PROGRESS REPORT

ON THE

PROGRAM TO REVIEW

FORT ST. VRAIN

INSERVICE INSPECTION AND TESTING

PRELIMINARY DEVELOPMENT PHASE

PRELIMINARY DEVELOPMENT PHASE

PROGRESS REPORT

- PROPOSED PROGRAM SCOPE AND PHILOSOPHY.
- PROPOSED CRITERIA, DEFINITIONS AND ASSIGNMENTS FOR CLASSIFYING EQUIPMENT IMPORTANT TO SAFETY.
- PROPOSED GENERAL RULES AND REQUIREMENTS FOR INSPECTING AND TESTING EQUIPMENT ASSIGNED TO THE VARIOUS CLASSIFICATIONS.
- PROPOSED SURVEILLANCE REQUIREMENTS FOR SELECTED PLANT SYSTEMS - THE RESULTS OF APPLYING THE GENERAL RULES AND REQUIREMENTS DURING THE REVIEW PROCESS FOR THESE SYSTEMS.

PROPOSED FORT ST. VRAIN INSERVICE INSPECTION AND TESTING PROGRAM

PURPOSE -

THE OVERALL PURPOSE OF THE INSERVICE INSPECTION AND TESTING PROGRAM AT FORT ST. VRAIN IS TO PROVIDE A CONTINUING ASSURANCE THAT COMPONENTS, SYSTEMS, AND STRUCTURES IMPORTANT TO SAFETY, ARE SAFE AND ARE AVAILABLE TO PERFORM THEIR SAFETY FUNCTIONS WHEN REQUIRED. THE PROGRAM WILL ESTABLISH SPECIFIC SURVEILLANCE RULES AND REQUIREMENTS IN ORDER TO:

- O GENERATE OBJECTIVE EVIDENCE ON A CONTINUING BASIS THAT AN ADEQUATE LEVEL OF NUCLEAR POWER PLANT SAFETY IS BEING MAINTAINED.

- O PROVIDE EARLY DETECTION OF DETERIORATION/DEGRADATION OF SAFETY-RELATED FACTORS FROM BASELINE CONDITIONS.

- O PROVIDE ADDITIONAL ASSURANCE THAT THE PLANT IS BEING MAINTAINED IN A SAFE CONDITION THROUGHOUT ITS LIFETIME.

PHILOSOPHY -

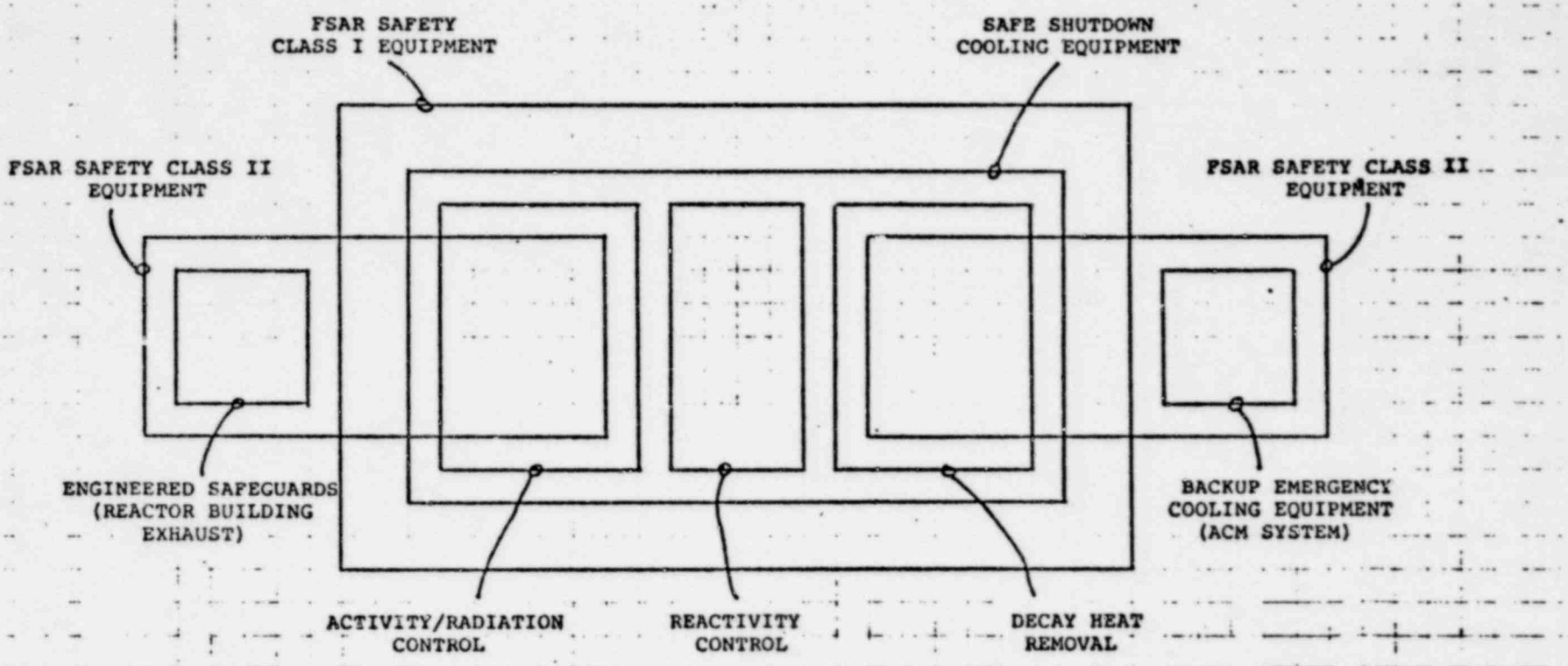
THE DEVELOPMENT OF RULES AND REQUIREMENTS FOR SURVEILLANCE OF EQUIPMENT IMPORTANT TO SAFETY AT FORT ST. VRAIN WILL BE BASED ON A PHILOSOPHY WHICH CONSIDERS THE CONCERNS FOR OPERATIONAL READINESS OF SAFETY SYSTEMS AS WELL AS THE CONCERNS FOR INTEGRITY OF THE REACTOR COOLANT PRESSURE BOUNDARY. THIS PHILOSOPHY RECOGNIZES THE IMPORTANCE OF VERIFYING PRESSURE BOUNDARY INTEGRITY TO PREVENT THE OCCURANCE OF A FISSION PRODUCT RELEASE ACCIDENT; BUT IN ADDITION, IT ALSO RECOGNIZES THE IMPORTANCE OF BEING ABLE TO MITIGATE THE CONSEQUENCES OF AN EVENT WHICH COULD ADVERSLY AFFECT PUBLIC HEALTH AND SAFETY. FURTHERMORE, THE PHILOSOPHY RECOGNIZES THE GENERIC DIFFERENCES BETWEEN LIGHT WATER COOLED REACTORS AND THE FORT ST. VRAIN HIGH TEMPERATURE GAS COOLED REACTOR, PARTICULARLY THOSE DIFFERENCES WHICH PROVIDE AN INHERENTLY SUPERIOR LEVEL OF SAFETY.

THE BASIC APPROACH TO BE USED IN DEVELOPING THE RULES FOR FORT ST. VRAIN IS TO ESTABLISH A PROGRAM THAT WILL CHECK THE CONDITION OF PLANT STRUCTURES, SYSTEMS, AND COMPONENTS ON A REGULAR BASIS TO A STANDARD OF ASSURANCE COMMENSURATE WITH THE IMPORTANCE OF THE SAFETY FUNCTION OF THE ITEM. CLASSIFICATIONS WILL BE ESTABLISHED TO PROVIDE THESE LEVELS OF IMPORTANCE AND APPROPRIATE SURVEILLANCE REQUIREMENTS (I.E. TESTS, EXAMINATIONS, OBSERVATIONS, MONITORING, ETC.) SPECIFIED FOR EACH CLASSIFICATION. THE SURVEILLANCE REQUIREMENTS WILL BE BASED ON, DEVELOPED FROM, AND ENHANCE THE EXISTING SURVEILLANCE REQUIREMENTS CONTAINED IN THE FORT ST. VRAIN TECHNICAL SPECIFICATIONS.

SCOPE -

THE INSERVICE INSPECTION AND TESTING PROGRAM PROVIDES RULES AND REQUIREMENTS FOR SURVEILLANCE OF PLANT STRUCTURES, SYSTEMS, AND COMPONENTS AT THE FORT ST. VRAIN NUCLEAR GENERATING STATION. THE PROGRAM APPLIES TO THOSE PLANT EQUIPMENT ITEMS WHICH, IF FAILED, COULD INTERFERE WITH REACTOR SHUTDOWN, INTERFERE WITH REMOVAL OF DECAY HEAT OR RELEASE EXCESSIVE RADIOACTIVITY TO THE ENVIRONMENT. SUCH ITEMS ARE GENERALLY CLASSIFIED AS "SAFETY-RELATED" AND INCLUDE EQUIPMENT DESIGNATED "FSAR SAFETY CLASS I", "SAFE SHUTDOWN", "ENGINEERED SAFEGUARDS", "STANDBY POWER", "EMERGENCY COOLING", AND "BACKUP EMERGENCY COOLING". THE PROGRAM ALSO APPLIES TO OTHER PLANT EQUIPMENT ITEMS WHICH, IF UNAVAILABLE MAY REDUCE OR DEGRADE THE MARGIN OF SAFETY THEY PROVIDE.

THE PROGRAM FURTHER CLASSIFIES SAFETY-RELATED AND OTHER EQUIPMENT ACCORDING TO THEIR IMPORTANCE TO PLANT SAFETY AND PROVIDES THAT EACH EQUIPMENT ITEM BE PERIODICALLY TESTED, EXAMINED, OBSERVED, CALIBRATED, OR MONITORED AS APPROPRIATE. THE PROGRAM PROVIDES CRITERIA FOR ACCEPTANCE OF RESULTS, REPAIR AND REPLACEMENT, AND PERSONNEL QUALIFICATIONS; IT ALSO DEFINES RESPONSIBILITIES, EXAMINATION TECHNIQUES AND RECORD KEEPING/REPORTING REQUIREMENTS.


FSAR SAFETY
CLASS I EQUIPMENT
SAFE SHUTDOWN
COOLING EQUIPMENT
FSAR SAFETY CLASS II
EQUIPMENT
FSAR SAFETY CLASS II
EQUIPMENT
ENGINEERED SAFEGUARDS
(REACTOR BUILDING
EXHAUST)
BACKUP EMERGENCY
COOLING EQUIPMENT
(ACM SYSTEM)
ACTIVITY/RADIATION
CONTROL
REACTIVITY
CONTROL
DECAY HEAT
REMOVAL
SAFETY FUNCTIONS
SAFETY-RELATED
EQUIPMENT DESIGNATED FOR SURVEILLANCE

PROPOSED SURVEILLANCE PLAN

GENERAL SURVEILLANCE REQUIREMENTS

0 SCOPE AND RESPONSIBILITY

- OVERALL PROGRAM WILL BE BASED ON EXISTING TECHNICAL SPECIFICATION SURVEILLANCE PROGRAM

- PLANT EQUIPMENT IMPORTANT TO SAFETY WILL BE CLASSIFIED TO PROVIDE A BASIS FOR SURVEILLANCE INSPECTION AND TEST REQUIREMENTS

GENERAL SURVEILLANCE REQUIREMENTS (CONTINUED)

o INSPECTION AND TESTING

- OPERATIONAL READINESS AND STRUCTURAL INTEGRITY OF PLANT EQUIPMENT WILL BE DETERMINED BY SURVEILLANCE TESTING AND SURVEILLANCE INSPECTIONS.
- SURVEILLANCE TESTING WILL CONTINUE TO BE EMPHASIZED AND WILL INCLUDE OPERATIONAL TESTS, FUNCTIONAL TESTS, PRESSURE TESTS, LEAKAGE TESTS, AND CALIBRATION TESTS.
- SURVEILLANCE INSPECTIONS WILL BE LIMITED TO VISUAL EXAMINATIONS, OBSERVATIONS, AND MEASUREMENTS.
- SURFACE AND VOLUMETRIC EXAMINATIONS OF PRESSURE BOUNDARIES (PRIMARY AND SECONDARY) USING NON-DESTRUCTIVE TEST METHODS WILL BE USED ONLY FOR INVESTIGATIVE PURPOSES - NOT FOR SURVEILLANCE.
- SPECIFIC SURVEILLANCE INSPECTION AND TEST REQUIREMENTS WILL CONTINUE TO BE SPECIFIED IN THE TECHNICAL SPECIFICATIONS ISSUED BY THE NRC AS PART OF THE OPERATING LICENSE PROVISIONS.

INSPECTION AND TESTING (CONTINUED)

- SURVEILLANCE INSPECTION AND TEST INTERVALS WILL CONTINUE TO BE SPECIFIED FOR EACH SPECIFIC SURVEILLANCE REQUIREMENT IN THE TECHNICAL SPECIFICATIONS.
- QUALIFICATION REQUIREMENTS FOR INSPECTORS WILL CONTINUE TO BE INCLUDED IN THE QUALITY ASSURANCE PROGRAM.
- INSPECTION AND TESTING WILL CONTINUE TO BE VERIFIED BY THE QUALITY ASSURANCE DEPARTMENT.
- INSPECTION AND TESTING WILL CONTINUE TO BE INDEPENDENTLY VERIFIED BY THE NRC DIVISION OF INSPECTION AND ENFORCEMENT (REGION IV).

GENERAL SURVEILLANCE REQUIREMENTS (CONTINUED)

- o ACCEPTANCE STANDARDS
  - ACCEPTANCE STANDARDS WILL CONTINUE TO BE SPECIFIED FOR EACH SPECIFIC INSPECTION OR TEST REQUIREMENT. FOR THOSE INSTANCES WHEN ACCEPTANCE STANDARDS CANNOT BE SPECIFIED, AN ENGINEERING EVALUATION OF THE INSPECTION OR TEST RESULTS WILL BE REQUIRED TO DETERMINE ACCEPTABILITY.

- o REPAIR PROCEDURES
  - GENERAL REQUIREMENTS FOR COMPONENT PRESSURE BOUNDRY REPAIRS WILL BE DEVELOPED FOR INCLUSION IN THE PROGRAM.

- o REPLACEMENTS
  - CONSTRUCTION CODE REQUIREMENTS WILL CONTINUE TO BE BASED ON STANDARDS CONSISTENT WITH THOSE IN EFFECT DURING DESIGN AND CONSTRUCTION.
  - VERIFICATION OF ACCEPTABILITY WILL CONTINUE TO BE BASED ON SUITABILITY EVALUATIONS AS REQUIRED BY THE PSC QUALITY ASSURANCE DEPARTMENT.
  - GENERAL REQUIREMENTS FOR REPLACEMENTS WILL BE DEVELOPED FOR INCLUSION IN THE PROGRAM.

GENERAL SURVEILLANCE REQUIREMENTS (CONTINUED)

- SYSTEM LEAKAGE AND PRESSURE TESTS
  - PRESSURE TESTS WILL BE SPECIFIED IN ACCORDANCE WITH APPLICABLE CODE REQUIREMENTS AFTER WELDING TO DEMONSTRATE THE STRENGTH AND TIGHTNESS OF NEW WELDS, REPAIR WELDS, OR REPLACEMENT WELDS.
  - LEAKAGE TESTS WILL BE SPECIFIED TO PERIODICALLY DEMONSTRATE THE TIGHTNESS OF PRESSURE RETAINING SYSTEMS AND COMPONENTS.
  - GENERAL REQUIREMENTS FOR PRESSURE TESTS AND LEAKAGE TESTS WILL BE DEVELOPED FOR INCLUSION IN THE PROGRAM.

- RECORDS AND REPORTS
  - RECORDS AND REPORTS SHALL CONTINUE TO BE PREPARED AND RETAINED IN ACCORDANCE WITH EXISTING APPLICABLE REQUIREMENTS.

PROPOSED SURVEILLANCE CLASSIFICATIONS

CLASSIFICATION CRITERIA

SURVEILLANCE CLASSIFICATIONS SHALL BE DEFINED FOR ALL SAFETY-RELATED AND OTHER PLANT STRUCTURES, SYSTEMS, AND EQUIPMENT TO REFLECT AN ORDERLY GRADATION OF SAFETY IMPORTANCE TO THIS EQUIPMENT. THE CLASSIFICATIONS WILL BE DEFINED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:

A. EQUIPMENT ITEMS CONSIDERED OF HIGHEST SAFETY PRIORITY ARE TO BE DESIGNATED SURVEILLANCE CLASS I AND ARE THOSE PROVIDING ULTIMATE PROTECTION FOR THOSE EXTREME SITUATIONS INVOLVING FAILURE OF MAJOR SAFETY-RELATED EQUIPMENT WHICH, ALTHOUGH HAVING A LOW PROBABILITY OF OCCURRENCE, HAVE THE POTENTIAL FOR CAUSING ABNORMAL OFF-SITE DOSES DUE TO FISSION PRODUCT RELEASE, AGGRAVATED BY THE POTENTIAL FOR CORE DAMAGE.

B. EQUIPMENT ITEMS CONSIDERED OF NEXT HIGHEST PRIORITY ARE TO DESIGNATED SURVEILLANCE CLASS II AND ARE THOSE PROVIDING ULTIMATE PROTECTION FOR THOSE EXTREME SITUATIONS INVOLVING FAILURE OF MAJOR SAFETY-RELATED OR OTHER PLANT EQUIPMENT WHICH, ALTHOUGH HAVING A LOW PROBABILITY OF OCCURENCE, VE THE POTENTIAL FOR CAUSING ABNORMAL OF -SITE DOSES DUE TO FISSION PRODUCT RELEASE.

CLASSIFICATION CRITERIA (CONTINUED)

C. EQUIPMENT ITEMS CONSIDERED OF NEXT HIGHEST PRIORITY ARE TO BE DESIGNATED SURVEILLANCE CLASS III AND INCLUDE ALL OTHER SAFETY-RELATED ITEMS NOT INCLUDED IN SURVEILLANCE CLASSES I AND II, BUT WHICH PROVIDE PROTECTION FOR NORMAL AND ABNORMAL PLANT OPERATING MODES.

D. EQUIPMENT ITEMS CONSIDERED OF NEXT HIGHEST PRIORITY ARE TO BE DESIGNATED SURVEILLANCE CLASS IV AND ARE THOSE OTHER PLANT SYSTEMS AND COMPONENTS WHICH MAY PROVIDE ADDITIONAL PROTECTION, EITHER DIRECTLY OR INDIRECTLY, AND THEREBY ASSIST IN PREVENTING OR MITIGATING THE CONSEQUENCES OF ABNORMAL SITUATIONS OR ASSIST IN PROTECTING THE HEALTH AND SAFETY OF THE PUBLIC.

PROPOSED SURVEILLANCE CLASSIFICATIONS

SURVEILLANCE CLASS DEFINITIONS -

USING THE CLASSIFICATION CRITERIA AND THE ACCIDENT SCENARIOS EVALUATED IN THE FSAR, THE FOLLOWING DEFINITIONS HAVE BEEN DEVELOPED WHICH WILL ALLOW ALL EQUIPMENT IMPORTANT TO SAFETY TO BE FURTHER CLASSIFIED, FOR PURPOSES OF SURVEILLANCE, ACCORDING TO THE IMPORTANCE OF THEIR SAFETY FUNCTIONS.

SURVEILLANCE CLASS I

SURVEILLANCE CLASS I APPLIES TO THOSE ITEMS OF SAFETY-RELATED PLANT EQUIPMENT REQUIRED TO COPE WITH THE CONSEQUENCES OF DESIGN BASIS ACCIDENT NO. 1, PERMANENT LOSS OF FORCED CIRCULATION. THIS ACCIDENT IS DEFINED AS A WORST CASE FAILURE OF THE REACTOR FORCED CIRCULATION EMERGENCY COOLING SYSTEM.

SURVEILLANCE CLASS DEFINITIONS (CONTINUED)

SURVEILLANCE CLASS II

SURVEILLANCE CLASS II APPLIES TO THOSE ITEMS OF SAFETY-RELATED PLANT EQUIPMENT REQUIRED TO COPE WITH THE CONSEQUENCES OF:

- DESIGN BASIS ACCIDENT NO. 2, RAPID DEPRESSURIZATION/BLOWDOWN. THIS ACCIDENT IS DEFINED AS THE WORST CASE FAILURE OF THE REACTOR CONTAINMENT SYSTEM OR,

- THE MAXIMUM CREDIBLE REACTIVITY ACCIDENT, ROD PAIR WITHDRAWAL. THIS ACCIDENT IS DEFINED AS THE WORST CASE FAILURE OF THE REACTOR REACTIVITY CONTROL SYSTEM OR,

- THE MAXIMUM CREDIBLE STEAM LEAK, RUPTURE OF A STEAM GENERATOR TUBE OR SUB-HEADER. THIS ACCIDENT IS DEFINED AS THE WORST CASE FAILURE OF THE REACTOR SECONDARY COOLANT SYSTEM OR,

- THE MAXIMUM CREDIBLE ENVIRONMENT DISTURBANCE, SAFE SHUTDOWN EARTHQUAKE OR MAXIMUM TORNADO. THIS EVENT IS CONSIDERED TO BE THE WORST CASE FAILURE OF NON-SAFETY RELATED STEAM OR ELECTRIC PLANT EQUIPMENT.

SURVEILLANCE CLASS DEFINITIONS (CONTINUED)

SURVEILLANCE CLASS III

SURVEILLANCE CLASS III APPLIES TO THOSE ITEMS OF SAFETY-RELATED PLANT EQUIPMENT WHICH PROVIDE STRUCTURAL SUPPORT, CONTAIN THE REACTOR AND REACTOR COOLANT SYSTEM, AND TO THOSE REACTOR AUXILIARY SYSTEMS WHICH HANDLE AND STORE RADIOACTIVE SPENT FUEL ELEMENTS.

SURVEILLANCE CLASS IV

SURVEILLANCE CLASS IV APPLIES TO THOSE OTHER ITEMS OF PLANT EQUIPMENT WHICH PROVIDE ADDITIONAL PROTECTION, SUCH AS THOSE THAT CONTAIN RADIOACTIVE WASTES, PROVIDE FIRE-PROTECTION FOR SAFETY-RELATED EQUIPMENT, OR PROVIDE ADDITIONAL INDICATION AND CONTROL, ETC.

PROPOSED SURVEILLANCE CLASSIFICATIONS

APPLICATION CRITERIA

- SURVEILLANCE CLASSES I AND II APPLY TO THOSE SYSTEMS AND COMPONENTS WHICH ARE PROVIDED WITH ACTIVE SAFETY FUNCTIONS TO PROTECT THE INTEGRITY OF THE CORE AND/OR THE CONTAINMENT UNDER ACCIDENT CONDITIONS, THUS INSURING THAT THE PLANT SAFETY OBJECTIVE IS ACHIEVED DURING EXTREME SITUATIONS.

- SURVEILLANCE CLASS III APPLIES TO THOSE STRUCTURES, SYSTEMS, AND COMPONENTS WHICH ARE PROVIDED WITH ACTIVE OR PASSIVE SAFETY FUNCTIONS TO PROTECT AGAINST THE UNCONTROLLED RELEASE OF RADIOACTIVE FISSION PRODUCTS UNDER NORMAL OR ABNORMAL CONDITIONS, THUS INSURING THAT THE PLANT SAFETY OBJECTIVE IS ACHIEVED DURING ALL OTHER TYPES OF SITUATIONS.

- SURVEILLANCE CLASS IV APPLIES TO THOSE OTHER SYSTEMS AND COMPONENTS WHICH CAN PERFORM ACTIVE OR PASSIVE SAFETY FUNCTIONS, SUCH AS THOSE WHICH CONTROL OPERATIONAL RELEASES OF RADIOACTIVITY, PROTECT SAFETY-RELATED EQUIPMENT FROM THE EFFECTS OF FIRE, AND CONTROL OR MONITOR THE OPERATION OF SYSTEMS AND EQUIPMENT.

APPLICATION CRITERIA (CONTINUED)

- STRUCTURES, SYSTEMS, OR COMPONENTS ARE ASSIGNED ONLY TO THE HIGHEST OF ANY CLASSIFICATIONS TO WHICH THEY APPLY.

- AUXILIARY SUPPORT SYSTEMS REQUIRED TO FUNCTION ALONG WITH THE MAJOR EQUIPMENT/SYSTEMS CLASSIFIED ABOVE SHALL BE INCLUDED IN THE SAME SURVEILLANCE CLASS AS THE MAJOR EQUIPMENT/SYSTEM. TYPICAL AUXILIARY SUPPORT SYSTEMS INCLUDE: ESSENTIAL ELECTRIC POWER, HELIUM CIRCULATOR AUXILIARY SYSTEM, INSTRUMENT AIR SUPPLY SYSTEM, AND HYDRAULIC ACTUATOR SUPPLY SYSTEM.

PROPOSED SURVEILLANCE CLASSIFICATIONS

MAJOR EQUIPMENT/SYSTEM CLASSIFICATIONS

SURVEILLANCE CLASS	EQUIPMENT/SYSTEM	SAFETY FUNCTION
I	RESERVE SHUTDOWN SYSTEM	CORE REACTIVITY CONTROL
	BACK-UP EMERGENCY COOLING EQUIPMENT	CONTAINMENT TEMPERATURE CONTROL
	REACTOR BUILDING	ACTIVITY AND RADIATION CONTROL
	HELIUM PURIFICATION SYSTEM	CONTAINMENT PRESSURE/ TEMPERATURE CONTROL
II	CONTROL ROD DRIVES	CORE REACTIVITY CONTROL
	REACTOR SCRAM LOGIC	CORE REACTIVITY CONTROL
	SAFE SHUTDOWN EMERGENCY COOLING EQUIPMENT	CORE TEMPERATURE CONTROL
	STEAM WATER DUMP SYSTEM	CONTAINMENT PRESSURE CONTROL
	PCRV SAFETY VALVES	CONTAINMENT PRESSURE CONTROL
	LOOP TRIP/CIRCULATOR TRIP LOGIC	CORE TEMPERATURE/CONTAINMENT PRESSURE CONTROL

MAJOR EQUIPMENT/SYSTEM CLASSIFICATIONS (CONTINUED)

SURVEILLANCE CLASS	EQUIPMENT/SYSTEM	SAFETY FUNCTION
III	PCRV STRUCTURE	ACTIVITY AND RADIATION CONTROL
	PCRV LINER	ACTIVITY AND RADIATION CONTROL
	PCRV PENETRATIONS AND CLOSURES	ACTIVITY AND RADIATION CONTROL
	CORE SUPPORT STRUCTURE	REACTIVITY CONTROL CORE TEMPERATURE CONTROL
	STEAM GENERATORS	ACTIVITY CONTROL CORE TEMPERATURE CONTROL
	FUEL HANDLING MACHINE	ACTIVITY AND RADIATION CONTROL FUEL TEMPERATURE CONTROL
	FUEL STORAGE FACILITY	ACTIVITY AND RADIATION CONTROL FUEL TEMPERATURE CONTROL
IV	EQUIPMENT CONTROL SYSTEMS	PLANT CONTROL
	EQUIPMENT INSTRUMENTATION SYSTEMS	PLANT CONTROL
	RADIOACTIVE WASTE SYSTEMS	ACTIVITY CONTROL
	FIRE PROTECTION EQUIPMENT	FIRE PROTECTION

PROPOSED SURVEILLANCE CLASSIFICATIONS

DETAILED EQUIPMENT/SYSTEM CLASSIFICATION

SURVEILLANCE CLASS I

REACTIVITY CONTROL EQUIPMENT

- RESERVE SHUTDOWN SYSTEM (12)*

PCRV COOLING EQUIPMENT

- HELIUM PURIFICATION SYSTEM (23)*
  (INCLUDING HELIUM STORAGE SYSTEM INTERFACE)
- NITROGEN SYSTEM (25)*
- CIRCULATING WATER MAKEUP SYSTEM (41)*
- SERVICE WATER SYSTEM (42)*
- FIREWATER SYSTEM (45)*
- PCRV COOLING WATER SYSTEM (46)*
- PURIFICATION COOLING WATER SYSTEM (47)*

ACTIVITY/RADIATION CONTROL EQUIPMENT

- REACTOR BUILDING VENTILATION EXHAUST SYSTEM (73)
- REACTOR BUILDING OVERPRESSURE PROTECTION SYSTEM (73)

* ONLY THOSE PORTIONS MARKED AS SAFETY-RELATED ON THE SR-6-1 DRAWINGS.

SURVEILLANCE CLASS I (CONTINUED)

PNEUMATIC/ELECTRIC POWER EQUIPMENT

- ACM SYSTEM (48)
- AUXILIARY BOILER FUEL OIL SYSTEM (84)*
- STANDBY GENERATOR, OIL AND AIR SYSTEM (92)*
- STATION BATTERIES (92)
- ESSENTIAL POWER SYSTEM (92)

*ONLY THOSE PORTIONS MARKED AS SAFETY-RELATED ON THE SR-6-1 DRAWINGS

SURVEILLANCE CLASS II

REACTIVITY CONTROL EQUIPMENT

- CONTROL ROD DRIVES (12)
- PLANT PROTECTIVE SYSTEM - SCRAM LOGIC (93)*
  (INCLUDING INTERFACE WITH ROD CONTROL SYSTEM)

CORE COOLING EQUIPMENT

- HELIUM CIRCULATORS AND AUXILIARY SYSTEM (21)*
- SECONDARY COOLANT SYSTEM (22)*
  (INCLUDING INTERFACE WITH REACTOR BUILDING VENT AND DRAIN SYSTEM)
- FEEDWATER SYSTEM (31)*

PCRV PROTECTION EQUIPMENT

- STEAM-WATER DUMP SYSTEM (22)*
- PCRV SAFETY VALVES (11)*
- PLANT PROTECTIVE SYSTEM - LOOP/CIRCULATOR TRIP LOGIC (93)*
- PLANT INSTRUMENTATION SYSTEM - NUCLEAR/IN-REACTOR/PIPE RUPTURE INSTRUMENTS (93)*

AUXILIARY EQUIPMENT

- CONTROL COMPLEX HVAC (75)*
- FIRE PUMP HOUSE HVAC (75)*
- INSTRUMENT AIR SYSTEM (82)*
- HYDRAULIC POWER SYSTEM (91)*
- HYDRAULIC SNUBBERS (98)

*ONLY THOSE PORTIONS MARKED AS SAFETY-RELATED ON THE SR-6-1 DRAWINGS.

SURVEILLANCE CLASS III

ACTIVITY/RADIATION CONTROL EQUIPMENT

- PCRV STRUCTURE (11)
- PCRV LINER (11)
- PCRV PENETRATIONS AND CLOSURES (11)
- PCRV THERMAL BARRIER (11)
- PCRV INTERNAL STRUCTURE (CORE SUPPORT) (11)
- PCRV AUXILIARY SYSTEM (11)*
- FUEL HANDLING MACHINE (13)
- FUEL STORAGE FACILITY (14)
- STEAM GENERATOR (22)

SPENT FUEL COOLING EQUIPMENT

- FUEL STORAGE FACILITY AUXILIARY SYSTEM (14)*

* ONLY THOSE PORTIONS MARKED AS SAFETY-RELATED ON THE SR-6-1 DRAWINGS

SURVEILLANCE CLASS IV

INSTRUMENTATION AND CONTROL EQUIPMENT

- OVERALL PLANT CONTROL SYSTEM (93)*
- CONTROL ROD AND ORIFICING C&I SYSTEM (93)*
- PCRV INSTRUMENTS AND DATA ACQUISITION SYSTEM (93)*
- FAST GAS AND IODINE SAMPLING SYSTEM (93)*
- SG T/C AND S/G INSTRUMENTATION SYSTEM (93)*
- ANALYTICAL INSTRUMENTATION SYSTEM (93)*
- AREA RADIATION MONITORING SYSTEM (93)*
- COOLANT MEASUREMENT DISPLAY SYSTEM (93)*
- SEISMIC INSTRUMENTATION SYSTEM (89)
- PCRV SURFACE TEMPERATURE MONITORS (73)
- PCRV AREA ΔP AND TEMPERATURE MONITORS (73)
- CONTROL ROOM TEMPERATURE CONTROLLER (75)
- 480V ROOM TEMPERATURE INDICATOR (75)
- AIR EJECTOR VENT MONITOR (41)
- HOT REHEAT PIPING MONITORS (22)
- HOT REHEAT PIPING POWER RELIEFS (52)

*ONLY THOSE PORTIONS WHICH PROVIDE AN ADDITIONAL SAFETY FUNCTION

SURVEILLANCE CLASS IV (CONTINUED)

RADIOACTIVE WASTE MANAGEMENT EQUIPMENT

- RADIOACTIVE LIQUID WASTE STORAGE SYSTEM (62)
- RADIOACTIVE GAS SYSTEM (63)

FIRE PROTECTION EQUIPMENT

- FIRE WATER SYSTEM - DELUGES/SPRAYS/HOSE REELS (45)
- CONTROL COMPLEX FIRE DETECTION AND ALARM SYSTEM (XX)
- CONTROL COMPLEX HALON SYSTEM (45)
- CONTROL COMPLEX EMERGENCY BREATHABLE AIR SYSTEM (45)
- CONTROL COMPLEX FIXED WATER SPRAY SYSTEM (45)
- CONTROL COMPLEX CABLE COATING AND SEAL SYSTEM (XX)
- CO_2 SYSTEM (51)

SURVEILLANCE INSPECTION AND TEST REQUIREMENTS

A. OPERATIONAL READINESS

1. SYSTEM TESTING

- SURVEILLANCE CLASS I - THE OPERATIONAL READINESS OF SYSTEMS ASSIGNED TO SURVEILLANCE CLASS I SHALL BE DEMONSTRATED BY SURVEILLANCE TESTING AND MONITORING. TESTING AND MONITORING REQUIREMENTS SHALL BE BASED ON VERIFYING OVERALL SYSTEM PERFORMANCE AND AVAILABILITY OF EMERGENCY POWER SOURCES.

- SURVEILLANCE CLASS II - THE OPERATIONAL READINESS OF SYSTEMS ASSIGNED TO SURVEILLANCE CLASS II SHALL BE DEMONSTRATED BY NORMAL OPERATION OF THE SYSTEM. THE OPERATIONAL READINESS OF HELIUM CIRCULATOR AUXILIARY DRIVE SYSTEMS ASSIGNED TO SURVEILLANCE CLASS II SHALL BE DEMONSTRATED BY SURVEILLANCE TESTING TO OPERATE THE DRIVES IN EACH LOOP AT ALTERNATE YEAR INTERVALS USING FEEDWATER, CONDENSATE AND SIMULATED FIREWATER MOTIVE POWER.

- SURVEILLANCE CLASS III AND IV - SYSTEM TESTING IS NOT APPLICABLE.

A. OPERATIONAL READINESS (CONTINUED)

2. COMPONENT TESTING

o PUMPS

- SURVEILLANCE CLASS I - THE OPERATIONAL READINESS OF PUMPS ASSIGNED TO SURVEILLANCE CLASS I SHALL BE DEMONSTRATED ONCE EACH QUARTER BY SURVEILLANCE TESTING. THE RULES AND REQUIREMENTS FOR SURVEILLANCE TESTING OF THESE PUMPS WILL BE BASED ON ARTICLE IGP OF THE DRAFT ASME CODE (SECTION XI, DIVISION 2).

- SURVEILLANCE CLASS II - THE OPERATIONAL READINESS OF PUMPS ASSIGNED TO SURVEILLANCE CLASS II SHALL BE DEMONSTRATED BY NORMAL SYSTEM OPERATION OR BY SURVEILLANCE TESTING TO EXERCISE THOSE PUMPS NOT NORMALLY IN OPERATION ONCE EACH QUARTER.

- SURVEILLANCE CLASS III AND IV - THERE ARE NO PUMPS ASSIGNED TO SURVEILLANCE CLASSES III AND IV.

2. COMPONENT TESTING (CONTINUED)

o COMPRESSORS

- SURVEILLANCE CLASS I, III - THERE ARE NO COMPRESSORS ASSIGNED TO SURVEILLANCE CLASSES I AND III.

- SURVEILLANCE CLASS II AND IV - THE OPERATIONAL READINESS OF COMPRESSORS ASSIGNED TO SURVEILLANCE CLASSES II AND IV SHALL BE DEMONSTRATED BY NORMAL OPERATION OR BY SURVEILLANCE TESTING TO EXERCISE THOSE COMPRESSORS NOT NORMALLY IN OPERATION ONCE EACH QUARTER.

2. COMPONENT TESTING (CONTINUED)

o VALVES

- SURVEILLANCE CLASS I - THE OPERATIONAL READINESS OF VALVES ASSIGNED TO SURVEILLANCE CLASS I SHALL BE DEMONSTRATED BY SURVEILLANCE TESTING. THE RULES AND REQUIREMENTS FOR SURVEILLANCE TESTING OF THESE VALVES WILL BE BASED ON ARTICLE IGV OF THE DRAFT ASME CODE (SECTION XI, DIVISION 2).
- SURVEILLANCE CLASS II, III, AND IV - THE OPERATIONAL READINESS OF VALVES ASSIGNED TO SURVEILLANCE CLASSES II, III, AND IV SHALL BE DEMONSTRATED BY NORMAL OPERATION OR BY SURVEILLANCE TESTING TO EXERCISE THOSE VALVES WHICH DO NOT NORMALLY OPERATE. ISOLATION VALVES SHALL BE TESTED AT LEAST ONCE EACH YEAR AND SAFETY/RELIEF VALVES SHALL BE TESTED AT LEAST ONCE EVERY FIVE YEARS.

3. INSTRUMENTATION AND CONTROL TESTING

o THE OPERATIONAL READINESS OF INSTRUMENTATION AND CONTROL CIRCUITS SHALL BE DEMONSTRATED BY SURVEILLANCE TESTING. GENERALLY, INSTRUMENT ACCURACY SHALL BE DEMONSTRATED ONCE EACH YEAR BY A CALIBRATION TEST. APPLICABLE INDICATION, ALARM, CONTROL, AND PROTECTIVE CIRCUIT PERFORMANCE SHALL BE DEMONSTRATED BY A FUNCTIONAL TEST AT LEAST ONCE EACH YEAR DEPENDING ON THE IMPORTANCE OF THE SAFETY FUNCTION.

B. STRUCTURAL INTEGRITY

1. PRESSURE BOUNDARY LEAKAGE TESTING

- SYSTEM LEAKAGE TESTING - STRUCTURAL INTEGRITY OF ALL ACCESSIBLE SAFETY RELATED PIPING SYSTEM PRESSURE BOUNDARIES SHALL BE VERIFIED BY EXAMINATION FOR LEAKAGE ONCE EACH YEAR WHEN THE SYSTEM IS AT OR NEAR NORMAL WORKING PRESSURE.

- PCRV PENETRATION LEAKAGE TESTING - STRUCTURAL INTEGRITY OF PCRV PENETRATION PRESSURE BOUNDARIES SHALL BE VERIFIED BY LEAKAGE MONITORING. PENETRATION CLOSURE SEAL LEAKAGE SHALL BE MONITORED CONTINUOUSLY FOR ALL PENETRATION GROUPS AND MEASURED ONCE EACH MONTH FOR EACH PENETRATION GROUP.

B. STRUCTURAL INTEGRITY (CONTINUED)

2. STRUCTURE INSPECTIONS

- PCRV - STRUCTURAL INTEGRITY OF THE PCRV SHALL BE VERIFIED BY SURVEILLANCE INSPECTIONS. THESE INSPECTIONS SHALL CONSIST OF VISUAL EXAMINATIONS, MONITORING, MEASUREMENTS, AND INSPECTION OF SPECIMENS. THE RULES AND REQUIREMENTS FOR THESE INSPECTIONS WILL BE BASED ON ARTICLE IGK OF THE DRAFT ASME CODE (SECTION XI, DIVISION 2).
- STEAM GENERATORS - STRUCTURAL INTEGRITY OF THE STEAM GENERATORS SHALL BE VERIFIED BY CONTINUOUSLY MONITORING AND MAINTAINING PRIMARY COOLANT MOISTURE, REHEAT STEAM ACTIVITY AND FEEDWATER CHEMISTRY BELOW ACCEPTABLE LIMITS.

- REACTOR INTERNALS - STRUCTURAL INTEGRITY OF THE SUPPORT STRUCTURES FOR THE REACTOR CORE OR THE PCRV THERMAL BARRIER SHALL BE VERIFIED, WHERE FEASIBLE, BY SURVEILLANCE INSPECTIONS OF MATERIAL SPECIMENS WHICH HAVE BEEN EXPOSED TO CONDITIONS SIMILAR TO THE SUPPORT COMPONENTS. THE FREQUENCY OF SUCH INSPECTIONS SHALL BE BASED ON EVALUATIONS OF THE MATERIAL PROPERTIES.

PROPOSED SURVEILLANCE REQUIREMENTS

RESERVE SHUTDOWN SYSTEM

A. OPERATIONAL READINESS

1. SYSTEM TESTING/MONITORING

A) CONTINUE EXISTING SR 5.1.2A WHICH REQUIRES EACH OF THE SHUTDOWN HOPPERS TO BE PRESSURIZED 10 PSI ABOVE REACTOR PRESSURE ONCE EACH QUARTER TO DEMONSTRATE THAT THE HOPPER PRESSURIZING LINES ARE CLEAR, THAT THE HOPPER PRESSURIZING VALVES ARE OPERABLE, AND THAT THE HOPPER RUPTURE DISCS ARE INTACT.

B) THE HELIUM STORAGE BOTTLE PRESSURES ARE MONITORED CONTINUOUSLY AND ALARMED BELOW 1500 PSIG TO ENSURE THAT THE REQUIRED ACTUATING PRESSURE IS MAINTAINED FOR THE RESERVE SHUTDOWN HOPPERS AND THEREFORE THAT THEY ARE OPERABLE. A NEW SR IS NOT REQUIRED TO DEMONSTRATE THAT THE SYSTEM IS CAPABLE OF FUNCTIONING PROPERLY.

C) ADD A NEW SR WHICH REQUIRES THE NITROGEN STORAGE BOTTLE PRESSURES TO BE MONITORED ONCE EACH WEEK TO ENSURE THAT THE REQUIRED ACTUATING PRESSURE IS MAINTAINED FOR THE HOPPER PRESSURIZING VALVE AIR HEADER DURING ACM SYSTEM OPERATION.

A. OPERATIONAL READINESS (CONTINUED)

2. COMPONENT TESTING

A RESERVE SHUTDOWN HOPPERS - CONTINUE EXISTING SR 5.1.2c WHICH REQUIRES ONE RESERVE SHUTDOWN HOPPER TO BE TESTED IN THE HOT SERVICE FACILITY AT EACH OF THE FIRST FIVE REFUELING SHUTDOWNS AND THEN AT EVERY OTHER REFUELING SHUTDOWN TO DEMONSTRATE THAT THE RUPTURE DISC BURSTS AT THE CORRECT SET PRESSURE AND THAT THE POISON MATERIAL RELEASES PROPERLY FROM THE HOPPER AND HAS NOT DETERIORATED.

B) HOPPER PRESSURIZING VALVES - ADD A NEW SR WHICH REQUIRES EACH OF THE AIR-OPERATED HOPPER PRESSURIZING VALVES TO BE EXERCISED AT EACH REFUELING SHUTDOWN TO DEMONSTRATE THAT THE VALVE OPERATOR STROKES PROPERLY.

C) PENETRATION CHECK VALVES - ADD A NEW SR WHICH REQUIRES EACH OF THE HOPPER PRESSURIZING LINE CHECK VALVES TO BE TESTED EACH TIME THE PENETRATION IT IS CONNECTED TO IS OPENED FOR REFUELING TO DEMONSTRATE THE ABILITY OF THE CHECK VALVE TO FUNCTION PROPERLY IN THE REVERSE DIRECTION.

D) ACM QUICK-DISCONNECT VALVES - ADD A NEW SR WHICH REQUIRES EACH OF THE ACM QUICK-DISCONNECT VALVES TO BE CONNECTED AND DISCONNECTED ONCE EACH QUARTER TO DEMONSTRATE THAT THIS VALVE IS CAPABLE OF FUNCTIONING PROPERLY.

A. OPERATIONAL READINESS (CONTINUED)

3. INSTRUMENTATION AND CONTROL TESTING

A) RESERVE SHUTDOWN HOPPER - CONTINUE SR 5.1.2A WHICH REQUIRES THE RESERVE SHUTDOWN HOPPER PRESSURE ALARM CIRCUIT TO BE TESTED ONCE EACH QUARTER IN CONJUNCTION WITH THE SYSTEM TEST TO DEMONSTRATE THAT THE PRESSURE SWITCH AND ALARM FUNCTION PROPERLY. CONTINUE SR 5.1.2E WHICH REQUIRES THE RESERVE SHUTDOWN HOPPER PRESSURE SWITCH TO BE CALIBRATED WHENEVER THE CONTROL AND ORIFICE ASSEMBLY IS REMOVED FROM THE REACTOR FOR MAINTENANCE TO DEMONSTRATE THAT THE PRESSURE SWITCH OPERATES AT THE CORRECT SET PRESSURE.

B) NORMAL PRESSURIZING LINE - CONTINUE SR 5.1.2D WHICH REQUIRES THE PRESSURIZING LINE PRESSURE ALARM CIRCUIT TO BE TESTED ONCE EACH QUARTER IN CONJUNCTION WITH THE SYSTEM TEST AND CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE PRESSURE SWITCH AND ALARM CIRCUIT FUNCTIONS PROPERLY.

C) TEST PRESSURIZING LINE - CONTINUE SR 5.1.2B WHICH REQUIRES THE TEST GAS PRESSURIZING LINE PRESSURE INDICATION AND ALARM CIRCUIT TO BE CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE PRESSURE INDICATOR, THE PRESSURE INDICATING SWITCH, AND THE ALARM CIRCUIT FUNCTION PROPERLY.

D) PRESSURIZING VALVES - MODIFY EXISTING SR 5.1.2A TO REQUIRE THE PRESSURIZING VALVE CONTROL CIRCUIT BE TESTED ONCE EACH QUARTER TO DEMONSTRATE CONTINUITY BETWEEN THE CONTROL ROOM AND THE LOCAL CONTROL PANEL. (NOTE: THIS TEST IS PRESENTLY PERFORMED). ADD A NEW SR WHICH REQUIRES THE PRESSURIZING VALVE CONTROL CIRCUIT TO BE TESTED AT EACH REFUELING SHUTDOWN TO DEMONSTRATE THAT THE CONTROL ROOM SWITCHES AND CONTROL RELAYS FUNCTION PROPERLY TO OPERATE THE HOPPER PRESSURIZING VALVES.

B. STRUCTURAL INTEGRITY

1. SYSTEM PRESSURE BOUNDARY LEAKAGE TESTING

A) SYSTEM PIPING UPSTREAM OF PRESSURIZING VALVES - THE SYSTEM PIPING UPSTREAM OF THE PRESSURIZING VALVES IS CONTINUOUSLY MONITORED FOR LEAKAGE BY THE PRESSURIZING LINE PRESSURE ALARM CIRCUIT. NO NEW SR IS REQUIRED TO VERIFY THE INTEGRITY OF THIS PIPING, WHICH IS NORMALLY PRESSURIZED BY THE HELIUM STORAGE BOTTLES.

B) SYSTEM PIPING DOWNSTREAM OF PRESSURIZING VALVES - THE SYSTEM PIPING DOWNSTREAM OF THE PRESSURIZING VALVES IS PRESSURIZED ONCE EACH QUARTER DURING THE SYSTEM TESTS TO VERIFY THAT A CLEAR FLOW PATH EXISTS. NO NEW SR IS REQUIRED TO VERIFY THE INTEGRITY OF THIS PIPING, MUCH OF WHICH IS NOT ACCESSIBLE FOR EXAMINATION.

C) SYSTEM PIPING INSIDE REFUELING PENETRATION - ADD A NEW SR WHICH REQUIRES THE SYSTEM PIPING INSIDE THE REFUELING PENETRATION TO BE VISUALLY EXAMINED WHEN THE PENETRATION IT IS CONNECTED TO IS OPENED FOR REFUELING TO VERIFY THE INTEGRITY OF THE SYSTEM PIPING BETWEEN THE PENETRATION CHECK VALVE AND THE CONTROL AND ORIFICE ASSEMBLY HOUSING.

PROPOSED SURVEILLANCE REQUIREMENTS

REACTOR BUILDING VENTILATION EXHAUST SYSTEM

A. OPERATIONAL READINESS

1. SYSTEM TESTING

A) LCO 4.5.1 REQUIRES THE REACTOR BUILDING TO BE MAINTAINED SLIGHTLY BELOW ATMOSPHERIC PRESSURE WHENEVER THE REACTOR IS BEING OPERATED OR REFUELED. REACTOR BUILDING PRESSURE IS MONITORED CONTINUOUSLY AND ALARMED IF ABNORMAL TO ENSURE THAT THE REACTOR BUILDING IS CAPABLE OF PERFORMING ITS CONFINEMENT FUNCTION. NO NEW SR IS REQUIRED TO DEMONSTRATE THE CAPABILITY OF THE VENTILATION EXHAUST SYSTEM TO MAINTAIN THE REACTOR BUILDING AT A NEGATIVE PRESSURE.

B) CONTINUE EXISTING SR 5.2.21 WHICH REQUIRES THE EXHAUST FAN ACM POWER BUS TO BE ENERGIZED ONCE EVERY SIX MONTHS TO DEMONSTRATE THAT THE ACM FEED BREAKERS AND TRANSFER SWITCHES ARE OPERABLE AND THAT THE EXHAUST FANS ARE CAPABLE OF OPERATION FROM THIS EMERGENCY POWER SOURCE.

C) ADD A NEW SR WHICH REQUIRES THE NITROGEN STORAGE BOTTLE PRESSURE TO BE MONITORED ONCE EACH WEEK TO ENSURE THAT THE REQUIRED ACTUATING PRESSURE IS MAINTAINED FOR THE EXHAUST FAN DAMPERS DURING ACM SYSTEM OPERATION.

A. OPERATIONAL READINESS (CONTINUED)

2. COMPONENT TESTING

A) HEPA FILTERS - CONTINUE EXISTING SR 5.5.3E WHICH REQUIRES THE HEPA FILTER PRESSURE DROP TO BE MONITORED ONCE EACH WEEK TO ENSURE THEY ARE CAPABLE OF PASSING DESIGN AIR FLOW AND ARE NOT EXCESSIVELY PLUGGED. CONTINUE EXISTING SR 5.5.3C WHICH REQUIRES THE HEPA FILTER EFFICIENCY BE DOP TESTED ONCE EACH YEAR OR WHENEVER A FILTER IS REPLACED OR ITS HOUSING REPAIRED TO DEMONSTRATE THAT THE CAPACITY FOR REMOVAL OF PARTICULATES IS ACCEPTABLE. CONTINUE EXISTING SR 5.5.3D WHICH REQUIRES THE HEPA FILTER BE TESTED WHENEVER THE FILTER HOUSING IS MODIFIED TO DEMONSTRATE THAT THE AIR FLOW IS PROPERLY DISTRIBUTED ACROSS THE FILTER.

B) CHARCOAL FILTERS - CONTINUE EXISTING SR 5.5.3E WHICH REQUIRES THE CHARCOAL FILTER PRESSURE DROP TO BE MONITORED ONCE EACH WEEK TO ENSURE THEY ARE CAPABLE OF PASSING DESIGN AIR FLOW AND ARE NOT EXCESSIVELY PLUGGED. CONTINUE EXISTING SR 5.5.3A WHICH REQUIRES A CHARCOAL SAMPLE TO BE LAB TESTED ONCE EVERY 4400 HOURS (ABOUT SIX MONTHS) TO DEMONSTRATE THAT THE CAPACITY FOR REMOVAL OF RADIOACTIVE METHYL IODIDE IS ACCEPTABLE. CONTINUE EXISTING SR 5.5.3B WHICH REQUIRES THE CHARCOAL FILTERS TO BE TESTED ONCE EACH YEAR OR WHENEVER A FILTER BED IS REPLACED OR ITS HOUSING REPAIRED TO DEMONSTRATE THAT THE CAPACITY FOR REMOVAL OF HYDROGENATED HYDROCARBONS IS ACCEPTABLE. CONTINUE SR 5.5.3D WHICH REQUIRES THE CHARCOAL FILTER TO BE TESTED WHENEVER THE FILTER HOUSING IS MODIFIED TO DEMONSTRATE THAT THE AIR FLOW IS PROPERLY DISTRIBUTED ACROSS THE FILTER BEDS.

2. COMPONENT TESTING (CONTINUED)

C) EXHAUST FANS - CONTINUE EXISTING SR 5.5.3E WHICH REQUIRES THE REACTOR BUILDING EXHAUST FANS TO BE OPERATED AT DESIGN FLOW ONCE EACH WEEK FOR THE FILTER PRESSURE DROP CHECKS TO DEMONSTRATE THAT THE FANS ARE FUNCTIONING PROPERLY.

D) EXHAUST FAN DAMPERS - ADD A NEW SR WHICH REQUIRES THE EXHAUST FAN DAMPERS TO BE TESTED ONCE EVERY SIX MONTHS TO DEMONSTRATE THAT THE VALVE OPERATOR STROKES PROPERLY AND FAILS IN THE PROPER POSITION ON LOSS OF POWER. CONTINUE EXISTING SR 5.2.21 WHICH REQUIRES THE DAMPERS TO BE ACTUATED USING THE ACM NITROGEN BOTTLES ONCE EVERY SIX MONTHS TO DEMONSTRATE THAT THE BACKUP INSTRUMENT AIR HEADER FUNCTIONS PROPERLY.

A. OPERATIONAL READINESS (CONTINUED)

3. INSTRUMENTATION AND CONTROL TESTING

A) EXHAUST FILTERS - ADD A NEW SR WHICH REQUIRES THE EXHAUST FILTER DIFFERENTIAL PRESSURE INDICATION AND ALARM CIRCUIT TO BE CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE PRESSURE INDICATORS, SWITCHES, AND ALARMS FUNCTION PROPERLY.

B) EXHAUST FANS - ADD A NEW SR WHICH REQUIRES THE EXHAUST FAN DIFFERENTIAL PRESSURE INDICATION AND ALARM CIRCUIT TO BE CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE PRESSURE INDICATORS, SWITCHES, AND ALARMS FUNCTION PROPERLY.

C) EXHAUST FAN DAMPERS - ADD A NEW SR WHICH REQUIRES THE EXHAUST FAN DAMPER POSITION INDICATION CIRCUIT TO BE CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE POSITION SWITCHES ACCURATELY INDICATE VALVE POSITION.

D) REACTOR BUILDING - CONTINUE EXISTING SR 5.5.1 WHICH REQUIRES THE REACTOR BUILDING PRESSURE INDICATION AND CONTROL CIRCUIT TO BE TESTED ONCE EACH MONTH AND CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE DIFFERENTIAL PRESSURE TRANSMITTERS, INDICATORS, SWITCH, CONTROLLER AND ALARM FUNCTION PROPERLY.

3. INSTRUMENTATION AND CONTROL TESTING (CONTINUED)

E) EXHAUST STACK - CONTINUE EXISTING SR 5.8.1 WHICH REQUIRES THE EXHAUST STACK RADIATION MONITORING CIRCUIT TO BE TESTED ONCE EACH WEEK, ONCE EACH MONTH, AND CALIBRATED ONCE EACH QUARTER TO DEMONSTRATE THAT THE MONITORS, ALARMS, AND ISOLATION CONTROLS FUNCTION PROPERLY. ADD A NEW SR WHICH REQUIRES THE EXHAUST STACK FLOW INDICATION CIRCUIT TO BE CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE SENSING ELEMENT AND INDICATORS ACCURATELY MEASURE EXHAUST STACK FLOW.

B. STRUCTURAL INTEGRITY - SYSTEM TESTING AND COMPONENT TESTING PROVIDE ADEQUATE INFORMATION TO ASSURE THAT THE SYSTEM DUCTWORK IS INTACT. NO NEW SR IS REQUIRED TO VERIFY THE STRUCTURAL INTEGRITY OF THE SYSTEM DUCTING.

PROPOSED SURVEILLANCE REQUIREMENTS

REACTOR BUILDING OVERPRESSURE PROTECTION SYSTEM

A. OPERATIONAL READINESS

1. SYSTEM TESTING

A) CONTINUE EXISTING SR 5.5.2 WHICH REQUIRES THE REACTOR BUILDING PRESSURE RELIEF LOUVERS TO BE EXERCISED ONCE EACH YEAR TO DEMONSTRATE OPERABILITY. MODIFY SR 5.5.2 TO REQUIRE THAT THE REACTOR BUILDING PRESSURE RELIEF LOUVERS BE EXERCISED USING THE BACKUP INSTRUMENT AIR HEADER (NITROGEN BOTTLES) ONCE EACH YEAR TO DEMONSTRATE OPERABILITY WITH BACKUP POWER. (NOTE: THIS TEST IS PRESENTLY BEING PERFORMED).

2. COMPONENT TESTING

A) PRESSURE RELIEF LOUVERS - MODIFY SR 5.5.2 TO REQUIRE THE PRESSURE RELIEF LOUVERS TO BE TESTED ONCE EACH YEAR IN CONJUNCTION WITH THE SYSTEM TESTS TO DEMONSTRATE THAT THE ACTUATOR STROKES FULLY AND RAPIDLY.

3. INSTRUMENTATION AND CONTROL TESTING

A) REACTOR BUILDING - CONTINUE EXISTING SR 5.5.2 WHICH REQUIRES THE REACTOR BUILDING PRESSURE SENSING LOGIC TO BE TESTED ONCE EACH MONTH AND CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE PRESSURE TRANSMITTERS AND CONTROL LOGIC FUNCTION PROPERLY.

B) SUPPLY FAN - MODIFY SR 5.5.2 TO REQUIRE THE SUPPLY FAN INTERLOCK CIRCUIT TO BE TESTED ONCE EACH YEAR IN CONJUNCTION WITH THE SYSTEM TESTS TO DEMONSTRATE THAT THE SUPPLY FAN IS SHUT DOWN WHEN THE LOUVERS ARE ACTUATED. (NOTE: THIS TEST IS PRESENTLY BEING PERFORMED).

C) INSTRUMENT AIR HEADERS - ADD A NEW SR WHICH REQUIRES THE PRESSURE INDICATION AND ALARM CIRCUITS FOR THE NORMAL AND BACKUP INSTRUMENT AIR HEADERS TO BE TESTED AND CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE PRESSURE INDICATORS, PRESSURE SWITCHES, AND ALARMS FUNCTION PROPERLY.

D) LOUVER GROUP HEADERS - ADD A NEW SR WHICH REQUIRES THE PRESSURE ALARM CIRCUITS IN EACH OF THE TWENTY LOUVER GROUP HEADERS TO BE CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE PRESSURE SWITCHES AND ALARMS FUNCTION AT THE CORRECT SET PRESSURE.

B. STRUCTURAL INTEGRITY - SYSTEM TESTING AND COMPONENT TESTING PROVIDE ADEQUATE INFORMATION TO ASSURE THE STRUCTURAL INTEGRITY OF THE REACTOR BUILDING LOUVERS. NO NEW SR IS REQUIRED TO VERIFY THEIR STRUCTURAL INTEGRITY.

PROPOSED SURVEILLANCE REQUIREMENTS

PURIFICATION COOLING WATER SYSTEM

A. OPERATIONAL READINESS

1. SYSTEM TESTING - CONTINUE EXISTING SR 5.2.21 WHICH REQUIRES THE PURIFICATION PUMP ACM POWER BUS TO BE ENERGIZED ONCE EVERY SIX MONTHS TO DEMONSTRATE THAT THE ACM FEED BREAKERS AND TRANSFER SWITCHES ARE OPERABLE AND THAT THE PURIFICATION PUMPS ARE CAPABLE OF OPERATION FROM THIS EMERGENCY POWER SOURCE.

A. OPERATIONAL READINESS (CONTINUED)

2. COMPONENT TESTING

A) PURIFICATION PUMPS - ADD A NEW SR WHICH REQUIRES THE PURIFICATION PUMPS TO BE TESTED ONCE EACH QUARTER TO DEMONSTRATE THAT APPLICABLE PUMP PERFORMANCE PARAMETERS ARE ACCEPTABLE.

B) COOLING LOOP ISOLATION VALVES - CONTINUE EXISTING SR 5.2.21 WHICH REQUIRES THE COOLING LOOP ISOLATION VALVES TO BE MANUALLY EXERCISED ONCE EVERY SIX MONTHS TO DEMONSTRATE THAT THE HAND JACK FUNCTIONS PROPERLY. ADD A NEW SR WHICH REQUIRES THE COOLING LOOP ISOLATION VALVES TO BE EXERCISED ONCE EVERY SIX MONTHS TO DEMONSTRATE THAT THE AIR OPERATOR STROKES PROPERLY AND FAILS IN THE PROPER POSITION ON LOSS OF POWER.

C) COOLING LOOP RELIEF VALVES - ADD A NEW SR WHICH REQUIRES THE COOLING LOOP RELIEF VALVES TO BE TESTED ONCE EVERY FIVE YEARS TO DEMONSTRATE THAT THE VALVES OPEN AT THE CORRECT SET PRESSURE.

A. OPERATIONAL READINESS (CONTINUED)

3. INSTRUMENTATION AND CONTROL TESTING

A) PURIFICATION PUMPS - ADD A NEW SR WHICH REQUIRES THE PURIFICATION PUMP DIFFERENTIAL PRESSURE INDICATION CIRCUIT TO BE CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE DIFFERENTIAL PRESSURE INDICATOR AND SWITCH FUNCTIONS PROPERLY.

B) ISOLATION VALVES - ADD A NEW SR WHICH REQUIRES THE ISOLATION VALVE POSITION INDICATION CIRCUIT TO BE TESTED ONCE EACH YEAR TO DEMONSTRATE THAT THE POSITION SWITCHES AND INDICATORS FUNCTION PROPERLY.

C) PURIFICATION COOLER LOOP - ADD A NEW SR WHICH REQUIRES THE PURIFICATION COOLER HIGH PRESSURE LOOP ISOLATION CIRCUIT TO BE TESTED ONCE EACH QUARTER TO DEMONSTRATE THAT THE PRESSURE SWITCH FUNCTIONS TO CLOSE THE ISOLATION VALVES AT THE CORRECT SET PRESSURE.

B. STRUCTURAL INTEGRITY

1. SYSTEM PRESSURE BOUNDARY LEAKAGE TESTING - ADD A NEW SR WHICH REQUIRES THE SYSTEM PIPING TO BE EXAMINED FOR LEAKAGE ONCE EVERY YEAR DURING OPERATION TO VERIFY THE INTEGRITY OF THE SYSTEM PRESSURE BOUNDARY.

PROPOSED SURVEILLANCE REQUIREMENTS

PCRV SAFETY VALVES

A. OPERATIONAL READINESS

1. SYSTEM TESTING - COMPONENT TESTING IS ADEQUATE TO VERIFY SYSTEM PERFORMANCE.

2. COMPONENT TESTING

   A) RUPTURE DISCS - CONTINUE EXISTING SR 5.2.1A WHICH REQUIRES ONE OF THE TWO RUPTURE DISCS TO BE BENCH TESTED EACH YEAR AT SHUTDOWN ON AN ALTERNATING BASIS TO DEMONSTRATE THAT THE BELLEVILLE WASHERS DEFLECT AT THE CORRECT SET PRESSURE.

   B) SAFETY VALVES - CONTINUE EXISTING SR 5.2.1A WHICH REQUIRES ONE OF THE TWO SAFETY VALVES TO BE TESTED IN PLACE EACH YEAR AT SHUTDOWN ON AN ALTERNATE BASIS TO DEMONSTRATE THAT THE VALVE OPENS AT THE CORRECT SET PRESSURE.

   C) SAFETY ISOLATION VALVES - ADD A NEW SR WHICH REQUIRES EACH ISOLATION VALVE TO BE EXERCISED THROUGH A PARTIAL STROKE SEMI-ANNUALLY AND THROUGH A FULL STROKE ONCE EACH YEAR AT SHUTDOWN TO DEMONSTRATE THAT THE VALVE OPERATOR IS FUNCTIONING CORRECTLY. ADD A NEW SR WHICH REQUIRES EACH ISOLATION VALVE TO BE TESTED IN PLACE ONCE EVERY TWO YEARS AT SHUTDOWN TO DEMONSTRATE THAT SEAT LEAKAGE IS ACCEPTABLE.

A. OPERATIONAL READINESS (CONTINUED)

3. INSTRUMENTATION AND CONTROL TESTING

A) SAFETY ISOLATION VALVES - CONTINUE EXISTING SR 5.2.1c2 WHICH REQUIRES THE POSITION INDICATION AND ALARM CIRCUIT TO BE TESTED AND CALIBRATED ONCE EACH YEAR AT SHUTDOWN TO DEMONSTRATE THAT THE POSITION SWITCHES, INDICATORS, AND ALARMS FUNCTION PROPERLY.

B) RUPTURE DISC - CONTINUE EXISTING SR 5.2.1c1 WHICH REQUIRES THE RUPTURE DISC/SAFETY VALVE INTERSPACE PRESSURE ALARM CIRCUIT TO BE TESTED ONCE EACH MONTH AND CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE PRESSURE SWITCHES AND ALARMS FUNCTION PROPERLY.

C) CONTAINMENT TANK - ADD A NEW SR WHICH REQUIRES THE CONTAINMENT TANK PRESSURE ALARM CIRCUIT TO BE TESTED AND CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE PRESSURE SWITCH AND ALARM FUNCTION PROPERLY.

D) SAFETY VALVE- ADD A NEW SR WHICH REQUIRES THE SAFETY VALVE BELLOWS RUPTURE ALARM CIRCUIT TO BE TESTED PRIOR TO SAFETY VALVE TESTING TO DEMONSTRATE THAT THE PRESSURE SWITCH AND ALARM FUNCTION PROPERLY.

E) RADIATION SHINE MONITOR - CONTINUE SR 5.4.9 WHICH REQUIRES THE DISCHARGE PIPING RADIATION SHINE MONITOR TO BE TESTED ONCE EACH WEEK AND CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE MONITOR FUNCTIONS PROPERLY.

B. STRUCTURAL INTEGRITY

1. SYSTEM PRESSURE BOUNDARY LEAKAGE TESTING

A) PCRV PENETRATION PIPING - CONTINUE EXISTING SR 5.2.16 WHICH REQUIRES PCRV PENETRATION INTERSPACE LEAKAGE TO BE MONITORED CONTINUOUSLY AND MEASURED ONCE EACH MONTH TO VERIFY THE INTEGRITY OF THE PCRV SAFETY VALVE PENETRATION PIPING.

B) SYSTEM PIPING - ADD A NEW SR WHICH REQUIRES THE NORMALLY UNPRESSURIZED SYSTEM PIPING (BETWEEN THE RUPTURE DISC AND SAFETY VALVE) TO BE EXAMINED FOR LEAKAGE ONCE EVERY TWO YEARS DURING THE SAFETY VALVE SET POINT TEST TO VERIFY THE INTEGRITY OF THIS PIPING. THE INTEGRITY OF NORMALLY PRESSURIZED SYSTEM PIPING IS VERIFIED BY THE CONTAINMENT TANK PRESSURE ALARM CIRCUIT, WHICH CONTINUOUSLY MONITORS FOR LEAKAGE.

2. STRUCTURE INSPECTIONS

A) PCRV SAFETY VALVE TANK - MODIFY EXISTING SR 5.2.1 TO REQUIRE THAT THE TANK CLOSURE FLANGE SEAL LEAKAGE BE DETERMINED ONCE EACH YEAR FOLLOWING TANK CLOSURE TO DEMONSTRATE LEAK TIGHTNESS OF THE CLOSURE SEALS. (NOTE: THIS TEST IS CURRENTLY BEING PERFORMED). MODIFY THIS SR TO ALSO REQUIRE THAT THE TANK CLOSURE BOLTING BE EXAMINED ONCE EACH YEAR TO VERIFY THE ABSENCE OF VISIBLE SURFACE DEFECTS AND THAT THE TANK WELD JOINTS BE EXAMINED FOR LEAKAGE ONCE EVERY FIVE YEARS DURING THE COVER FLANGE LEAK TEST.

PROPOSED SURVEILLANCE REQUIREMENTS

PRE-STRESSED CONCRETE REACTOR VESSEL

A. OPERATIONAL READINESS

1. INSTRUMENTS AND CONTROLS

A) PENETRATION INTERSPACES - CONTINUE EXISTING SR 5.2.15 AND SR 5.2.16 WHICH REQUIRE THE PCRV PENETRATION INTERSPACE PRESSURE AND FLOW INDICATING CIRCUITS TO BE TESTED ONCE EACH MONTH AND CALIBRATED ONCE EACH YEAR TO DEMONSTRATE THAT THE INSTRUMENTS FUNCTION PROPERLY.

B) TENDONS - CONTINUE EXISTING SR 5.2.3 WHICH REQUIRES THE TENDON LOAD CELLS TO BE TESTED AFTER 1, 3, 8, 13, 18, 23, 28 YEARS OF OPERATION TO DEMONSTRATE THAT THE LOAD CELL REFERENCE POINTS HAVE NOT SHIFTED. ADD A NEW SR WHICH REQUIRES THE LOAD CELL ALARM CIRCUIT TO BE TESTED ONCE EACH YEAR TO DEMONSTRATE THAT THE ALARM FUNCTIONS PROPERLY.

B. STRUCTURAL INTEGRITY

1. PRESSURE BOUNDARY LEAKAGE TESTING

A) PENETRATION INTERSPACES - CONTINUE EXISTING SR 5.2.16A WHICH REQUIRES THE PENETRATION INTERSPACE LEAK RATE TO BE MEASURED ONCE EACH MONTH TO MONITOR AND VERIFY THE INTEGRITY OF THE PENETRATIONS AND CLOSURES. THE INTERSPACE LEAK RATES ARE ALSO MONITORED CONTINUOUSLY AND ALARMED IF ABNORMAL TO PROVIDE ADDITIONAL ASSURANCE OF INTEGRITY.

2. STRUCTURE INSPECTIONS

A) OVERALL STRUCTURE - ADD A NEW SR WHICH REQUIRES THE PRESSURE VS. DEFLECTION CHARACTERISTICS OF THE OVERALL PCRV STRUCTURE TO BE MEASURED AFTER 1, 3, 5, 10, 15, 20, AND 25 YEARS OF OPERATION TO VERIFY THAT THE RESPONSE IS ELASTIC AND THAT NO SIGNIFICANT PERMANENT STRAINS EXIST.

2. STRUCTURE INSPECTIONS (CONTINUED)

B) CONCRETE SURFACES - CONTINUE EXISTING SR 5.2.4 WHICH REQUIRES THE TOP, BOTTOM, AND SIDE SURFACES OF THE PCRV CONCRETE TO BE VISUALLY EXAMINED AFTER 1, 3, 13, AND 23 YEARS OF OPERATION TO VERIFY STRUCTURAL INTEGRITY BY ASSESSING THE SURFACE CRACKING PATTERNS AND SIZES.

C) CONCRETE HEADS AND WALL - CONTINUE EXISTING SR 5.2.13 WHICH REQUIRES THE HELIUM PERMEATION RATE OF THE CONCRETE IN THE PCRV HEADS AND SIDE WALL TO BE MEASURED AFTER 3, 8, 13, 18, 23, AND 28 YEARS OF OPERATION, AND THAT ANY CHANGES IN THIS RATE BE ASSESSED TO VERIFY STRUCTURAL INTEGRITY.

D) PCRV LINER - CONTINUE EXISTING SR 5.2.5 WHICH REQUIRES THE CHARPY IMPACT SPECIMENS, PLACED ADJACENT TO THE OUTSIDE SURFACE OF THE TOP HEAD LINER, TO BE TESTED AFTER 5, 15, AND 25 YEARS OF OPERATION TO VERIFY THAT CHANGES IN NOTCH TOUGHNESS DUE TO IRRADIATION ARE ACCEPTABLE. CONTINUE EXISTING SR 5.2.14 WHICH REQUIRES SELECTED AREAS OF THE PCRV LINER WALL THICKNESS TO BE MEASURED BY ULTRASONIC TESTING AFTER 3, 5, 15, AND 25 YEARS OF OPERATION TO VERIFY THAT CHANGES IN WALL THICKNESS DUE TO CORROSION ARE ACCEPTABLE.

2. STRUCTURE INSPECTIONS (CONTINUED)

E) PCRV TENDON ANCHORS - ADD A NEW SR WHICH REQUIRES 5% OF THE PCRV TENDON END ANCHOR ASSEMBLIES TO BE VISUALLY EXAMINED AFTER 1, 3, 8, 13, 18, 23, AND 28 YEARS OF OPERATION TO VERIFY THAT NO CORROSION DAMAGE OR OTHER EVIDENCE OF CHANGES IN STRUCTURAL INTEGRITY EXISTS.

F) PCRV TENDON WIRES - CONTINUE EXISTING SR 5.2.2 WHICH REQUIRES 1% OF THE TENDON TUBE WIRE SAMPLES TO BE VISUALLY EXAMINED AFTER 1, 3, 8, 13, 18, 23, AND 28 YEARS OF OPERATION TO VERIFY THAT NO CORROSION DAMAGE EXISTS.

G) PCRV TENDON TUBES - CONTINUE EXISTING SR 5.2.2 WHICH REQUIRES A SAMPLE OF THE ATMOSPHERE IN A REPRESENTATIVE NUMBER OF TENDON TUBES (WITH AND WITHOUT LOAD CELLS) BE TAKEN AND ANALYZED AFTER 1, 3, 8, 13, 18, 23, AND 28 YEARS OF OPERATION TO VERIFY THAT CORROSION PRODUCTS DO NOT EXIST.

H) TENDON LOADS - SELECTED TENDON PRESTRESS FORCES ARE MONITORED CONTINUOUSLY AND ALARMED IF ABNORMAL TO ENSURE THAT THE REQUIRED LOADS ARE MAINTAINED AND THAT AN OVERLOAD CONDITION DOES NOT EXIST. NO NEW SR IS REQUIRED TO ASSURE THAT TENDON LOADS ARE ACCEPTABLE.

2. STRUCTURE INSPECTIONS (CONTINUED)

I) REFUELING PENETRATION LIMIT STOPS - ADD A NEW SR WHICH REQUIRES THE REFUELING PENETRATIONS HOLD DOWN PLATE BOLTING TO BE VISUALLY EXAMINED AT EACH REFUELING SHUTDOWN TO VERIFY THE INTEGRITY OF THE BOLTING.

PROPOSED SURVEILLANCE REQUIREMENTS

HELIUM CIRCULATOR SHUTOFF VALVES

ADD A NEW SR WHICH REQUIRES EACH OF THE FOUR HELIUM CIRCULATOR SHUTOFF VALVES TO BE MONITORED ONCE EACH YEAR TO ENSURE THAT THE VALVE CLOSES PROPERLY WHEN ITS ASSOCIATED CIRCULATOR IS SHUTDOWN.

NOTE

EXISTING GUIDELINES PROVIDED IN THE TECHNICAL SPECIFICATIONS FOR REPORTING UNUSUAL EVENTS ARE CONSIDERED ADEQUATE TO ENSURE THAT ANY OBSERVED FAILURE OF A HELIUM CIRCULATOR SHUTOFF VALVE TO CLOSE PROPERLY WILL BE REPORTED TO THE NRC.