sources are fused or monitored by protecteive relaying. The cables do not account for an appreciable amount of additional flamable material in the lower switchgear area. Destruction of these cables by fire will not result in loss of essential power from the upper switchgear area. It is felt that the cable routing through the switchgear areas is satisfactory.	
169	APCSB 9.5-1 IV.D.5	Switchgear rooms should not be used for any other purpose.	The switchgear in the plant is not contained in distinct rooms. The switchgear areas are not used for any other purpose.	
170	APCSB 9.5-1 IV.D.5	Fire hose stations and portable fire extinguishers should be readily available in switchgear rooms.	The 4160 V Switchgear is not located in rooms but in two distinct areas. A fire hose station and portable extinguishers are located in each area.	
171	APCSB 9.5-1 IV.D.5	Equipment in switchgear rooms should be located on pedestals or curbs and drains should be provided to direct water away from safety related equipment (refer to NFPA No. 92M, "Waterproofing and Draining of Floors").	Equipment in switchgear areas is not located on pedestals and no curbs are provided. An accumulation of 4" of water would be required to affect breaker operation. Drainage is adequate to preclude the accumulation of this amount of water.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
172	APCSB 9.5-1 IV.D.5	Remote manual actuated ventilation should be provided for venting smoke from switchgear rooms when manual fire suppression effort is needed.	There is adequate gravity venting of this area for smoke removal (see response to Item 60).	
173	APCSB 9.5-1 IV.D.6	Remote Safety Related Panels The general area housing remote safety related panels should be provided with automatic fire detectors that alarm locally and alarm and annunciate in the control room.	The 4 KV switchgear area and the standby gas treatment system area are provided with automatic fire detectors that alarm locally and annunciate in the control room. Other remote safety related panels do not have automatic fire detectors.	A decision concerning installation of such detectors will be made following completion of the fire hazards analysis.
174	APCSB 9.5-1 IV.D.6	Combustible materials in the general area of remote safety related panels should be controlled and limited to those required for operation.	See response to Item 73.	
175	APCSB 9.5-1 IV.D.6	Portable extinguishers and manual hose stations should be provided in the general area of remote safety related panels.	Fire hose stations and portable fire extinguishers provide adequate coverage for all the remote safety related panels.	
176	APCSB 9.5-1 IV.D.7	Station Battery Rooms Battery rooms should be separated from each other and from other areas of the plant by barriers having a minimum three-hour fire rating inclusive of all penetrations and openings. Refer to NFPA No. 69, "Standard on Explosion Prevention Systems."	The battery room barriers do not meet the minimum 3-hour fire rating.	The fire hazards analysis will determine the adequacy of the existing barriers.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
177	APCSB 9.5-1 IV.D.7	Battery rooms should be provided with hydrogen concentration detectors which should alarm and annunciate in the control room and alarm locally. The detector alarm set point should be no greater than 2 v/o hydrogen concentration.	There are no hydrogen concentration detectors located in the battery rooms. It is felt that such detectors are not necessary as the ventilation system for this area includes redundant exhaust fans supplied with essential power. (See response to Item 178.)	
178	APCSB 9.5-1 IV.D.7	Ventilation systems in battery rooms should be capable of maintaining the hydrogen concentration well below the detector alarm set point.	The ventilation system for the battery room is capable of preventing hydrogen buildup.	
179	APCSB 9.5-1 IV.D.7	Standpipe and hose and portable extinguishers should be provided in the battery rooms.	Standpipes, hoses, and portable extinguishers are not located inside the battery rooms. Item 122 recommends that hose stations should be located ousdie entrances to normally unoccupied areas. Battery rooms are not normally occupied. A fire hose station is located in the hallway outside the three battery rooms with enough hose to reach all areas of these rooms. Portable dry chemical and CO_2 extinguishers are located in the hallway outside these rooms. Considering the above, and the small size of the battery rooms, it is felt that the existing fire protection provisions are appropriate and adequate.	
180	APCSB 9.5-1 IV.D.8	Turbine Lubrication and Control Oil Storage A blank fire wall having a minimum resistance rating of three hours should separate all areas containing safety related systems and equipment from the turbine oil systems.	See response to Item 17.	
181	APCSB 9.5-1 IV.D.9	Diesel Generator Areas Diesel generators should be separated from each other and from other areas of the plant by fire barriers having a minimum three-hour fire resistance rating.	The diesel generator fire barriers do not meet the minimum 3-hour fire resistance rating.	The fire hazards analysis will determine the adequacy of the existing barriers.
182	APCSB 9.5-1 IV.D.9	Automatic fire suppression such as AFFF, foam, or sprinklers should be installed to combat any diesel generator and/or lubricating oil fires.	There are no automatic fire suppression systems installed in the diesel generator rooms.	A decision concerning installation of such a system will be made following completion of the fire hazards analysis.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
183	APCSB 9.5-1 IV.D.9	Automatic fire detection should be provided in the diesel generator areas to alarm and annunciate in the control room and alarm locally.	There are no automatic fire detection devices in the diesel generator area.	A decision concerning the installation of such devices will be made following completion of the fire hazards analysis.
184	APCSB 9.5-1 IV.D.9	Drainage for fire fighting water should be provided in the diesel generator areas.	There is adequate drainage in the emergency diesel generator rooms to remove expected fire fighting water flow.	
185	APCSB 9.5-1 IV.D.9	Means for local manual venting of smoke should be provided in the diesel generator areas.	Diesel generator room ventilation has local manual controls.	
186	APCSB 9.5-1 IV.D.9	Day tanks should not be permitted in the diesel generator areas unless: (a) the day tank is located in a separate enclosure with minimum fire resistance of three hours, including doors or penetrations. These enclosures should be capable of containing the entire contents of the day tanks. The enclosure should be ventilated to avoid accumulation of oil fumes. (b) the enclosure should be protected by automatic fire suppression systems such as AFFF or sprinklers.	The diesel day tanks are located in the diesel generator area in separate enclosures. The doors to the day tank rooms have a three hour fire rating. The walls are not three hour fire rated. The enclosures are capable of containing the entire contents of the day tanks. The enclosures do not have an installed ventilation system and there is no automatic fire suppression system installed for protection. Hose stations and portable extinguishers are located near these areas.	A decision concerning modifications associated with the diesel generator day tank areas will be made following completion of the fire hazards analysis.
187	APCSB 9.5-1 IV.D.10	Diesel Fuel Oil Storage Areas Diesel oil fuel tanks greater than 1100 gallons capacity should not be located inside buildings containing safety related equipment. They should be at least 50 feet distant from any building containing safety related equipment, or if located within 50 feet, they should be housed in a separate building with construction having minimum fire resistance rating of three hours. Buried tanks are considered to meet the three-hour requirement (refer to NFPA No. 30).	There are 3 diesel oil fuel tanks greater than 1100 gallon capacity. A storage tank of 60,000 gallon capacity is buried. Each diesel generator day tank has a 1500 gallon capacity and is located in separate enclosures which are within 50 feet of the diesel generators. (See response to Item 186.)	A decision concerning modifications associated with the diesel generator day tank areas will be made following completion of the fire hazards analysis.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
188	APCSB 9.5-1 IV.D.10	When located in a separate building, diesel fuel oil storage tanks should be protected by an automatic fire suppression system such as AFFF or sprinklers.	See response to Item 186.	
189	APCSB 9.5-1 IV.D.10	Diesel fuel oil storage tanks should not be located directly above or below safety related systems or equipment regardless of the fire rating of separating floors or ceilings.	None of the diesel fuel oil storage tanks are located directly above or below safety-related systems or equipment.	
190	APCSB 9.5-1 IV.D.11	Safety Related Pumps Pump houses and rooms housing safety related pumps should be separated from other areas of the plant by fire barriers having at least a three-hour rating.	See response to Item 17.	
191	APCSB 9.5-1 IV.D.11	Rooms housing safety related pumps should be protected by automatic sprinkler protection unless a fire hazards analysis can demonstrate that a fire will not endanger other safety related equipment required for safe plant shutdown.	There is no automatic sprinkler protection provided for rooms housing safety related pumps.	A decision concerning installation of such protection will be made following completion of the fire hazards analysis.
192	APCSB 9.5-1 IV.D.11	Early warning fire detection should be installed in each area housing safety related pumps with alarm and annuciation locally and in the control room.	Most areas housing safety-related pumps do not have fire detection devices.	A decision concerning installation of such devices will be made following completion of the fire hazards analysis.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
193	APCSB 9.5-1 IV.D.11	Local hose stations and portable extinguishers should be provided in each area housing safety related pumps.	Local hose stations and portable extinguishers are provided for each area housing safety related pumps.	
194	APCSB 9.5-1 IV.D.11	Equipment pedestals or curbs and drains should be provided to remove and direct water away from safety related equipment in safety related pump areas.	There is no safety-related equipment in safety-related pump areas that would be damaged or made inoperable by the accumulation of fire fighting water. All safety-related pump areas are provided with drains that will remove the expected fire fighting water flow. The safety related pumps are either on pedestals or are the vertical type which an accumulation of water would not harm.	
195	APCSB 9.5-1 IV.D.11	Provisions should be made for manual control of the ventilation system in safety related pump areas to facilitate smoke removal if required for manual fire fighting operation.	The ventilation systems serving safety-related pump areas have manual controls.	
196	APCSB 9.5-1 IV.D.12	New Fuel Area Hand portable extinguishers should be located within the new fuel area.	There are four hand portable extinguishers located on the refueling floor.	
197	APCSB 9.5-1 IV.D.12	Local hose stations should be located outside but within hose reach of the new fuel area.	There are two hose stations located within 40 feet of the new fuel vault.	
198	APCSB 9.5-1 IV.D.12	Automatic fire detection should alarm and annunciate in the control room and alarm locally on indication of fire in the new fuel area.	There are no fire detection devices in the new fuel area.	A decision concerning installation of such devices will be made following completion of the fire hazards analysis.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
199	APCSB 9.5-1 IV.D.12	Combustibles should be limited to a minimum in the new fuel area.	See response to Item 73.	
200	APCSB 9.5-1 IV.D.12	The new fuel area should be provided with a drainage system to preclude accumulation of water.	Adequate drainage is provided for the new fuel area.	
201	APCSB 9.5-1 IV.D.12	Storage configuration of new fuel should always be maintained to preclude criticality for any water density that might occur during fire water application.	Available fire fighting equipment in new fuel storage areas will not produce water densities in range to produce criticality. Maximum reactivity occurs at water densities in range of 0.1 to 0.2 g/cc. Fog nozzles produce densities less than 0.01 g/cc.	
202	APCSB 9.5-1 IV.D.13	Spent Fuel Pool Area Protection for the spent fuel pool area should be provided by local hose stations and portable extinguishers.	The spent fuel pool is within reach of three different hose stations. A dry chemical extinguisher is located within 20' of the spent fuel pool. Three other extinguishers are located on the refueling floor.	
203	APCSB 9.5-1 IV.D.13	Automatic fire detection should be provided in the spent fuel pool area to alarm and annunciate in the control room and to alarm locally.	There are no fire detection devices located in the spent fuel pool area.	A decision concerning installation of such devices will be made following completion of the fire hazards analysis.
204	APCSB 9.5-1 IV.D.14	Radwaste Building The radwaste building should be separated from other areas of the plant by fire barriers having at least three-hour ratings.	The radwaste building is separated from the reactor building by walls and doors having a 3-hour fire rating. However, the ventilation ducts penetrating this barrier are not provided with fire dampers. There is no equipment located in the radwaste building that is required for safe plant shutdown.	A decision concerning installation of fire dampers will be made following completion of the fire hazards analysis.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
205	APCSB 9.5-1 IV.D.14	Automatic sprinklers should be used in all areas of the radwaste building where combustible materials are located.	There are no automatic sprinklers in the radwaste building.	A decision concerning the installation of such systems will be made following the completion of the fire hazards analysis.
206	APCSB 9.5-1 IV.D.14	Automatic fire detection should be provided in the radwaste building to annunciate and alarm in the control room and alarm locally.	Automatic fire detection devices do not exist in the radwaste building.	A decision concerning installation of such devices will be made following completion of the fire hazards analysis.
207	APCSB 9.5-1 IV.D.14	During a fire in the radwaste building, the ventilation system should be capable of being isolated.	The radwaste building ventilation systems are capable of being isolated. Isolation is accomplished by shutdown of the supply and exhaust fans. The fans can be shutdown from the radwaste control room or from their respective breakers located in the reactor building.	
208	APCSB 9.5-1 IV.D.14	Water from fire fighting in the radwaste building should drain to the liquid radwaste building sumps.	All drains in the radwaste building are part of the open radwaste system.	
209	APCSB 9.5-1 IV.D.15	Decontamination Areas The decontamination areas should be separated from other areas of the plant by fire barriers having at least three hour ratings.	The decontamination area is not separated from other areas of the plant by fire barriers having 3-hour ratings. It is felt that such barriers are not needed for the reasons stated in the response to Item 210.	
210	APCSB 9.5-1 IV.D.15	Decontamination areas should be protected by automatic sprinklers.	The decontamination area is not protected by automatic sprinklers. It is felt that automatic sprinklers are not needed because there are few combustibles stored in this area. There are two hose stations and two portable extinguishers located near this area. There is no safety related equipment located nearby.	
211	APCSB 9.5-1 IV.D.15	The ventilation systems serving the decontamination areas should be capable of being isolated.	The decontamination area is located in an open area of the reactor building. The reactor ventilation system is capable of being isolated.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
212	APCSB 9.5-1 IV.D.15	Local hose stations and hand portable extinguishers should be provided as a backup to the sprinkler system in the decontamination areas.	See response to Item No. 210.	
213	APCSB 9.5-1 IV.D.16	Safety Related Water Tanks Storage tanks which supply water for safe shutdown should be protected from the effects of fire. Total hose stations and portable extinguishers should be provided. Portable extinguishers should be located in nearby hose houses.	There are two hose stations in the immediate vicinity of the condensate storage tanks.	We will provide a portable extinguisher for each of these hose stations.
214	APCSB 9.5-1 IV.D.16	Combustible materials should not be stored next to outdoor safety related water tanks. A separation of 50 feet between outdoor tanks and combustible materials should be provided.	There are no combustible materials stored within 50' of the outdoor safety related tanks (condensate storage tanks).	
215	APCSB 9.5-1 IV.D.17	Records Storage Areas Records storage areas should be protected with automatic reaction sprinkler systems.	Our existing records storage areas are not protected with automatic sprinkler systems.	A records storage area which meets the guidelines of Regulatory Guide 1.88 will be constructed.
216	APCSB 9.5-1 IV.D.17	Early warning fire detectors should be provided in records storage areas to alarm and annunciate in the control room and to alarm locally.	There are no early warning fire detectors provided in records storage areas.	A records storage area which meets the guidelines of Regulatory Guide 1.88 will be constructed.
217	APCSB 9.5-1 IV.D.17	Local hose stations and portable extinguishers should serve as backup in records storage areas. Refer to NFPA No. 232AM, "Manual for Fire Protection for Archives and Record Centers," Regulatory Guide 1.88, and ANSI N45.2.9.	Fire hose stations and portable extinguishers are provided for records storage areas.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
218	APCSB 9.5-1 IV.D.17	Cooling Towers Cooling towers should be of non-combustible construction or so located that a fire will not adversely affect any safety related systems or equipment. Cooling towers should be of non-combustible construction when the basins are used for the ultimate heat sink or for the fire protection water supply.	The cooling towers are of combustible construction, but are located so that a fire would not adversely affect any safety related systems or equipment. The cooling tower basins are not used for the ultimate heat sink. The towers may be used as a backup water supply for the fire protection system. Fire protection is provided for the towers by automatic sprinkler systems and hose stations strategically located. Since no single fire in conjunction with a single impairment of the fire protection system would disable the fire protection water supply, the existing design is considered to be adequate.	
219	APCSB 9.5-1 IV.D.18	Miscellaneous Areas Miscellaneous areas such as shops, warehouses, and auxiliary boiler rooms should be so located that a fire or effects of a fire, including smoke, will not adversely affect any safety related systems or equipment.	All miscellaneous areas such as shops, warehouses, and the auxiliary boiler room are either located in separate structures, attached to the turbine building or in separate structures remotely located from the reactor and turbine buildings. All of these areas are located so that a fire or effects of a fire, including smoke, will not adversely affect any safety related systems or equipment.	
220	APCSB 9.5-1 IV.D.18	Fuel oil tanks for auxiliary boilers should be buried or provided with dikes to contain the entire tank contents.	A dike is provided below the heating boiler day tank that has the capacity to contain the entire contents of the tank.	
221	APCSB 9.5-1 IV.E.1	Special Protection Guidelines Welding and Cutting, Acetylene-Oxygen Fuel Storage locations for Acetylene-Oxygen fuel systems should be chosen to permit fire protection by automatic sprinkler systems.	No fixed piping systems for cutting and welding operations utilizing oxygen and acetylene are installed in the plant. There is a permanent welding station in the hot machine shop consisting of two bottles and a manifold. A hose station and portable fire extinguisher are located within the shop. There are four portable carts which are moved to work areas as necessary. Hose stations and portable extinguishers are located throughout the plant. No general stoarge area is maintained within the plant. Spare bottles are stored in a warehouse which is protected by automatic sprinklers.	In addition to current measures, a portable extinguisher will be mounted on each welding cart.
222	APCSB 9.5-1 IV.E.1	Local hose stations and portable equipment should be provided as backup in areas where Acetylene-Oxygen fuel systems are located.	See response to Item 221.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
223	APCSB 9.5-1 IV.E.1	The requirements of NFPA 51 and 51B should be satisfied with respect to acetylene-oxygen fuel gas systems.	NFPA 51 There are no fixed installations involving manifolds, piping systems, acetyiene generators or bulk storage. The requirements associated with connections, regulators, and cyclinder handling and storage are redundant to OSHA regulations with which we comply. NFPA 51B Our welder apprenticeship and supplemental training satisfies many of the requirements of NFPA-51B. The remaining training requirements will be satisfied by additional seminars.	Control of work areas for cutting and welding is discussed in Item 73. The control processes will be in conformance with the requirements of NFPA-51B.
224	APCSB 9.5-1 IV.E.1	A permit system should be required to utilize Acetylene-Oxygen fuel systems.	The only Acetylene-Oxygen fuel systems used in the plant are cutting/welding torches.	A permit system for their use in the main plant structure is being established.
225	APCSB 9.5-1 IV.E.2	Storage Areas for Dry Ion Exchange Resins The storage of dry ion exchange resins should be kept away from essential safety related systems.	Dry ion exchange resins are not stored near essential safety related systems	
226	APCSB 9.5-1 IV.E.2	Dry unused resins should be protected by automatic wet pipe sprinkler installations.	Our resin storage areas are not protected by automatic sprinkler systems.	A decision concerning installation of such protection will be made following completion of the fire hazards analysis.
227	APCSB 9.5-1 IV.E.2	Detection by smoke and heat detectors should be provided in dry ion exchange resin storage areas. They should alarm and annunciate in the control room and alarm locally.	There are no fire detectors provided in the dry ion exchange resin storage areas.	A decision concerning installation of such detectors will be made following completion of the fire hazards analysis.
228	APCSB 9.5-1 IV.E.2	Local hose stations and portable extinguishers should provide backup protection for dry ion exchange resin storage areas.	All areas where resins are stored have hose stations and portable fire extinguishers.	
229	APCSB 9.5-1 IV.E.2	Storage areas for dry resin should have curbs and drains (refer to NFPA No. 92M, "Waterproofing and Draining of Floors").	There are drains located in the areas of dry resin storage.	A decision concerning the need for curbs or additional drains will be made following completion of the fire hazards analysis.

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
230	APCSB 9.5-1 IV.E.3	Hazardous Chemicals Hazardous chemicals should be stored and protected in accordance with the recommendations of NFPA No. 49, "Hazardous Chemicals Data".	Hazardous chemicals are stored and protected in accordance with the recommendations of NFPA No. 49.	
231	APCSB 9.5-1 IV.E.3	Chemical storage areas should be well ventilated and protected against flooding conditions since some chemicals may react with water to produce ignition.	The chemical storage area for all opened and unopened plant laboratory chemicals is the hot lab. The hot lab is a cool, dry, well ventilated, fully-enclosed room completely surrounded by cement block. The room has an access door under lock and key. The chemicals are stored on fire resistant shelves. Each chemical group is labeled and is separated from other groups. No chemicals are stored on the floor. A floor drain is provided to prevent flooding. Chemicals are opened, handled, mixed, and transferred only in the hot lab.	
232	APCSB 9.5-1 IV.E.4	Materials Containing Radioactivity Materials which collect and contain radioactivity such as spent ion exchange resins, charcoal filters, and HEPA filters should be stored in closed metal tanks or containers which are located in areas free from ignition sources or combustibles. These materials should be protected from exposure to fires in adjacent areas as well.	Spent ion exchange resins are stored in slurry form in steel tanks. After decay, the spent ion exchange resins are partially dewatered, placed in steel containers and shipped off site. Contaminated HEPA filters are placed in steel containers and shipped off site. Used charcoal filters are either placed in steel containers and shipped off site, or the charcoal is removed from the filters and disposed of as required by their level of contamination. The spent ion exchange resin tanks and sludge processing system are located in the turbine building, reactor building and radwaste building in areas maintained free from ignition sources or combustibles.	

REVIEW OF GUIDELINES CONTAINED IN STANDARD REVIEW PLAN 9.5.1

Item No.	Reference	NRC Guideline or Recommendation	Present Plant Status or Practice	Action Needed to Comply with Guideline
233	APCSB 9.5-1 IV.E.4	Materials which collect and contain radioactivity should have consideration given to requirements for removal of isotopic decay heat from entrained radioactive material.	Provisions have been made for cooling the charcoal and HEPA filters that are part of the standby gas treatment system, and could accumulate considerable fission products during a design basis accident. No other materials accumulate sufficient quantities of fission products such that cooling is required.	
234	RG 1.78	If chemical agents are used in fire suppression, the habitability of the control room should be evaluated using the guidelines contained in Regulatory Guide 1.78, June, 1974, "Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release".	The capability exists to isolate the control room ventilation from the surrounding environment thereby protecting it from hazardous releases outside the room. Carbon dioxide extinguishers are installed for fire protection inside the control room and use of these would generate a volume of carbon dioxide that would remain below the toxicity limit given in Table C-1 of Regulatory Guide 1.78. If additional carbon dioxide was used and released into the room, the toxicity limit could be exceeded and use of the available breathing apparatus may be required.	
235	RG 1.101	The plant emergency plan should include fire protection emergency planning as outlined in Regulatory Guide 1.101, November, 1975, "Emergency Planning for Nuclear Power Plants".	See response to Item 75.	