Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.1:

"AC Sources - Operating"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources – Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

a. Two qualified circuits between the offsite transmission network and the onsite Electrical Power Distribution System; and

b. Three diesel generators (DGs) (31, 32 and 33) capable of supplying the onsite power distribution subsystem(s)

---------- NOTE----------
The 138 kV circuit is considered inoperable whenever the automatic transfer function for the 6.9 kV buses is disabled.

NRC

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for OPERABLE offsite circuit. AND	1 hour AND Once per 8 hours thereafter

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	---------NOTE---------- Only required if 13.8 kV offsite circuit is supplying 6.9 kV bus 5 or 6 and the Unit Auxiliary Transformer is supplying 6.9 kV bus 1, 2, 3 or 4. ----------	
	A.2 Verify automatic transfer of 6.9 kV buses 1, 2, 3, and 4 to 6.9 kV bus 5 and 6 is disabled.	1 hour AND Once per 8 hours thereafter
	AND	
	A.3 Declare inoperable required feature(s) with no offsite power automatically available when its redundant required feature(s) is inoperable.	24 hours from discovery of no automatically available offsite power to one train concurrent with inoperability of redundant required feature(s)
	AND	
	A.4 Restore offsite circuit to OPERABLE status.	72 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. One DG inoperable.	B.1 Perform SR 3.8.1.1 for the offsite circuits. AND	1 hour AND Once per 8 hours thereafter
	B.2 Declare inoperable the required features supported by the inoperable DG when its required redundant feature is inoperable. AND	4 hours from discovery of Condition B concurrent with inoperability of redundant required feature
	B.3.1 Determine OPERABLE DG(s) are not inoperable due to common cause failure. OR	24 hours
	B.3.2 Perform SR 3.8.1.2 for OPERABLE DGs. AND	24 hours
	B.4 Restore DG to OPERABLE status.	72 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Two offsite circuits inoperable.	C.1 Declare required features inoperable when its redundant required feature is inoperable. AND	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature.
	C.2 Restore one offsite circuit to OPERABLE status.	24 hours
D. One offsite circuit inoperable. AND One DG inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems – Operating," when Condition D is entered with no offsite or DG AC power source automatically available to any train. ---------- D.1 Restore offsite circuit to OPERABLE status. OR D.2 Restore DG to OPERABLE status.	12 hours 12 hours

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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Two or more DGs inoperable.	E.1 Restore at least two DGs to OPERABLE status.	2 hours
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met.	F.1 Be in MODE 3. AND F.2 Be in MODE 5.	6 hours 36 hours
G. One or more offsite circuits and two DGs inoperable.	G.1 Enter LCO 3.0.3.	Immediately
H. Two offsite circuits and one or more DGs inoperable.	H.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each offsite circuit.	7 days
SR 3.8.1.2	----------NOTE---------- All DG starts may be preceded by an engine prelube period. ---------- Verify each DG starts from standby conditions and achieves: a. in ≤ 10 seconds, voltage ≥ 422 V and frequency ≥ 58.8 Hz; and b. steady state voltage ≥ 422 V and ≤ 500V, and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	31 days
SR 3.8.1.3	----------NOTES---------- 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This SR shall be conducted on only one DG at a time. 4. This SR shall be preceded by and immediately follow without shutdown a successful performance of SR 3.8.1.2. ---------- Verify each DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 1575 kW and ≤ 1750 kW.	31 days

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.4	Verify each day tank contains ≥ 115 gal of fuel oil.	31 days
SR 3.8.1.5	Check for and remove accumulated water from each day tank.	31 days
SR 3.8.1.6	Verify the fuel oil transfer system operates to automatically transfer fuel oil from DG storage tank to the day tank.	31 days
SR 3.8.1.7	----------NOTE---------- This Surveillance shall not be performed in MODE 1 or 2. ---------- Verify manual transfer of AC power sources from the normal offsite circuit to the alternate offsite circuit.	24 months
SR 3.8.1.8	----------NOTES---------- 1. This Surveillance shall not be performed in MODE 1 or 2. 2. Only required to be met if 138 kV offsite circuit is supplying 6.9 kV bus 5 and 6 and the Unit Auxiliary Transformer is supplying 6.9 kV bus 2 or 3. ---------- Verify automatic transfer of AC power for 6.9 kV buses 2 and 3 from the unit auxiliary transformer to 6.9 kV buses 5 and 6.	24 months

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.9	----------NOTE---------- This Surveillance shall not be performed in MODE 1 or 2. ---------- Verify each DG's automatic trips are bypassed on actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ESF actuation signal except: a. Engine overspeed; b. Low lube oil pressure; and c. Overcrank relay.	24 months
SR 3.8.1.10	----------NOTES---------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2. ---------- Verify each DG operating at a power factor $\leq$ 0.9 operates for $\geq$ 8 hours: a. For $\geq$ 105 minutes loaded $\geq$ 1837 kW and $\leq$ 1925 kW; and b. For the remaining hours of the test loaded $\geq$ 1575 kW and $\leq$ 1750 kW.	24 months
SR 3.8.1.11	----------NOTE---------- Load timers associated with equipment that has automatic initiation capability disabled are not required to be operable. ---------- Verify each time delay relay functions within the required design interval.	18 months

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SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.1.12	----------NOTES---------- 1. All DG starts may be preceded by an engine prelube period. 2. This Surveillance shall not be performed in MODE 1, 2, 3, or 4. 3. This SR may be performed on safeguards power trains one at a time, or simultaneously. Appropriate plant conditions must be established when testing three safeguards power trains simultaneously. ---------- Verify on an actual or simulated loss of offsite power signal in conjunction with an actual or simulated ESF actuation signal: a. De-energization of emergency buses; b. Load shedding from emergency buses; and c. DG auto-starts from standby condition and: 1. energizes permanently connected loads in ≤ 10 seconds, 2. energizes auto-connected emergency loads through individual load timers, 3. achieves steady state voltage ≥ 422 V and ≤ 500 V, 4. achieves steady state frequency ≥ 58.8 Hz and ≤ 61.2 Hz, and 5. supplies permanently connected and auto-connected emergency loads for ≥ 5 minutes.	24 months

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.13	----------NOTE---------- 1. All DG starts may be preceded by an engine prelube period. 2. Performance of SR 3.8.1.12 may be used to satisfy the requirements of this SR if all three diesel generators are started simultaneously. ----------	
	Verify when started simultaneously from standby condition, each DG achieves: a. in ≤ 10 seconds, voltage ≥ 422 V and frequency ≥ 58.8 Hz; and b. steady state voltage ≥ 422 V and ≤ 500V, and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	10 years

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B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.1 AC Sources – Operating

BASES

BACKGROUND

The unit Electrical Power Distribution System AC sources consist of the following: two offsite circuits (the normal or 138 kV circuit and the alternate or 13.8 kV circuit), each of which has a preferred and backup feeder; and, the onsite standby power circuit consisting of three diesel generators. As required by 10 CFR 50, Appendix A, GDC 17 (Ref. 1), the design of the AC electrical power system provides independence and redundancy to ensure an available source of power to the Engineered Safety Feature (ESF) systems.

The onsite plant distribution system is configured around 6.9 kV buses Nos. 1, 2, 3, 4, 5, and 6. All offsite power to safeguards buses enter the plant via 6.9 kV buses Nos.5 and 6 which are connected to the 138 kV (normal) offsite circuit and have the ability to be connected to the 13.8 kV (alternate) offsite circuit. 6.9 kV buses 1, 2, 3, and 4, which supply power to the 4 reactor coolant pumps (RCPs), typically receive power from the main generator via the unit auxiliary transformer (UAT) when the plant is at power. However, when the main generator or UAT is not capable of supporting this arrangement, 6.9 kV buses 1 and 2 receive offsite power via 6.9 kV bus 5 and 6.9 kV buses 3 and 4 receive offsite power via 6.9 kV bus 6. Following a unit trip, 6.9 kV buses 1, 2, 3, and 4 will auto transfer (fast transfer) to 6.9 kV buses 5 and 6 in order to receive offsite power. The
6.9 kV buses supply power to the 480 V buses using 6.9 kV/480 V station service transformers (SSTs) as follows: 6.9 kV bus 5 supplies 480 V bus 5A via SST 5; 6.9 kV bus 6 supplies 480 V bus 6A via SST 6; 6.9 kV bus 2 supplies 480 V bus 2A via SST 2; and, 6.9 kV bus 3 supplies 480 V bus 3A via SST 3.

The onsite AC Power Distribution System begins with 480 V buses 5A, 6A, 2A and 3A and is divided into 3 safeguards power trains (trains) consisting of the 480 volt safeguards bus(es) and associated AC electrical power distribution subsystems, 125 volt DC bus subsystems, and 120 volt vital AC instrument bus

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BACKGROUND (continued)

subsystems. The three trains are designed such that any two trains are capable of meeting minimum requirements for accident mitigation and/or safe shutdown. The three safeguards power trains are train 5A (480 volt bus 5A and associated DG 33), train 6A (480 volt bus 6A and associated DG 32), and train 2A/3A (480 volt buses 2A and 3A and associated DG 31).

Offsite power is supplied to the plant from the transmission network by two electrically and physically separated circuits, the 138 kV or normal circuit and the 13.8 kV or alternate circuit. Each of the offsite circuits from the Buchanan substation into the plant is required to be supported by a physically independent circuit from the offsite network into the Buchanan substation. All offsite power enters the plant via 6.9 kV buses Nos.5 and 6 which are connected to the 138 kV (normal) offsite circuit and have the ability to be connected to the 13.8 kV (alternate) offsite circuit. This arrangement satisfies the requirement that at least one of the two required circuits can within a few seconds, provide power to safety-related equipment following a loss-of-coolant accident. Operator action is required to supply offsite power to the plant using the 13.8 kV (alternate) offsite source.

The 138 kV circuit and the 13.8 kV circuit each have a preferred and a backup feeder that connects the circuit to the Buchanan substation. For both the 138 kV and 13.8 kV circuits, the preferred IP3 feeder is the backup IP2 feeder and the backup IP3 feeder is the preferred IP2 feeder.

For the 138 kV (i.e., normal) offsite circuit, IP2 and IP3 each have a dedicated Station Auxiliary Transformer (SAT) that can be supplied by either a preferred or backup feeder. The normal or 138 kV offsite circuit, including the SAT used exclusively for IP3, is designed to supply all IP3 loads, including 4 operating RCPs and ESF loads, when using either the preferred (95331) or backup (95332) feeder. There are no special restrictions when IP2 and IP3 are both using the same 138 kV feeder concurrently.

For the 13.8 kV (i.e., alternate) offsite circuit, there is a 13.8 kV/6.9 kV auto-transformer associated with feeder 13W92 and a 13.8 kV/6.9 kV auto-transformer associated with feeder 13W93.

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BACKGROUND (continued)

Feeder 13W93 and its associated auto-transformer is the preferred feeder for the IP3 alternate (13.8 kV) circuit and the backup feeder for the IP2 alternate (13.8 kV) circuit. Feeder 13W92 and its associated auto-transformer is the backup feeder for the IP3 alternate (13.8 kV) circuit and the preferred feeder for the IP2 alternate (13.8 kV) circuit.

An offsite circuit consists of all breakers, transformers, switches, interrupting devices, cabling, and controls required to transmit power from the offsite transmission network to the onsite 480 V ESF bus(es).

The onsite standby power source consists of 3 480 V diesel generators (DGs) with a separate DG dedicated to each of the safeguards power trains. Safeguards power train 5A (480 V bus 5A) is supported by DG 33; safeguards power train 6A (480 V bus 6A) is supported by DG 32; and, safeguards power train 2A/3A (480 V buses 2A and 3A) is supported by DG 31. A DG starts automatically on a safety injection (SI) signal or on an ESF bus undervoltage signal (refer to LCO 3.3.5, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation"). After the DG has started, it will automatically tie to its respective bus after offsite power is tripped as a consequence of ESF bus undervoltage, independent of or coincident with an SI signal. The DGs will also start and operate in the standby mode without tying to the ESF bus on an SI signal alone. Following the trip of offsite power, an undervoltage signal strips nonpermanent loads from the ESF bus. When the DG is tied to the ESF bus, loads are then sequentially connected to its respective ESF bus by individual load timers. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG by automatic load application.

In the event of a loss of 138 kV or normal offsite source, the ESF electrical loads are automatically connected to the DGs in sufficient time to provide for safe reactor shutdown and to mitigate the consequences of a Design Basis Accident (DBA) such as a loss of coolant accident (LOCA).

Certain required unit loads are returned to service in a predetermined sequence in order to prevent overloading the DG in

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BACKGROUND (continued)

the process. Within 1 minute after the initiating signal is received, all loads needed to recover the unit or maintain it in a safe condition are returned to service.

Ratings for DGs 31, 32 and 33 are consistent with the requirements of Regulatory Guide 1.9 (Ref. 3). The 3 DGs each consist of an Alco model 16-251-E engine coupled to a Westinghouse 2188 kVA, 0.8 power factor, 900 rpm, 3 phase, 60 cycle, 480 volt generator. The ESF loads that are powered from the 480 V ESF buses are listed in Reference 2.

The EDGs have four capacity ratings as defined below that can be used to assess EDG operability.

Continuous: Electrical power output capability that can be maintained 24 hours /day, with no time constraint.

2000-hour: Electrical power output capability that can be maintained in one continuous run of 2000 hours or in multiple shorter duration runs totaling 2000 hours.

2-hour: Electrical power output capability that can be maintained for up to 2 hours in any 24-hour period.

1/2 - hour: Electrical power output capability that can be maintained for up to 30 minutes in any 24-hour period.

The electrical output capabilities (EDG load) applicable to these four ratings are as follows:

RATING	EDG LOAD	TIME CONSTRAINT
Continuous	≤ 1750 kW	None
2000-hour	≤ 1950 kW	≤ 2000 hours / calendar year

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BACKGROUND (continued)

2-hour	≤ 1950 kW	≤ 2 hours in a 24-hour period; AND
	≤ 1750 kW	for the remaining 22 hours. [See NOTE A]
1/2-hour	≤ 2000 kW	≤ 30 minutes in a 24-hour period; AND
	≤ 1750 kW	for the remaining 23.5 hours. [See NOTE A]

NOTE A: The loading cycle permitted for the '2-hour' and the '1/2-hour' rating is operation at the overload condition (e.g. > 1750 kW) for the specified time followed by operation at the 'continuous' (e.g. ≤ 1750kW) rating for the remaining time in the 24-hour period. This loading cycle may be repeated each day, as long as back-to-back operation in the overload condition does not occur. The 2000-hour cumulative time constraint also applies to repetitive operation at the overload conditions allowed by the 2-hour and the 1/2-hour ratings.

Operation in excess of 2000 kW, regardless of the duration, is an unanalyzed condition. In such cases, the EDG is assumed to be inoperable and the vendor should be consulted to determine if accelerated or supplemental inspection and/or maintenance is necessary. The EDG can be returned to an operable status following completion of vendor-required inspection and/or maintenance.

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APPLICABLE SAFETY ANALYSES

The initial conditions of DBA and transient analyses in the FSAR, Chapter 6 (Ref. 4) and Chapter 14 (Ref. 5), assume ESF systems are OPERABLE. The AC electrical power sources are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System (RCS), and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power

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APPLICABLE SAFETY ANALYSES (continued)

Distribution Limits; 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

The OPERABILITY of the AC electrical power sources is consistent with the initial assumptions of the Accident analyses and is based upon meeting the design basis of the unit. This results in maintaining at least 2 of the 3 safeguards power trains energized from either onsite or offsite AC sources during Accident conditions in the event of:

a. An assumed loss of all offsite power or all onsite AC power; and

b. A worst case single failure.

The AC sources satisfy Criterion 3 of 10 CFR 50.36.

LCO

Two qualified circuits between the offsite transmission network and the onsite Electrical Power System and separate and independent DGs for each train ensure availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an anticipated operational occurrence (AOO) or a postulated DBA.

There are two qualified circuits (normal and alternate) from the transmission network at the Buchanan Station to the onsite electric distribution system. The normal circuit is 138 kV and the alternate circuit is 13.8 kV. If the alternate circuit is in use, the normal circuit is inoperable because the autotransfer functions mentioned in the following circuit descriptions are disabled. Both of these circuits must be supported by a circuit from the offsite network into the Buchanan substation that is physically independent from the other circuit to the extent practical. The circuits into the Buchanan substation that satisfy these requirements are 96951, 96952 and 95891.

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The 138 kV (i.e., normal) offsite circuit consists of one of the following: 138 kV feeder 95331 (preferred); or, 138 kV feeder 95332 (backup). Additionally, the 138 kV/6.9 kV station auxiliary transformer, circuit breakers ST5 and ST6 which supply 6.9 kV buses 5 and 6, and the following components which are common to the normal and alternate offsite circuits:

a. The 480 V bus 5A supply consisting of 6.9 kV bus 5, station service transformer 5, and circuit breakers SS5 and 52/5A;

b. The 480 V bus 2A supply consisting of 6.9 kV bus 5, circuit breaker UT2-ST5 (including autotransfer function), 6.9 kV bus 2, station service transformer 2, and circuit breakers SS2 and 52/2A;

c. The 480 V bus 6A supply consisting of 6.9 kV bus 6, station service transformer 6, and circuit breakers SS6 and 52/6A; and,

d. The 480 V bus 3A supply consisting of 6.9 kV bus 6, circuit breaker UT3-ST6 (including autotransfer function), 6.9 kV bus 3, station service transformer 3, and circuit breakers SS3 and 52/3A.

The 13.8 kV (i.e., alternate) offsite circuit consists of one ofthe following: 13.8 kV feeder 13W93 and its associated 13.8/6.9 kV autotransformer (preferred); or, 13.8 kV feeder 13W92 and its associated 13.8/6.9 kV autotransformer (backup). Circuit breakers GT35 and GT36, which supply 6.9 kV buses 5 and 6, and the following components are common to the normal and alternate offsite circuits:

a. The 480 V bus 5A supply consisting of 6.9 kV bus 5, station service transformer 5, and circuit breakers SS5 and 52/5A;

b. The 480 V bus 2A supply consisting of 6.9 kV bus 5, circuit breaker UT2-ST5 (not including autotransfer function), 6.9 kV bus 2, station service transformer 2, and circuit breakers SS2 and 52/2A;

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LCO
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c. The 480 V bus 6A supply consisting of 6.9 kV bus 6, station service transformer 6, and circuit breakers SS6 and 52/6A; and,

d. The 480 V bus 3A supply consisting of 6.9 kV bus 6, circuit breaker UT3-ST6 (not including autotransfer function), 6.9 kV bus 3, station service transformer 3, and circuit breakers SS3 and 52/3A.

If the alternate (13.8 kV) offsite circuit is being used to supply power to the plant and the Unit Auxiliary Transformer is supplying 6.9 kV bus 1, 2, 3 or 4, the size of the 13.8 kV/6.9 kV auto-transformers requires that the automatic transfer of 6.9 kV buses 1, 2, 3, and 4 to 6.9 kV buses 5 and 6 (i.e., the offsite circuit) be disabled because neither 13.8 kV/6.9 kV auto-transformer is capable of supplying 4 operating RCPs. This requirement is not intended to preclude supplying 6.9 kV buses 1, 2, 3, and 4 using the alternate offsite circuit via the 13.8 kV/6.9 kV auto-transformers once sufficient loads have been stripped from 6.9 kV buses 1, 2, 3, and 4 to assure that the 13.8 kV/6.9 kV auto-transformer will not be overloaded by these manual actions.

If IP3 and IP2 are both using a single 13.8 kV feeder (13W92 or 13W93), administrative controls are used to ensure that the 13.8 kV/6.9 kV auto-transformer load restrictions will not be exceeded.

Each offsite circuit must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the ESF buses.

Three DGs must be capable of starting, accelerating to rated speed and voltage, and connecting to its respective ESF bus on detection of bus undervoltage. This will be accomplished within 10 seconds. Each DG must also be capable of accepting required loads within the assumed loading sequence intervals, and continue to operate until offsite power can be restored to the ESF buses.

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LCO (continued)

Proper sequencing of loads, including tripping of nonessential loads, is a required function for DG OPERABILITY.

The AC sources in each safeguards power train must be separate and independent (to the extent possible) of the AC sources in the other train. For the DGs, separation and independence are complete.

For the offsite AC sources, separation and independence are to the extent practical. A circuit may be connected to more than one ESF bus, and not violate separation criteria. A circuit that is not connected to an ESF bus is required to have OPERABLE automatic or manual transfer capability to the ESF buses to support OPERABILITY of that circuit.

APPLICABILITY

The AC sources are required to be OPERABLE in MODES 1, 2, 3, and 4 to ensure that:

a. Acceptable fuel design limits and reactor coolant pressure boundary limits are not exceeded as a result of AOOs or abnormal transients; and

b. Adequate core cooling is provided and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

The AC power requirements for MODES 5 and 6 are covered in LCO 3.8.2, "AC Sources – Shutdown."

ACTIONS

A.1

To ensure a highly reliable power source remains with one offsite circuit inoperable, it is necessary to verify the OPERABILITY of the remaining required offsite circuit on a more frequent basis. The LCO Bases describes the components and features which comprise the offsite circuits. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action not met.

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BASES

ACTIONS

A.1 (continued)

However, if a second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition C, for two offsite circuits inoperable, is entered.

A.2

Required Action A.2, applies only if the 13.8 kV offsite power circuit is being used to feed 6.9 kV buses 5 and 6 and the UAT is supplying 6.9 kV bus 1, 2, 3 or 4. This action prevents the automatic transfer of 6.9 kV buses 1, 2, 3, and 4 from the UAT to offsite power after a unit trip. Transfer of buses 1, 2, 3, and 4 from the UAT to offsite power could result in overloading the 13.8 kV/6.9 kV autotransformer. This requirement is not intended to preclude supplying 6.9 kV buses 1, 2, 3, and 4 using the alternate offsite circuit via the 13.8 kV/6.9 kV auto-transformers once sufficient loads have been stripped from 6.9 kV buses 1, 2, 3, and 4 to assure that the 13.8 kV/6.9 kV auto-transformer will not be overloaded by these manual actions. Automatic transfer of buses 1, 2, 3, and 4 can be disabled by placing 6.9 kV bus tie breaker control switches 1-5, 2-5, 3-6, and 4-6 in the "pull-out" position.

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Although the auto-transfer feature is normally disabled prior to placing the 13.8 kV offsite power circuit in service, a Completion Time of 1 hour ensures that the 13.8 kV circuit meets requirements for Operability promptly when the alternate offsite circuit is configured to support the response of ESF functions.

A.3

Required Action A.3, which only applies if the train will not be powered automatically from an offsite source when the main turbine generator trips, is intended to provide assurance that an event coincident with a single failure of the associated DG will not result in a complete loss of redundant required features. Required safety features are designed with a redundant safety feature that is powered from a different safeguards power train.

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ACTIONS (continued)

C.1 and C.2

Required Action C.1, which applies when two offsite circuits are inoperable, is intended to provide assurance that an event with a coincident single failure will not result in a complete loss of redundant required safety functions. Two offsite circuits are inoperable when both the immediate access circuit and the delayed offsite circuit are not available to one or more safeguards power trains. The most probable cause is a failure in a portion of the circuit that is common to both offsite circuits. The Completion Time for this failure of redundant required features is reduced to 12 hours from that allowed for one train without offsite power (Required Action A.3). The rationale for the reduction to 12 hours is that Regulatory Guide 1.93 (Ref. 6) allows a Completion Time of 24 hours for two required offsite circuits inoperable, based upon the assumption that three complete safeguards power trains are OPERABLE. When a redundant required feature is not OPERABLE, this assumption is not the case, and a shorter Completion Time of 12 hours is appropriate. These features are powered from redundant AC safety trains. This includes motor driven auxiliary feedwater pumps. Single train features, such as turbine driven auxiliary pumps, are included as discussed in the Bases for Required Action A.3. The Completion Time for Required Action C.1 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock."

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In this Required Action the Completion Time only begins on discovery that both:

a. All required offsite circuits are inoperable; and

b. A required feature is inoperable.

If at any time during the existence of Condition C (two offsite circuits inoperable) a required feature becomes inoperable, this Completion Time begins to be tracked.

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition C for a period that should not exceed 24 hours.

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BASES

ACTIONS

C.1 and C.2 (continued)

This level of degradation means that the offsite electrical power system does not have the capability to effect a safe shutdown and to mitigate the effects of an accident; however, the onsite AC sources have not been degraded. This level of degradation generally corresponds to a total loss of the immediately accessible offsite power sources.

Because of the normally high availability of the offsite sources, this level of degradation may appear to be more severe than other combinations of two AC sources inoperable that involve one or more DGs inoperable. However, two factors tend to decrease the severity of this level of degradation:

a. The configuration of the redundant AC electrical power system that remains available is not susceptible to a single bus or switching failure; and

b. The time required to detect and restore an unavailable offsite power source is generally much less than that required to detect and restore an unavailable onsite AC source.

With both of the required offsite circuits inoperable, sufficient onsite AC sources are available to maintain the unit in a safe shutdown condition in the event of a DBA or transient.

In fact, a simultaneous loss of offsite AC sources, a LOCA, and a worst case single failure were postulated as a part of the design basis in the safety analysis. Thus, the 24 hour Completion Time provides a period of time to effect restoration of one of the offsite circuits commensurate with the importance of maintaining an AC electrical power system capable of meeting its design criteria.

According to Reference 6, with the available offsite AC sources, two less than required by the LCO, operation may continue for 24 hours. If two offsite sources are restored within 24 hours, unrestricted operation may continue. If only one offsite source is restored within 24 hours, power operation continues in accordance with Condition A.

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BASES

ACTIONS (continued)

D.1 and D.2

Pursuant to LCO 3.0.6, the Distribution System ACTIONS would not be entered even if all AC sources to it were inoperable, resulting in de-energization. When the UAT is being used to supply 6.9 kV buses 1, 2, 3 Or 4 and the 13.8 kV offsite circuit is being used to supply 6.9 kV buses 5 and 6, the autotransfer function is disabled. Therefore, 480 V safeguards buses 2A and 3A (safeguards train 2A/3A) will not be automatically re-energized with offsite power following a plant trip until connected to the offsite circuit by operator action. Therefore, the Required Actions of Condition D are modified by a Note to indicate that when Condition D is entered with no offsite or DG AC power source automatically available to any train, the Conditions and Required Actions for LCO 3.8.9, "Distribution Systems – Operating," must be immediately entered. This allows Condition D to provide requirements for the loss of one offsite circuit and one DG, without regard to whether a train would be de-energized during an event. LCO 3.8.9 provides the appropriate restrictions for a train that would be de-energized.

RAI-4

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition D for a period that should not exceed 12 hours.

In Condition D, individual redundancy is lost in both the offsite electrical power system and the onsite AC electrical power system. Since power system redundancy is provided by two diverse sources of power, however, the reliability of the power systems in this Condition may appear higher than that in Condition C (loss of both required offsite circuits). This difference in reliability is offset by the susceptibility of this power system configuration to a single bus or switching failure.

The 12 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.6

This Surveillance demonstrates that each required fuel oil transfer pump operates and transfers fuel oil from its associated storage tank to its associated day tank. This is required to support continuous operation of standby power sources. This Surveillance provides assurance that the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for automatic fuel transfer systems are OPERABLE.

The design of fuel transfer systems is such that pumps operate automatically or must be started manually in order to maintain an adequate volume of fuel oil in the day tanks during or following DG testing. Therefore, a 31 day Frequency is appropriate. Since proper operation of fuel transfer systems is an inherent part of DG OPERABILITY, the Frequency of this SR is consistent with the 31 day Frequency for verification of DG operability.

SR 3.8.1.7

Transfer of the offsite power supply from the normal offsite circuit to the alternate offsite circuit demonstrates the OPERABILITY of the alternate circuit distribution network to power the shutdown loads. The 24 month Frequency of the Surveillance is based on engineering judgment, taking into consideration the unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

This SR is modified by a Note. The reason for the Note is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and unit safety systems.

RAI-8

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.8

Verification that 6.9 kV buses 2 and 3 will auto transfer (fast transfer) from the Unit Auxiliary transformer to 6.9 kV buses 5 and 6 (i.e. station auxiliary transformer) following a loss of voltage on 6.9 kV buses 2 and 3 is needed to confirm the Operability of a function assumed to operate to provide offsite power to safeguards power train 2A/3A following a trip of the main generator.

An actual demonstration of this feature requires the tripping of the main generator while the reactor is at power with the main generator supplying 6.9 kV buses 2 and 3. This will cause perturbations to the electrical distribution systems that could challenge unit safety systems during a plant shutdown. Therefore, in lieu of actually initiating a circuit transfer, testing that adequately shows the capability of the transfer is acceptable. This transfer testing may include any sequence of sequential, overlapping, or total steps so that the entire transfer sequence is verified. The 24 month Frequency is based on engineering judgement taking into consideration the plant conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle length.

This SR is modified by two Notes. The reason for Note 1 is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge unit safety systems. Credit may be taken for unplanned events that satisfy this SR. As stated in Note 2, this SR is only required to be met when the 138 kV offsite circuit is supplying 6.9 kV buses 5 and 6 because, if the 13.8 kV circuit is supplying 6.9 kV buses 5 and 6, then the feature tested by this SR is required to be disabled.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.9

This Surveillance demonstrates that DG noncritical protective functions are bypassed on a loss of voltage signal concurrent with an ESF actuation test signal, and critical protective functions (engine overspeed, low lube oil pressure, and engine overcrank) trip the DG to avert substantial damage to the DG unit. The noncritical trips are bypassed during DBAs and provide an alarm on an abnormal engine condition. This alarm provides the operator with sufficient time to react appropriately. The DG availability to mitigate the DBA is more critical than protecting the engine against minor problems that are not immediately detrimental to emergency operation of the DG.

The 24 month Frequency is based on engineering judgment, taking into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DG from service.

RAI-10

SR 3.8.1.10

IEEE-387-1995 (Ref. 9) requires demonstration once per 24 months that the DGs can start and run continuously at full load capability for an interval of not less than 8 hours, ≥ 105 minutes of which is at a load equivalent to 110% of the continuous duty rating and the remainder of the time at a load equivalent to the continuous duty rating of the DG. The DG starts for this Surveillance can be performed either from standby or hot conditions. The provisions for prelubricating and warmup, discussed in SR 3.8.1.2, and for gradual loading, discussed in SR 3.8.1.3, are applicable to this SR.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.10 (continued)

In order to ensure that the DG is tested under load conditions that are as close to design conditions as possible, testing must be performed using a power factor of ≤ 0.9. This power factor ischosen to be representative of the actual design basis inductive loading that the DG would experience. The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

The 24 month Frequency is consistent with the recommendations of Ref. 9, and takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

This Surveillance is modified by two Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the power factor limit will not invalidate the test. The reason for Note 2 is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and unit safety systems.

RAI-1

SR 3.8.1.11

Under accident conditions with concurrent loss of offsite power, loads are sequentially connected to the bus by individual load timers to prevent overloading of the DGs due to high motor starting currents. The design load sequence time interval tolerance ensures that sufficient time exists for the DG to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding ESF equipment time delays are not violated. Reference 2 provides a summary of the automatic loading of ESF buses.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.11 (continued)

The Frequency of 18 months is based on engineering judgment, taking into consideration operating experience that has shown that these components usually pass the SR. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

This SR is modified by a Note that specifies that load timers associated with equipment that has automatic initiation capability disabled are not required to be OPERABLE. This note is needed because these time delay relays affect the OPERABILITY of both the AC sources (offsite power and DG) and the specific load that the relay starts. If a timer fails to start a required load or starts the load later than assumed in the analysis, then the required load is not OPERABLE. If a timer starts the load outside the design interval (early or late), then the DG and offsite source are not OPERABLE because overlap of equipment starts may cause an offsite source to exceed limits for voltage or current or a DG to exceed limits for voltage, current or frequency. Therefore, when an individual load sequence timer is not OPERABLE, because the timing sequence is outside the design interval, Condition D must be entered. However, if the automatic initiation capability of the affected load is disabled, Condition D may be exited, and the Actions for the inoperable load are taken. It is conservative to disable the automatic initiation capability of a component rather than continued with the associated DG inoperable because of the following: the potential for adverse impact on the DG by simultaneous start of ESF equipment is eliminated; all other loads powered from the safeguards power train are available to respond to the event; and, the load with the inoperable timer remains available for a manual start after the one minute completion of the normal starting sequence.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.12

In the event of a DBA coincident with a loss of offsite power, the DGs are required to supply the necessary power to ESF systems so that the fuel, RCS, and containment design limits are not exceeded.

This Surveillance demonstrates the DG operation during a loss of offsite power actuation test signal in conjunction with an ESF actuation signal. This SR verifies all actions encountered from an ESF signal concurrent with the loss of offsite power, including shedding of the nonessential loads and energization of the emergency buses and respective loads from the DG. It further demonstrates the capability of the DG to automatically achieve the required voltage and frequency within the specified time.

The DG autostart time of 10 seconds is derived from requirements of the accident analysis to respond to a design basis large break LOCA. The Surveillance should be continued for a minimum of 5 minutes in order to demonstrate that all starting transients have decayed and stability is achieved.

The requirement to verify the connection and power supply of permanent and auto-connected loads is intended to satisfactorily show the relationship of these loads to the DG loading logic. In certain circumstances, many of these loads cannot actually be connected or loaded without undue hardship or potential for undesired operation. For instance, Emergency Core Cooling Systems (ECCS) injection valves are not desired to be stroked open, or high pressure injection systems are not capable of being operated, or residual heat removal (RHR) systems performing a decay heat removal function are not desired to be realigned to the ECCS mode of operation.

In lieu of actual demonstration of connection and loading of loads, testing that adequately shows the capability of the DG system to perform these functions is acceptable. This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.12 (continued)

The Frequency of 24 months takes into consideration unit conditions required to perform the Surveillance and is intended to be consistent with an expected fuel cycle length of 24 months.

This SR is modified by three Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil and temperature maintained and lube oil continuously circulated consistent with manufacturer recommendations for DGs.

The reason for Note 2 is that the performance of the Surveillance would remove required offsite circuits from service, perturb the electrical distribution system, and challenge safety systems.

The reason for Note 3 is to allow the SR to be conducted with only one safeguards train at a time or with two or three safeguards trains concurrently. Allowing the LOOP/LOCA test to be conducted using one safeguards power train and one DG at a time is acceptable because the safeguards power trains are designed to respond to this event independently. Therefore, an individual test for each safeguards power train will provide an adequate verification of plant response to this event.

Simultaneous testing of all three safeguards power trains is acceptable as long as the following plant conditions are established:

- All three DGs are available,
- diverse and redundant decay heat removal is available,
- no offsite power circuits are inoperable, and
- no simultaneous activities are performed that are precursors to events requiring AC power for mitigation (e.g., fuel handling accident or inadvertent RCS draindown)

RAI-2

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.1.13

This Surveillance demonstrates that the DG starting independence has not been compromised. Also, this Surveillance demonstrates that each engine can achieve proper speed within the specified time when the DGs are started simultaneously.

The 10 year Frequency is consistent with the recommendations of Regulatory Guide 1.9 (Ref. 3).

This SR is modified by two Notes. The reason for Note 1 is to minimize wear on the DG during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations.

The reason for Note 2 is to allow SR 3.8.1.12 to satisfy the requirements of this SR if SR 3.8.1.12 is performed with more than one safeguards power train concurrently.

REFERENCES

1. 10 CFR 50, Appendix A.

2. FSAR, Chapter 8.

3. Regulatory Guide 1.9, Rev. 3, July 1993.

4. FSAR, Chapter 6.

5. FSAR, Chapter 14.

6. Regulatory Guide 1.93, Rev. 0, December 1974.

7. Generic Letter 84-15, Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability.

8. Regulatory Guide 1.137, Rev. 0, 1978.

(continued)

BASES

REFERENCES (continued)

9. IEEE Standard 387-1995, IEEE Standard Criteria for Diesel-Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.1:
"AC SOURCES-OPERATING"

PART 2:

CURRENT TECHNICAL SPECIFICATION PAGES

Annotated to show differences between CTS and ITS

CTS PAGE	AMENDMENT FOR REV O SUBMITTAL	AMENDMENT FOR REV 1 SUBMITTAL	COMMENT
3.7-1	161	198	Deleted Reference to 'Underground' Diesel Fuel Storage Tanks; No impact on ITS 3.8.1
3.7-2	132;98-044	198	No impact
3.7-2a	54	54	
3.7-3	34	34	
3.7-3a	161	198	See first comment
3.7-4	161;98-044	198	See first comment
3.7-5	153;97-175	153;9-22-98	Bases change, no impact on ITS
3.7-6	153;98-044	194	Relaxation for 1 DG in cold shutdown. Refer to ITS 3.8.2
T4.1-3(1)	178;97-156;98-043	200	CVCS relocation; no impact
4.5-1	142	142	
4.6-1	142	142	
4.6-2	155	155	
4.6-3	155	201	Added EDG Ratings and Electrical Output Capabilities to CTS Bases -- Same Bases changes added to ITS 3.8.1

Add Req Actions C.2, D.1, D.2, E.1 — L.5

Add Req Actions G.1, H.1 — M.10

Conditions ~~C~~. C, D, E, G, H

If the electrical distribution system is not restored to meet the requirements of 3.7.A within the time periods specified in 3.7.B, then:

Req Act F.1 & F.2

~~1~~. ~~If~~ the reactor ~~is critical, it~~ shall be in the hot shutdown condition within six hours and in the cold shutdown condition within the following 30 hours. — M.10

2. ~~If the reactor is subcritical, the reactor coolant system temperature and pressure shall not be increased more than 25°F and 100 psi, respectively, over existing values.~~

D. ~~The requirements of Specification 3.7.A.1 may be modified during an emergency system-wide blackout condition as follows:~~

~~Two of the three 13.8 KV feeders (13W92, 13W93 and/or 13W94) to the Buchanan substation 138 KV buses operable with at least 37 MW power from any combination of gas turbines (nameplate rating at 80°F) at the Buchanan Substation and onsite and onsite available for exclusive use on Indian Point Unit No. 3.~~ — ~~LA.3~~ M.11 R.1

SEE RELOCATED

E. Whenever the reactor critical, the circuit breaker on the electrical feeder to emergency lighting panel 318 inside containment shall be locked open except when containment access is required.

F. As a minimum, under all conditions including cold shutdown, the following A.C. electrical power sources shall be operable:

1. One transmission circuit to Buchanan Substation, except for testing.

SEE ITS 3.8.2

2. Either:

   a. 6.9 KV buses 5 or 6 energized from the 138 KV feeder 95331 or 95332,

      or

   b. 13.8 KV feeder 13W92 or 13W93 and its associated 13.8/6.9 KV transformer available to supply 6.9 power,

SEE ITS 3.8.10

3. Two of the four 480-volt buses 2A, 3A, 5A and 6A energized.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.1:

"AC Sources - Operating"

PART 3:

DISCUSSION OF CHANGES

Differences between CTS and ITS

M.10 CTS 3.7.C establishes the Actions required if the electrical distribution system is not restored to meet CTS requirements within specified completion times when above cold shutdown (Mode 5). CTS 3.7.C.1 specifies that, if the reactor is critical when requirements are not met, then the reactor shall be in hot shutdown (Mode 3) within 6 hours and cold shutdown (Mode 5) within the following 30 hours. However, if the reactor is subcritical when requirements are not met, CTS 3.7.C.2 requires only that reactor coolant system temperature and pressure not be increased more than 25°F and 100 psi, respectively, over existing values with no requirement to proceed to cold shutdown (Mode 5).

Under the same conditions, ITS 3.8.1, Required Actions F.1 and F.2, G.1 and H.1, require that the reactor is in Mode 3 in 6 hours and Mode 5 in 36 hours regardless of the status of the unit when the Condition is identified. The allowance provided in CTS 3.7.C.2 is deleted. This change is needed to eliminate the ambiguity created by CTS 3.7.C.2 when performing a reactor shutdown and cooldown required by CTS 3.7.C.1 and to ensure that the plant is placed outside the LCO Applicability whenever LCO requirements are not met. This change is acceptable because placing the plant outside the LCO Applicability when LCO requirements are not met is conservative and there is no change in the CTS 3.7.C.1 requirement. This change has no significant adverse impact on safety.

M.11 CTS 3.7.D states that the requirements of CTS 3.7.A.1 for two offsite circuits when above cold shutdown may be modified during an emergency system-wide blackout condition. CTS 3.7.D stipulates that, under emergency conditions, requirements for offsite power sources may be satisfied with the following: two of the three 13.8 kV feeders (13W92, 13W93 and/or 13W94) to the Buchanan substation 138 kV buses operable with at least 37 mW power from any combination of gas turbines (nameplate rating at 80°F) at the Buchanan substation and onsite available for exclusive use on Indian Point Unit No. 3.

This relaxation of requirements for offsite sources during an emergency system-wide blackout condition is not retained in the ITS because 37 MW is insufficient to support a plant startup with four RCPs operating as required by ITS 3.4.4. As discussed in 3.4.4-M.1, transient and

accident analyses generally have been performed assuming 4 RCS loops in operation. Therefore this more restrictive change ensures that a relaxation in offsite AC sources is not established that does not support other Technical Specification requirements. If relief from Technical Specification requirements are needed during an emergency system-wide blackout to protect the public health and safety, NRC concurrence would be required and appropriate justifcation would need to be developed based on the specific circumstances at that time.

LESS RESTRICTIVE

L.1 CTS 3.7.B limits the number of concurrent inoperable electrical power sources by limiting the Actions for inoperable DGs, offsite sources, and batteries to "allow any one" of these power supplies to be inoperable at any one time. Therefore, in conjunction with specific directions provided in CTS 3.7.B.1 and CTS 3.7.B.2, CTS 3.7.B does not permit a battery to be inoperable when either a diesel generator or an offsite source is inoperable. ITS 3.8.1 and ITS 3.8.4 appear to be less restrictive because there are no direct restrictions on DC electrical power subsystems (batteries and battery chargers) based on the operability of DGs or offsite sources nor are there restrictions on DGs or offsite sources based on the operability of DC electrical power subsystems.

Elimination of the "allow any one" restriction in CTS 3.7.B is acceptable because, even without this restriction, both CTS and ITS 3.8.4 limit inoperability of one battery and/or charger to a maximum of two hours. Additionally, CTS and ITS 3.8.4 both require immediate initiation of a shutdown if two batteries and/or chargers are inoperable. Therefore, the maximum impact of the elimination of the restriction in CTS 3.7.B is the potential that ITS 3.8.1 and/or ITS 3.8.4 would allow initiation of a reactor shutdown to be delayed by 2 hours from what would be required by CTS 3.7.B (i.e., CTS would require Mode 3 in 6 hours and Mode 5 in 36 hours and ITS would require Mode 3 in 8 hours and Mode 5 in 38 hours). Additionally, ITS would allow more time to initiate a reactor shutdown only in very infrequent combinations of inoperabilities (e.g. two diesel generators and the battery associated with the third diesel generator become inoperable at the same time). Therefore, elimination of the restriction in CTS 3.7.B has no

Additionally, IP3 programs that implement ITS Bases changes in accordance with ITS 5.5.13 require periodic submittal of Bases changes to the NRC for review.

This change is a less restrictive administrative change with no impact on safety because no requirements are being deleted from Technical Specifications and an appropriate change control process and an appropriate level of regulatory oversight are maintained for the information being relocated out of the Technical Specifications.

LA.3 not used

LA.4 CTS 4.6.A.4 requires that each diesel generator be inspected and maintained following the manufacturer's recommendations for this class of standby service. ITS LCO 3.8.1 does not include this requirement; however, this requirement will be maintained in the Final Safety Analysis Report (FSAR) and implemented by plant procedures. This change is acceptable because performance the SRs required by ITS 3.8.1 are sufficient to demonstrate the Operability of the DGs. Inspecting and maintaining the DGs in accordance with the manufacturer's recommendations is routine preventative maintenance and is not a direct demonstration that a DG is capable of performing its intended safety function. Changes to the FSAR can be made only in accordance with the requirements of 10 CFR 50.59. Therefore, this change is acceptable because there is no change to the existing requirements by the relocation of requirements to the FSAR and future changes to the FSAR will be controlled in accordance with 10 CFR 50.59.

This change is a less restrictive administrative change with no impact on safety because ITS 3.8.1 maintains the requirements to have DGs Operable and maintains the requirements to perform periodic testing that demonstrates DG Operability. Therefore, requirements to inspect and maintain the DGs in accordance with the manufacturer's recommendations can be maintained in the TRM with no significant adverse impact on safety.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.1:

"AC Sources - Operating"

PART 5:

NUREG-1431
Annotated to show differences between
NUREG-1431 and ITS

<CTS> 3.8 ELECTRICAL POWER SYSTEMS

3.8.1 AC Sources—Operating

LCO 3.8.1 The following AC electrical sources shall be OPERABLE:

<3.7.A.1, 3.7.A.2, 3.7.A.3>

a. Two qualified circuits between the offsite transmission network and the onsite ~~Class 1E~~ AC Electrical Power Distribution System; ~~[and]~~

Three

b. ~~two~~ diesel generators (DGs) capable of supplying the onsite ~~Class 1E~~ power distribution subsystem(s)~~[~~; and

(31, 32 and 33)

CLB.1

<3.7.A.5>

c. ~~Automatic load sequencers for Train A and Train B]~~

INSERT 3.8-1-02

DB.1

<3.7.A> APPLICABILITY: MODES 1, 2, 3, and 4.

R.1

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<3.7.B.2> A. One ~~[required]~~ offsite circuit inoperable.	A.1 Perform SR 3.8.1.1 for ~~[required]~~ OPERABLE offsite circuit.	1 hour AND Once per 8 hours thereafter
<DOC M.1> Insert 3.8-1-01	AND	
<3.7.G> <DOC L.2>	A.~~2~~ 3 Declare required feature(s) with no offsite power available inoperable when its redundant required feature(s) is inoperable. automatically	24 hours from discovery of no offsite power to one train concurrent with inoperability of redundant required feature(s) automatically available
	AND	
		(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.1 - AC Sources - Operating

INSERT 3.8-1-01:

CLB.1

		AND	
(CTS) (3.7.8.3) (DOC A3) (DOC A9) (DOC L9) (DOC LA2)		----------NOTE---------- Only required if 138 kV offsite circuit is supplying 6.9 kV bus 5 and 6 and the Unit Auxiliary Transformer is supplying 6.9 kV bus ~~2 or 3~~ 1, 2, 3, or 4. ----------	
	A.2	Verify automatic transfer of 6.9 kV buses 1, 2, 3, and 4 to 6.9 kV bus 5 and 6 is disabled.	1 hour AND Once per 8 hours thereafter

R.1

INSERT 3.8-1-02:

---- NOTE ----

The 138 kV circuit is considered inoperable whenever the automatic transfer function for the 6.9 kV buses is disabled.

R.1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One ~~[required]~~ offsite circuit inoperable. AND One ~~[required]~~ DG inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.9, "Distribution Systems—Operating," when Condition D is entered with no AC power source to any train. ---------- D.1 Restore ~~[required]~~ offsite circuit to OPERABLE status. OR D.2 Restore ~~[required]~~ DG to OPERABLE status.	12 hours 12 hours
E. Two ~~[required]~~ DGs inoperable.	E.1 Restore ~~one~~ 5 ~~[required]~~ DG to OPERABLE status.	2 hours

(continued)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.1.1	Verify correct breaker alignment and indicated power availability for each ~~[required]~~ offsite circuit.	7 days
SR 3.8.1.2	----------NOTES---------- 1. ~~Performance of SR 3.8.1.7 satisfies this SR.~~ ~~2.~~ All DG starts may be preceded by an engine prelube period ~~and followed by a warmup period prior to loading~~. 3. ~~A modified DG start involving idling and gradual acceleration to synchronous speed may be used for this SR as recommended by the manufacturer. When modified start procedures are not used, the time, voltage, and frequency tolerances of SR 3.8.1.7 must be met.~~ ---------- Verify each DG starts from standby conditions and achieves: ~~steady state~~ voltage ≥ ~~[3740]~~ V and ≤ ~~[4580]~~ V, and frequency ≥ ~~[58.8]~~ Hz and ≤ ~~[61.2]~~ Hz.	31 days As specified in Table 3.8.1-1

(continued)

a. in ≤ 10 seconds, voltage ≥ 422 V and frequency ≥ 58.8 Hz; and

b. steady state voltage ≥ 422 V and ≤ 500 V, and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
~~SR 3.8.1.7~~ ----------NOTE---------- All DG starts may be preceded by an engine prelube period. ---------- Verify each DG starts from standby condition and achieves in ≤ [10] seconds, voltage ≥ [3740] V and ≤ [4580] V, and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	184 days
SR 3.8.1.~~8~~ (7) ----------NOTE---------- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify ~~[automatic [and]~~ manual] transfer of AC power sources from the normal offsite circuit to ~~each~~ alternate ~~[required]~~ offsite circuit.	~~[18~~ months] (24)

(continued)

SURVEILLANCE REQUIREMENTS (continued)

<CTS>

SURVEILLANCE	FREQUENCY
SR 3.8.1.~~13~~ (9) ----------NOTE---------- This Surveillance shall not be performed in MODE 1 or 2. ~~However, credit may be taken for unplanned events that satisfy this SR.~~ ----------	R.1 (CLB.1) (T.1)
Verify each DG's automatic trips are bypassed on ~~[~~actual or simulated loss of voltage signal on the emergency bus concurrent with an actual or simulated ESF actuation signal~~]~~ except:	~~[~~18 months~~]~~ (24)
a. Engine overspeed; ~~[and]~~	
~~b. Generator differential current;~~	
(b) ~~c~~. ~~[~~Low lube oil pressure;~~]~~	
~~d. [High crankcase pressure;] and~~	
(c) ~~e~~. ~~[Start failure relay]~~.	(DB.1)

(continued)

Overcrank relay

<DOC M.7>

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
SR 3.8.1.14 ----------NOTES---------- 1. Momentary transients outside the load and power factor ranges do not invalidate this test. 2. This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. ---------- Verify each DG operating at a power factor ≤ [0.9] operates for ≥ 24 hours: a. For ≥ [2] hours loaded ≥ [5250] kW and ≤ [5500] kW; and b. For the remaining hours of the test loaded ≥ [4500] kW and ≤ [5000] kW.	[18 months]
SR 3.8.1.15 ----------NOTES---------- 1. This Surveillance shall be performed within 5 minutes of shutting down the DG after the DG has operated ≥ [2] hours loaded ≥ [4500] kW and ≤ [5000] kW. Momentary transients outside of load range do not invalidate this test. 2. All DG starts may be preceded by an engine prelube period. ---------- Verify each DG starts and achieves, in ≤ [10] seconds, voltage ≥ [3740] V, and ≤ [4580] V and frequency ≥ [58.8] Hz and ≤ [61.2] Hz.	[18 months]

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.1 - AC Sources - Operating

INSERT 3.8-15-01:

(DOC L.6) Load timers associated with equipment that has automatic initiation capability disabled are not required to be operable.

INSERT 3.8-15-02:

the required design interval.

INSERT 3.8-15-03:

R.1

(DOC A.4) (DOC L.7) 3. This SR may be performed on ~~one safeguards power train or on two or three safeguards power trains simultaneously~~.

safeguards power trains one at a time, or simultaneously. Appropriate plant conditions must be established when testing three safeguards power trains simultaneously.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
(12) SR 3.8.1.~~13~~ (continued) 2. energizes auto-connected emergency loads through ~~load~~ sequencer (Individual load timers) 3. achieves steady state voltage ≥ [3740] V and ≤ [4580] V, (422) (500) <DOC M.9> 4. achieves steady state frequency ≥ ~~[~~58.8~~]~~ Hz and ≤ ~~[~~61.2~~]~~ Hz, and 5. supplies permanently connected ~~[~~and auto-connected~~]~~ emergency loads for ≥ 5 minutes.	
(13) SR 3.8.1.~~23~~ ----------NOTE---------- 1. All DG starts may be preceded by an engine prelube period. ---------- Verify when started simultaneously from standby condition, each DG achieves: in ≤ ~~[~~10~~]~~ seconds, voltage ≥ ~~[~~3744~~]~~ V and ≤ ~~[~~4576~~]~~ V, and frequency ≥ ~~[~~58.8~~]~~ Hz and ≤ ~~[~~61.2~~]~~ Hz. (Insert: 3.8-16-01) <4.6.A.3> <DOC L.7>	10 years R.1

(T.2)

a. in ≤ 10 seconds, voltage ≥ 422 V and frequency ≥ 58.8 Hz; and

b. steady state voltage ≥ 422 V and ≤ 500 V, and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.

BASES

BACKGROUND (continued)

automatically on a safety injection (SI) signal (i.e., low pressurizer pressure or high containment pressure signals) or on an ESF bus degraded voltage or undervoltage signal (refer to LCO 3.3.5, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation"). After the DG has started, it will automatically tie to its respective bus after offsite power is tripped as a consequence of ESF bus undervoltage or degraded voltage, independent of or coincident with an SI signal. The DGs will also start and operate in the standby mode without tying to the ESF bus on an SI signal alone. Following the trip of offsite power, a sequencer or an undervoltage signal strips nonpermanent loads from the ESF bus. When the DG is tied to the ESF bus, loads are then sequentially connected to its respective ESF bus by the automatic load sequencer. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading the DG by automatic load application.

individual load timers

In the event of a loss of preferred power, the ESF electrical loads are automatically connected to the DGs in sufficient time to provide for safe reactor shutdown and to mitigate the consequences of a Design Basis Accident (DBA) such as a loss of coolant accident (LOCA).

138 kV or normal offsite source

Certain required unit loads are returned to service in a predetermined sequence in order to prevent overloading the DG in the process. Within 1 minute after the initiating signal is received, all loads needed to recover the unit or maintain it in a safe condition are returned to service.

DGs 31, 32 and 33 are consistent with

Ratings for Train A and Train B DGs satisfy the requirements of Regulatory Guide 1.9 (Ref. 3). The continuous service rating of each DG is [7000] kW with [10]% overload permissible for up to 2 hours in any 24 hour period. The ESF loads that are powered from the 4.16 kV ESF buses are listed in Reference 2.

Insert B3.8-2-01

480

R.1

APPLICABLE SAFETY ANALYSES

Insert: B 3.8-2-02

The initial conditions of DBA and transient analyses in the FSAR, Chapter 6 (Ref. 4) and Chapter 15 (Ref. 5), assume ESF systems are OPERABLE. The AC electrical power sources are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that the fuel, Reactor Coolant System (RCS), and containment design limits are not

14

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.1 - AC Sources - Operating

INSERT B 3.8-2-01:

R. /

The 3 DGs each consist of an Alco model 16-251-E engine coupled to a Westinghouse 2188 kVA, 0.8 power factor, 900 rpm, 3 phase, 60 cycle, 480 volt generator. Each DG has a 2 hr rating of 1950 kW and a continuous rating of 1750 kW.

NUREG-1431 Markup Inserts
ITS SECTION 3.8.1 - AC Sources - Operating

INSERT B 3.8-2-02: (ITS REV 1)

The DGs have four capacity ratings as defined below that can be used to assess DG operability.

Continuous:	Electrical power output capability that can be maintained 24 hours /day, with no time constraint.
2000-hour:	Electrical power output capability that can be maintained in one continuous run of 2000 hours or in multiple shorter duration runs totaling 2000 hours.
2-hour:	Electrical power output capability that can be maintained for up to 2 hours in any 24-hour period.
1/2 - hour:	Electrical power output capability that can be maintained for up to 30 minutes in any 24-hour period.

The electrical output capabilities (DG load) applicable to these four ratings are as follows:

RATING	DG LOAD	TIME CONSTRAINT
Continuous	≤ 1750 kW	None
2000-hour	≤ 1950 kW	≤ 2000 hours / calendar year
2-hour	≤ 1950 kW ≤ 1750 kW	≤ 2 hours in a ~~contiguous~~ 24-hour period; **AND** for the remaining 22 hours. [See NOTE A]
1/2-hour	≤ 2000 kW ≤ 1750 kW	≤ 30 minutes in a ~~contiguous~~ 24-hour period; **AND** for the remaining 23.5 hours. [See NOTE A]

NOTE A: The loading cycle permitted for the '2-hour' and the '1/2-hour' rating is operation at the overload condition (e.g. > 1750 kW) for the specified time followed by operation at the 'continuous' (e.g. ≤ 1750kW) rating for the remaining time in the 24-hour period. This loading cycle may be repeated each day, as long as back-to-back operation in the overload condition does not occur. The 2000-hour cumulative time constraint also applies to repetitive operation at the overload conditions allowed by the 2-hour and the 1/2-hour ratings.

Operation in excess of 2000 kW, regardless of the duration, is an unanalyzed condition. In such cases, the DG is assumed to be inoperable and the vendor should be consulted to determine if accelerated or supplemental inspection and/or maintenance is necessary. The DG can be returned to an operable status following completion of vendor-required inspection and/or maintenance.

BASES

APPLICABLE SAFETY ANALYSES (continued)

exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

The OPERABILITY of the AC electrical power sources is consistent with the initial assumptions of the Accident analyses and is based upon meeting the design basis of the unit. This results in maintaining at least one train of the onsite or offsite AC sources OPERABLE during Accident conditions in the event of:

Insert: B3.8-3-01

a. An assumed loss of all offsite power or all onsite AC power; and

b. A worst case single failure.

10 CFR 50.36

The AC sources satisfy Criterion 3 of NRC Policy Statement.

LCO

Two qualified circuits between the offsite transmission network and the onsite ~~Class 1E~~ Electrical Power System and separate and independent DGs for each train ensure availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an anticipated operational occurrence (AOO) or a postulated DBA.

Qualified offsite circuits are those that are described in the FSAR and are part of the licensing basis for the unit.

In addition, one required automatic load sequencer per train must be OPERABLE.

Each offsite circuit must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the ESF buses.

Insert: 3.8-3-02

Offsite circuit #1 consists of Safeguards Transformer B, which is supplied from Switchyard Bus B, and is fed through breaker 52-3 powering the ESF transformer XNB01, which, in turn, powers the #1 ESF bus through its normal feeder breaker. Offsite circuit #2 consists of the Startup Transformer, which is normally fed from the Switchyard

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.1 - AC Sources - Operating

INSERT B 3.8-3-02:

There are two qualified circuits (normal and alternate) from the transmission network at the Buchanan Station to the onsite electric distribution system. Both ~~Each~~ of these circuits must be supported by a circuit from the offsite network into the Buchanan substation that is physically independent from the other circuit to the extent practical. The circuits into the Buchanan substation that satisfy these requirements are 96951, 96952 and 95891. R.1

The 138 kV (i.e., normal) offsite circuit consists of one of the following: 138 kV feeder 95331 (preferred); or, 138 kV feeder 95332 (backup). Additionally, the 138 kV/6.9 kV station auxiliary transformer, circuit breakers ST5 and ST6 which supply 6.9 kV buses 5 and 6, and the following components which are common to the normal and alternate offsite circuits:

a. The 480 V bus 5A supply consisting of 6.9 kV bus 5, station service transformer 5, and circuit breakers SS5 and 52/5A;

b. The 480 V bus 2A supply consisting of 6.9 kV bus 5, circuit breaker UT2-ST5 (including autotransfer function), 6.9 kV bus 2, station service transformer 2, and circuit breakers SS2 and 52/2A;

c. The 480 V bus 6A supply consisting of 6.9 kV bus 6, station service transformer 6, and circuit breakers SS6 and 52/6A; and,

d. The 480 V bus 3A supply consisting of 6.9 kV bus 6, circuit breaker UT3-ST6 (including autotransfer function), 6.9 kV bus 3, station service transformer 3, and circuit breakers SS3 and 52/3A.

The normal circuit is 138 KV and the alternate circuit is 13.8 KV. If the alternate circuit is in use, the normal circuit is inoperable because the auto transfer functions mentioned in the following circuit descriptions are disabled

R.1

BASES

APPLICABILITY (continued)

b. Adequate core cooling is provided and containment OPERABILITY and other vital functions are maintained in the event of a postulated DBA.

The AC power requirements for MODES 5 and 6 are covered in LCO 3.8.2, "AC Sources—Shutdown."

ACTIONS

A.1

The LCO Bases describes the components and features which comprise the offsite circuits. R.1

To ensure a highly reliable power source remains with one offsite circuit inoperable, it is necessary to verify the OPERABILITY of the remaining required offsite circuit on a more frequent basis. Since the Required Action only specifies "perform," a failure of SR 3.8.1.1 acceptance criteria does not result in a Required Action not met. However, if a second required circuit fails SR 3.8.1.1, the second offsite circuit is inoperable, and Condition C, for two offsite circuits inoperable, is entered.

~~Reviewer's Note:~~ The turbine driven auxiliary feedwater pump is ~~only~~ required to be considered a redundant required feature, and, therefore, required to be determined OPERABLE by this Required Action, if the design is such that the remaining OPERABLE motor ~~or turbine~~ driven auxiliary feedwater pump(s) is ~~not by itself~~ capable (without any reliance on the motor driven auxiliary feedwater pump powered by the emergency bus associated with the inoperable diesel generator) of providing 100% of the auxiliary feedwater flow assumed in the safety analysis.

not

because

Insert: B 3.8-5-01

A.2 (3)

automatically (3)

will not

Required Action A.2, which only applies if the train ~~cannot~~ be powered from an offsite source, is intended to provide assurance that an event coincident with a single failure of the associated DG will not result in a complete loss of safety function of critical redundant required features. These features are powered from the redundant AC electrical power train. This includes motor driven auxiliary feedwater pumps. Single train systems, such as turbine driven auxiliary feedwater pumps, may not be included.

Insert: B 3.8-5-02

when the main turbine-generator trips

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.1 - AC Sources - Operating

INSERT: B 3.8-5-01

A.2

R.1

This action

Required Action A.2, which applies only if the 13.8 kV offsite power circuit is being used to feed 6.9 kV buses 5 and 6 and the UAT is supplying 6.9 kV bus 1, 2, 3 or 4, prevents the automatic transfer of 6.9 kV buses 1, 2, 3, and 4 from the UAT to offsite power after a unit trip. Transfer of buses 1, 2, 3, and 4 from the UAT to offsite power could result in overloading the 13.8 kV/6.9 kV autotransformer. Having the auto-transfer disabled when the 13.8 kV offsite power circuit is supplying power to 6.9 kV buses 5 and 6 does not, by itself, cause either the 138 kV or 13.8 kV offsite power circuit to be inoperable. This requirement is not intended to preclude supplying 6.9 kV buses 1, 2, 3, and 4 using the alternate offsite circuit via the 13.8 kV/6.9 kV auto-transformers once sufficient loads have been stripped from 6.9 kV buses 1, 2, 3, and 4 to assure that the 13.8 kV/6.9 kV auto-transformer will not be overloaded by these manual actions. Automatic transfer of buses 1, 2, 3, and 4 can be disabled by placing 6.9 kV bus tie breaker control switches 1-5, 2-5, 3-6, and 4-6 in the "pull-out" position.

R.1

Although the auto-transfer feature is normally disabled prior to placing the 13.8 kV offsite power circuit in service, a Completion Time of 1 hour ensures that the 13.8 kV circuit meets requirements for Operability promptly when the alternate offsite circuit is configured to support the response of ESF functions.

INSERT: B 3.8-5-02

redundant required features. Required safety features are designed with a redundant safety feature that is powered from a different safeguards power train. Therefore, if a required safety feature is supported by an inoperable offsite circuit, then the failure of the DG associated with that required safety feature will not result in the loss of a safety function because the safety function will be accomplished by the redundant safety feature that is powered from a different safeguards power train. However, if a required safety feature is supported by an inoperable offsite circuit and the redundant safety feature that is powered from a different safeguards power train is also inoperable, then the failure of the DG associated with that required safety feature will result in the loss of a safety function. Required Action A.3 ensures that appropriate compensatory measures are taken for a Condition where the loss of a DG could result in the loss of a safety function when an offsite circuit is not Operable.

BASES

ACTIONS

B.4 (continued)

and B are entered concurrently. The "AND" connector between the 72 hour and 6 day Completion Times means that both Completion Times apply simultaneously, and the more restrictive Completion Time must be met.

As in Required Action B.2, the Completion Time allows for an exception to the normal "time zero" for beginning the allowed time "clock." This will result in establishing the "time zero" at the time that the LCO was initially not met, instead of at the time Condition B was entered.

R.1

INSERT B3.8-11-01

C.1 and C.2

Required Action C.1, which applies when two offsite circuits are inoperable, is intended to provide assurance that an event with a coincident single failure will not result in a complete loss of redundant required safety functions. The Completion Time for this failure of redundant required features is reduced to 12 hours from that allowed for one train without offsite power (Required Action A.2). The rationale for the reduction to 12 hours is that Regulatory Guide 1.93 (Ref. 6) allows a Completion Time of 24 hours for two required offsite circuits inoperable, based upon the assumption that two complete safety trains are OPERABLE. When a ~~concurrent~~ redundant required feature failure exists, this assumption is not the case, and a shorter Completion Time of 12 hours is appropriate. These features are powered from redundant AC safety trains. This includes motor driven auxiliary feedwater pumps. Single train features, such as turbine driven auxiliary pumps, are ~~not~~ included in the list.

3

safeguards power

three

is not OPERABLE

as discussed in the Bases for Required Action A.3

The Completion Time for Required Action C.1 is intended to allow the operator time to evaluate and repair any discovered inoperabilities. This Completion Time also allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." In this Required Action the Completion Time only begins on discovery that both:

a. All required offsite circuits are inoperable; and

b. A required feature is inoperable.

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.1 - AC Sources - Operating

INSERT: B 3.8-11-01 (ITS REV 1)

Two offsite circuits are inoperable when both the immediate access circuit and the delayed offsite circuit are not available to one or more safeguards power trains. The most probable cause is a failure in a portion of the circuit that is common to both offsite circuits.

R.1

BASES

ACTIONS

C.1 and C.2 (continued)

continue for 24 hours. If two offsite sources are restored within 24 hours, unrestricted operation may continue. If only one offsite source is restored within 24 hours, power operation continues in accordance with Condition A.

Insert: B3.8-13-01

D.1 and D.2

Pursuant to LCO 3.0.6, the Distribution System ACTIONS would not be entered even if all AC sources to it were inoperable, resulting in de-energization. Therefore, the Required Actions of Condition D are modified by a Note to indicate that when Condition D is entered with no AC source to any train, the Conditions and Required Actions for LCO 3.8.9, "Distribution Systems—Operating," must be immediately entered. This allows Condition D to provide requirements for the loss of one offsite circuit and one DG, without regard to whether a train is de-energized. LCO 3.8.9 provides the appropriate restrictions for a de-energized ~~train~~ train that would be during an event.

offsite or DG

would be

during an event

R-1

power source automatically available

According to Regulatory Guide 1.93 (Ref. 6), operation may continue in Condition D for a period that should not exceed 12 hours.

In Condition D, individual redundancy is lost in both the offsite electrical power system and the onsite AC electrical power system. Since power system redundancy is provided by two diverse sources of power, however, the reliability of the power systems in this Condition may appear higher than that in Condition C (loss of both required offsite circuits). This difference in reliability is offset by the susceptibility of this power system configuration to a single bus or switching failure. The 12 hour Completion Time takes into account the capacity and capability of the remaining AC sources, a reasonable time for repairs, and the low probability of a DBA occurring during this period.

are not adequate to satisfy analyses assumptions

E.1 two or more

With Train A and Train B DGs inoperable, ~~there are no~~ the remaining standby AC sources. Thus, with an assumed loss of offsite electrical power, insufficient standby AC sources

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.6 (continued)

~~Section XI (Ref. 11); however~~, the design of fuel transfer systems is such that pumps operate automatically or must be started manually in order to maintain an adequate volume of fuel oil in the day ~~[and engine mounted]~~ tanks during or following DG testing. ~~In such a case,~~ a 31 day Frequency is appropriate. Since proper operation of fuel transfer systems is an inherent part of DG OPERABILITY, the Frequency of this SR ~~should be modified to reflect individual designs~~.

Therefore,

consistent with the 31 day Frequency for verification of DG operability.

~~SR 3.8.1.7~~

~~See SR 3.8.1.2.~~

7

SR 3.8.1.8

offsite

Transfer of each [4.16 kV ESF bus] power supply from the normal offsite circuit to the alternate offsite circuit demonstrates the OPERABILITY of the alternate circuit distribution network to power the shutdown loads. The ~~[18 month]~~ 24 Frequency of the Surveillance is based on engineering judgment, taking into consideration the unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR when performed ~~at the [18 month] Frequency~~. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

This SR is modified by a Note. The reason for the Note is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, unit safety systems. ~~Credit may be taken for unplanned events that satisfy this SR.~~

R.1

T.1

Insert: B 3.8-20-01

SR 3.8.1.9

Each DG is provided with an engine overspeed trip to prevent damage to the engine. Recovery from the transient caused by the loss of a large load could cause diesel engine

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.12 (continued)

This SR is modified by two Notes. The reason for Note 1 is to minimize wear and tear on the DGs during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations. The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, unit safety systems. ~~Credit may be taken for unplanned events that satisfy this SR.~~ (T.1)

(9) SR 3.8.1.13

This Surveillance demonstrates that DG noncritical protective functions ~~(e.g., high jacket water temperature)~~ are bypassed on a loss of voltage signal concurrent with an ESF actuation test signal, and critical protective functions (engine overspeed, ~~generator differential current~~, low lube oil pressure, ~~high crankcase pressure~~, and start failure relay) trip the DG to avert substantial damage to the DG unit. The noncritical trips are bypassed during DBAs and provide an alarm on an abnormal engine condition. This alarm provides the operator with sufficient time to react appropriately. The DG availability to mitigate the DBA is more critical than protecting the engine against minor problems that are not immediately detrimental to emergency operation of the DG.

(engine overcrank)

(24) The [18 month] Frequency is based on engineering judgment, taking into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths. Operating experience has shown that these components usually pass the SR ~~when performed at the [18 month] Frequency~~. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

The SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required DG from service. ~~Credit may be taken for unplanned events that satisfy this SR.~~ (T.1)

R.1

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.14 (continued)

The [18 month] Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(3), and takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

This Surveillance is modified by two Notes. Note 1 states that momentary transients due to changing bus loads do not invalidate this test. Similarly, momentary power factor transients above the power factor limit will not invalidate the test. The reason for Note 2 is that during operation with the reactor critical, performance of this Surveillance could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, unit safety systems. ~~Credit may be taken for unplanned events that satisfy this SR.~~

SR 3.8.1.15

This Surveillance demonstrates that the diesel engine can restart from a hot condition, such as subsequent to shutdown from normal Surveillances, and achieve the required voltage and frequency within [10] seconds. The [10] second time is derived from the requirements of the accident analysis to respond to a design basis large break LOCA. The [18 month] Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(5).

This SR is modified by two Notes. Note 1 ensures that the test is performed with the diesel sufficiently hot. The load band is provided to avoid routine overloading of the DG. Routine overloads may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY. The requirement that the diesel has operated for at least [2] hours at full load conditions prior to performance of this Surveillance is based on manufacturer recommendations for achieving hot conditions. Momentary transients due to changing bus loads do not invalidate this test. Note 2 allows all DG starts to be preceded by an engine prelube period to minimize wear and tear on the diesel during testing.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.17 (continued)

This testing may include any series of sequential, overlapping, or total steps so that the entire connection and loading sequence is verified.

The [18 month] Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(8), takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. ~~Credit may be taken for unplanned events that satisfy this SR.~~ T.1

11

SR 3.8.1.18

with concurrent

individual load timers

design

Under accident [and loss of offsite power] ~~conditions~~ loads are sequentially connected to the bus by the [automatic load sequencer]. The sequencing logic controls the permissive and starting signals to motor breakers to prevent overloading of the DGs due to high motor starting currents. The [10]% load sequence time interval tolerance ensures that sufficient time exists for the DG to restore frequency and voltage prior to applying the next load and that safety analysis assumptions regarding ESF equipment time delays are not violated. Reference 2 provides a summary of the automatic loading of ESF buses.

Insert: B 3.8-30-01

The Frequency of [18 months] is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9), paragraph 2.a.(2), takes into consideration unit conditions required to perform the Surveillance, and is intended to be consistent with expected fuel cycle lengths.

Insert: B 3.8-30-02

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. ~~Credit may be taken for unplanned events that satisfy this SR.~~ T.1

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.1 - AC Sources - Operating

INSERT: B 3.8-30-01

is based on engineering judgment, taking into consideration operating experience that has shown that these components usually pass the SR. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

INSERT: B 3.8-30-02

that specifies that load timers associated with equipment that has automatic initiation capability disabled are not required to be Operable. This note is needed because these time delay relays affect the Operability of both the AC sources (offsite power and DG) and the specific load that the relay starts. If a timer fails to start a required load or starts the load later than assumed in the analysis, then the required load is not Operable. If a timer starts the load outside the design interval (early or late), then the DG and offsite source are not Operable because overlap of equipment starts may cause an offsite source to exceed limits for voltage or current or a DG to exceed limits for voltage, current or frequency. Therefore, when an individual load sequence timer is not Operable, it is conservative to disable the automatic initiation capability of that component rather than declare the associated DG inoperable because of the following: the potential for adverse impact on the DG by simultaneous start of ESF equipment is eliminated; all other loads powered from the safeguards power train are available to respond to the event; and, the load with the inoperable timer remains available for a manual start after the one minute completion of the normal starting sequence.

because the timing sequence is outside the design interval, Condition D must be entered. However, if the automatic initiation capability of the affected load is disabled, Condition D may be exited, and the Actions for the inoperable load are taken.

R.1

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.19 (continued)

the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations for DGs. The reason for Note 2 is that the performance of the Surveillance would remove a required offsite circuit from service, perturb the electrical distribution system, and challenge safety systems. ~~Credit may be taken for unplanned events that satisfy this SR.~~

Insert: B 3.8.32-01

SR 3.8.1.20

This Surveillance demonstrates that the DG starting independence has not been compromised. Also, this Surveillance demonstrates that each engine can achieve proper speed within the specified time when the DGs are started simultaneously.

The 10 year Frequency is consistent with the recommendations of Regulatory Guide 1.108 (Ref. 9).

This SR is modified by a Note. The reason for ~~the~~ Note is to minimize wear on the DG during testing. For the purpose of this testing, the DGs must be started from standby conditions, that is, with the engine coolant and oil continuously circulated and temperature maintained consistent with manufacturer recommendations.

Insert: B 3.8-32-02

Diesel Generator Test Schedule

The DG test schedule (Table 3.8.1-1) implements the recommendations of Revision 3 to Regulatory Guide 1.9 (Ref. 3). The purpose of this test schedule is to provide timely test data to establish a confidence level associated with the goal to maintain DG reliability > 0.95 per demand.

According to Regulatory Guide 1.9, Revision 3 (Ref. 3), each DG should be tested at least once every 31 days. Whenever a DG has experienced 4 or more valid failures in the last 25 valid tests, the maximum time between tests is reduced to 7 days. Four failures in 25 valid tests is a failure rate of 0.16, or the threshold of acceptable DG performance, and

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.1 - AC Sources - Operating

INSERT: B 3.8-32-01 (ITS REV 1)

The reason for Note 3 is to allow the SR to be conducted with only one safeguards train at a time or with two or three safeguards trains concurrently. Allowing the LOOP/LOCA test to be conducted using one safeguards train and one DG at a time is acceptable because the safeguards trains are designed to respond to this event independently. Therefore, an individual test for each safeguards train will provide an adequate verification of plant response to this event.

Simultaneous testing of all three safeguards power trains is aceptable as long as the following plant conditions are established:

- All three DGs are available,
- diverse and redundant decay heat removal is available,
- no offsite circuits are inoperable, and
- no simultaneous activities are performed that are precursors to events requiring AC power for mitigation (e.g., fuel handling accident or inadvertent RCS draindown.

INSERT: B 3.8-32-02

The reason for Note 2 is that is to allow SR 3.8.1.12 to satisfy the requirements of this SR if SR 3.8.1.12 is performed with more than one safeguards power train concurrently.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.1:

"AC Sources - Operating"

PART 6:

Justification of Differences between

NUREG-1431 and IP3 ITS

JUSTIFICATION OF DIFFERENCES FROM NUREG-1431
ITS SECTION 3.8.1 - AC Sources – Operating

T.2 This change incorporates Generic Change TSTF-163, Rev.2 (WOG-069) which revises surveillances involving 10-second DG start tests (ITS SR 3.8.1 2 and SR 3.8.1.13). This change modifies the SR acceptance criteria to specify a minimum voltage and frequency for the initial 10 seconds, and adds a voltage and frequency range for steady state conditions. This generic change to NUREG 1431, Rev. 1, has been approved by the NRC.

DIFFERENCE FOR ANY REASON OTHER THAN ABOVE

None

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.2:

"AC Sources - Shutdown"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources – Shutdown

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

a. One qualified circuit between the offsite transmission network and the onsite AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems – Shutdown"; and

b.1 Two diesel generators (DGs) capable of supplying two safeguards power trains of the onsite AC electrical power distribution subsystem(s) required by LCO 3.8.10; or

b.2. One DG capable of supplying necessary portions of the onsite AC electrical power distribution subsytems required by LCO 3.8.10 provided that:

(a) The reactor has been subcritical for at least 5 days, and

(b) The water level in the refueling cavity is ≥ 23 feet above the reactor vessel flange, or there is no fuel in the reactor vessel and the refueling cavity.

Am 194

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.10, with any required bus de-energized as a result of Condition A. ----------	(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A.1 (continued)	A.1 Declare affected required feature(s) with no offsite power available inoperable.	Immediately
	OR	
	A.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	A.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	A.2.3 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	AND	
	A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required DG(s) inoperable	B.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	B.2 Suspend movement of irradiated fuel assemblies.	Immediately
	AND	
	B.3 Initiate action to suspend operations involving positive reactivity additions.	Immediately
	AND	
	B.4 Initiate action to restore required DG(s) to OPERABLE status.	Immediately

AM 194 & RAI - 5

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	----------NOTE---------- The following SRs are required to be met but are not required to be performed: SR 3.8.1.3, SR 3.8.1.8, SR 3.8.1.9, SR 3.8.1.10, SR 3.8.1.11, SR 3.8.1.12; and SR 3.8.1.13. ----------	
	For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, "AC Sources – Operating," are applicable.	In accordance with applicable SRs

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.2 AC Sources – Shutdown

BASES

BACKGROUND

A description of the AC sources is provided in the Bases for LCO 3.8.1, "AC Sources – Operating."

APPLICABLE SAFETY ANALYSES

The OPERABILITY of the minimum AC sources during MODES 5 and 6 and during movement of irradiated fuel assemblies ensures that:

a. The unit can be maintained in the shutdown or refueling condition for extended periods;

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and

c. Adequate AC electrical power is provided to mitigate events postulated during shutdown, such as a fuel handling accident.

In general, when the unit is shut down, the Technical Specifications requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or all onsite power is not required. The rationale for this is based on the fact that many Design Basis Accidents (DBAs) that are analyzed in MODES 1, 2, 3, and 4 have no specific analyses in MODES 5 and 6. Worst case bounding events are deemed not credible in MODES 5 and 6 because the energy contained within the reactor pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence being significantly reduced or eliminated, and in minimal consequences. These deviations from

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

DBA analysis assumptions and design requirements during shutdown conditions are allowed by the LCO for required systems. During MODES 1, 2, 3, and 4, various deviations from the analysis assumptions and design requirements are allowed within the Required Actions. This allowance is in recognition that certain testing and maintenance activities must be conducted provided an acceptable level of risk is not exceeded. During MODES 5 and 6, performance of a significant number of required testing and maintenance activities is also required. In MODES 5 and 6, the activities are generally planned and administratively controlled. Relaxations from MODE 1, 2, 3, and 4 LCO requirements are acceptable during shutdown modes based on:

a. The fact that time in an outage is limited. This is a risk prudent goal as well as a utility economic consideration.

b. Requiring appropriate compensatory measures for certain conditions. These may include administrative controls, reliance on systems that do not necessarily meet typical design requirements applied to systems credited in operating MODE analyses, or both.

c. Prudent utility consideration of the risk associated with multiple activities that could affect multiple systems.

d. Maintaining, to the extent practical, the ability to perform required functions (even if not meeting MODE 1, 2, 3, and 4 OPERABILITY requirements) with systems assumed to function during an event.

In the event of an accident during shutdown, this LCO ensures the capability to support systems necessary to avoid immediate difficulty, assuming either a loss of all offsite power or a loss of all onsite diesel generator (DG) power.

The AC sources satisfy Criterion 3 of 10 CFR 50.36.

(continued)

BASES (continued)

LCO

One offsite circuit capable of supplying the onsite power distribution subsystem(s) of LCO 3.8.10, "Distribution Systems – Shutdown," ensures that all required loads are powered from offsite power. Two OPERABLE DGs, associated with the distribution system train required to be OPERABLE by LCO 3.8.10, ensures a diverse power source is available to provide electrical power support, assuming a loss of the offsite circuit. Together, OPERABILITY of the required offsite circuit and DGs ensures the availability of sufficient AC sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents). Under specific plant conditions the number of required operable DGs may be reduced to one. The plant conditions described by the LCO ensures that ample time is available for operator actions in response to a loss of offsite power.

AM 194

The offsite circuit must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the Engineered Safety Feature (ESF) bus(es). Offsite circuits are those that are described in the Bases of LCO 3.8.1, AC Sources - Operating, except that safeguards power trains may be cross connected when in MODES 5 and 6.

The DGs must be capable of starting, accelerating to rated speed and voltage, and connecting to their respective ESF bus on detection of bus undervoltage. This sequence must be accomplished within 10 seconds. The DG must be capable of accepting required loads within the assumed loading sequence intervals, and continue to operate until offsite power can be restored to the ESF buses.

Proper sequencing of loads, including tripping of nonessential loads, is a required function for DG OPERABILITY.

It is acceptable for safeguards power trains to be cross tied during shutdown conditions, allowing a single offsite power circuit to supply all required trains. In this case, interlocks that disconnect the affected tie breakers before DGs are automatically connected to the bus must be OPERABLE.

RAI-02

(continued)

BASES (continued)

APPLICABILITY

The AC sources required to be OPERABLE in MODES 5 and 6 and during movement of irradiated fuel assemblies provide assurance that:

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel assemblies in the core;

b. Systems needed to mitigate a fuel handling accident are available;

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The AC power requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.1.

ACTIONS

A.1

An offsite circuit would be considered inoperable if it were not available to one required safeguards power train. Although two safeguards power trains may be required by LCO 3.8.10, the one train with offsite power available may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS and fuel movement. By the allowance of the option to declare required features inoperable, with no offsite power available, appropriate restrictions will be implemented in accordance with the affected required features LCO's ACTIONS.

A.2.1, A.2.2, A.2.3 and A.2.4

With the offsite circuit not available to all required trains, the option would still exist to declare all required features inoperable. Since this option may involve undesired administrative efforts, the allowance for sufficiently

(continued)

BASES

ACTIONS

A.2.1, A.2.2, A.2.3 and A.2.4 (continued)

conservative actions is made. It is, therefore, required to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactivity additions. The Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory provided the required SDM is maintained.

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability or the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC sources and to continue this action until restoration is accomplished in order to provide the necessary AC power to the unit safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the unit safety systems may be without sufficient power.

Pursuant to LCO 3.0.6, the Distribution System's ACTIONS would not be entered even if all AC sources to it are inoperable, resulting in de-energization. Therefore, the Required Actions of Condition A are modified by a Note to indicate that when Condition A is entered with no AC power to any required ESF bus, the ACTIONS for LCO 3.8.10 must be immediately entered. This Note allows Condition A to provide requirements for the loss of the offsite circuit, whether or not a train is de-energized. LCO 3.8.10 would provide the appropriate restrictions for the situation involving a de-energized bus.

(continued)

BASES

ACTIONS (continued)

B.1, B.2, B.3 and B.4

Condition B is entered when any required DGs are inoperable. A DG would be considered inoperable if it could not support its associated safeguards power train. When LCO 3.8.2.b.1 applies, 2 DGs are required to be OPERABLE. In this case, whether one or both of the required DGs is inoperable, the minimum required diversity of AC power sources is not available to required features. Therefore, it is required to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactive additions.

When specific limitations are satisfied, as stated in LCO 3.8.2.b.2, only one DG is required. The additional restrictions on plant conditions for requiring only one DG provides ample time for operator action, in the event of a loss of offsite power, to manually restore decay heat removal capability. The combination of subcritical duration, fuel location, and refueling cavity water level results in a time period of at least 3 hours for heatup of this water inventory from 140 ^{0}F to 200 ^{0}F.

With any required DGs inoperable, the Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory provided the required SDM is maintained. Additionally, Required Actions B.1, B.2, and B.3 do not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability or the occurrence of postulated events.

Furthermore, when Required Actions B.1, B.2 and B.3 are implemented, it is required to immediately initiate action (B.4) to restore the required DG(s) and to continue this action until restoration is accomplished in order to provide the necessary AC power to the unit safety systems.

RAI-05

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the unit safety systems may be without sufficient power.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.2.1

SR 3.8.2.1 requires the SRs from LCO 3.8.1 that are necessary for ensuring the OPERABILITY of the AC sources in other than MODES 1, 2, 3, and 4. SR 3.8.1.8 is not required to be met since only one offsite circuit is required to be OPERABLE. SR 3.8.1.17 is not required to be met because the required OPERABLE DG(s) is not required to undergo periods of being synchronized to the offsite circuit. SR 3.8.1.20 is excepted because starting independence is not required with the DG(s) that is not required to be operable. RAI -04

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during performance of SRs, and to preclude deenergizing a required 480 V ESF bus or disconnecting a required offsite circuit during performance of SRs. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that these SRs must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit is required to be OPERABLE. Refer to the corresponding Bases for LCO 3.8.1 for a discussion of each SR.

REFERENCES None.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.2:
"AC SOURCES-SHUTDOWN"

PART 2:

CURRENT TECHNICAL SPECIFICATION PAGES

Annotated to show differences between CTS and ITS

CTS PAGE	AMENDMENT FOR REV O SUBMITTAL	AMENDMENT FOR REV 1 SUBMITTAL	COMMENT
3.7-3	34	34	n/a
3.7-3a	161	198	Amend 194 - 1 DG in CSD incorporated in ITS 3.8.2 Amend 198 - delete 'underground' storage tank; no impact on ITS.
3.7-4	161;98-044	198	All Bases pages replaced per DOC A.1
3.7-5	153;97-175	153;9-22-98	All Bases pages replaced per DOC A.1
4.6-1	142	142	

C. If the electrical distribution system is not restored to meet the requirements of 3.7.A within the time periods specified in 3.7.B, then:

1. If the reactor is critical, it shall be in the hot shutdown condition within six hours and in the cold shutdown condition within the following 30 hours.

SEE ITS 3.8.1

2. If the reactor is subcritical, the reactor coolant system temperature and pressure shall not be increased more than 25°F and 100 psi, respectively, over existing values.

D. The requirements of Specification 3.7.A.1 may be modified during an emergency system-wide blackout condition as follows:

Two of the three 13.8 KV feeders (13W92, 13W93 and/or 13W94) to the Buchanan substation 138 KV buses operable with at least 37 MV power from any combination of gas turbines (nameplate rating at 80°F) at the Buchanan Substation and onsite and onsite available for exclusive use on Indian Point Unit No. 3.

SEE RELOCATED

E. Whenever the reactor critical, the circuit breaker on the electrical feeder to emergency lighting panel 318 inside containment shall be locked open except when containment access is required.

3.8.2 Applicability

F. As a minimum, under all conditions including cold shutdown, the following A.C. electrical power sources shall be operable: (Mode 5 and refueling movement of irradiated fuel) from L.1 A.3

LCO 3.8.2.a

1. One transmission circuit to Buchanan Substation, except for testing M.3

2. Either:

a. 6.9 KV buses 5 or 6 energized from the 138 KV feeder 95331 or 95332,

or

b. 13.8 KV feeder 13W92 or 13W93 and its associated 13.8/6.9 KV transformer available to supply 6.9 power, LA.1

SEE ITS 3.8.10

3. Two of the four 480-volt buses 2A, 3A, 5A and 6A energized.

delete per Amendment 198

R.1

LCO 3.8.2.b

4. Two operable diesel generators together with total underground storage containing a minimum of 6671 gallons of fuel.

SEE ITS 3.8.3

SEE ITS 3.8.1

G. When a system, subsystem, train, component or device is determined to be inoperable solely because its emergency power source is inoperable, or solely because its normal power source is inoperable, it may be considered operable for the purpose of satisfying the requirements of its applicable specification provided: (1) its corresponding normal or emergency power source is operable; and (2) all of its redundant system(s), subsystem(s), train(s), components(s) and device(s) are operable or likewise satisfy the requirements of the specification.

Basis

The electrical system equipment is arranged so that no single contingency can inactivate enough safeguards equipment to jeopardize the plant safety. The 480-volt equipment is arranged on 4 buses. The 6900-volt equipment is supplied from 6 buses.

The Buchanan Substation has both 345 KV and 138 KV transmission circuits which are capable of supplying startup, normal operation, shutdown and/or engineered safeguards loads.

A.1

The 138 KV supplies or the gas turbines are capable of providing sufficient power for plant startup. Power via the station auxiliary transformer can supply all the required plant auxiliaries during normal operation, if required.

In addition to the unit transformer, four separate sources supply station service power to the plant.(1)

The plant auxiliary equipment is arranged electrically so that multiple items receive their power from different buses. Redundant valves are individually supplied from separate motor control centers.

Add Condition A and associated Required Actions
Add Condition B and associated Required Actions

M.1

Intervening amendments 194 & 198 See next pages

R.1

ITS 3.8.2 | R.1

4. Two operable diesel generators together with total underground storage containing a minimum of 6671 gallons of fuel.

LCO 3.8.2

It is permissible to have only one operable diesel generator together with total underground storage containing a minimum of 6671 gallons of fuel provided that: (1) the reactor is in cold shutdown or refueling and has been subcritical for at least 5 days AND (2) the water level in the refueling cavity above the top of the reactor vessel flange is equal to or greater than 23 feet OR no fuel is in the reactor or refueling cavity AND (3) the necessary portion of AC, DC and 120 VAC vital instrument bus electrical power distribution subsystems shall be operable to support equipment required to be operable.

5. If either of the required diesel generators specified in 3.7.F.4 are not operable, when two are required to be operable, then the following actions should be pursued without delay and in a controlled manner:

a. Initiate action to suspend operations involving positive reactivity additions. However, this does not preclude actions to maintain or increase reactor vessel or reactor cavity inventory provided the required SDM is maintained.

AND

b. Initiate actions to restore the required diesel generator to operable status.

LCO 3.8.2 Condition B

6. If the one required diesel generator specified in 3.7.F.4 OR the offsite power source specified in 3.7.F.2 OR the necessary portion of AC, DC and 120 VAC vital instrument bus electrical power distribution subsystems specified in 3.7.F.4 is not operable, then the following actions should be pursued without delay and in a controlled manner:

a. Suspend all core alterations.

AND

b. Suspend movement of irradiated fuel assemblies.

AND

c. Initiate actions to suspend operations involving positive reactivity additions. However, this does not preclude actions to maintain or increase reactor vessel or reactor cavity inventory provided the required SDM is maintained.

AND

d. Initiate action to restore the required diesel generator or offsite power source or the necessary portion of AC, DC and 120 VAC vital instrument bus electrical power distribution subsystems to operable status.

Amendment No. 34, 56, 153, 161, 194

Amendment 194 = 1 DG in "cold shut down" changes to ITS 3.8.2 as noted

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.2:

"AC Sources - Shutdown"

PART 5:

NUREG-1431
Annotated to show differences between
NUREG-1431 and ITS

3.8 ELECTRICAL POWER SYSTEMS

3.8.2 AC Sources—Shutdown

LCO 3.8.2 The following AC electrical power sources shall be OPERABLE:

a. One qualified circuit between the offsite transmission network and the onsite ~~Class 1E~~ AC electrical power distribution subsystem(s) required by LCO 3.8.10, "Distribution Systems—Shutdown"; and

b.1. ~~One~~ diesel generator (DG) capable of supplying ~~one~~ train(s) of the onsite ~~Class 1E~~ AC electrical power distribution subsystem(s) required by LCO 3.8.10, ; or

b.2. INSERT 3.8-18-01

APPLICABILITY: MODES 5 and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One required offsite circuit inoperable.	----------NOTE---------- Enter applicable Conditions and Required Actions of LCO 3.8.10, with one required train de-energized as a result of Condition A. ----------	
	A.1 Declare affected required feature(s) with no offsite power available inoperable. OR	Immediately
	A.2.1 Suspend CORE ALTERATIONS. AND	Immediately
		(continued)

3.8.2-1 Typical

NUREG-1431 Markup Inserts
ITS SECTION 3.8.2 - AC Sources - Shutdown

INSERT 3.8-18-01: (Rev 1)

CLB. 1

b.2. One DG capable of supplying necessary portions of the onsite AC electrical power distribution subsystems required by LCO 3.8.10 provided that:

<CTS>

<3.7.F.4>

(a) The reactor has been subcritical for at least 5 days, and

(b) The water level in the refueling cavity is $\geq$ 23 feet above the reactor vessel flange, or there is no fuel in the reactor vessel and the refueling cavity.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.2 Suspend movement of irradiated fuel assemblies. AND	Immediately
	A.2.3 Initiate action to suspend operations involving positive reactivity additions. AND	Immediately
	A.2.4 Initiate action to restore required offsite power circuit to OPERABLE status.	Immediately
B. ~~One~~ required DG(s) ~~inoperable~~.	B.1 Suspend CORE ALTERATIONS. AND	Immediately
	B.2 Suspend movement of irradiated fuel assemblies. AND	Immediately
	B.3 Initiate action to suspend operations involving positive reactivity additions. AND	Immediately
	B.4 Initiate action to restore required DG to OPERABLE status.	Immediately

DB.1
CLB.1

Insert: 3.8-19-01

A.1

NUREG-1431 Markup Inserts
ITS SECTION 3.8.2 - AC Sources - Shutdown

INSERT 3.8-19-01: (Rev 1)

DB.1
CLB.1

B. One or more required DGs inoperable, when two are required to be operable, or one DG inoperable when only one required to be operable.	B.1	Declare affected required feature(s) with no DG available inoperable.	Immediately
	OR		
	B.2.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	B.2.2	Suspend movement of irradiated fuel assemblies.	Immediately
	AND		
	B.2.3	Initiate action to suspend operations involving positive reactivity additions.	Immediately
	AND		
	B.2.4	Initiate action to restore required DG(s) to OPERABLE status.	Immediately

<CTS>
<3.7.F.5>
<3.7.F.6>
<DOC M.1>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.2.1 ----------NOTE---------- The following SRs ~~are not required to be performed:~~ ~~SR 3.8.1.3~~, ~~SR 3.8.1.9 through SR 3.8.1.11~~, ~~SR 3.8.1.13 through SR 3.8.1.16~~, ~~[SR 3.8.1.18,]~~ and ~~SR 3.8.1.19~~. ---------- For AC sources required to be OPERABLE, the SRs of Specification 3.8.I. "AC Sources—Operating," ~~except SR 3.8.1.8, SR 3.8.1.10~~, ~~and SR 3.8.1.20~~, are applicable.	In accordance with applicable SRs

NUREG-1431 Markup Inserts
ITS SECTION 3.8.2 - AC Sources - Shutdown

INSERT 3.8-20-01:

are required to be met but are not required to be performed:

<Doc L.2>

SR 3.8.1.3;	SR 3.8.1.11;
SR 3.8.1.8;	SR 3.8.1.12;
SR 3.8.1.9;	and
SR 3.8.1.10;	SR 3.8.1.13.

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.2 AC Sources—Shutdown

BASES

BACKGROUND

A description of the AC sources is provided in the Bases for LCO 3.8.1, "AC Sources—Operating."

APPLICABLE SAFETY ANALYSES

The OPERABILITY of the minimum AC sources during MODES 5 and 6 and during movement of irradiated fuel assemblies ensures that:

a. The unit can be maintained in the shutdown or refueling condition for extended periods;

b. Sufficient instrumentation and control capability is available for monitoring and maintaining the unit status; and

c. Adequate AC electrical power is provided to mitigate events postulated during shutdown, such as a fuel handling accident.

In general, when the unit is shut down, the Technical Specifications requirements ensure that the unit has the capability to mitigate the consequences of postulated accidents. However, assuming a single failure and concurrent loss of all offsite or all onsite power is not required. The rationale for this is based on the fact that many Design Basis Accidents (DBAs) that are analyzed in MODES 1, 2, 3, and 4 have no specific analyses in MODES 5 and 6. Worst case bounding events are deemed not credible in MODES 5 and 6 because the energy contained within the reactor pressure boundary, reactor coolant temperature and pressure, and the corresponding stresses result in the probabilities of occurrence being significantly reduced or eliminated, and in minimal consequences. These deviations from DBA analysis assumptions and design requirements during shutdown conditions are allowed by the LCO for required systems.

During MODES 1, 2, 3, and 4, various deviations from the analysis assumptions and design requirements are allowed

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

within the Required Actions. This allowance is in recognition that certain testing and maintenance activities must be conducted provided an acceptable level of risk is not exceeded. During MODES 5 and 6, performance of a significant number of required testing and maintenance activities is also required. In MODES 5 and 6, the activities are generally planned and administratively controlled. Relaxations from MODE 1, 2, 3, and 4 LCO requirements are acceptable during shutdown modes based on:

a. The fact that time in an outage is limited. This is a risk prudent goal as well as a utility economic consideration.

b. Requiring appropriate compensatory measures for certain conditions. These may include administrative controls, reliance on systems that do not necessarily meet typical design requirements applied to systems credited in operating MODE analyses, or both.

c. Prudent utility consideration of the risk associated with multiple activities that could affect multiple systems.

d. Maintaining, to the extent practical, the ability to perform required functions (even if not meeting MODE 1, 2, 3, and 4 OPERABILITY requirements) with systems assumed to function during an event.

In the event of an accident during shutdown, this LCO ensures the capability to support systems necessary to avoid immediate difficulty, assuming either a loss of all offsite power or a loss of all onsite diesel generator (DG) power.

The AC sources satisfy Criterion 3 of ~~the NRC Policy Statement~~ 10 CFR 50.36.

LCO

One offsite circuit capable of supplying the onsite ~~Class 1E~~ power distribution subsystem(s) of LCO 3.8.10, "Distribution Systems—Shutdown," ensures that all required loads are powered from offsite power. ~~An~~ Two OPERABLE DG~~s~~ associated with the distribution system train required to be OPERABLE by LCO 3.8.10, ensures a diverse power source is available to

(continued)

BASES

LCO (continued)

provide electrical power support, assuming a loss of the offsite circuit. Together, OPERABILITY of the required offsite circuit and DG ensures the availability of sufficient AC sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents).

Insert B 3.8-37-01

The qualified offsite circuit must be capable of maintaining rated frequency and voltage, and accepting required loads during an accident, while connected to the Engineered Safety Feature (ESF) bus(es). Qualified offsite circuits are those that are described in the FSAR and are part of the licensing basis for the unit.

Insert: B3.8-37-02

Offsite circuit #1 consists of Safeguards Transformer B, which is supplied from Switchyard Bus B, and is fed through breaker 52-3 powering the ESF transformer XNB01, which, in turn, powers the #1 ESF bus through its normal feeder breaker. The second offsite circuit consists of the Startup Transformer, which is normally fed from the Switchyard Bus A, and is fed through breaker PA 0201 powering the ESF transformer, which, in turn, powers the #2 ESF bus through its normal feeder breaker.

The DG must be capable of starting, accelerating to rated speed and voltage, and connecting to its respective ESF bus on detection of bus undervoltage. This sequence must be accomplished within [10] seconds. The DG must be capable of accepting required loads within the assumed loading sequence intervals, and continue to operate until offsite power can be restored to the ESF buses. These capabilities are required to be met from a variety of initial conditions such as DG in standby with the engine hot and DG in standby at ambient conditions.

Proper sequencing of loads, including tripping of nonessential loads, is a required function for DG OPERABILITY.

In addition, proper sequencer operation is an integral part of offsite circuit OPERABILITY since its inoperability impacts on the ability to start and maintain energized loads required OPERABLE by LCO 3.8.10.

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.2 - AC Sources - Shutdown

(REV 1)

INSERT B 3.8-37-01:

Under specific plant conditions the number of required operable DGs may be reduced to one. The plant conditions described by the LCO ensures that ample time is available for operator actions in response to a loss of offsite power.

CLB Am 194

INSERT B 3.8-37-02:

Described in the Bases of LCO 3.8.1, AC Sources - Operating, except that safeguards power trains may be cross connected when in MODES 5 and 6.

BASES

LCO (continued)

It is acceptable for trains to be cross tied during shutdown conditions, allowing a single offsite power circuit to supply all required trains.

INSERT B 3.8-38-01

APPLICABILITY

The AC sources required to be OPERABLE in MODES 5 and 6 and during movement of irradiated fuel assemblies provide assurance that:

a. Systems to provide adequate coolant inventory makeup are available for the irradiated fuel assemblies in the core;

b. Systems needed to mitigate a fuel handling accident are available;

c. Systems necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The AC power requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.1.

ACTIONS

A.1

An offsite circuit would be considered inoperable if it were not available to one required ESF train. Although two trains are required by LCO 3.8.10, the one train with offsite power available may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS and fuel movement. By the allowance of the option to declare required features inoperable, with no offsite power available, appropriate restrictions will be implemented in accordance with the affected required features LCO's ACTIONS.

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.2 - AC Sources - Shutdown

(REV 1)

INSERT B 3.8-38-01:

In this case, interlocks that disconnect the affected tie breakers before DGs are automatically connected to the bus must be OPERABLE.

BASES

ACTIONS (continued)

A.2.1, A.2.2, A.2.3, and A.2.4, B.1, B.2, B.3, and B.4

With the offsite circuit not available to all required trains, the option would still exist to declare all required features inoperable. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. With the required DG inoperable, the minimum required diversity of AC power sources is not available. It is, therefore, required to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactivity additions. The Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory provided the required SDM is maintained.

Suspension of these activities does not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability or the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC sources and to continue this action until restoration is accomplished in order to provide the necessary AC power to the unit safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the unit safety systems may be without sufficient power.

Pursuant to LCO 3.0.6, the Distribution System's ACTIONS would not be entered even if all AC sources to it are inoperable, resulting in de-energization. Therefore, the Required Actions of Condition A are modified by a Note to indicate that when Condition A is entered with no AC power to any required ESF bus, the ACTIONS for LCO 3.8.10 must be immediately entered. This Note allows Condition A to provide requirements for the loss of the offsite circuit, whether or not a train is de-energized. LCO 3.8.10 would provide the appropriate restrictions for the situation involving a de-energized train.

Insert: B 3.8-39-01

bus

NUREG-1431 Markup Inserts
ITS SECTION 3.8.2 - AC Sources - Shutdown

INSERT B 3.8-39-01: (Rev 1)

B.1, B.2, B.3 and B.4

Condition B is entered when any required DGs are inoperable. A DG would be considered inoperable if it could not support its associated safeguards power train. When LCO 3.8.2.b.1 applies, 2 DGs are required to be OPERABLE. In this case, whether one or both of the required DGs is inoperable, the minimum required diversity of AC power sources is not available to required features. Therefore, it is required to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactive additions.

When specific limitations are satisfied, as stated in LCO 3.8.2.b.2, only one DG is required. The additional restrictions on plant conditions for requiring only one DG provides ample time for operator action, in the event of a loss of offsite power, to manually restore decay heat removal capability. The combination of subcritical duration, fuel location, and refueling cavity water level results in a time period of at least 3 hours for heatup of this water inventory from 140 ^{0}F to 200 ^{0}F.

With any required DGs inoperable, the Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory provided the required SDM is maintained. Additionally, Required Actions B.1, B.2 and B.3 do not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability or the occurrence of postulated events.

Furthermore, when Required Actions B.1, B.2 and B.3 are implemented, it is required to immediately initiate action (B.4) to restore the required DG(s) and to continue this action until restoration is accomplished in order to provide the necessary AC power to the unit safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to minimize the time during which the unit safety systems may be without sufficient power.

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.2.1

SR 3.8.2.1 requires the SRs from LCO 3.8.1 that are necessary for ensuring the OPERABILITY of the AC sources in other than MODES 1, 2, 3, and 4. SR 3.8.1.8 is not required to be met since only one offsite circuit is required to be OPERABLE. SR 3.8.1.17 is not required to be met because the required OPERABLE DG(s) is not required to undergo periods of being synchronized to the offsite circuit. SR 3.8.1.20 is excepted because starting independence is not required with the DG(s) that is not required to be operable.

R.1

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during performance of SRs, and to preclude deenergizing a required 4160 V ESF bus or disconnecting a required offsite circuit during performance of SRs. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that these SRs must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit is required to be OPERABLE. Refer to the corresponding Bases for LCO 3.8.1 for a discussion of each SR.

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REFERENCES None.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.3:

"Diesel Fuel Oil and Starting Air"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil and Starting Air

LCO 3.8.3 The stored diesel fuel oil and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

----------NOTE----------
Separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. ----------NOTE---------- Only applicable in MODES 1, 2, 3 and 4. ---------- One or more DGs with usable fuel oil in associated DG fuel oil storage tank < 5365 gal.	A.1 Declare associated DG inoperable.	Immediately
B. ----------NOTE---------- Only applicable in MODES 5 and 6 and during movement of irradiated fuel. ---------- Total combined usable fuel oil in DG fuel oil storage tanks associated with the operable DG(s) < 5365 gal.	B.1 Declare all DGs inoperable.	Immediately

NYPA

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(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ---------NOTE---------- Only applicable in MODES 1, 2, 3 and 4. ---------- Total useable fuel oil in reserve storage tank(s) < 26,826 gal.	C.1 Declare all DGs inoperable.	Immediately
D. One or more DG fuel oil storage tanks or reserve fuel oil storage tanks with fuel oil total particulates not within limits.	D.1 Restore fuel oil total particulates within limit.	7 days for DG fuel oil storage tank AND 30 days for reserve fuel oil storage tank
E. One or more DG fuel oil storage tanks or reserve fuel oil storage tanks with fuel oil properties other than particulates not within limits.	E.1 Restore fuel oil properties to within limits.	30 days for DG fuel oil storage tank AND 60 days for reserve fuel oil storage tank
F. One or more DGs with starting air receiver pressure < 250 psig and ≥ 90 psig.	F.1 Restore starting air receiver pressure to ≥ 250 psig.	48 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Required Action and associated Completion Time not met. OR One or more DGs diesel fuel oil or starting air subsystem not within limits for reasons other than Condition A, B, C, D, E, or F.	G.1 Declare associated DG inoperable.	Immediately

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SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.3.1	----------NOTE---------- Only required in MODES 1, 2, 3 and 4. ---------- Verify reserve storage tank(s) contain ≥ 26,826 gal of fuel oil reserved for IP3 usage only.	24 hours NYPA
SR 3.8.3.2	Verify DG fuel oil storage tanks contain: a. Usable fuel oil volume ≥ 5365 gal in each storage tank when in MODES 1, 2, 3 and 4; and b. Total combined usable fuel oil volume ≥ 5365 gal in any DG fuel oil storage tank(s) that are associated with the operable DG(s) when in MODES 5 and 6 and during movement of irradiated fuel assemblies.	31 days NYPA RAI -02 NYPA
SR 3.8.3.3	Verify that fuel oil properties of new and stored fuel oil in the DG fuel oil storage tanks are tested and maintained in accordance with the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.3.4	----------NOTE---------- Only required in MODES 1, 2, 3 and 4. ---------- Verify that fuel oil properties in the reserve storage tank(s) are within limits specified in the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.5	Verify each DG air start receiver pressure is ≥ 250 psig.	31 days
SR 3.8.3.6	Check for and remove accumulated water from each DG fuel oil storage tank.	92 days

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Diesel Fuel Oil and Starting Air

BASES

BACKGROUND

Fuel oil for the safeguards DGs is stored in three 7,700 gallon DG fuel oil storage tanks located on the south side of the Diesel Generator Building. The offsite DG fuel oil reserve is maintained in two 30,000 gallon tanks located in the Indian Point 1 Superheater Building and/or a 200,000 gallon tank in the Buchanan Substation which is located in close proximity to the IP3 site. The IP3 offsite fuel oil reserve is maintained by the operators of IP2, Consolidated Edison Company, in accordance with formal agreements with NYPA. The IP3 offsite DG fuel oil reserve is normally stored in the same tanks used to store the IP2 offsite DG fuel oil reserve.

Sufficient fuel for at least 48 hours of minimum safeguards equipment operation is available when any two of the DG fuel oil storage tanks are available and each contains 5,365 usable gallons of fuel oil. Additional margin is provided by 115 gallons of fuel oil in the DG day tank required by SR 3.8.1.4. The maximum DG loadings for design basis transients that actuate safety injection are summarized in FSAR 8.2 (Ref. 1). These transients include large and small break loss of coolant accidents (LOCA), main steamline break and steam generator tube rupture (SGTR).

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The three DG fuel oil storage tanks are filled through a common fill line that is equipped with a truck hose connection and a shutoff valve at each tank. The overflow from any DG fuel oil storage tank will cascade into an adjacent tank. Each DG fuel oil storage tank is equipped with a single vertical fuel oil transfer pump that discharges to either the normal or emergency header. Either header can be used to fill the day tank at each diesel. Each DG fuel oil storage tank has an alarm that sounds in the control room when the level in the tank drops to approximately 6,717 gallons. Each tank is also equipped with a sounding connection and a level indicator.

(continued)

BASES

BACKGROUND (continued)

Each emergency diesel is equipped with a 175-gallon day tank with an operating level that provides sufficient fuel for approximately one hour of DG operation. A decrease in day tank level to approximately 115 gallons (65% full) will cause the normal and emergency fill valves on that day tank to open and the transfer pump in the corresponding DG fuel oil storage tank to start. Once started, the pump will continue to run until that day tank is filled. However, any operating transfer pump will fill any day tank with a normal or emergency fill valve that is open. When a day tank is at approximately 158 gallons (90% full), a switch initiates closing of the day tank normal and emergency fill valves.

Technical Specifications require sufficient fuel oil to operate 2 of the 3 required DGs at minimum safeguards load for 7 days. The Technical Specification required volume of fuel oil includes the 26,826 gallons of usable fuel oil in the reserve tanks, 10,730 usable gallons in two DG fuel oil storage tanks (assuming a failure makes the oil in the third DG fuel oil storage tank unavailable), and 230 gallons in two day tanks (assuming a failure makes the oil in the day tank associated with the third DG unavailable). NYPA

If the DGs require fuel oil from the fuel oil reserve tank(s), the fuel oil will be transported by truck to the DG fuel oil storage tanks. A truck with appropriate hose connections and capable of transporting oil is available either on site or at the Buchanan Substation. Commercial oil supplies and trucking facilities are also available in the vicinity of the plant.

For proper operation of the standby DGs, it is necessary to ensure the proper quality of the fuel oil. Requirements for DG fuel oil testing methodology, frequency, and acceptance criteria are maintained in the program required by Specification 5.5.12, Diesel Fuel Oil Testing Program.

Each DG has an air start system with adequate capacity for four successive start attempts on the DG without recharging the air start receiver(s). The air starting system is designed to

(continued)

BASES

BACKGROUND (continued)

shutdown and lock out any engine which does not start during the initial start attempt so that only enough air for one automatic start is used. This conserves air for subsequent DG start attempts.

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter 14 (Ref. 3), assume Engineered Safety Feature (ESF) systems are OPERABLE. The DGs are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that fuel, Reactor Coolant System and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

Since diesel fuel oil and the air start subsystem support the operation of the standby AC power sources, they satisfy Criterion 3 of 10 CFR 50.36.

LCO

Stored diesel fuel oil is required to have sufficient supply for 7 days of operation for 2 of 3 DGs at minimum safeguards load. Fuel oil is also required to meet specific standards for quality. This requirement, in conjunction with an ability to obtain replacement supplies within 7 days, supports the availability of DGs required to shut down the reactor and to maintain it in a safe condition for an anticipated operational occurrence (AOO) or a postulated DBA with loss of offsite power. DG day tank fuel requirements, as well as transfer capability from the storage tank to the day tank, are addressed in LCO 3.8.1, "AC Sources – Operating," and LCO 3.8.2, "AC Sources – Shutdown."

The starting air system is required to have a minimum capacity for four successive DG start attempts without recharging the air start receivers.

(continued)

BASES (continued)

APPLICABILITY

The AC sources (LCO 3.8.1 and LCO 3.8.2) are required to ensure the availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an AOO or a postulated DBA. Since stored diesel fuel oil and the starting air subsystem support LCO 3.8.1 and LCO 3.8.2, stored diesel fuel oil and starting air are required to be within limits when the associated DG is required to be OPERABLE.

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each DG. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable DG subsystem. Complying with the Required Actions for one inoperable DG subsystem may allow for continued operation, and subsequent inoperable DG subsystem(s) are governed by separate Condition entry and application of associated Required Actions.

A.1

In this Condition, the requirements of SR 3.8.3.2.a are not met. Therefore, a DG will not be able to support 48 hours of continuous operation at minimum safeguards load and replenishment of the DG fuel oil storage tanks will be required in less than 48 hours following an accident. The DG associated with the DG fuel oil storage tank not within limits must be declared inoperable immediately because replenishment of the DG fuel oil storage tank requires that fuel be transported from the offsite DG fuel oil reserve by truck and the volume of fuel oil remaining in the DG fuel oil storage tank may not be sufficient to allow continuous DG operation while the fuel transfer is planned and conducted under accident conditions.

This Condition is preceded by a Note stating that Condition A is applicable only in MODES 1, 2, 3 and 4. This Note provides recognition that reduced DG loading required to respond to events in MODES 5 and 6 significantly reduces the amount of fuel oil required in the DG fuel oil storage tanks when in these MODES.

(continued)

BASES

ACTIONS (continued)

B.1

In this Condition, the requirements of SR 3.8.3.2.b are not met. With less than the total required minimum fuel oil in one or more DG fuel oil storage tanks, the one or two DGs required to be operable in MODES 5 and 6 and during movement of irradiated fuel may not have sufficient fuel oil to support continuous operation while a fuel transfer from the offsite DG fuel oil reserve or from another offsite source is planned and conducted under accident conditions. Fuel oil credited to meet this requirement must be in one or more storage tanks associated with the operable DG(s) because the fuel transfer pump in each tank may depend on power from that DG. Am 194 RAI -02

This condition requires that all DGs be declared inoperable immediately because minimum fuel oil level requirements in SR 3.8.3.2.b is a condition of Operability of all DGs when in the specified MODES.

This Condition is preceded by a Note stating that Condition B is applicable only in MODES 5 and 6 and during the movement of irradiated fuel. This Note provides recognition that reduced DG loading required to respond to events in MODES 5 and 6 significantly reduces the amount of fuel oil required in the DG fuel oil storage tanks when in these MODES.

C.1

In this Condition, the fuel oil remaining in the offsite DG fuel oil reserve is not sufficient to operate 2 of the 3 DGs at minimum safeguards load for 7 days. Therefore, all 3 DGs are declared inoperable immediately.

This Condition is preceded by a Note stating that Condition D is applicable only in MODES 1, 2, 3 and 4 because the offsite DG fuel oil reserve is required to be available only in these MODES. This Note provides recognition that reduced DG loading required to respond to events in MODES 5 and 6 significantly reduces the amount of fuel oil required when in these MODES.

(continued)

BASES

ACTIONS (continued)

D.1

This Condition is entered as a result of a failure to meet the acceptance criteria of SR 3.8.3.3 or SR 3.8.3.4 when the DG fuel oil storage tanks or reserve storage tanks are verified to have particulate within the allowable value in Specification 5.5.12, Diesel Fuel Oil Testing Program. Normally, trending of particulate levels allows sufficient time to correct high particulate levels prior to reaching the limit of acceptability. Poor sample procedures (bottom sampling), contaminated sampling equipment, and errors in laboratory analysis can produce failures that do not follow a trend. Since the presence of particulates does not mean failure of the fuel oil to burn properly in the diesel engine, and particulate concentration is unlikely to change significantly between Surveillance Frequency intervals, and proper engine performance has been recently demonstrated (within 31 days), it is prudent to allow a brief period prior to declaring the associated DG inoperable. The 7-day and 30-day Completion Times, for the onsite tanks and the reserve storage tanks, respectively, allows for further evaluation, resampling and re-analysis of the DG fuel oil.

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E.1

This condition is entered as a result of a failure to meet the acceptance criteria of SR 3.8.3.3 or SR 3.8.3.4 when the DG fuel oil storage tanks or reserve storage tanks are verified to have properties (other than particulates) within the allowable values of Specification 5.5.12, Diesel Fuel Oil Testing Program. A period of 30 days is allowed to restore the properties of the fuel oil in the DG fuel oil storage tank to within the limits established by Specification 5.5.12. This period provides sufficient time to test the stored fuel oil to determine that the new fuel oil, when mixed with previously stored fuel oil, remains acceptable, or to restore the stored fuel oil properties. This restoration may involve feed and bleed procedures, filtering, or combinations of these procedures. Even if a DG start and load was required during this time interval and the fuel oil properties were outside limits, there is a high likelihood that

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(continued)

BASES

ACTIONS

E.1. (continued)

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the DG would still be capable of performing its intended function. A period of 60 days is allowed to restore the properties of the fuel oil stored in the affected reserve storage tank to within the limits established by Specification 5.5.12. This period provides sufficient time to perform the actions described above for the DG fuel oil storage tanks. The additional time allowed for the reserve tanks is acceptable because reserve oil is not immediately needed to support DG operation and reserve oil is available from more than one reserve tank. Reserve oil is also available from commercial suppliers in the vicinity of the plant.

F.1

With starting air receiver pressure < 250 psig, sufficient capacity for four successive DG start attempts does not exist. However, as long as the receiver pressure is ≥ 90 psig, there is adequate capacity for at least one start attempt, and the DG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the DG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period. Entry into Condition F is not required when air receiver pressure is less than required limits while the DG is operating following a successful start.

G.1

With a Required Action and associated Completion Time not met, or one or more DG's fuel oil or starting air subsystem not within limits for reasons other than addressed by Conditions A through F, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.3.1

This SR provides verification that there is an adequate inventory of fuel oil in the offsite DG fuel oil reserve to support 2 DGs at minimum safeguards load for 7 days assuming requirements for the DG fuel oil storage tanks and day tanks are met. The 7 day duration with 2 of the 3 DGs at minimum safeguards load is sufficient to place the unit in a safe shutdown condition and to bring in replenishment fuel from a commercial source.

The 24 hour Frequency is needed because the DG fuel oil reserve is stored in fuel oil tanks that support the operation of gas turbine peaking units that are not under IP3 control. Specifically, the 26,826 gallons needed to support 7 days of DG operation is maintained in two 30,000 gallon tanks located in the Indian Point 1 Superheater Building and/or a 200,000 gallon tank in the Buchanan Substation. Although the volume of fuel oil required to support IP3 DG operability is designated as for the exclusive use of IP3, the fact that the oil in the storage tanks is used for purposes other than IP3 DGs and oil consumption is not under the direct control of IP3 operators warrants frequent verification that required offsite DG fuel oil reserve volume is being maintained. NYPA

SR 3.8.3.2

SR 3.8.3.2.a provides verification when in MODES 1, 2, 3, and 4, that there is an adequate inventory of fuel oil in the storage DG fuel oil tanks to support each DG's operation for at least 48 hours of operation of minimum safeguards equipment when any two of the DG fuel oil storage tanks are available and 5,365 gallons of usable fuel oil is contained in each tank. NYPA

SR 3.8.3.2.b provides verification when in MODES 5 and 6 and during movement of irradiated fuel that the minimum required fuel oil for operation in these MODES is available in one or more DG fuel oil storage tanks. The minimum required volume of fuel oil

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.2 (continued)

takes into account the reduced DG loading required to respond to events in MODES 5 and 6 is sufficient to support the two DGs required to be operable in MODES 5 and 6 and during movement of irradiated fuel while a fuel transfer from the offsite DG fuel oil reserve or from another offsite source is planned and conducted under accident conditions.

This minimum volume required by SR 3.8.3.2.a and SR 3.8.3.2.b is the usable volume and does not include allowances for fuel not usable due to the fuel oil transfer pump cutoff switch (760 gallons) and the required safety margin (20 gallons per tank). If the installed level indicators are used to measure tank volume, an additional allowance of 50 gallons for instrument uncertainty associated with the level indicators must be included. Appropriate adjustments are required for SR 3.8.3.2.b if the required volume is found in more than one DG fuel oil storage tank.

The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.

SR 3.8.3.3

This surveillance verifies that the properties of new and stored fuel oil meet the acceptance criteria established by Specification 5.5.12, "Diesel Fuel Oil Testing Program." Specific sampling and testing requirements for diesel fuel oil in accordance with applicable ASTM Standards are specified in the administrative program developed to ensure Specification.

New fuel oil is sampled prior to addition to the DG fuel oil storage tanks and stored fuel oil is periodically sampled from the DG fuel oil storage tanks. Requirements and acceptance

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.3 (continued)

criteria for fuel oil are divided into 3 parts as follows: a) tests of the sample of new fuel sample and acceptance criteria that must be met prior to adding the new fuel to the DG fuel oil storage tanks; b) tests of the sample of new fuel that may be completed after the fuel is added to the DG fuel oil storage tanks; and, c) tests of the fuel oil stored in the DG fuel oil storage tanks. The basis for each of these tests is described below.

The tests of the sample of new fuel and acceptance criteria that must be met prior to adding the new fuel to the DG fuel oil storage tanks are a means of determining that the new fuel oil is of the appropriate grade and has not been contaminated with substances that would have an immediate, detrimental impact on diesel engine combustion. If results from these tests are within acceptable limits, the fuel oil may be added to the storage tanks without concern for contaminating the entire volume of fuel oil in the storage tanks. The tests, limits, and applicable ASTM Standards needed to satisfy Specification 5.5.12 are listed in the administrative program developed to implement Specification 5.5.12.

Failure to meet any of the specified limits is cause for rejecting the new fuel oil, but does not represent a failure to meet the LCO because the fuel oil is not added to the storage tanks.

The tests of the sample of new fuel that may be completed after the fuel is added to the DG fuel oil storage tanks must be completed Within 31 days. The fuel oil is analyzed to establish that the other properties of the fuel oil meet the acceptance criteria of Specification 5.5.12. The 31 day period is acceptable because the fuel oil properties of interest, even if they were not within stated limits, would not have an immediate

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.3 (continued)

effect on DG operation. Failure to meet the specified acceptance criteria requires entry into Condition E and restoration of the quality of the fuel oil in the DG fuel oil storage tank within the associated Completion Time and explained in the Bases for Condition E. This Surveillance ensures the availability of high quality fuel oil for the DGs.

The periodic tests of the fuel oil stored in the DG fuel oil storage tanks verify that the length of time or conditions of storage has not degraded the fuel in a manner that could impact DG OPERABILITY. Fuel oil degradation during long term storage shows up as an increase in particulate, due mostly to oxidation. The presence of particulate does not mean the fuel oil will not burn properly in a diesel engine. The particulate can cause fouling of filters and fuel oil injection equipment, however, which can cause engine failure. Particulate concentrations must meet the acceptance criteria of Specification 5.5.12. It is acceptable to obtain a field sample for subsequent laboratory testing in lieu of field testing. Each DG fuel oil storage tank must be considered and tested separately.

The Frequency of this test takes into consideration fuel oil degradation trends that indicate that particulate concentration is unlikely to change significantly between Frequency intervals.

SR 3.8.3.4

The IP3 offsite fuel oil reserve is maintained by the operators of IP2, Consolidated Edison Company, in accordance with formal agreements with NYPA. The IP3 offsite DG fuel oil reserve is normally stored in the same tanks used to store the IP2 offsite DG fuel oil reserve. Fuel oil properties of new and stored fuel are controlled in accordance with IP2 Technical Specifications and FSAR in order to meet requirements for the Operability of IP2 and IP3 DGs.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.4 (continued)

Required testing of the properties of new and stored fuel in the offsite DG fuel oil reserve is performed by IP2 in accordance with programs established by Consolidated Edison Company. NYPA performs periodic verification that fuel oil stored in the offsite DG fuel oil reserve meet the requirements of Specification 5.5.12.

Failure to meet the specified acceptance criteria, whether identified by IP2 or IP3, requires entry into Condition D or E and restoration of the quality of the fuel oil in the offsite DG fuel oil reserve within the associated Completion Time and explained in the Bases for Conditions D and E.

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SR 3.8.3.5

This Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each DG is available. The system design requirements provide for a minimum of four engine starts without recharging. Failure of the engine to start within approximately 15 seconds indicates a malfunction at which point the overcrank relays terminate the start cycle. In this condition, sufficient starting air will still be available so that the DG can be manually started. The pressure specified in this SR is intended to reflect the lowest value at which the four starts can be accomplished.

The 31 day Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.3.6

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel storage tanks once every 92 days eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, and contaminated fuel oil, and from breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance Frequencies are consistent with Regulatory Guide 1.137 (Ref. 2). This SR is for preventive maintenance. Unless the volume of water is sufficient that it could impact DG OPERABILITY, presence of water does not necessarily represent failure of this SR, provided the accumulated water is removed within 7 days of performance of the Surveillance.

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REFERENCES

1. FSAR, Section 8.2.

2. Regulatory Guide 1.137.

3. FSAR, Chapter 14.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.3:

"Diesel Fuel Oil and Starting Air"

PART 3:

DISCUSSION OF CHANGES

Differences between CTS and ITS

DISCUSSION OF CHANGES
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

A.6 CTS 3.7.A.5 requires that each DG fuel oil storage tank contain 6671 gallons of fuel oil when above cold shutdown and CTS 3.7.F.4 requires a total of 6671 gallons of fuel oil must be maintained in the DG fuel oil storage tanks under all conditions including cold shutdown. ITS LCO 3.8.3 maintains the same requirements; however, ITS LCO 3.8.3 establishes requirements in terms of useable fuel and not total tank volume. Therefore, ITS LCO 3.8.3, SR 3.8.3.2 and associated Conditions A and B, specify 5891 gallons of usable fuel as the minimum acceptance criteria for DG fuel oil storage tank volume. This is an administrative change because both CTS and ITS require a minimum usable inventory of 5891 gallons. As explained in both the CTS and ITS Bases, the ITS acceptance criteria of 5891 gallons is the usable volume in the tank and does not include allowances for fuel not usable due to the oil transfer pump cutoff switch (760 gallons), a required safety margin (20 gallons per tank) and allowances for instrument uncertainty. Therefore, if the installed level indicators are used to measure tank volume, 6721 gallons of oil (6671 gallons plus the 50 gallon uncertainty associated with the level indicators) must be in each storage tank.

This change is needed to ensure that the volume of usable fuel (including the required safety margin of 20 gallons per tank) is correctly determined during shutdown conditions if the minimum inventory is stored in more than one tank. Additionally, this change also increases flexibility if volume is obtained by sounding rather than the use of installed instrumentation. This is an administrative change with no impact on safety because the acceptance criteria for the required minimum volume of fuel oil available to each DG is not changed (see L.4).

A.7 CTS 3.7.A.5 establishes requirements for properties of DG fuel oil in the DG fuel oil reserve. Specifically, DG fuel oil in the fuel oil reserve must be "compatible for operation with the diesels." This requirement is maintained in ITS 5.5.12, Diesel Fuel Oil Testing Program.

A.8 CTS 3.7.A.5 requires that each DG fuel oil storage tank contain 6671 gallons of fuel oil when above cold shutdown; otherwise, CTS 3.7.B.1 requires that the associated DG is inoperable immediately. CTS 3.7.F.4 requires a total of 6671 gallons of fuel oil in must be maintained in the DG fuel oil storage tanks under all conditions including cold shutdown; otherwise, there is an unstated requirement that both required DGs are

determined not within limits; and, Condition F requires that DG fuel oil reserve storage tank(s) not within specified limits must be restored within 30 days.

These changes are acceptable because each of the fuel oil parameters, while supporting DG Operability, contains substantial margin before reaching a condition that would affect DG starting capability or endurance. Generally, fuel oil properties are intended to measure long term oil stability and are not indicative of conditions that would prevent DG operation in the short run. Therefore, during the allowed restoration period for these parameters, the DG is capable of performing its safety function. As a result, the limited levels of degradation justify the limited amount of time for restoration permitted by ITS. Finally, DG Operability is demonstrated every 31 days and changes in fuel oil properties are not expected to be significant enough to affect Operability during this period. The Completion Times for restoration of DG fuel oil properties for the DG fuel oil storage tanks are consistent with NUREG-1431.

L.3 CTS 3.7 and CTS 4.6 do not establish any requirements for DG air start receiver pressure; however, DGs would be declared inoperable immediately if air start receiver pressure is less than the pressure required to complete four start attempts as specified in FSAR 8.2. ITS LCO 3.8.3, Condition G, allows 48 hours to restore pressure if the starting air receiver pressure is not sufficient for four successive DG start attempts but sufficient for one start attempt. This allowance is less restrictive because it provides additional time to restore from a condition that under the CTS would result in the DG being inoperable immediately.

This change is acceptable because air receiver pressure sufficient to support four start attempts contains substantial margin before reaching a condition that would prevent the DG from performing its safety function. Therefore, if sufficient starting air for at least one start attempt is maintained during the new restoration period then the DG is still capable of performing its safety function. This change has no significant impact on safety because of the limited level of degradation permitted by this new condition and the limited time this condition is allowed to persist.

L.4 CTS 3.7.A.5 requires that each DG fuel oil storage tank contain 6671 gallons of fuel oil when above cold shutdown and CTS 3.7.F.4 requires a total of 6671 gallons of fuel oil must be maintained in the DG fuel oil storage tanks under all conditions including cold shutdown. ITS 3.8.3. maintains the requirement for minimum fuel oil volume in each fuel oil storage tank with two differences.

ITS LCO 3.8.3 establishes the fuel oil requirement in terms of usable fuel and not total tank volume. Using the CTS required volume of 6671 gallons this would result in a required usable volume of 5891 gallons; 6671 gallons less the allowance for the fuel oil transfer pump cutoff switch (760 gallons), and a required safety margin for instrument uncertainty (20 gallons). The 5891 gallon usable volume figure is changed to 5365 gallons in ITS LCO 3.8.3 and SR 3.8.3.2, by a revised calculation. This revised calculation is based on actual DG loading plus margin, for 4 hours at 1904 KW and 44 hours at 1550 KW, instead of the nameplate load ratings. This calculation also uses a revised fuel density based on the acceptable range for specific gravity (0.83 to 0.89) as stated in ASTM D1298 and required by ITS 5.5.12.

Changing to a "usable volume" instead of a total volume is acceptable because this ensures that adequate fuel oil volume is available to supply the DG for 48 hours during shutdown conditions if the fuel oil is stored in more than one tank. Additionally, this change also increases flexibility if volume is obtained by sounding rather than the use of installed instrumentation because of differences in measurement uncertainty.

Changing the required usable volume to 5365 is acceptable because using the actual DG accident loading instead of the nameplate load ratings is an acceptable method for calculation of DG fuel oil volume requirements as listed in RG 1.137 item C.2.c(2).

L.5 CTS 3.7.A.5 requires that an additional 30026 gallons of fuel oil be available when above cold shutdown. ITS 3.8.3. maintains the requirement for additional fuel oil volume in storage on site with two differences.

DISCUSSION OF CHANGES
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

ITS LCO 3.8.3 establishes the fuel oil requirement in terms of usable fuel and not total tank volume. In addition, the 30026 gallon figure is changed to 26826 gallons in ITS LCO 3.8.3 and SR 3.8.3.1. This revised usable volume is based on the recalculated usable volume (see L.6) of 5365 gallons for each DG for 2 days of operation extrapolated to 7 days (37556 gallons), less the usable volume required for each of the 2 DGs (10730 gallons).

Changing to a "usable volume" instead of a total volume is acceptable because this ensures that adequate fuel oil volume is available to supply the DG for 7 days if the fuel oil is stored in more than one tank. Additionally, this change also increases flexibility if volume is determined by sounding rather than the use of installed instrumentation.

Changing the required usable volume to 26826 is acceptable because using the actual DG accident loading is an acceptable method for calculation of DG fuel oil volume requirements as listed in RG 1.137 item C.2.c(2).

REMOVED DETAIL

LA.1 CTS 3.7.A.5 specifies that the 30,026 gallons required to be in the offsite fuel oil reserve must be designated for Indian Point Unit No. 3 usage only and must be in addition to the fuel requirements for other nuclear units on the site. ITS LCO 3.8.3 maintains the requirement to maintain greater than a specified minimum volume of fuel oil in the DG fuel reserve. However, the clarification that fuel oil reserve minimum may include only that oil designated for the exclusive use of IP3 is maintained in the Bases for ITS LCO 3.8.3 and/or IP3 FSAR Section 8.2.

This change is acceptable because ITS LCO 3.8.3 maintains the requirement to maintain greater than a specified minimum volume of fuel oil in the DG fuel reserve; therefore, there is no change to the existing requirements and no change to the level of safety of facility operation.

This change, which maintains the clarification that fuel oil reserve minimum may include only that oil designated for the exclusive use of IP3 in ITS LCO 3.8.3 and/or IP3 FSAR Section 8.2, is consistent with the approach used in NUREG-1431 for all Limiting Conditions for Operation (LCOs). This approach is acceptable because the requirements of 10 CFR 50.59, Changes, Tests and Experiments, and ITS 5.5.13, Technical Specifications (TS) Bases Control Program, are designed to assure that

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.3:

"Diesel Fuel Oil and Starting Air"

PART 4:

No Significant Hazards Considerations for Changes between CTS and ITS that are Less Restrictive

No Significant Hazard Considerations for Changes that are Administrative, More Restrictive, and Removed Details are the same for all Packages. A Copy is included at the end of the Package.

Therefore, these changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

This change does not involve a significant reduction in a margin of safety because each of the fuel oil parameters, while supporting DG Operability, contains substantial margin before reaching a condition that would affect DG starting capability or endurance. Generally, fuel oil properties are intended to measure long term oil stability and are not indicative of conditions that would prevent DG operation in the short run. Therefore, during the allowed restoration period for these parameters, the DG is capable of performing its safety function. Therefore, the limited levels of degradation justify the limited amount of time for restoration permitted by ITS. Finally, DG Operability is demonstrated every 31 days and changes in fuel oil properties are not expected to be significant enough to affect Operability during this period.

LESS RESTRICTIVE
("L.3" Labeled Comments/Discussions)

New York Power Authority has evaluated the proposed Technical Specification change identified as "Less Restrictive" in accordance with the criteria set forth in 10 CFR 50.92, and has determined that the proposed change does not involve a significant hazards consideration. The bases for the determination that the proposed changes do not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

This change allows 48 hours to restore starting air receiver pressure when the pressure is not sufficient for four successive DG start attempts but enough for one start attempt. This change will not result in a significant increase in the probability of an accident previously evaluated because DG air start receiver pressure is not the initiator of any analyzed event. This change will not result in a significant

increase in the consequences of an accident previously evaluated because air receiver pressure sufficient to support four start attempts contains substantial margin before reaching a condition that would prevent the DG from performing its safety function. Therefore, if sufficient starting air for at least one start attempt is maintained during the new restoration period then the DG is still capable of performing its safety function. This change has no significant impact on safety because of the limited level of degradation permitted by this new condition and the limited time this condition is allowed to persist.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed changes will not involve any physical changes to plant systems, structures, or components (SSC). The changes in normal Plant operation are consistent with the current safety analysis assumptions because there is no change to the method used to start the DG. Therefore, these changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

   This change does not involve a significant reduction in a margin of safety because air receiver pressure sufficient to support four start attempts contains substantial margin before reaching a condition that would prevent the DG from performing its safety function.

NO SIGNIFICANT HAZARDS EVALUATION
ITS SECTION 3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LESS RESTRICTIVE
("L.4" Labeled Comments/Discussions)

New York Power Authority has evaluated the proposed Technical Specification change identified as "Less Restrictive" in accordance with the criteria set forth in 10 CFR 50.92, and has determined that the proposed change does not involve a significant hazards consideration. The bases for the determination that the proposed changes do not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   This change reduces the minimum required diesel fuel oil for each diesel to 5365 gallons. This change will not result in a significant increase in the probability of an accident previously evaluated because the volume of diesel fuel available in the DG fuel oil storage tanks has no impact on the occurrence of any accident previously evaluated. This change will not result in a significant increase in the consequences of an accident previously evaluated because this change does not increase the probability that required minimum fuel oil inventories will not be available at the start of any event. Adequate fuel is maintained to ensure 48 hours of DG operation during accident conditions. This change has no adverse impact on safety because a 5365 gallons of usable fuel is adequate to ensure operation of the DG while supplying required loads.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change will not involve any physical changes to plant systems, structures, or components (SSC). The changes in normal plant operation are consistent with the current safety analysis assumptions because there will still be a usable supply of fuel oil to ensure 48 hours of DG operation. Therefore, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety? This change does not involve a significant reduction in a margin of safety because required fuel oil inventories will be adequately maintained. The revised calculation for fuel oil consumption contains adequate margin to ensure a sufficient volume of usable fuel. This volume will ensure the DG has adequate fuel oil to supply required loads for 48 hours. This change has no adverse impact on safety because a 5365 gallon usable volume is an adequate volume of fuel to run the diesel for 48 hours while supplying required loads.

LESS RESTRICTIVE
("L.5" Labeled Comments/Discussions)

New York Power Authority has evaluated the proposed Technical Specification change identified as "Less Restrictive" in accordance with the criteria set forth in 10 CFR 50.92, and has determined that the proposed change does not involve a significant hazards consideration. The bases for the determination that the proposed changes do not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   This change reduces the additional required diesel fuel oil volume to 26826 gallons. This change will not result in a significant increase in the probability of an accident previously evaluated because the volume of diesel fuel available in the DG fuel oil storage tanks has no impact on the occurrence of any accident previously evaluated. This change will not result in a significant increase in the consequences of an accident previously evaluated because this change does not increase the probability that required minimum fuel oil inventories will not be available at the start of any event. Adequate fuel is maintained to ensure in additional storage to ensure 7 days of operation for 2 DGs during accident conditions. This change has no adverse impact on safety because a 26826 gallons of usable fuel is adequate to ensure operation of the DG while supplying required loads.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change will not involve any physical changes to plant systems, structures, or components (SSC). The changes in normal plant operation are consistent with the current safety analysis assumptions because there will still be an additional supply of fuel oil to ensure 7 days of operation for 2 DGs. Therefore, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

   This change does not involve a significant reduction in a margin of safety because required fuel oil inventories will be adequately maintained. The revised calculation for fuel oil consumption contains adequate margin to ensure a sufficient volume of usable fuel. This volume will ensure that 2 DGs have adequate fuel oil to supply required loads for 7 days. This change has no adverse impact on safety because a 26826 gallon usable volume is an adequate volume of fuel to run 2 DGs for 7 days while supplying required loads.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.3:
"Diesel Fuel Oil and Starting Air"

PART 5:

NUREG-1431
Annotated to show differences between
NUREG-1431 and ITS

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, ~~Lube Oil~~, and Starting Air

<3.7.A.5> <DOC A.3>

LCO 3.8.3 The stored diesel fuel oil, ~~lube oil~~, and starting air subsystem shall be within ~~limits~~ for each required diesel generator (DG).

<3.7.A.> <DOC A.5>

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

<DOC A.4>

NOTE
Separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel level < [33,000] gal and > [28,285] gal in storage tank.	A.1 Restore fuel oil level to within limits.	48 hours (CLB.1)
B. One or more DGs with lube oil inventory < [500] gal and > [425] gal.	B.1 Restore lube oil inventory to within limits.	48 hours (CLB.2)
D. L. One or more DGs with stored fuel oil total particulates not within limit.	D. L.1 Restore fuel oil total particulates within limit.	7 days for DG fuel oil storage tank (PA.1) (DB.1)

R.1

Insert: B 3.8-21-01

<DOC L.2>

One or more DG fuel oil storage tanks or reserve fuel oil storage tanks with

AND

30 days for reserve fuel oil storage tank.

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: 3.8-21-01

(3.7.A)	A.	--------NOTE-------- Only applicable in MODES 1, 2, 3 and 4. ---------- One or more DGs with usable fuel oil in associated DG fuel oil storage tank (3.7.A.5) (DOC A.6) (DOC A.8) (DOC L.4) < 5891 gal. → 5365 gal	A.1 Declare associated DG inoperable.	Immediately
(3.7.F) (3.7.F.4)	B.	--------NOTE-------- Only applicable in MODES 5 and 6 and during movement of irradiated fuel. ---------- ~~Total usable fuel oil in all DG fuel oil storage tanks~~ (DOC A.6) (DOC A.8) (DOC L.4) ~~< 5891 gal.~~ Total combined useable fuel oil in DG fuel oil storage tanks associated with the operable DG(s) < 5365 gal.	B.1 Declare all DGs inoperable.	Immediately
(3.7.A)	C.	--------NOTE-------- Only applicable in MODES 1, 2, 3 and 4. ---------- Total useable fuel oil in reserve storage tank(s) (3.7.A.5) (DOC A.1) (DOC L.5) < 30,026 gal. → 26,836	C.1 Declare all DGs inoperable.	Immediately

R.1

R.1

R 1

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<DOC L.2> (E) ~~D~~. One or more DGs with new fuel oil properties not within limits. Insert: 3.8-22-01	(E) ~~D~~.1 Restore stored fuel oil properties to within limits.	30 days for DG fuel oil storage tank (PA.1) AND
<DOC L.3> ~~E~~. (F) One or more DGs with starting air receiver pressure < [225] psig and ≥ [125] psig. (90)	E.1 (F) Restore starting air receiver pressure to ≥ [225] (250) psig.	48 hours
<DOC A.3> (G) ~~F~~. Required Action and associated Completion Time not met. OR One or more DGs diesel fuel oil, ~~lube oil~~, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, (or) E, or F.	(G) ~~F~~.1 Declare associated DG inoperable.	Immediately

60 days for reserve fuel oil storage tank

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR ~~3.8.3.1~~ Verify each fuel oil storage ~~tank~~ contains ≥ [33,000] gal of fuel.	31 days

(continued)

Insert: 3.8-22-03

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

R.1

INSERT: 3.8-22-01

~~with DG fuel oil storage tanks with~~ (DB.1)

<DOC L.2> One or more DG fuel oil storage tanks or reserve fuel oil storage tanks with fuel oil properties other than particulates not within limits.

INSERT: 3.8-22-02

F.	Fuel oil in reserve storage tank(s) with properties not within limits of SR 3.8.3.4.	F.1	Restore fuel oil in reserve storage tank(s) to within limits of SR 3.8.3.4.	30 days

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: 3.8-22-03

CLB.1
DB1

SR 3.8.3.1	----------NOTE---------- Only required in MODES 1, 2, 3 and 4. ---------- Verify reserve storage tank(s) contain ≥ 30,026 gal of fuel oil reserved for IP3 usage only.	24 hours
SR 3.8.3.2	Verify DG fuel oil storage tanks contain: a. Usable fuel oil volume ≥ 5891 gal in each storage tank when in MODES 1, 2, 3 and 4; and b. Total combined usable fuel oil volume ≥ 5891 gal ~~in storage tank(s)~~, when in MODES 5 and 6 and during movement of irradiated fuel assemblies.	31 days

<3.7.A>
Table <4.1-3, #8> <Doc M.1> <Doc L.5>
<Table 4.1-3, #8> <Doc L.1>
<3.7.A> <Doc A.6>
<3.7.A.5>
<3.7.F>
<3.7.F.4>
<Doc L.4>

26,826

5365

in any DG fuel oil storage tanks that are associated with the operable DG(s),

R.1
R.1

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.3.2	Verify ~~lubricating~~ oil inventory is ≥ [500] gal.	31 ~~days~~ (CLB 2)
SR 3.8.3.3	Verify ~~fuel oil~~ properties (that) of new and stored fuel oil are tested in accordance with, ~~and maintained within the limits of,~~ the Diesel Fuel Oil Testing Program. (and maintained)	In accordance with the Diesel Fuel Oil Testing Program (PA. 1) R. 1
SR 3.8.3.~~4~~ (5)	Verify each DG air start receiver pressure is ≥ ~~[225]~~ 250 psig.	31 days
SR 3.8.3.~~5~~ (6)	Check for and remove accumulated water from each fuel oil storage tank. (DG)	(31) 92 days (PA.1) R. 1
SR 3.8.3.6	For each fuel oil storage tank: a. Drain the fuel oil; b. Remove the sediment; and c. Clean the tank.	10 years (T.1)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: 3.8-23-01

in
~~for~~ the DG fuel oil storage tanks ~~that~~

INSERT: 3.8-23-02

(3.7.F)	SR 3.8.3.4	----------NOTE---------- Only required in MODES 1, 2, 3 and 4. ----------	
(Doc M2)		Verify that fuel oil properties in the reserve storage tank(s) are within limits specified in the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program

Typical

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

BASES

BACKGROUND

Each diesel generator (DG) is provided with a storage tank having a fuel oil capacity sufficient to operate that diesel for a period of 7 days while the DG is supplying maximum post loss of coolant accident load demand discussed in the FSAR, Section [9.5.4.2] (Ref. 1). The maximum load demand is calculated using the assumption that a minimum of any two DGs is available. This onsite fuel oil capacity is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources.

Insert: B 3.8-41-01

Fuel oil is transferred from storage tank to day tank by either of two transfer pumps associated with each storage tank. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe, valve or tank to result in the loss of more than one DG. All outside tanks, pumps, and piping are located underground.

For proper operation of the standby DGs, it is necessary to ensure the proper quality of the fuel oil. Regulatory Guide 1.137 (Ref. 2) addresses the recommended fuel oil practices as supplemented by ANSI N195 (Ref. 3). The fuel oil properties governed by these SRs are the water and sediment content, the kinematic viscosity, specific gravity (or API gravity), and impurity level.

Insert: B 3.8-41-02

The DG lubrication system is designed to provide sufficient lubrication to permit proper operation of its associated DG under all loading conditions. The system is required to circulate the lube oil to the diesel engine working surfaces and to remove excess heat generated by friction during operation. Each engine oil sump contains an inventory capable of supporting a minimum of [7] days of operation. [The onsite storage in addition to the engine oil sump is sufficient to ensure 7 days of continuous operation.] This supply is sufficient to allow the operator to replenish lube oil from outside sources.

CLB)

Each DG has an air start system with adequate capacity for ~~five~~ four successive start attempts on the DG without recharging the air start receiver(s).

Insert: B 3.8-41-03

(continued)

X.

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: B 3.8-41-01 (page 1)

Fuel oil for the safeguards DGs is stored in three 7,700 gallon DG fuel oil storage tanks located on the south side of the Diesel Generator Building. The offsite DG fuel oil reserve is maintained in two 30,000 gallon tanks located in the Indian Point 1 Superheater Building and/or a 200,000 gallon tank in the Buchanan Substation which is located in close proximity to the IP3 site. The IP3 offsite fuel oil reserve is maintained by the operators of IP2, Consolidated Edison Company, in accordance with formal agreements with NYPA. The IP3 offsite DG fuel oil reserve is normally stored in the same tanks used to store the IP2 offsite DG fuel oil reserve.

R.1

<DOC A.6>
<DOC L.4>

Sufficient fuel for at least 48 hours of minimum safeguards equipment operation is available when any two of the DG fuel oil storage tanks are available and contain each ~~6671 gallons (5,891~~ 5365 usable gallons of fuel oil. The maximum DG loadings for design basis transients that actuate safety injection are summarized in FSAR 8.2 (Ref. 1). These transients include large and small break loss of coolant accidents (LOCA), main steamline break and steam generator tube rupture (SGTR).

Additional margin is provided by 115 gallons of fuel oil in the DG day tank required by SR 3.8.1.4.

The three DG fuel oil storage tanks are filled through a common fill line that is equipped with a truck hose connection and a shutoff valve at each tank. The overflow from any DG fuel oil storage tank will cascade into an adjacent tank. Each DG fuel oil storage tank is equipped with a single vertical fuel oil transfer pump that discharges to either the normal or emergency header. Either header can be used to fill the day tank at each diesel. Each DG fuel oil storage tank has an alarm that sounds in the control room when the level in the tank drops to approximately 6,717 gallons. Each tank is also equipped with a sounding connection and a level indicator.

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: B 3.8-41-01 (page 2)

Each emergency diesel is equipped with a 175-gallon day tank with an operating level that provides sufficient fuel for approximately one hour of DG operation. A decrease in day tank level to approximately 115 gallons (65% full) will cause the normal and emergency fill valves on that day tank to open and the transfer pump in the corresponding DG fuel oil storage tank to start. Once started, the pump will continue to run until that day tank is filled. However, any operating transfer pump will fill any day tank with a normal or emergency fill valve that is open. When a day tank is at approximately 158 gallons (90% full), a switch initiates closing of the day tank normal and emergency fill valves.

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: B 3.8-41-01 (page 3)

<DOC L.4>
<DOC L.5>

Technical Specifications require sufficient fuel oil to operate 2 of the 3 required DGs at minimum safeguards load for 7 days. The Technical Specification required volume of fuel oil includes the 30,026 gallons of usable fuel oil in the reserve tanks, 11,782 → 10,730 usable gallons in two DG fuel oil storage tanks (assuming a failure makes the oil in the third DG fuel oil storage tank unavailable), and 230 gallons in two day tanks (assuming a failure makes the oil in the day tank associated with the third DG unavailable). 26,826

R.1

If the DGs require fuel oil from the fuel oil reserve tank(s), the fuel oil will be transported by truck to the DG fuel oil storage tanks. A truck with appropriate hose connections and capable of transporting oil is available either on site or at the Buchanan Substation. Commercial oil supplies and trucking facilities are also available in the vicinity of the plant.

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: B 3.8-41-02

Requirements for DG fuel oil testing methodology, frequency, and acceptance criteria are maintained in the program required by Specification 5.5.12, Diesel Fuel Oil Testing Program.

INSERT: B 3.8-41-03

The air starting system is designed to shutdown and lock out any engine which does not start during the initial start attempt so that only enough air for one automatic start is used. This conserves air for subsequent DG start attempts.

BASES (continued)

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter 6 (Ref. 4), ~~and in the FSAR, Chapter [15] (Ref. 5)~~, assume Engineered Safety Feature (ESF) systems are OPERABLE. The DGs are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that fuel, Reactor Coolant System and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

Since diesel fuel oil, lube oil, and the air start subsystem support the operation of the standby AC power sources, they satisfy Criterion 3 of ~~the NRC Policy Statement~~ 10 CFR 50.36.

LCO

Stored diesel fuel oil is required to have sufficient supply for 7 days of full load operation. It is also required to meet specific standards for quality. Additionally, sufficient lubricating oil supply must be available to ensure the capability to operate at full load for 7 days. This requirement, in conjunction with an ability to obtain replacement supplies within 7 days, supports the availability of DGs required to shut down the reactor and to maintain it in a safe condition for an anticipated operational occurrence (AOO) or a postulated DBA with loss of offsite power. DG day tank fuel requirements, as well as transfer capability from the storage tank to the day tank, are addressed in LCO 3.8.1, "AC Sources—Operating," and LCO 3.8.2, "AC Sources—Shutdown."

Insert: B3.8-42-01

The starting air system is required to have a minimum capacity for four successive DG start attempts without recharging the air start receivers.

APPLICABILITY

The AC sources (LCO 3.8.1 and LCO 3.8.2) are required to ensure the availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an AOO or a postulated DBA. Since stored diesel fuel oil, lube oil, and the starting air subsystem support LCO 3.8.1 and LCO 3.8.2, stored diesel fuel oil, lube oil,

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: B 3.8-42-01

of operation for 2 of 3 DGs at minimum safeguards load.
Fuel oil

BASES

APPLICABILITY (continued)

and starting air are required to be within limits when the associated DG is required to be OPERABLE.

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each DG. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable DG subsystem. Complying with the Required Actions for one inoperable DG subsystem may allow for continued operation, and subsequent inoperable DG subsystem(s) are governed by separate Condition entry and application of associated Required Actions.

Insert: B3.8-43-01

A.1

In this Condition, the 7 day fuel oil supply for a DG is not available. However, the condition is restricted to fuel oil level reductions that maintain at least a 6 day supply. These circumstances may be caused by events, such as full load operation required after an inadvertent start while at minimum required level, or feed and bleed operations, which may be necessitated by increasing particulate levels or any number of other oil quality degradations. This restriction allows sufficient time for obtaining the requisite replacement volume and performing the analyses required prior to addition of fuel oil to the tank. A period of 48 hours is considered sufficient to complete restoration of the required level prior to declaring the DG inoperable. This period is acceptable based on the remaining capacity (> 6 days), the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period.

B.1

With lube oil inventory < 500 gal, sufficient lubricating oil to support 7 days of continuous DG operation at full load conditions may not be available. However, the Condition is restricted to lube oil volume reductions that maintain at least a 6 day supply. This restriction allows sufficient time to obtain the requisite replacement volume. A period of 48 hours is considered sufficient to complete

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: B 3.8-43-01 (page 1)

A.1

In this Condition, the requirements of SR 3.8.3.2.a are not met. Therefore, a DG will not be able to support 48 hours of continuous operation at minimum safeguards load and replenishment of the DG fuel oil storage tanks will be required in less than 48 hours following an accident. The DG associated with the DG fuel oil storage tank not within limits must be declared inoperable immediately because replenishment of the DG fuel oil storage tank requires that fuel be transported from the offsite DG fuel oil reserve by truck and the volume of fuel oil remaining in the DG fuel oil storage tank may not be sufficient to allow continuous DG operation while the fuel transfer is planned and conducted under accident conditions.

This Condition is preceded by a Note stating that Condition A is applicable only in MODES 1, 2, 3 and 4. This Note provides recognition that reduced DG loading required to respond to events in MODES 5 and 6 significantly reduces the amount of fuel oil required in the DG fuel oil storage tanks when in these MODES.

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: B 3.8-43-01 (page 2)

R.1

B.1

In this Condition, the requirements of SR 3.8.3.2.b are not met. With less than the total required minimum fuel oil in one or more DG fuel oil storage tanks, the two DGs required to be operable in MODES 5 and 6 and during movement of irradiated fuel may not have sufficient fuel oil to support continuous operation while a fuel transfer from the offsite DG fuel oil reserve or from another offsite source is planned and conducted under accident conditions.

one or

This condition requires that all DGs be declared inoperable immediately because minimum fuel oil level requirements in SR 3.8.3.2.b is a condition of Operability of all DGs when in the specified MODES.

This Condition is preceded by a Note stating that Condition B is applicable only in MODES 5 and 6 and during the movement of irradiated fuel. This Note provides recognition that reduced DG loading required to respond to events in MODES 5 and 6 significantly reduces the amount of fuel oil required in the DG fuel oil storage tanks when in these MODES.

R.1

Fuel oil credited to meet this requirement must be in one or more storage tanks associated with the operable DG(s) because the fuel transfer pump in each tank may depend on power from that DG

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: B 3.8-43-01 (page 3)

C.1

In this Condition, the fuel oil remaining in the offsite DG fuel oil reserve is not sufficient to operate 2 of the 3 DGs at minimum safeguards load for 7 days. Therefore, all 3 DGs are declared inoperable immediately.

This Condition is preceded by a Note stating that Condition D is applicable only in MODES 1, 2, 3 and 4 because the offsite DG fuel oil reserve is required to be available only in these MODES. This Note provides recognition that reduced DG loading required to respond to events in MODES 5 and 6 significantly reduces the amount of fuel oil required when in these MODES.

BASES

ACTIONS

3.1 (continued)

restoration of the required volume prior to declaring the DG inoperable. This period is acceptable based on the remaining capacity (> 6 days), the low rate of usage, the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period.

Insert: B3.8-44-01

(D) 2.1

This Condition is entered as a result of a failure to meet the acceptance criterion of SR 3.8.3.5. Normally, trending of particulate levels allows sufficient time to correct high particulate levels prior to reaching the limit of acceptability. Poor sample procedures (bottom sampling), contaminated sampling equipment, and errors in laboratory analysis can produce failures that do not follow a trend. Since the presence of particulates does not mean failure of the fuel oil to burn properly in the diesel engine, and particulate concentration is unlikely to change significantly between Surveillance Frequency intervals, and proper engine performance has been recently demonstrated (within 31 days), it is prudent to allow a brief period prior to declaring the associated DG inoperable. The 7 day and 30 day Completion Time allows for further evaluation, resampling and re-analysis of the DG fuel oil.

for the onsite tanks and the reserve storage tanks respectively,

(E) 2.1

Insert: B3.8-44-02

With the new fuel oil properties defined in the Bases for SR 3.8.3.4 not within the required limits, a period of 30 days is allowed for restoring the stored fuel oil properties. This period provides sufficient time to test the stored fuel oil to determine that the new fuel oil, when mixed with previously stored fuel oil, remains acceptable, or to restore the stored fuel oil properties. This restoration may involve feed and bleed procedures, filtering, or combinations of these procedures. Even if a DG start and load was required during this time interval and the fuel oil properties were outside limits, there is a high likelihood that the DG would still be capable of performing its intended function.

Insert: B3.8-44-03

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

R. 1

INSERT: B 3.8-44-01

SR 3.8.3.3 or SR 3.8.3.4 when the DG fuel oil storage tanks or reserve storage tanks are verified to have particulate within the allowable value in Specification 5.5.12, Diesel Fuel Oil Testing Program.

INSERT: B 3.8-44-02

This condition is entered as a result of a failure to meet the acceptance criteria of SR 3.8.3.3 or SR 3.8.3.4 when the DG fuel oil storage tanks or reserve storage tanks are verified to have properties (other than particulates) within the allowable values of Specification 5.5.12, Diesel Fuel Oil Testing Program. A period of 30 days is allowed to restore the properties of the fuel oil in the DG fuel oil storage tank to within the limits established by Specification 5.5.12.

INSERT: B 3.8-44-03

A period of 60 days is allowed to restore the properties of the fuel oil stored in the affected reserve storage tank to within the limits established by Specification 5.5.12. This period provides sufficient time to perform the actions described above for the DG fuel oil storage tanks. The additional time allowed for the reserve tanks is acceptable because reserve oil is not immediately needed to support DG operation and reserve oil is available from more than one reserve tank. Reserve oil is also available from commercial suppliers in the vicinity of the plant.

BASES

ACTIONS (continued)

F.1

With starting air receiver pressure < [225] psig, sufficient capacity for five successive DG start attempts does not exist. However, as long as the receiver pressure is ≥ [125] psig, there is adequate capacity for at least one start attempt, and the DG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the DG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period.

Insert: B3.8-45-01

G.1

With a Required Action and associated Completion Time not met, or one or more DG's fuel oil, lube oil, or starting air subsystem not within limits for reasons other than addressed by Conditions A through D, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable.

SURVEILLANCE REQUIREMENTS

SR 3.8.3.1

This SR provides verification that there is an adequate inventory of fuel oil in the storage tanks to support each DG's operation for 7 days at full load. The 7 day period is sufficient time to place the unit in a safe shutdown condition and to bring in replenishment fuel from an offsite location.

Insert: B3.8-45-02

Insert: B3.8-45-03

The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.

Insert: B3.8-45-04

SR 3.8.3.2

This Surveillance ensures that sufficient lube oil inventory is available to support at least 7 days of full load

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

R.1

INSERT: B 3.8-45-01:

(F)

Entry into Condition G is not required when air receiver pressure is less than required limits while the DG is operating following a successful start.

INSERT: B 3.8-45-02:

SR 3.8.3.1

This SR provides verification that there is an adequate inventory of fuel oil in the offsite DG fuel oil reserve to support 2 DGs at minimum safeguards load for 7 days assuming requirements for the DG fuel oil storage tanks and day tanks are met. The 7 day duration with 2 of the 3 DGs at minimum safeguards load is sufficient to place the unit in a safe shutdown condition and to bring in replenishment fuel from a commercial source.

The 24 hour Frequency is needed because the DG fuel oil reserve is stored in fuel oil tanks that support the operation of gas turbine peaking units that are not under IP3 control. 26,826 R.1

<DOC L.5> Specifically, the 30,026 gallons needed to support 7 days of DG operation is maintained in two 30,000 gallon tanks located in the Indian Point 1 Superheater Building and/or a 200,000 gallon tank in the Buchanan Substation. Although the volume of fuel oil required to support IP3 DG operability is designated as for the exclusive use of IP3, the fact that the oil in the storage tanks is used for purposes other than IP3 DGs and oil consumption is not under the direct control of IP3 operators warrants frequent verification that required offsite DG fuel oil reserve volume is being maintained.

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: B 3.8-45-03:

at least 48 hours of operation of minimum safeguards equipment when any two of the DG fuel oil storage tanks are available and <DOCL.4> 5,891 5365 gallons of usable fuel oil is contained in each tank. R.1

INSERT: B 3.8-45-04:

SR 3.8.3.2.b provides verification when in MODES 5 and 6 and during movement of irradiated fuel that the minimum required fuel oil for operation in these MODES is available in one or more DG fuel oil storage tanks. The minimum required volume of fuel oil takes into account the reduced DG loading required to respond to events in MODES 5 and 6 is sufficient to support the two DGs required to be operable in MODES 5 and 6 and during movement of irradiated fuel while a fuel transfer from the offsite DG fuel oil reserve or from another offsite source is planned and conducted under accident conditions.

This minimum volume required by SR 3.8.3.2.a and SR 3.8.3.2.b is the usable volume and does not include allowances for fuel not usable due to the fuel oil transfer pump cutoff switch (760 gallons) and the required safety margin (20 gallons per tank). If the installed level indicators are used to measure tank volume, an additional allowance of 50 gallons for instrument uncertainty associated with the level indicators must be included. Appropriate adjustments are required for SR 3.8.3.2.b if the required volume is found in more than one DG fuel oil storage tank.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.2 (continued)

operation for each DG. The [800] gal requirement is based on the DG manufacturer consumption values for the run time of the DG. Implicit in this SR is the requirement to verify the capability to transfer the lube oil from its storage location to the DG, when the DG lube oil sump does not hold adequate inventory for 7 days of full load operation without the level reaching the manufacturer recommended minimum level.

A 31 day Frequency is adequate to ensure that a sufficient lube oil supply is onsite, since DG starts and run time are closely monitored by the unit staff.

CLB

SR 3.8.3.3

Insert: 3.8-46-01

Insert: 3.8-46-02

The tests listed below are a means of determining whether new fuel oil is of the appropriate grade and has not been contaminated with substances that would have an immediate, detrimental impact on diesel engine combustion. If results from these tests are within acceptable limits, the fuel oil may be added to the storage tanks without concern for contaminating the entire volume of fuel oil in the storage tanks. These tests are to be conducted prior to adding the new fuel to the storage tank(s), but in no case is the time between receipt of new fuel and conducting the tests to exceed 31 days. The tests, limits, and applicable ASTM Standards are as follows:

Insert: 3.8.46-03

a. Sample the new fuel oil in accordance with ASTM D4057-[ ] (Ref. 6);

b. Verify in accordance with the tests specified in ASTM D975-[ ] (Ref. 6) that the sample has an absolute specific gravity at 60/60°F of ≥ 0.83 and ≤ 0.89 or an API gravity at 60°F of ≥ 27° and ≤ 39°, a kinematic viscosity at 40°C of ≥ 1.9 centistokes and ≤ 4.1 centistokes, and a flash point of ≥ 125°F; and

c. Verify that the new fuel oil has a clear and bright appearance with proper color when tested in accordance with ASTM D4176-[ ] (Ref. 6).

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: B 3.8-46-01:

This surveillance verifies that the properties of new and stored fuel oil meet the acceptance criteria established by Specification 5.5.12, "Diesel Fuel Oil Testing Program." Sampling and testing requirements for the performance of diesel fuel oil testing in accordance with applicable ASTM Standards are specified in the administrative program developed to ensure that Specification 5.5.12 is met.

New fuel oil is sampled prior to addition to the DG fuel oil storage tanks and stored fuel oil is periodically sampled from the DG fuel oil storage tanks. Requirements and acceptance criteria for fuel oil are divided into 3 parts as follows: a) tests of the sample of new fuel sample and acceptance criteria that must be met prior to adding the new fuel to the DG fuel oil storage tanks; b) tests of the sample of new fuel that may be completed after the fuel is added to the DG fuel oil storage tanks; and, c) tests of the fuel oil stored in the DG fuel oil storage tanks. The basis for each of these tests is described below.

INSERT: B 3.8-46-02:

of the sample of new fuel and acceptance criteria that must be met prior to adding the new fuel to the DG fuel oil storage tanks

INSERT: B 3.8-46-03:

performed in accordance the administrative program developed to ensure that Specification 5.5.12 is met.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.3 (continued)

Failure to meet any of the above limits is cause for rejecting the new fuel oil, but does not represent a failure to meet the LCO concern since the fuel oil is not added to the storage tanks.

Within 31 days following the initial new fuel oil sample, the fuel oil is analyzed to establish that the other properties specified in Table 1 of ASTM D975-[ ] (Ref. 7) are met for new fuel oil when tested in accordance with ASTM D975-[ ] (Ref. 6), except that the analysis for sulfur may be performed in accordance with ASTM D1552-[ ] (Ref. 6) or ASTM D2622-[ ] (Ref. 6). The 31 day period is acceptable because the fuel oil properties of interest, even if they were not within stated limits, would not have an immediate effect on DG operation. This Surveillance ensures the availability of high quality fuel oil for the DGs.

Fuel oil degradation during long term storage shows up as an increase in particulate, due mostly to oxidation. The presence of particulate does not mean the fuel oil will not burn properly in a diesel engine. The particulate can cause fouling of filters and fuel oil injection equipment, however, which can cause engine failure.

Particulate concentrations should be determined in accordance with ASTM D2276-[ ], Method A (Ref. 6). This method involves a gravimetric determination of total particulate concentration in the fuel oil and has a limit of 10 mg/l. It is acceptable to obtain a field sample for subsequent laboratory testing in lieu of field testing. [For those designs in which the total stored fuel oil volume is contained in two or more interconnected tanks, each tank must be considered and tested separately.]

The Frequency of this test takes into consideration fuel oil degradation trends that indicate that particulate concentration is unlikely to change significantly between Frequency intervals.

Insert: B 3.8-47-01

Insert: B 3.8-47-02

Insert: B 3.8-47-03

Insert: B 3.8-47-04

Insert: B 3.8-47-05

underground storage

Insert: B 3.8-47-06

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: B 3.8-47-01:

The tests of the sample of new fuel that may be completed after the fuel is added to the DG fuel oil storage tanks must be completed

INSERT: B 3.8-47-02:

of the fuel oil meet the acceptance criteria of Specification 5.5.12.

INSERT: B 3.8-47-03:

Failure to meet the specified acceptance criteria requires entry into Condition E and restoration of the quality of the fuel oil in the DG fuel oil storage tank within the associated Completion Time and explained in the Bases for Condition E.

INSERT: B 3.8-47-04:

The periodic tests of the fuel oil stored in the DG fuel oil storage tanks verify that the length of time or conditions of storage has not degraded the fuel in a manner that could impact DG OPERABILITY.

INSERT: B 3.8-47-05:

must meet the acceptance criteria of Specification 5.5.12.

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: B 3.8-47-06:

SR 3.8.3.4

The IP3 offsite fuel oil reserve is maintained by the operators of IP2, Consolidated Edison Company, in accordance with formal agreements with NYPA. The IP3 offsite DG fuel oil reserve is normally stored in the same tanks used to store the IP2 offsite DG fuel oil reserve. Fuel oil properties of new and stored fuel are controlled in accordance with IP2 Technical Specifications and FSAR in order to meet requirements for the Operability of IP2 and IP3 DGs.

Required testing of the properties of new and stored fuel in the offsite DG fuel oil reserve is performed by IP2 in accordance with programs established by Consolidated Edison Company. NYPA performs periodic verification that fuel oil stored in the offsite DG fuel oil reserve meet the requirements of Specification 5.5.12.

Failure to meet the specified acceptance criteria, whether identified by IP2 or IP3, requires entry into Condition F and restoration of the quality of the fuel oil in the offsite DG fuel oil reserve within the associated Completion Time and explained in the Bases for Condition F.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.3.4 (5)

This Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each DG is available. The system design requirements provide for a minimum of [five] engine start cycles without recharging. ~~[A start cycle is defined by the DG vendor, but usually is measured in terms of time (seconds of cranking) or engine cranking speed.]~~ The pressure specified in this SR is intended to reflect the lowest value at which the [five] starts can be accomplished.

four

four

Insert B3.8-48-01

The 31 day Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.

SR 3.8.3.5 (6)

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel storage tanks once every [31] days eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during DG operation. Water may come from any of several sources, including condensation, ground water, rain water, and contaminated fuel oil, and from breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance Frequencies are ~~established by~~ Consistent with Regulatory Guide 1.137 (Ref. 2). This SR is for preventive maintenance. The presence of water does not necessarily represent failure of this SR, provided the accumulated water is removed during performance of the Surveillance.

92

within 7 days of

R.1

Insert B3.8-48-02

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.3 Diesel Fuel Oil and Starting Air

INSERT: B 3.8-48-01

Failure of the engine to start within approximately 15 seconds indicates a malfunction at which point the overcrank relays terminate the start cycle. In this condition, sufficient starting air will still be available so that the DG can be manually started.

INSERT: B 3.8-48-02

Unless the volume of water is sufficient that it could impact DG OPERABILITY,

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.3.6

Draining of the fuel oil stored in the supply tanks, removal of accumulated sediment, and tank cleaning are required at 10 year intervals by Regulatory Guide 1.137 (Ref. 2), paragraph 2.f. This SR also requires the performance of the ASME Code, Section XI (Ref. 8), examinations of the tanks. To preclude the introduction of surfactants in the fuel oil system, the cleaning should be accomplished using sodium hypochlorite solutions, or their equivalent, rather than soap or detergents. This SR is for preventive maintenance. The presence of sediment does not necessarily represent a failure of this SR, provided that accumulated sediment is removed during performance of the Surveillance.

REFERENCES

1. FSAR, Section [9.5.4.2]. 8.2
2. Regulatory Guide 1.137.
3. ANSI N195-1976, Appendix B.
4. FSAR, Chapter [6]. 14
5. FSAR, Chapter [15].
6. ASTM Standards: D4057-[ ]; D975-[ ]; D4176-[ ]; D1552-[ ]; D2622-[ ]; D2276, Method A.
7. ASTM Standards, D975, Table 1.
8. ASME, Boiler and Presser Vessel Code, Section XI.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.4:

"DC Sources - Operating"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage on float charge is within the following limits: a. ≥ 123.5 V for batteries 31 and 32; and b. ≥ 127.8 V for batteries 33 and 34.	31 days
SR 3.8.4.2	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. ---------- Verify each battery charger supplies its associated battery at the voltage and current adequate to demonstrate battery charger capability requirements are met.	24 months
SR 3.8.4.3	----------NOTES---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. ---------- Verify battery capacity is adequate to supply, and maintain in OPERABLE status, the required emergency loads for the design duty cycle when subjected to a battery service test or a modified performance discharge test.	24 months

RAI-01

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.8.4.4	----------NOTE---------- This Surveillance shall not be performed in MODE 1, 2, 3, or 4. ---------- Verify battery capacity is ≥ 80% of the manufacturer's rating when subjected to a performance discharge test or a modified performance discharge test.	60 months AND 12 months when battery shows degradation or has reached 85% of expected life with capacity < 100% of manufacturer's rating AND 24 months when battery has reached 85% of the expected life with capacity ≥ 100% of manufacturer's rating
SR 3.8.4.5	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration.	24 months

BSL 3.8.4-01

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.4 DC Sources – Operating

BASES

BACKGROUND

The station DC electrical power system provides the AC emergency power system with control power. It also provides both motive and control power to selected safety related equipment and preferred 120 V AC vital instrument bus power (via inverters). As required by 10 CFR 50, Appendix A, GDC 17 (Ref. 1), the DC electrical power system is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure. The DC electrical power system also is consistent with the recommendations of Regulatory Guide 1.6 (Ref. 2) and IEEE-308 (Ref. 3).

The 125 VDC electrical power system consists of four independent safety related DC electrical power subsystems (31, 32, 33 and 34). Each subsystem consists of one 125 VDC battery, the associated battery charger for each battery (except that battery charger 34 is not covered by this LCO), and all the associated control equipment and interconnecting cabling. In addition, battery charger 35 is an installed spare that can be used as the associated charger for any one of the batteries (Ref. 4). NYPA

The four DC electrical power subsystems (batteries and associated chargers) 31, 32, 33, and 34 feed four main distribution power panels. DC electrical power subsystems 31, 32, and 33 supply DC control power to 480 volt buses Nos. 5A, 6A, and 2A/3A, respectively. The 480 volt switchgear bus sections that supply power to the safeguards equipment also receive DC control power from its associated DC electrical power subsystem. DC electrical power subsystem 34 does not provide DC control power to any equipment assumed to function to mitigate an accident.

The DC electrical power subsystems 31, 32, 33 and 34 also provide DC electrical power to the inverters, which in turn power the AC vital instrument buses. As a result, each of the four DC electrical power subsystems supports one of the four Reactor

(continued)

BASES

BACKGROUND (continued)

The DC power distribution system is described in more detail in Bases for LCO 3.8.9, "Distribution Systems – Operating," and LCO 3.8.10, "Distribution Systems – Shutdown."

Each 125 VDC battery is separately housed in a ventilated room apart from its charger and power panels. Each subsystem is separated electrically from the other subsystems to ensure that a single failure in one subsystem does not cause a failure in a redundant subsystem. There is no sharing between redundant subsystems, such as batteries, battery chargers, or power panels.

The batteries are sized to produce required capacity at 80% of nameplate rating, corresponding to warranted capacity at end of life cycles and the 100% design demand. The voltage limit is 2.13 V per cell, which corresponds to a total minimum voltage output of ≥ 123.5 V for batteries 31 and 32 (each consisting of 58 cells) and ≥ 127.8 V for batteries 33 and 34 (each consisting of 60 cells). RAI-1

Each DC electrical power subsystem has ample power output capacity for the steady state operation of connected loads required during normal operation, while at the same time maintaining its battery bank charged as necessary to meet the requirements of LCO 3.8.6, Battery Parameters. Each battery charger also has sufficient capacity to restore the battery from the design minimum charge to the required charged state within 15 hours while supplying normal steady state loads discussed in the FSAR, Chapter 8 (Ref. 4). RAI-4

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in the FSAR, Chapter 14 (Ref. 6), assume that Engineered Safety Feature (ESF) systems are OPERABLE. The DC electrical power subsystems 31, 32 and 33 provide normal and emergency DC electrical power for the DGs, and control and switching during all MODES of operation. Each of the four DC electrical power subsystems supports one of the four 120 V AC vital instrument buses via an inverter.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1

Verifying battery terminal voltage while on float charge for the batteries helps to ensure the effectiveness of the charging system and the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery (or battery cell) and maintain the battery (or a battery cell) in a fully charged state. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the initial voltages assumed in the battery sizing calculations. The 31 day Frequency is consistent with manufacturer recommendations and IEEE-450 (Ref.8). RAI - 05

SR 3.8.4.2

This SR requires that each battery charger be capable of supplying the voltage and current necessary to recharge partially discharged batteries (two hour discharge at a rate that does not cause battery terminal voltage to fall below 105 volts). These requirements are consistent with the output rating of the chargers (Ref. 4). Therefore, this SR can be satisfied by operating each charger at the design voltage and current for a minimum of 2 hours. According to Regulatory Guide 1.32 (Ref. 9), the battery charger supply is required to be based on the largest combined demands of the various steady state loads and the charging capacity to restore the battery from the design minimum charge state to the fully charged state, irrespective of the status of the unit during these demand occurrences. The minimum required amperes and duration ensures that these requirements can be satisfied.

The Surveillance Frequency is acceptable, given the unit conditions required to perform the test and the other administrative controls existing to ensure adequate charger

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.3 (continued)

very small portion of the battery capacity, the test rate can be changed to that for the performance test without compromising the results of the performance discharge test. The battery terminal voltage for the modified performance discharge test should remain above the minimum battery terminal voltage specified in the battery service test for the duration of time equal to that of the service test.

A modified performance discharge test is a test of the battery capacity and its ability to provide a high rate, short duration load (usually the highest rate of the duty cycle). This will often confirm the battery's ability to meet the critical period of the load duty cycle, in addition to determining its percentage of rated capacity. Initial conditions for the modified performance discharge test should be identical to those specified for a service test.

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would perturb the electrical distribution system and challenge safety systems.

SR 3.8.4.4

A battery performance discharge test is a test of constant current capacity of a battery, after having been in service, to detect any change in the capacity determined by the acceptance test. The test is intended to determine overall battery degradation due to age and usage.

NYPA
IPN-99-006
dated 1/20/99

A battery modified performance discharge test is described in the Bases for SR 3.8.4.3. Either the battery performance discharge test or the modified performance discharge test is acceptable for satisfying SR 3.8.4.4; however, only the modified performance discharge test may be used to satisfy SR 3.8.4.4 while satisfying the requirements of SR 3.8.4.3 at the same time.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.4 (continued)

The acceptance criteria for this Surveillance are consistent with IEEE-450 (Ref. 8) and IEEE-485 (Ref. 5). These references recommend that the battery be replaced if its capacity is below 80% of the manufacturer's rating. A capacity of 80% shows that the battery deterioration is increasing, even if there is ample capacity to meet the load requirements.

The Surveillance Frequency for this test is normally 60 months. If the battery shows degradation, or if the battery has reached 85% of its expected life and capacity is < 100% of the manufacturer's rating, the Surveillance Frequency is reduced to 12 months. However, if the battery shows no degradation but has reached 85% of its expected life, the Surveillance Frequency is only reduced to 24 months for batteries that retain capacity ≥ 100% of the manufacturer's rating. Degradation is indicated, according to IEEE-450 (Ref. 8), when the battery capacity drops by more than 10% relative to its capacity on the previous performance test or when it is ≥ 10% below the manufacturer's rating. These Frequencies are consistent with the recommendations in IEEE-450 (Ref. 8).

This SR is modified by a Note. The reason for the Note is that performing the Surveillance would perturb the electrical distribution system and challenge safety systems.

SR 3.8.4.5

Visual inspection of the battery cells, cell plates, and battery racks provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

RAI-B3R-01

REFERENCES

1. 10 CFR 50, Appendix A.

2. Regulatory Guide 1.6, March 10, 1971.

(continued)

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.4:

"DC Sources - Operating"

PART 3:

DISCUSSION OF CHANGES

Differences between CTS and ITS

DISCUSSION OF CHANGES
ITS SECTION 3.8.4 DC Sources - Operating

L.2 CTS 3.7.B limits the number of concurrent inoperable electrical power sources by limiting the Actions for inoperable DGs, offsite sources, and batteries to "allow any one" of these power supplies to be inoperable at any one time. Therefore, in conjunction with specific directions provided in CTS 3.7.B.1 and CTS 3.7.B.2, CTS 3.7.B.3 does not permit a battery to be inoperable when either a diesel generator or an offsite source is inoperable. ITS 3.8.1 and ITS 3.8.4 appear to be less restrictive because there are no direct restrictions on DC electrical power subsystems (batteries and battery chargers) based on the operability of DGs or offsite sources nor are there restrictions on DGs or offsite sources based on the operability of DC electrical power subsystems.

Elimination of the "allow any one" restriction in CTS 3.7.B is acceptable because, even without this restriction, both CTS and ITS 3.8.4 limit inoperability of one battery and/or charger to a maximum of two hours (See ITS 3.8.4, DOC M.1 for exception). Additionally, both CTS and ITS 3.8.4 both require immediate initiation of a shutdown if two batteries and/or chargers are inoperable. Therefore, the maximum impact of the elimination of the restriction in CTS 3.7.B is the potential that ITS 3.8.1 and/or ITS 3.8.4 would allow initiation of a reactor shutdown to be delayed by 2 hours from what would be required by CTS 3.7.B (i.e., CTS would require Mode 3 in 6 hours and Mode 5 in 36 hours and ITS would require Mode 3 in 8 hours and Mode 5 in 38 hours). Additionally, ITS would allow more time to initiate a reactor shutdown only in very infrequent combinations of inoperabilities (e.g. two diesel generators and the battery associated with the third diesel generator become inoperable at the same time). Therefore, elimination of the restriction in CTS 3.7.B has no significant consequence and is deleted.

REMOVED DETAIL

NONE

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.4:

"DC Sources - Operating"

PART 5:

NUREG-1431
Annotated to show differences between
NUREG-1431 and ITS

3.8 ELECTRICAL POWER SYSTEMS

3.8.4 DC Sources—Operating

<3.7.A.6> <DOC M.1>

LCO 3.8.4 ~~The Train A and Train B DC electrical power subsystems shall be OPERABLE.~~ Insert 3.8-24-01

<3.7.A> <DOC A.1>

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

Insert 3.8-24-02

CONDITION	REQUIRED ACTION	COMPLETION TIME
~~A.~~ B One DC electrical power subsystem inoperable. Insert: 3.8-24-03	~~A~~.1 B Restore DC electrical power subsystem to OPERABLE status.	2 hours
~~B~~. C Required Action and Associated Completion Time not met.	C ~~B~~.1 Be in MODE 3. AND ~~B~~.2 C Be in MODE 5.	6 hours 36 hours

<3.7.B.4> <DOC L.1>

<3.7.C> <3.7.C.1> <DOC M.3>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.4.1	Verify battery terminal voltage is ~~≥ 129 V~~ on float charge.	7 days 31

<4.6.B.1> <DOC A.4> <DOC M.4>

Insert 3.8-24-04

T.4 CLB

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.4 DC Sources - Operating

INSERT: 3.8-24-01:

<3.7.A6>
<DOC M1>

The following four DC electrical power subsystems shall be OPERABLE:

Battery 31 and associated Battery Charger;
Battery 32 and associated Battery Charger;
Battery 33 and associated Battery Charger; and
Battery 34.

INSERT: 3.8-24-02:

<DOC M1>

A.	DC electrical power subsystem 34 inoperable.	A.1	Declare Inverter 34 inoperable and take Required Actions specified in LCO 3.8.7, Inverters-Operating.	2 hours

INSERT: 3.8-24-03:

(31 or 32 or 33)

INSERT: 3.8-24-04:

<4.6.B.1>
<DOC M4>

is within the following limits:

a. ≥ 123.5 (120.06) V for batteries 31 and 32; and

b. ≥ (124.20) 127.8 V for batteries 33 and 34.

R.1
RAI
-01

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.4.2	Verify no visible corrosion at battery terminals and connectors. OR Verify battery connection resistance [is ≤ [1E-5 ohm] for inter-cell connections, ≤ [1E-5 ohm] for inter-rack connections, ≤ [1E-5 ohm] for inter-tier connections, and ≤ [1E-5 ohm] for terminal connections].	92 days
SR 3.8.4.3	Verify battery cells, cell plates, and racks show no visual indication of physical damage or abnormal deterioration.	[12] months *
SR 3.8.4.4	Remove visible terminal corrosion, verify battery cell to cell and terminal connections are clean and tight, and are coated with anti-corrosion material.	[12] months
SR 3.8.4.5	Verify battery connection resistance [is ≤ [1E-5 ohm] for inter-cell connections, ≤ [1E-5 ohm] for inter-rack connections, ≤ [1E-5 ohm] for inter-tier connections, and ≤ [1E-5 ohm] for terminal connections].	[12] months

(continued)

T.2 CLB

R.1

* Retain as SR 3.8.4.5 with 24 month frequency

R.1

B 3.8 ELECTRICAL POWER SYSTEMS

B 3.8.4 DC Sources—Operating

BASES

BACKGROUND

The station DC electrical power system provides the AC emergency power system with control power. It also provides both motive and control power to selected safety related equipment and preferred AC vital bus power (via inverters). As required by 10 CFR 50, Appendix A, GDC 17 (Ref. 1), the DC electrical power system is designed to have sufficient independence, redundancy, and testability to perform its safety functions, assuming a single failure. The DC electrical power system also conforms to the recommendations of Regulatory Guide 1.6 (Ref. 2) and IEEE-308 (Ref. 3).

The [125/250] VDC electrical power system consists of two independent and redundant safety related Class 1E DC electrical power subsystems ([Train A and Train B]). Each subsystem consists of [two] 125 VDC batteries ~~[(each battery [50]% capacity)]~~, the associated battery charger(s) for each battery, and all the associated control equipment and interconnecting cabling.

The 250 VDC source is obtained by use of the two 125 VDC batteries connected in series. Additionally there is [one] spare battery charger per subsystem, which provides backup service in the event that the preferred battery charger is out of service. If the spare battery charger is substituted for one of the preferred battery chargers, then the requirements of independence and redundancy between subsystems are maintained.

During normal operation, the [125/250] VDC load is powered from the battery chargers with the batteries floating on the system. In case of loss of normal power to the battery charger, the DC load is automatically powered from the station batteries.

The [Train A and Train B] DC electrical power subsystems provide the control power for its associated Class 1E AC power load group, [4.16] kV switchgear, and [480] V load centers. The DC electrical power subsystems also provide DC electrical power to the inverters, which in turn power the AC vital buses.

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.4 DC Sources - Operating

INSERT: B 3.8-50-01:

The 125 VDC electrical power system consists of four independent safety related DC electrical power subsystems (31, 32, 33 and 34). Each subsystem consists of one 125 VDC battery, the associated battery charger for each battery (except that battery charger 34 is not covered by this LCO), and all the associated control equipment and interconnecting cabling.

The four DC electrical power subsystems (batteries and associated chargers) 31, 32, 33, and 34 feed four main distribution power panels. DC electrical power subsystems 31, 32, and 33 supply DC control power to 480 volt buses Nos. 5A, 6A, and 2A/3A, respectively. The 480 volt switchgear bus sections that supply power to the safeguards equipment also receive DC control power from its associated DC electrical power subsystem. DC electrical power subsystem 34 does not provide DC control power to any equipment assumed to function to mitigate an accident.

The DC electrical power subsystems 31, 32, 33 and 34 also provide DC electrical power to the inverters, which in turn power the AC vital instrument buses. As a result, each of the four DC electrical power subsystems supports one of the four Reactor Protection System (RPS) Instrumentation channels and one of the four Engineered Safety Features Actuation (ESFAS) Instrumentation channels. DC electrical power subsystems 31 and 32 each support one of the two trains of RPS Instrumentation actuation logic and one of the two trains of ESFAS Instrumentation actuation logic. Electrical distribution, including DC Sources, is described in the FSAR (Ref. 4).

In addition, battery charger 35 is an installed spare that can be used as the associated charger for any one of the batteries (Ref. 4).

R.i

BASES

BACKGROUND (continued)

The DC power distribution system is described in more detail in Bases for LCO 3.8.9, "Distribution System—Operating," and LCO 3.8.10, "Distribution Systems—Shutdown."

Each battery has adequate storage capacity to carry the required load continuously for at least 2 hours and to perform three complete cycles of intermittent loads discussed in the FSAR, Chapter [8] (Ref. 4).

Each 125 VDC battery is separately housed in a ventilated room apart from its charger and distribution centers. Each subsystem is ~~located in an area~~ separated ~~physically and~~ electrically from the other subsystem to ensure that a single failure in one subsystem does not cause a failure in a redundant subsystem. There is no sharing between redundant ~~Class 1E~~ subsystems, such as batteries, battery chargers, or distribution panels.

The batteries ~~for Train A and Train B DC electrical power subsystems~~ are sized to produce required capacity at 80% of nameplate rating, corresponding to warranted capacity at end of life cycles and the 100% design demand. Battery size is based on 125% of required capacity and, after selection of an available commercial battery, results in a battery capacity in excess of 150% of required capacity. The voltage limit is 2.13 V per cell, which corresponds to a total minimum voltage output of 128 V per battery discussed in the FSAR, Chapter [8] (Ref. 4). The criteria for sizing large lead storage batteries are defined in IEEE-485 (Ref. 5).

Each ~~Train A and Train B~~ DC electrical power subsystem has ample power output capacity for the steady state operation of connected loads required during normal operation, while at the same time maintaining its battery bank fully charged. Each battery charger also has sufficient capacity to restore the battery from the design minimum charge to its fully charged state within 24 hours while supplying normal steady state loads discussed in the FSAR, Chapter [8] (Ref. 4).

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in ~~the FSAR, Chapter [6] (Ref. 6), and in~~ the FSAR, Chapter ~~[15]~~ (Ref. 7), assume that Engineered Safety Feature (ESF) systems are OPERABLE. ~~The~~ DC

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.4 DC Sources - Operating

INSERT: B 3.8-51-01:

(each consisting of 58 cells)

≥ 123.5 V for batteries 31 and 32, and ≥ 127.8 V for batteries 33 and 34.

(each consisting of 60 cells)

R.1

BASES

ACTIONS

B.1 and B.2 (continued)

within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems. The Completion Time to bring the unit to MODE 5 is consistent with the time required in Regulatory Guide 1.93 (Ref. 8).

SURVEILLANCE REQUIREMENTS

SR 3.8.4.1

Verifying battery terminal voltage while on float charge for the batteries helps to ensure the effectiveness of the charging system and the ability of the batteries to perform their intended function. Float charge is the condition in which the charger is supplying the continuous charge required to overcome the internal losses of a battery (or battery cell) and maintain the battery (or a battery cell) in a fully charged state. The voltage requirements are based on the nominal design voltage of the battery and are consistent with the initial voltages assumed in the battery sizing calculations. The 7 day Frequency is consistent with manufacturer recommendations and IEEE-450 (Ref. 9).

SR 3.8.4.2

Visual inspection to detect corrosion of the battery cells and connections, or measurement of the resistance of each intercell, interrack, intertier, and terminal connection, provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

The limits established for this SR must be no more than 20% above the resistance as measured during installation or not above the ceiling value established by the manufacturer.

The Surveillance Frequency for these inspections, which can detect conditions that can cause power losses due to resistance heating, is 92 days. This Frequency is considered acceptable based on operating experience related to detecting corrosion trends.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.4.3

Visual inspection of the battery cells, cell plates, and battery racks provides an indication of physical damage or abnormal deterioration that could potentially degrade battery performance.

The 12 month Frequency for this SR is consistent with IEEE-450 (Ref. 9), which recommends detailed visual inspection of cell condition and rack integrity on a yearly basis.

SR 3.8.4.4 and SR 3.8.4.5

Visual inspection and resistance measurements of intercell, interrack, intertier, and terminal connections provide an indication of physical damage or abnormal deterioration that could indicate degraded battery condition. The anticorrosion material is used to help ensure good electrical connections and to reduce terminal deterioration. The visual inspection for corrosion is not intended to require removal of and inspection under each terminal connection. The removal of visible corrosion is a preventive maintenance SR. The presence of visible corrosion does not necessarily represent a failure of this SR provided visible corrosion is removed during performance of SR 3.8.4.4.

Reviewer's Note: The requirement to verify that terminal connections are clean and tight applies only to nickel cadmium batteries as per IEEE Standard P1106, "IEEE Recommended Practice for Installation, Maintenance, Testing and Replacement of Vented Nickel - Cadmium Batteries for Stationary Applications." This requirement may be removed for lead acid batteries.

The connection resistance limits for SR 3.8.4.5 shall be no more than 20% above the resistance as measured during installation, or not above the ceiling value established by the manufacturer.

The Surveillance Frequencies of 12 months is consistent with IEEE-450 (Ref. 9), which recommends cell to cell and terminal connection resistance measurement on a yearly basis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.4.~~7~~ 3 (continued)

~~This SR is modified by two Notes. Note 1 allows the performance of a~~ modified performance discharge test ~~once per 60 months~~ in lieu of a service test may be performed. T.3

The modified performance discharge test is a simulated duty cycle consisting of just two rates; the one minute rate published for the battery or the largest current load of the duty cycle, followed by the test rate employed for the performance test, both of which envelope the duty cycle of the service test. Since the ampere-hours removed by a rated one minute discharge represents a very small portion of the battery capacity, the test rate can be changed to that for the performance test without compromising the results of the performance discharge test. The battery terminal voltage for the modified performance discharge test should remain above the minimum battery terminal voltage specified in the battery service test for the duration of time equal to that of the service test.

performance

A modified discharge test is a test of the battery capacity and its ability to provide a high rate, short duration load (usually the highest rate of the duty cycle). This will often confirm the battery's ability to meet the critical period of the load duty cycle, in addition to determining its percentage of rated capacity. Initial conditions for the modified performance discharge test should be identical to those specified for a service test.

the

This SR is modified by a Note.

The reason for ~~Note 2~~ the Note is that performing the Surveillance would perturb the electrical distribution system and challenge safety systems. ~~Credit may be taken for unplanned events that satisfy this SR.~~ T.3 T.1

SR 3.8.4.~~8~~ 4

A battery performance discharge test is a test of constant current capacity of a battery, ~~normally done in the as found condition~~, after having been in service, to detect any change in the capacity determined by the acceptance test. The test is intended to determine overall battery degradation due to age and usage. CLB 1 R.1

(continued)

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.5:

"DC Sources - Shutdown"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

BASES (continued)

LCO

The four DC electrical power subsystems, each subsystem consisting of one battery, one battery charger (except for battery charger 34 which is not covered by this LCO), and the corresponding control equipment and interconnecting cabling within the safeguards power train, are required to be OPERABLE to support required safeguards power trains of the distribution systems required OPERABLE by LCO 3.8.10, "Distribution Systems – Shutdown." This ensures the availability of sufficient DC electrical power sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents).

DC subsystems 31 and 32 may be cross connected and powered by battery 31 or 32 and both DC subsystems remain OPERABLE (Ref.2). Similarly, DC subsystems 33 and 34 may be cross connected and powered by battery 33 or 34. However, only one pair of subsystems at a time may be cross connected. Cross connecting DC subsystems in Modes 5 and 6 and during movement of irradiated fuel is acceptable because there is no requirement for redundancy or separation between DC busses when the plant is in this condition. Both DC subsystems in the cross connected pair remain OPERABLE even when powered by one battery because the capacity of one battery is adequate to carry the loads on both busses when the plant is in this condition. RAI-01

APPLICABILITY

The DC electrical power sources required to be OPERABLE in MODES 5 and 6, and during movement of irradiated fuel assemblies, provide assurance that:

a. Required features to provide adequate coolant inventory makeup are available for the irradiated fuel assemblies in the core;

b. Required features needed to mitigate a fuel handling accident are available;

c. Required features necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

(continued)

BASES

APPLICABILITY (continued)

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The DC electrical power requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.4.

ACTIONS

A.1, A.2.1, A.2.2, A.2.3 and A.2.4

If any DC electrical subsystem required by LCO 3.8.10 becomes inoperable, the remaining DC power available may be capable of supporting sufficient systems to allow continuation of CORE ALTERATIONS and fuel movement. By allowing the option to declare required features inoperable with the associated DC power source(s) inoperable, appropriate restrictions will be implemented in accordance with the affected required features LCO ACTIONS. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactivity additions). The Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory, provided the required SDM is maintained. RAI-02

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required DC electrical power subsystems and to continue this action until restoration is accomplished in order to provide the necessary DC electrical power to the unit safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required DC electrical power subsystems should be completed as quickly as possible in order to minimize the time during which the unit safety systems may be without sufficient power.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.5.1

SR 3.8.5.1 requires performance of all Surveillances required by SR 3.8.4.1 through SR 3.8.4.4. Therefore, see the corresponding Bases for LCO 3.8.4 for a discussion of each SR.

This SR is modified by a Note. The reason for the Note is to preclude requiring the OPERABLE DC sources from being discharged below their capability to provide the required power supply or otherwise rendered inoperable during the performance of SRs. It is the intent that these SRs must still be capable of being met, but actual performance is not required.

REFERENCES

1. FSAR, Chapter 14.
2. FSAR, Chapter 8.

RAI-01

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.5:

"DC Sources - Shutdown"

PART 5:

NUREG-1431
Annotated to show differences between
NUREG-1431 and ITS

BASES

LCO (continued)

interconnecting cabling within the train, are required to be OPERABLE to support required trains of the distribution systems required OPERABLE by LCO 3.8.10, "Distribution Systems—Shutdown." This ensures the availability of sufficient DC electrical power sources to operate the unit in a safe manner and to mitigate the consequences of postulated events during shutdown (e.g., fuel handling accidents).

Insert B3.8-61-01

APPLICABILITY

The DC electrical power sources required to be OPERABLE in MODES 5 and 6, and during movement of irradiated fuel assemblies, provide assurance that:

a. Required features to provide adequate coolant inventory makeup are available for the irradiated fuel assemblies in the core;

b. Required features needed to mitigate a fuel handling accident are available;

c. Required features necessary to mitigate the effects of events that can lead to core damage during shutdown are available; and

d. Instrumentation and control capability is available for monitoring and maintaining the unit in a cold shutdown condition or refueling condition.

The DC electrical power requirements for MODES 1, 2, 3, and 4 are covered in LCO 3.8.4.

R.1

ACTIONS

A.1, A.2.1, A.2.2, A.2.3, and A.2.4

If ~~two trains~~ are required by LCO 3.8.10, the remaining train with DC power available may be capable of supporting sufficient systems to allow continuation of CORE ALTERATIONS and fuel movement. By allowing the option to declare required features inoperable with the associated DC power source(s) inoperable, appropriate restrictions will be implemented in accordance with the affected required features LCO ACTIONS. In many instances, this option may involve undesired administrative efforts. Therefore, the

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.5 DC Sources - Shutdown

INSERT B 3.8-61-01: (Rev 1)

DC subsystems 31 and 32 may be cross connected and powered by battery 31 or 32, and both DC subsystems remain OPERABLE (Ref. 2). Similarly, DC subsystems 33 and 34 may be cross connected and powered by battery 33 or 34. However, only one pair of subsystems at a time may be cross connected. Cross connecting DC subsystems in Modes 5 and 6 and during movement of irradiated fuel is acceptable because there is no requirement for redundancy or separation between DC busses when the plant is in this condition. Both DC subsystems in the cross connected pair remain OPERABLE even when powered by one battery because the capacity of one battery is adequate to carry the loads on both busses when the plant is in this condition.

BASES (continued)

REFERENCES

1. FSAR, Chapter [6]. 14
2. FSAR, Chapter [15]. 8

R.1

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.6:

"Battery Cell Parameters"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

Table 3.8.6-1 (page 1 of 1)
Battery Cell Parameters Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark(a)	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark(a)	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	> 2.07 V
Specific Gravity(b)(c)	≥ 1.205	≥ 1.195 AND Average of all connected cells > 1.205	Not more than 0.020 below average of all connected cells AND Average of all connected cells ≥ 1.195

(a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum during equalizing charges provided it is not overflowing.

(b) Corrected for electrolyte temperature.

(c) A battery charging current of <2 amps when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of 7 days. When charging current is used to satisfy specific gravity requirements, specific gravity of each connected cell shall be measured prior to expiration of the 7 day allowance.

NYPA

BASES

ACTIONS

B.1 (continued)

Required Actions of Condition A within the required Completion Time or average electrolyte temperature of representative cells outside the limits of SR 3.8.6.3 are also cause for immediately declaring the associated DC electrical power subsystem inoperable.

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1

This SR verifies that Category A battery cell parameters are consistent with IEEE-450 (Ref. 2), which recommends regular battery inspections (at least one per month) including voltage, specific gravity, and electrolyte temperature of pilot cells.

SR 3.8.6.2

The quarterly inspection of specific gravity and voltage is consistent with IEEE-450 (Ref. 2) which recommends augmentation of the battery inspections conducted in SR 3.8.6.1 at least once per quarter by checking the level, voltage and specific gravity of each cell, and the temperature of pilot cells.

Measuring and recording the amount of water added is a trending method for those cells found with electrolyte below minimum level.

NYPA

SR 3.8.6.3

This Surveillance verification that the average temperature of representative cells (i.e., every fifth cell) is within specified limits, is consistent with a recommendation of IEEE-450 (Ref. 2), that states that the temperature of electrolytes in representative cells should be determined on a quarterly basis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

When any battery parameter is outside the Category C limits, the assurance of sufficient capacity described above no longer exists, and the battery must be declared inoperable.

The Category C limits specified for electrolyte level (above the top of the plates and not overflowing) ensure that the plates suffer no physical damage and maintain adequate electron transfer capability.

The Category C limits for float voltage is based on IEEE-450 (Ref. 2), which states that a cell voltage of 2.07 V or below, under float conditions and not caused by elevated temperature of the cell, indicates internal cell problems and may require cell replacement.

The Category C limit of average specific gravity $\geq$ 1.195 is based on manufacturer recommendations (0.020 below the manufacturer recommended fully charged, nominal specific gravity). In addition to that limit, it is required that the specific gravity for each connected cell must be no less than 0.020 below the average of all connected cells. This limit ensures that the effect of a highly charged or new cell does not mask overall degradation of the battery.

The footnotes to Table 3.8.6-1 are applicable to Category A, B and C specific gravity. Footnote (b) to Table 3.8.6-1 requires the above-mentioned correction for electrolyte temperature.

Footnote (c) to Table 3.8.6-1 allows the float charge current to be used as an alternate to specific gravity for up to 7 days following a battery recharge.

Because of specific gravity gradients that are produced during the recharging process, delays of several days may occur while waiting for the specific gravity to stabilize.

NYPA

(continued)

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

A stabilized charger current is an acceptable alternative to specific gravity measurement for determining the state of charge. This phenomenon is discussed in IEEE-450 (Ref.2). Within 7 days, each connected cell's specific gravity must be measured to confirm the state of charge. Following a minor battery recharge (such as equalizing charge that does not follow a deep discharge) specific gravity gradients are not significant, and confirming measurements may be made in less than 7 days. NYPA

REFERENCES

1. FSAR, Chapter 14.

2. IEEE-450-1995.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 3.8.6:
"BATTERY CELL PARAMETERS"

PART 2:

CURRENT TECHNICAL SPECIFICATION PAGES

Annotated to show differences between CTS and ITS

CTS PAGE	AMENDMENT FOR REV O SUBMITTAL	AMENDMENT FOR REV 1 SUBMITTAL	COMMENT
4.6-2	155	155	
4.6-3	155	201	Added EDG Ratings and Electrical Output Capabilities in the Bases No impact on 3.8.4

Add LCO 3.8.6 — M.1

Add LCO 3.8.6, Action Note — A.3

Add LCO 3.8.6, Applicability — A.2

Add Condition A and associated Req Actions — M.1

SEE ITS 3.8.1

4. Each diesel generator shall be inspected and maintained following the manufacturer's recommendations for this class of stand-by service.

The above tests will be considered satisfactory if the required minimum safeguards equipment operates as designed.

SEE ITS 3.8.4

B. Station Batteries — L.2

SR 3.8.6.1 T3.8.6-1, Cat A SR 3.8.6.2

1. Every month the voltage of each cell, the specific gravity and temperature of a pilot cell in each battery and each battery voltage shall be measured and recorded. — L.1, L.A.2, A.4

SR 3.8.6.2 T3.8.6-1, Cat B

2. Every 3 months each battery shall be subjected to a 24 hour equalizing charge and the specific gravity of each cell, the temperature reading of every fifth cell, the height of electrolyte, and the amount of water added shall be measured and recorded. — L.A.1, L.A.2 R.1

SEE ITS 3.8.4

3. At least once per 24 months, during shutdown, each battery shall be subjected to a service test and a visual inspection of the plates.[1]

4. At least once per 60 months, during shutdown, each battery shall be subjected to a performance discharge (or modified performance discharge) test.[1,2] This test shall verify that the battery capacity is at least 80% of the manufacturer's rating.

5. Any battery which is demonstrated to have less than 90% of the manufacturer's rating or, whose capacity drops more than 10% of rated capacity from its previous performance discharge (or modified performance discharge) test, shall be subjected to a performance discharge (or modified performance discharge) test annually, during shutdown, until the battery is replaced.

Basis

The tests specified are designed to demonstrate that the diesel generators will provide power for operation of equipment. They also assure that the emergency generator system controls and the control systems for the safeguards equipment will function automatically in the event of a loss of all normal 480v AC station service power. During the simulated loss of power/safety injection system test of specification 4.6.A.3, certain safeguards valves will be closed and made inoperable, to prevent Safety Injection flow to the core. — A.1

SEE ITS 3.8.4

1. A modified performance discharge test may be performed in lieu of the battery service test every other 24 month operating cycle.

2. The first time a performance discharge (or modified performance discharge test) will be performed will be in refueling outage 10/11.

Add Acceptance Criteria, Table 3.8.6-1 — M.1, A.4

Add Table 3.8.6-1, Note (a) — A.4

Add T 3.8.6-1, Note (b) — L.2

Add T 3.8.6-1, Note (c) R.1

R.1

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Conversion Package

Technical Specification 3.8.6:

"Battery Cell Parameters"

PART 3:

DISCUSSION OF CHANGES

Differences between CTS and ITS

performed to satisfy the SRs required by ITS 3.8.4 and ITS 3.8.6 and is not a direct demonstration that a battery is capable of performing its intended safety function.

Changes to the FSAR can be made only in accordance with the requirements of 10 CFR 50.59. Therefore, this change is acceptable because there is no change to the existing requirements by the relocation of requirements to the FSAR and future changes to the FSAR will be controlled in accordance with 10 CFR 50.59.

This change is a less restrictive administrative change with no impact on safety because ITS 3.8.4 maintains the requirements to have batteries Operable and ITS 3.8.4 SRs and ITS 3.8.6 SRs maintain the requirements to perform periodic testing that demonstrates battery Operability. Therefore, requirements to perform equalizing charges on the batteries in accordance with the manufacturer's recommendations can be maintained in the FSAR with no significant adverse impact on safety.

LA.2 CTS 4.6.B.1 and CTS 4.6.B.2 require verification of battery cell temperature of pilot cells monthly and of every fifth cell every 3 months, respectively. ITS SR 3.8.6.3 maintains the same requirement (See ITS 3.8.6, DOC L.4) except that ITS SR 3.8.6.3 requires that temperature measurements are taken on representative cells. The requirements about what constitutes a representative cell (i.e., every fifth cell) is relocated to the Bases for ITS SR 3.8.6.3. In addition, CTS 4.6.B.2 requires measuring and recording the amount of water added every three months. ITS SR 3.8.6.2 establishes the operability acceptance criterion for minimum electrolyte level, but measuring and recording the water added is a trending method relocated to the Bases.

This change is acceptable because ITS SR 3.8.6.3 maintains the requirement to verify every 92 days that the temperature of representative cells is above the specified minimum. The purpose of ITS SR 3.8.6.3 is to prevent operating the battery at low temperatures that would inhibit or reduce battery capacity. The only reason for a low battery temperature is environmental conditions because battery faults (i.e., shorts) typically result in individual cells with higher temperatures. Since environmental temperatures are likely to affect all cells, the number and selection of representative cells is not a

critical parameter for ensuring SR 3.8.6.3 is met. Therefore, relocating to the ITS Bases the CTS requirement that temperature verification must be performed on every fifth cell has no significant adverse impact on safety.

Maintaining this information in the Bases is acceptable because the requirements of 10 CFR 50.59, Changes, Tests and Experiments, and ITS 5.5.13, Technical Specifications (TS) Bases Control Program, are designed to assure that changes to the ITS Bases do not result in changes to the Technical Specification requirements and do not result in significant increases in the probability or consequences of accidents previously evaluated, do not create the possibility of a new or different kind of accident, and do not result in a significant reduction in a margin of safety. Additionally, IP3 programs that implement ITS Bases changes in accordance with ITS 5.5.13 require periodic submittal of Bases changes to the NRC for review.

This change is a less restrictive administrative change with no impact on safety because no requirements are being deleted from Technical Specifications and an appropriate change control process and an appropriate level of regulatory oversight are maintained for the information being relocated out of the Technical Specifications.

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Technical Specification 3.8.6:

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<DOC A.4>
<DOC M.1>

Table 3.8.6-1 (page 1 of 1)
Battery Cell Parameters Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark(a)	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark(a)	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	> 2.07 V
Specific Gravity(b)(c)	≥ ~~[1.200]~~ 1.205	≥ [1.195] AND Average of all connected cells > [1.205]	Not more than 0.020 below average of all connected cells AND Average of all connected cells ≥ [1.195]

<DOC A.4>
<DOC M.1>

(a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum during equalizing charges provided it is not overflowing.

<DOC A.4>
<DOC L.2>

(b) Corrected for electrolyte temperature and level. Level correction is not required, however, when battery charging is < [2] amps when on float charge. (X.1)

(c) A battery charging current of < [2] amps when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of [7] days. When charging current is used to satisfy specific gravity requirements, specific gravity of each connected cell shall be measured prior to expiration of the [7] day allowance.

R.1

BASES

ACTIONS

A.1, A.2, and A.3 (continued)

Continued operation is only permitted for 31 days before battery cell parameters must be restored to within Category A and B limits. With the consideration that, while battery capacity is degraded, sufficient capacity exists to perform the intended function and to allow time to fully restore the battery cell parameters to normal limits, this time is acceptable prior to declaring the battery inoperable.

B.1

With one or more batteries with one or more battery cell parameters outside the Category C limit for any connected cell, sufficient capacity to supply the maximum expected load requirement is not assured and the corresponding DC electrical power subsystem must be declared inoperable. Additionally, other potentially extreme conditions, such as not completing the Required Actions of Condition A within the required Completion Time or average electrolyte temperature of representative cells falling below 60°F, are also cause for immediately declaring the associated DC electrical power subsystem inoperable.

outside the limits of SR 3.8.6.3

SURVEILLANCE REQUIREMENTS

SR 3.8.6.1

This SR verifies that Category A battery cell parameters are consistent with IEEE-450 (Ref. 3), which recommends regular battery inspections (at least one per month) including voltage, specific gravity, and electrolyte temperature of pilot cells.

(2)

SR 3.8.6.2

The quarterly inspection of specific gravity and voltage is consistent with IEEE-450 (Ref. 3). In addition, within 24 hours of a battery discharge < [110] V or a battery overcharge > [150] V, the battery must be demonstrated to meet Category B limits. Transients, such as motor starting transients, which may momentarily cause battery voltage to drop to ≤ [110] V, do not constitute a battery discharge

(2)

Insert: B 3.8-66-01

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 3.8.6 - Battery Parameters

INSERT B 3.8-66-01:

which recommends augmentation of the battery inspections conducted in SR 3.8.6.1 at least once per quarter by checking the level, voltage and specific gravity of each cell, and the temperature of pilot cells.

Measuring and recording the amount of water added is a trending method for those cells found with electrolyte below minimum level.

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

Category C defines the limits for each connected cell. These values, although reduced, provide assurance that sufficient capacity exists to perform the intended function and maintain a margin of safety. When any battery parameter is outside the Category C limits, the assurance of sufficient capacity described above no longer exists, and the battery must be declared inoperable.

The Category C limits specified for electrolyte level (above the top of the plates and not overflowing) ensure that the plates suffer no physical damage and maintain adequate electron transfer capability. The Category C limits for (2) float voltage is based on IEEE-450 (Ref. 3), which states that a cell voltage of 2.07 V or below, under float conditions and not caused by elevated temperature of the cell, indicates internal cell problems and may require cell replacement.

The Category C limit of average specific gravity ≥ 1.195 is based on manufacturer recommendations (0.020 below the manufacturer recommended fully charged, nominal specific gravity). In addition to that limit, it is required that the specific gravity for each connected cell must be no less than 0.020 below the average of all connected cells. This limit ensures that the effect of a highly charged or new cell does not mask overall degradation of the battery.

The footnotes to Table 3.8.6-1 are applicable to Category A, B, and C specific gravity. Footnote (b) to Table 3.8.6-1 requires the above mentioned correction for electrolyte level and temperature, with the exception that level correction is not required when battery charging current is < [2] amps on float charge. This current provides, in general, an indication of overall battery condition. X.1

Because of specific gravity gradients that are produced during the recharging process, delays of several days may occur while waiting for the specific gravity to stabilize. A stabilized charger current is an acceptable alternative to specific gravity measurement for determining the state of charge. This phenomenon is discussed in IEEE-450 (Ref. 3). Footnote (c) to Table 3.8.6-1 allows the float charge current to be used as an alternate to specific gravity for

R.1

(continued)

BASES

SURVEILLANCE REQUIREMENTS

Table 3.8.6-1 (continued)

up to [7] days following a battery recharge. Within [7] days, each connected cell's specific gravity must be measured to confirm the state of charge. Following a minor battery recharge (such as equalizing charge that does not follow a deep discharge) specific gravity gradients are not significant, and confirming measurements may be made in less than [7] days.

R. 1

~~Reviewer's Note:~~ The value of [2] amps used in footnote ~~and~~ (b) (c) is the nominal value for float current established by the battery vendor as representing a fully charged battery with an allowance for overall battery condition.

REFERENCES

1. FSAR, Chapter [6]. 14

~~2. FSAR, Chapter [15].~~

(2) ~~3.~~ IEEE-450-~~[1980]~~. 1995

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Technical Specification 3.8.6:

"Battery Cell Parameters"

PART 6:

Justification of Differences between

NUREG-1431 and IP3 ITS

JUSTIFICATION OF DIFFERENCES FROM NUREG-1431
ITS SECTION 3.8.6 - Battery Cell Parameters

RETENTION OF EXISTING REQUIREMENT (CURRENT LICENSING BASIS)

CLB.1 NUREG-1431, Rev 1, Section 3.8.6, was modified as needed to reflect the IP3 design and current licensing basis. A detailed description of the design, accident analysis assumptions, and Operability requirements are incorporated into the IP3 ITS Bases. These changes maintain the IP3 current licensing basis except as identified and justified in the CTS/ITS discussion of changes.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT

PA.1 Corrected typographical error or made a minor editorial improvement to improve clarity and ensure requirements are fully understood and consistently applied. There are no technical changes to requirements as specified in NUREG 1431, Rev. 1; therefore, this change is not a significant or generic deviation from NUREG 1431, Rev 1.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN OR DESIGN BASIS

DB.1 Design or implementation details are incorporated or revised as necessary to more precisely describe IP3 current design or practice. These changes are intended to describe the design, improve clarity, or ensure requirements are fully understood and consistently applied. Unless identified and described below, these changes are self-explanatory. A detailed description of the design, accident analysis assumptions, and Operability requirements are incorporated into the IP3 ITS Bases. These changes maintain the IP3 current licensing basis except as identified and justified in the CTS/ITS discussion of changes. There are no technical changes to requirements as specified in NUREG 1431, Rev 1; therefore, this change is not a significant or generic deviation from NUREG 1431, Rev 1.

DB.2 not used

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Technical Specification 3.8.8:

"Inverters - Shutdown"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Initiate action to restore required inverters to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.8.1	---------- NOTE ---------- Frequency verification not required to be performed for inverter 34. ---------- Verify correct inverter voltage, frequency, and alignments to required 120 V AC vital instrument buses.	7 days

RAI-01

BASES

ACTIONS

A.1, A.2.1, A.2.2, A.2.3 and A.2.4 (continued)

The restoration of the required inverters should be completed as quickly as possible in order to minimize the time the unit safety systems may be without power or powered from a constant voltage source transformer.

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

This Surveillance verifies that the inverters are functioning properly with all required circuit breakers closed and VIBs energized from the inverter. The verification of proper voltage and frequency output ensures that the required power is readily available for the instrumentation connected to the VIBs. The 7 day Frequency takes into account the redundant capability of the inverters and other indications available in the control room that alert the operator to inverter malfunctions. Frequency verification is not required for inverter 34 because there is no installed instrumentation for indicating this parameter.

RAI-01

REFERENCES

1. FSAR, Chapter 14.

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"Inverters - Shutdown"

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Annotated to show differences between
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ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2.4 Initiate action to restore required inverters to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.8.1 Verify correct inverter voltage, [frequency,] and alignments to required AC vital buses.	7 days

instrument

120 V

NOTE

Frequency verification not required to be performed for inverter 34

BASES

ACTIONS

A.1, A.2.1, A.2.2, A.2.3, and A.2.4 (continued)

required features inoperable with the associated inverter(s) inoperable, appropriate restrictions will be implemented in accordance with the affected required features LCOs' Required Actions. In many instances, this option may involve undesired administrative efforts. Therefore, the allowance for sufficiently conservative actions is made (i.e., to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies, and operations involving positive reactivity additions). The Required Action to suspend positive reactivity additions does not preclude actions to maintain or increase reactor vessel inventory, provided the required SDM is maintained.

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required inverters and to continue this action until restoration is accomplished in order to provide the necessary inverter power to the unit safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required inverters should be completed as quickly as possible in order to minimize the time the unit safety systems may be without power or powered from a constant voltage source transformer.

SURVEILLANCE REQUIREMENTS

SR 3.8.8.1

This Surveillance verifies that the inverters are functioning properly with all required circuit breakers closed and AC vital buses energized from the inverter. The verification of proper voltage and frequency output ensures that the required power is readily available for the instrumentation connected to the AC vital buses. The 7 day Frequency takes into account the redundant capability of the inverters and other indications available in the control room that alert the operator to inverter malfunctions.

VIBs

R.1

R.1

Frequency verification is not required for inverter 34 because there is no installed instrumentation for indicating this parameter.

DB-1

(continued)

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Technical Specification 3.8.8:

"Inverters - Shutdown"

PART 6:

Justification of Differences between

NUREG-1431 and IP3 ITS

JUSTIFICATION OF DIFFERENCES FROM NUREG-1431
ITS SECTION 3.8.8 Inverters - Shutdown

RETENTION OF EXISTING REQUIREMENT (CURRENT LICENSING BASIS)

None

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT

PA.1 Corrected typographical error or made a minor editorial improvement to improve clarity and ensure requirements are fully understood and consistently applied. There are no technical changes to requirements as specified in NUREG 1431, Rev. 1; therefore, this change is not a significant or generic deviation from NUREG 1431, Rev 1.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN OR DESIGN BASIS

DB.1 Design or implementation details are incorporated or revised as necessary to more precisely describe IP3 current design or practice. These changes are intended to describe the design, improve clarity, or ensure requirements are fully understood and consistently applied. Unless identified and described below, these changes are self-explanatory. A detailed description of the design, accident analysis assumptions, and Operability requirements are incorporated into the IP3 ITS Bases. These changes maintain the IP3 current licensing basis except as identified and justified in the CTS/ITS discussion of changes.

DIFFERENCE BASED ON A GENERIC CHANGE TRAVELER FOR NUREG-1431

None

DIFFERENCE FOR ANY REASON OTHER THAN ABOVE

None

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Conversion Package

Technical Specification 3.8.9:

"Distribution Systems - Operating"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

BASES

BACKGROUND (continued)

When the plant is at power, 480 V buses 2A and 3A are normally powered from the Main Generator via the Unit Auxiliary Transformer (UAT) and the 6.9 kV buses 2 and 3 via SSTs 2 and 3. When the plant is not operating, buses 2A and 3A are supplied from 6.9 kV buses 5 and 6, respectively, via tie breakers. Following a unit trip, power to 480 V buses 2A and 3A is maintained by a fast transfer that connects buses 2A and 3A to power supplied from offsite to 6.9 kV buses 5 and 6. If the 138 kV system is not available, either of the two independent 13.8 kV feeders can be connected to the 6.9 kV buses through associated 20 MVA 13.8 KV/6.9 KV auto-transformers. When the 13.8 kV power source is used to feed 6.9 kV buses 5 and 6 and the main generator is used to feed 6.9 kV buses 1, 2, 3 and 4, automatic transfer of the 6.9 KV buses 1, 2, 3 and 4 to the 13.8 kV source following a unit trip must be prohibited to prevent overloading of the 13.8 kV auto-transformer. Therefore, a unit trip when a 13.8 kV power source is used to feed 6.9 kV buses 5 and 6 will result in 480 V busses 2A and 3A being de-energized and subsequently being powered from DG 31.

Each of the three 480 V safeguards subsystems receives DC control power from its associated battery charger and battery source. Battery No. 31 supplies DC control power to safeguards power train 5A including DG 33. Battery No. 32 supplies DC control power to safeguards power train 6A including DG 32. Battery No. 33 supplies DC control power to safeguards power train 2A/3A including DG 31. Batteries 31 and 32 also supply ESFAS and RPS trains A and B, respectively. Additional description of this system may be found in the Bases for LCO 3.8.1, "AC Sources – Operating," and the Bases for LCO 3.8.4, "DC Sources – Operating."

The AC electrical power distribution system for each train includes the safety related motor control centers shown in Table B 3.8.9-1.

There are four 120 volt vital AC instrument buses (VIBs), each consisting of two interconnected buses. The four VIBs are powered by static inverters that are powered from the four separate 125 volt DC buses.

RAI-01

(continued)

Table B 3.8.9-1 (page 1 of 1)
AC and DC Electrical Power Distribution Systems

TYPE	VOLTAGE	Safeguards Power Train 5A (DG 33)	Safeguards Power Train 2A/3A (DG 31)	Safeguards Power Train 6A (DG 32)	
AC Electrical Power Distribution subsystems	480 V	bus 5A[1] MCC 36A MCC 36E	bus 2A[1] bus 3A[1] MCC 36C	bus 6A[1] MCC 36B MCC 36D	
AC vital[(4)] instrument buses (VIBs)	120 V	bus 31 bus 31A	bus 33 bus 33A	bus 32 bus 32A	bus 34[3] bus 34A[3]
DC buses	125 V	bus 31[2]	bus 33[2]	bus 32[2]	bus 32[2]

RAI-01

(1) Tie breakers must be open between buses 5A and 2A and between buses 3A and 6A.

(2) Tie breakers between DC buses must be open.

(3) The AC Power supply to the VIB 34 and VIB 34A is supplied from MCC 36B or MCC 36C as described in the Bases for LCO 3.8.7, Inverters - Operating.

(4) Each bus pair (e.g., 31 and 31A) constitutes a single vital instrument bus.

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Technical Specification 3.8.9:

"Distribution Systems - Operating"

PART 5:

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Annotated to show differences between
NUREG-1431 and ITS

B 3.8 ELECTRICAL POWER SYSTEMS

DB.1

B 3.8.9 Distribution Systems—Operating

BASES

BACKGROUND

Insert: B 3.8-79-01

The onsite ~~Class 1E~~ AC, DC, and AC vital bus electrical power distribution systems are divided by train into [two] redundant and independent AC, DC, and AC vital bus electrical power distribution subsystems.

The AC electrical power subsystem for each train consists of a primary Engineered Safety Feature (ESF) 4.16 kV bus ~~and secondary [480 and 120] V buses~~, distribution panels, motor control centers ~~and load centers~~. Each [4.16 kV ESF bus] has at least [one ~~separate and independent~~ offsite source of power] as well as a dedicated onsite diesel generator (DG) source. [Each 4.16 kV ESF bus] is normally connected to a preferred offsite source. After a loss of the preferred offsite power source to a 4.16 kV ESF bus, a transfer to the alternate offsite source is accomplished by utilizing a time delayed bus undervoltage relay. If all offsite sources are unavailable, the onsite emergency DG supplies power to the 4.16 kV ESF bus. Control power for the 4.16 kV breakers is supplied from the Class 1E batteries. Additional description of this system may be found in the Bases for LCO 3.8.1, "AC Sources—Operating," and the Bases for LCO 3.8.4, "DC Sources—Operating."

Insert: B 3.8-79-02

The ~~secondary~~ AC electrical power distribution system for each train includes the safety related ~~load centers,~~ motor control centers, ~~and distribution panels~~ shown in Table B 3.8.9-1.

The [120 VAC vital buses] are arranged in ~~two~~ load groups ~~per train~~ and are normally powered from the inverters. The alternate power supply for the vital buses are Class 1E constant voltage source transformers powered from the same train as the associated inverter, and its use is governed by LCO 3.8.7, "Inverters—Operating." Each constant voltage source transformer is powered from a Class 1E AC bus.

Insert: B 3.8-79-03

There are two independent 125/250 VDC electrical power distribution subsystems (one for each train).

Insert: B 3.8-79-04

The list of all required distribution buses is presented in Table B 3.8.9-1.

R.1

(continued)

INSERT B 3.8-79-03

There are four 120 volt vital AC instrument buses (VIBs), each consisting of two interconnected buses. The four VIBs are powered by static inverters that are powered from the four separate 125 volt DC buses.

Inverters 31, 32, and 33 each have an associated backup 480 V/120 V constant voltage transformer (CVT). Each of these inverters has a manual bypass switch that causes the associated VIB to receive AC power from plant AC sources via the backup CVT instead of the DC powered inverter. Inverters 31, 32, and 33 will transfer to the backup power supply (i.e., the associated CVT) automatically in the event of an inverter failure. However, the backup CVTs for inverters 31, 32, and 33 are supplied from non-safety related buses that are stripped and not automatically re-connected following a safety injection (SI) signal or a loss of offsite power (LOOP). Therefore, operator action is required to re-energize VIBs 31, 32, or 33 following an SI or LOOP if the associated inverter is being bypassed or fails during the event. Additionally, the potential exists that the bus powering the backup CVT may not be available following an event.

Inverter 34 has two associated backup 480 V/120 V constant voltage transformers (CVTs). The CVTs associated with inverter 34 are powered from separate safeguards power trains using buses that are automatically re-energized following an SI or LOOP. Inverter 34 can be manually bypassed such that either of the associated CVTs can be used to power VIB 34. Inverter 34 will not automatically transfer to a backup power supply (i.e., the associated CVTs) in the event of an inverter failure. Manual operator action is also needed to transfer between the CVTs capable of powering VIB 34.

Table B 3.8.9-1 (page 1 of 1)
AC and DC Electrical Power Distribution Systems

TYPE	VOLTAGE	TRAIN A*	TRAIN B*
AC safety buses	[4160 V]	[ESF Bus] [NB01]	[ESF Bus] [NB02]
	[480 V]	Load Centers [NG01, NG03]	Load Centers [NG02, NG04]
	[480 V]	Motor Control Centers [NG01A, NG01I, NG01B, NG03C, NG03I, NG03D]	Motor Control Centers [NG02A, NG02I, NG02B, NG04C, NG04I, NG04D]
	[120 V]	Distribution Panels [NP01, NP03]	Distribution Panels [NP02, NP04]
DC buses	[125 V]	Bus [NK01]	Bus [NK02]
		Bus [NK03]	Bus [NK04]
		Distribution Panels [NK41, NK43, NK51]	Distribution Panels [NK42, NK44, NK52]
AC vital buses	[120 V]	Bus [NN01]	Bus [NN02]
		Bus [NN03]	Bus [NN04]

* Each train of the AC and DC electrical power distribution systems is a subsystem.

Insert:
B 3.8-88-01

INSERT: B 3.8-88-01

Table B 3.8.9-1 (page 1 of 1)
AC and DC Electrical Power Distribution Systems

TYPE	VOLTAGE	Safeguards Power Train 5A (DG 33)	Safeguards Power Train 2A/3A (DG 31)	Safeguards Power Train 6A (DG 32)	
AC Electrical Power Distribution subsystems	480 V	bus 5A[1] MCC 36A MCC 36E	bus 2A[1] bus 3A[1] MCC 36C	bus 6A[1] MCC 36B MCC 36D	
AC vital[(4)] instrument buses (VIBs)	120 V	bus 31 bus 31A	bus 33 bus 33A	bus 32 bus 32A	bus 34[3] bus 34A[3]
DC buses	125 V	bus 31[2]	bus 33[2]	bus 32[2]	bus 32[2]

(1) Tie breakers must be open between buses 5A and 2A and between buses 3A and 6A.

(2) Tie breakers between DC buses must be open.

(3) The AC Power supply to to VIB 34 and VIB 34A is supplied from MCC 36B or MCC 36C as described in the Bases for LCO 3.8.7, Inverters - Operating.

(4) Each bus pair (e.g., 31 and 31A) constitutes a single vital instrument bus.

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Technical Specification 4.0:

"DESIGN FEATURES"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

4.0 DESIGN FEATURES (continued)

4.3 Fuel Storage

4.3.1 Criticality

4.3.1.1 The spent fuel storage racks are designed and shall be maintained with:

a. Fuel assemblies having a maximum U-235 enrichment of 5.0 weight percent;

b. $k_{eff} \leq 0.95$ if assemblies are inserted in accordance with Technical Specification 3.7.16, Spent Fuel Assembly Storage.

c. A nominal 9.075 inch center to center distance between fuel assemblies placed in the high density fuel storage racks (Region II);

d. A nominal 10.76 inch center to center distance between fuel assemblies placed in low density fuel storage racks (Region I);

RAI-02

4.3.1.2 The new fuel storage racks are designed and shall be maintained with:

a. Fuel assemblies having a maximum U-235 enrichment of 5.0 weight percent;

b. $k_{eff} \leq 0.95$ under all possible moderation conditions (Credit may be taken for burnable integral neutron absorbers);

c. A nominal 20.5 inch center to center distance between fuel assemblies placed in the storage racks.

4.3.2 Drainage

The spent fuel pit is designed and shall be maintained to prevent inadvertent draining of the pool below a nominal elevation of 88 ft.

(continued)

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Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 4.0:

"DESIGN FEATURES"

PART 3:

DISCUSSION OF CHANGES

Differences between CTS and ITS

fuel designs analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases could be construed as prohibiting use of lead test assemblies. This is administrative change with no adverse impact on safety because the less explicit statement of requirements for fuel design already in CTS 5.3.A would not prohibit the use of lead test assemblies.

A.6 CTS 5.3.A.1 includes the requirement that fuel pellets are encapsulated in Zircaloy-4 or ZIRLO tubing and consist of slightly enriched uranium dioxide.

ITS 4.2.1 specifies that fuel pellets are encapsulated in Zircaloy or ZIRLO and that the initial composition of the fuel may include natural or slightly enriched uranium dioxide. These changes are needed to avoid unnecessarily limiting fuel design parameters. These changes are acceptable because ITS 4.2.1, consistent with the intent of CTS 5.3.A, specifies that fuel assemblies must be limited to those fuel designs analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. This is an administrative change with no adverse impact on safety.

MORE RESTRICTIVE

M.1 CTS 5.4, Fuel Storage, does not specify any requirements for the nominal center to center distance between fuel racks in the new or spent fuel storage facility or the design limitations that prevent inadvertent draining of the spent fuel pool.

ITS 4.3, Fuel Storage, adds the following design limitations:

ITS 4.3.1.1.c specifies the minimum center to center distance between fuel assemblies placed in the high density portion of the fuel storage racks;

ITS 4.3.1.1.d specifies the minimum center to center distance

between fuel assemblies placed in the lower density portion of the fuel storage racks;

ITS 4.3.1.2.c specifies the minimum center to center distance between fuel assemblies placed in the new fuel storage racks; and,

ITS 4.3.2 specifies the minimum level that must be maintained by the spent fuel storage pool in the event of an inadvertent drain down.

This change is needed because these details are design features that, if altered or modified, would affect safety, and are not included in the categories described in 10 CFR 50.36(c). This is a More Restrictive change because it adds design limitations to the Technical Specifications.

LESS RESTRICTIVE

None

REMOVED DETAIL

LA.1 CTS 5.0, Design Features, includes the following:

CTS 5.2.A, 5.2.B, and 5.2.C contain descriptive information about the design and seismic qualification of the reactor containment, containment penetrations, and containment cooling systems, respectively.

CTS 5.3.A.5 includes the description that control rods are 142 inches in length.

CTS 5.3.B contains descriptive information about the design and seismic qualification of the reactor coolant system.

CTS 5.4.1 contains descriptive information about the design and seismic qualification of the spent fuel pit structure.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 4.0:

"DESIGN FEATURES"

PART 5:

NUREG-1431
Annotated to show differences between
NUREG-1431 and ITS

<CTS> **4.0 DESIGN FEATURES**

<5.1> **4.1 Site Location** [Text description of site location.] — Insert 4.0-1-01

<5.3.A> **4.2 Reactor Core**

4.2.1 Fuel Assemblies

The reactor shall contain 193 fuel assemblies. Each assembly shall consist of a matrix of Zircalloy or ZIRLO clad fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO_2) as fuel material. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in nonlimiting core regions.

Insert 4.0-1-02

<5.3.A.5> **4.2.2 [Control Rod] Assemblies**

The reactor core shall contain 48 [control] rod assemblies. The control material shall be [silver indium cadmium, boron carbide, or hafnium metal] as approved by the NRC.

53

4.3 Fuel Storage

4.3.1 Criticality

4.3.1.1 The spent fuel storage racks are designed and shall be maintained with:

<5.4.2> <5.4.4>

a. Fuel assemblies having a maximum U-235 enrichment of 4.5 weight percent;

5.0

<5.4.2>

b. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in [Section 9.1 of the FSAR];

Insert 4.0-1-03

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 4.0 - Design Features

INSERT: 4.0-1-01:

Indian Point 3 is located on the east bank of the Hudson River at Indian Point, Village of Buchanan, in upper Westchester County, New York. The site is approximately 24 miles north of the New York City boundary line. The nearest city is Peekskill which is 2.5 miles northeast of Indian Point.

The minimum distance from the reactor center line to the boundary of the site exclusion area and the outer boundary of the low population zone as defined in 10 CFR 100.3 is 350 meters and 1100 meters, respectively.

INSERT: 4.0-1-02:

Reload fuel will have a U-235 enrichment of $\leq$ 5.0 weight percent.

INSERT: 4.0-1-03:

If assemblies are inserted in accordance with Technical Specification 3.7.16, Spent Fuel Assembly Storage,

R.1

4.0 DESIGN FEATURES

4.3 Fuel Storage (continued)

c. A nominal [9.15] inch center to center distance between fuel assemblies placed in [the high density fuel storage racks];] (Region II) R.1

9.075 <Doc M.1>

d. A nominal [10.95] inch center to center distance between fuel assemblies placed in [low density fuel storage racks];] (Region I) R.1

10.76 <Doc M.1>

[e. New or partially spent fuel assemblies with a discharge burnup in the "acceptable range" of Figure [3.7.17-1] may be allowed unrestricted storage in [either] fuel storage rack(s); and]

[f. New or partially spent fuel assemblies with a discharge burnup in the "unacceptable range" of Figure [3.7.17-1] will be stored in compliance with the NRC approved [specific document containing the analytical methods, title, date, or specific configuration or figure].]

4.3.1.2 The new fuel storage racks are designed and shall be maintained with: CLB.1 R.1

a. Fuel assemblies having a maximum U-235 enrichment of [4.5] weight percent; 5.0

<5.4.4> <5.4.2>

b. $k_{eff} \leq 0.95$ if fully flooded with unborated water which includes an allowance for uncertainties as described in [Section 9.1 of the FSAR];

Insert: 4.0-2-01

$k_{eff} \leq 0.98$ if moderated by aqueous foam, which includes an allowance for uncertainties as described in [Section 9.1 of the FSAR]; and

20.5

c. A nominal [10.95] inch center to center distance between fuel assemblies placed in the storage racks. R.1

<Doc M.1>

<Doc M.1> 4.3.2 Drainage R.1

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation [23 ft]. a nominal 88 ft

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 4.0 - Design Features

INSERT: 4.0-2-01:

under all possible moderation conditions. Credit may be taken for burnable integral neutron absorbers.

4.0 DESIGN FEATURES

4.3 Fuel Storage (continued)

<5.4.2>

4.3.3 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than ~~1357~~ 1345 fuel assemblies.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 4.0:
"DESIGN FEATURES"

PART 6:

Justification of Differences between

NUREG-1431 and IP3 ITS

JUSTIFICATION OF DIFFERENCES FROM NUREG-1431
ITS SECTION 4.0 - Design Features

RETENTION OF EXISTING REQUIREMENT (CURRENT LICENSING BASIS)

CLB.1 The NUREG-1431, Section 4.3.1.2.c requirement that keff be $\leq$ 0.98 if the new fuel storage racks are moderated with aqueous foam is not included in the ITS. The new fuel storage racks are designed to assure keff $\leq$ 0.95 under all possible moderation conditions. This change maintains the current licensing basis.

CLB.2 The NUREG-1431, Section 4.3.1.e and 4.3.1.f are not included in the IP3 ITS because an equivalent specification is provided by ITS LCO 3.7.16, Spent Fuel Assembly Storage. ITS LCO 3.7.16 provides spent fuel storage requirements based on discharge burnup, similar to the requirements now in CTS 3.8. This change maintains the current licensing basis.

CLB.3 CTS 5.4.2 specifies that the spent fuel storage racks are designed to assure $K_{eff} \leq 0.95$ if the assemblies are inserted in accordance with Technical Specification 3.8.

ITS 4.3.1.1.b maintains the requirement that the spent fuel storage racks are designed and maintained such that keff $\leq$ 0.95 if the assemblies are inserted in accordance with Technical Specification 3.7.16, Spent Fuel Assembly Storage.

This change is acceptable because ITS LCO 3.7.16, Spent Fuel Assembly Storage, ensures that the combination of initial enrichment and burnup of each spent fuel assembly stored in spent fuel storage will be within the design limitations of the facility and ITS LCO 3.7.16 is applicable whenever any fuel assembly is stored in the spent fuel storage facility. This change maintains the current licensing basis consistent with CTS 5.4.1.2.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT

None

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN OR DESIGN BASIS

DB.1 Design details are incorporated or revised as necessary to more

intended to describe the design, improve clarity, or ensure requirements are fully understood and consistently applied. Unless identified and described blow, these changes are self-explanatory. There are no technical changes to requirements as specified in NUREG 1431, Rev 1; therefore, this change is not a significant or generic deviation from NUREG 1431, Rev 1.

DIFFERENCE BASED ON A GENERIC CHANGE TRAVELER FOR NUREG-1431

None

DIFFERENCE FOR ANY REASON OTHER THAN ABOVE

None

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.5.8:

"Steam Generator (SG) Tube Surveillance Program"

PART 3:

DISCUSSION OF CHANGES

Differences between CTS and ITS

DISCUSSION OF CHANGES
ITS SECTION 5.5.8 - STEAM GENERATOR (SG) TUBE SURVEILLANCE PROGRAM

ADMINISTRATIVE

A.1 In the conversion of the Indian Point Unit 3 Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS) certain wording preferences or conventions are adopted which do not result in technical changes (either actual or interpretational). Additionally, editorial changes, reformatting, and revised numbering are adopted to make ITS consistent with the conventions in NUREG-1431, Standard Technical Specifications, Westinghouse Plants, Rev. 1, i.e., the improved Standard Technical Specifications.

A.2 CTS Limiting Conditions for Operation (LCOs) and Surveillance Requirements (SRs) include statements of the objective and the applicability. The CTS statements of objective and applicability are deleted because these statements do not establish any requirements and do not provide any guidance for the application of CTS requirements. Therefore, deletion of these statements has no significant adverse impact on safety.

A.3 Facility Operating License DPR-64, paragraph J, required an inspection of all four steam generators no later than March 31, 1982 and Nuclear Regulatory Commission approval before bringing the reactor critical following this inspection. This inspection was completed as required; therefore, this requirement can be deleted. This is an administrative change with no impact on safety.

A.4 CTS 4.9.A.4.a specifies that the first inservice inspection of steam generators should be performed after six effective full power months but not later than completion of the first refueling outage. CTS 4.9.A.4.a is deleted because this inspection frequency is a one time only requirement that is no longer applicable. This is an administrative change with no significant adverse impact on safety.

A.5 ITS 5.5.8.c.3 (as modified by Generic Change TSTF-118) adds a specific

statement that the provisions of SR 3.0.2 (i.e., SR Frequency extension) are applicable to the Steam Generator Tube Surveillance Program test frequencies. This is an administrative change with no significant adverse impact on safety because it is consistent with CTS Amendment 166, dated June 19, 1996.

A.6 CTS 4.9.A.4.c, footnote *, specifies that the steam generator tube inspection due no later than July 1996 may be deferred until the next refueling outage but no later than May 31, 1997. This allowance is deleted because it expires prior to scheduled ITS implementation. This is an administrative change with no significant adverse impact on safety.

A.7 CTS 4.9.C.3 and ITS 5.5.8.e.3 specify that notification of the NRC within 15 days is required if results of steam generator tube inspections fall into Category C-3 (i.e., more than 10% of the total tubes inspected are degraded or more than 1% of the tubes inspected are defective). However, not included in ITS is the detail in CTS 4.9.C.3 that the written follow-up of this report must provide a description of investigations to determine the cause of the tube degradation and corrective measures taken is not included in ITS. This is acceptable because the required follow-up report would be made in accordance with 10 CFR 50.73, Licensee Event Report System. Reporting under 10 CFR 50.73 would be applicable for this situation because Category C-3 results for a steam generator would meet one or more of the 10 CFR 50.73 reporting criteria (e.g., a condition in which principal safety barriers are seriously degraded). The content requirement for 10 CFR 50.73 reports includes the detailed information (cause and corrective action) described in CTS 4.9.C.3. This is an administrative change with no impact on safety because it only removes a reporting requirement from the CTS which is redundant with reporting requirements already stated in NRC regulations.

A.8 Not used.

DISCUSSION OF CHANGES
ITS SECTION 5.5.8 - STEAM GENERATOR (SG) TUBE SURVEILLANCE PROGRAM

MORE RESTRICTIVE

None

LESS RESTRICTIVE

L.1 CTS 3.1.F.7 specifies that NYPA must inform the NRC before the reactor is brought critical after the reactor is shutdown, or a steam generator removed from service, to investigate steam generator tube leakage and/or to plug or otherwise repair a leaking tube; ITS 5.5.8 does not state this requirement explicitly. This IP3-specific reporting requirement was established before NYPA replaced the IP3 steam generators to correct a tube leakage problem. Removal of this requirement is acceptable because new steam generators have been installed at IP3 and existing regulatory reporting requirements (10 CFR 50.73) provide assurance that reporting of steam generator tube degradation is consistent with regulations and industry pratice.

REMOVED DETAIL

None

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.5.9:

"Secondary Water Chemistry Program"

PART 5:

NUREG-1431
Annotated to show differences between
NUREG-1431 and ITS

5.5 Programs and Manuals (continued)

<CTS>

5.5.~~10~~ (9) Secondary Water Chemistry Program

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation ~~and low pressure turbine disc stress corrosion cracking~~. The program shall include: (CLB.1) R.1

<License Condition 2.I>

a. Identification of a sampling schedule for the critical variables and control points for these variables;

b. Identification of the procedures used to measure the values of the critical variables;

c. Identification of process sampling points, which shall include monitoring the ~~discharge of the condensate pumps~~ condenser hot wells for evidence of condenser in leakage;

d. Procedures for the recording and management of data; (CLB.2) R.1

e. Procedures defining corrective actions for all off control point chemistry conditions; and

f. A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events, which is required to initiate corrective action.

5.5.~~11~~ (10) Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in [Regulatory Guide], and in accordance with [Regulatory Guide 1.52, Revision 2, ASME N510-1989, and AG-1].

SEE ITS 5.5.10

a. Demonstrate for each of the ESF systems that an inplace test of the high efficiency particulate air (HEPA) filters shows a penetration and system bypass < [0.05]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%].

ESF Ventilation System	Flowrate
[ ]	[ ]

(continued)

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.5.9:

"Secondary Water Chemistry Program"

PART 6:

Justification of Differences between

NUREG-1431 and IP3 ITS

JUSTIFICATION OF DIFFERENCES FROM NUREG-1431
ITS SECTION 5.5.9 - SECONDARY WATER CHEMISTRY PROGRAM

RETENTION OF EXISTING REQUIREMENT (CURRENT LICENSING BASIS)

CLB.1 STS 5.5.10 requires a program to provide controls for monitoring secondary water chemistry to inhibit SG tube degradation and low pressure disc stress corrosion cracking (SCC). IP3 Facility Operating License (FOL) paragraph 2.I, and ITS 5.5.10, include this requirement for SG tube degradation, but do not reference low pressure disc stress cracking corrosion. This is acceptable because IP3 installed three replacement low pressure turbines. This new design reduces the probability of a low pressure turbine rotor failure which generates an external turbine missile (FSAR, Appendix 14A). The new rotors are of a welded disc type and are constructed of a material that has high resistance to SCC. These design changes have demonstrated excellent results in operating experiences and yield a low probability of external missile generation. Therefore, this change has no adverse impact on safety.

CLB.2 STS 5.5.10.c requires identification of process sampling points that include monitoring the discharge of the condensate pumps for evidence of condenser in leakage. IP3 FOL paragraph 2.I.3, and ITS 5.5.9.c include this requirement but changes the listed monitoring point from the discharge of the condensate pumps to the condenser hotwells. This is acceptable because the IP3 hotwells are longitudinally divided to facilitate the detection of condenser tube leakage (FSAR 10.2.5). Each half is provided with separate conductivity measurement devices. In the event of high conductivity in a hotwell, the affected hotwell will be manually isolated. Therefore, this change has no adverse impact on safety.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT

None

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN OR DESIGN BASIS

None

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.5.10:

"Ventilation Filter Testing Program (VFTP)"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

5.5 Programs and Manuals

5.5.10 Ventilation Filter Testing Program (VFTP)

This program provides controls for implementation of required testing the ventilation filter function for the Fuel Storage Building Emergency Ventilation System, Control Room Ventilation System, Containment Fan Cooler Units, and Containment Purge System.

Applicable tests described in Specifications 5.5.10.a, 5.5.10.b, 5.5.10.c and 5.5.10.d shall be performed:

1) After 720 hours of charcoal adsorber use since the last test; and,

2) Every 24 months for the Fuel Storage Building Emergency Ventilation System, Control Room Ventilation System, and Containment Fan Cooler Units; and,

3) Every 18 months for the Containment Purge System; and,

4) After each complete or partial replacement of the HEPA filter train or charcoal adsorber filter; and,

5) After any structural maintenance on the system housing that could alter system integrity; and,

6) After significant painting, fire, or chemical release in any ventilation zone communicating with the system while it is in operation.

SR 3.0.2 is applicable to the Ventilation Filter Testing Program.

RAI 5.5-4

(continued)

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.5.10:

"Ventilation Filter Testing Program (VFTP)"

PART 5:

NUREG-1431
Annotated to show differences between
NUREG-1431 and ITS

5.5 Programs and Manuals (continued)

5.5.10 Secondary Water Chemistry Program

This program provides controls for monitoring secondary water chemistry to inhibit SG tube degradation and low pressure turbine disc stress corrosion cracking. The program shall include:

a. Identification of a sampling schedule for the critical variables and control points for these variables;

b. Identification of the procedures used to measure the values of the critical variables;

c. Identification of process sampling points, which shall include monitoring the discharge of the condensate pumps for evidence of condenser in leakage;

d. Procedures for the recording and management of data;

e. Procedures defining corrective actions for all off control point chemistry conditions; and

f. A procedure identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events, which is required to initiate corrective action.

SEE ITS 5.5.9

5.5.11 (10) Ventilation Filter Testing Program (VFTP)

A program shall be established to implement the following required testing of Engineered Safety Feature (ESF) filter ventilation systems at the frequencies specified in [Regulatory Guide], and in accordance with [Regulatory Guide 1.52, Revision 2, ASME N510-1989, and AG-1].

a. Demonstrate for each of the ESF systems that an inplace test of the high efficiency particulate air (HEPA) filters shows a penetration and system bypass < [0.05]% when tested in accordance with [Regulatory Guide 1.52, Revision 2, and ASME N510-1989] at the system flowrate specified below [± 10%].

ESF Ventilation System	Flowrate
[ ]	[ ]

Insert 5.0-12-01

CLB.1

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 5.5.10 - VENTILATION FILTER TESTING PROGRAM (VFTP)

INSERT: 5.0-12-01

5.5.10 Ventilation Filter Testing Program (VFTP)

This program provides controls for implementation of required testing the ventilation filter function for the Fuel Storage Building Emergency Ventilation System, Control Room Ventilation System, Containment Fan Cooler Units, and Containment Purge System.

Applicable tests described in Specifications 5.5.10.a, 5.5.10.b, 5.5.10.c and 5.5.10.d shall be performed:

<4.5.A.4.b>
<4.5.A.4.c>

1) After 720 hours of charcoal adsorber operation since the last test; and,

<4.5.A.5.c>
<4.5.A.5.d>

2) Every 24 months for the Fuel Storage Building Emergency Ventilation System, Control Room Ventilation System, and Containment Fan Cooler Units; and, R1

<4.5.A.6.c>
<4.13.B.1>
<4.13.B.2>

3) Every 18 months for the Containment Purge System; and, R1

4) After each complete or partial replacement of the HEPA filter train or charcoal adsorber filter; and,

<DOCA.6>
<DOCM.2>

5) After any structural maintenance on the system housing that could alter system integrity; and,

<DOCM.3>
<DOCA.8>

6) After significant painting, fire, or chemical release in any ventilation zone communicating with the system while it is in operation.

SR 3.0.2 is applicable to the Ventilation Filter Testing Program.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.5.12:

"Diesel Fuel Oil Testing Program"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

5.5 Programs and Manuals

5.5.12 Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established for the DG fuel oil onsite storage tanks and the DG reserve fuel oil storage tanks. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Verification of the acceptability of new fuel oil for use prior to addition to the DG fuel oil onsite storage tanks by determining that the fuel oil has:

   1. Relative density within the limits of 0.83 to 0.89,

   2. kinematic viscosity within the limits of 1.8 to 5.8, and

   3. a clear and bright appearance with proper color

b1. Verification of the acceptability of the fuel oil in the onsite storage tanks and the reserve storage tanks every 92 days by verifying that the properties of the fuel oil in the tanks, other than those addressed in item a., are within limits for ASTM2D fuel oil. The sampling technique for the reserve storage tanks may deviate from ASTM D270-1975 in that only a bottom sample is required.

   or

b2. Verification of the acceptability of each new fuel addition made subsequent to the last verification made in accordance with item b1. by verifying within 31 days following the addition that the properties of the new fuel oil, other than those properties addressed in item a. are within limits for ASTM 2D fuel oil.

c. Verification every 92 days that total particulate concentration of the fuel oil in the onsite and reserve storage tanks is less than or equal to 10 mg/l when tested in accordance with ASTM D-2276, Method A-2 or A-3. The sampling technique for the reserve storage tanks may deviate from ASTM D270-1975 in that only a bottom sample is required.

RAI 5.5-5

(continued)

6, 7

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.5.12:

"Diesel Fuel Oil Testing Program"

PART 3:

DISCUSSION OF CHANGES

Differences between CTS and ITS

DISCUSSION OF CHANGES
ITS SECTION 5.5.12 - DIESEL FUEL OIL TESTING PROGRAM

ADMINISTRATIVE

None

MORE RESTRICTIVE

M.1 There are no CTS or FSAR requirements for testing diesel fuel oil. ITS 5.5.12, Diesel Fuel Oil Testing, as modified by Generic Changes TSTF-106 (WOG-41) and TSTF-118, Rev. 0, is added to require that a diesel fuel oil testing program is maintained with specific Technical Specification requirements for acceptance criteria and testing frequency. Although there are no CTS requirements for testing diesel fuel oil, the requirements of ITS 5.5.12 are consistent with current practice except that ITS requires more frequent (once per 31 days versus the current practice of once per quarter) testing of diesel fuel oil total particulate concentration and ITS reduces testing of parameters other than total particulate concentration after the oil is placed in the storage tank. This is acceptable because ITS 5.5.12 incorporates the current industry best practice for diesel fuel oil testing.

IP3 design and licensing basis requires that each DG has an onsite underground storage tank containing oil for 48 hours of minimum safeguards load and a DG fuel oil reserve with sufficient fuel to support an additional 5 days of operation. ITS 5.5.12 will establish a fuel oil testing program with sampling and testing requirements and acceptance criteria consistent with NUREG-1431. The program will address requirements for new fuel oil deliveries, fuel oil stored in the onsite DG fuel oil storage tanks, and the offsite reserve storage tanks.

The addition of diesel fuel oil testing requirements to the Technical Specifications is a more restrictive change which is acceptable because it does not introduce any operation which is unanalyzed, while requiring a more conservative approach to testing diesel fuel oil than is currently required. Therefore, this change has no significant adverse impact on safety.

LESS RESTRICTIVE

None

REMOVED DETAIL

None

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.5.12:

"Diesel Fuel Oil Testing Program"

PART 5:

NUREG-1431
Annotated to show differences between
NUREG-1431 and ITS

5.5 Programs and Manuals

5.5.12 Explosive Gas and Storage Tank Radioactivity Monitoring Program (continued)

appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion);

b. A surveillance program to ensure that the quantity of radioactivity contained in [each gas storage tank and fed into the offgas treatment system] is less than the amount that would result in a whole body exposure of ≥ 0.5 rem to any individual in an unrestricted area, in the event of [an uncontrolled release of the tanks' contents]; and

SEE ITS 5.5.11

c. A surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the [Liquid Radwaste Treatment System] is less than the amount that would result in concentrations less than the limits of 10 CFR 20, Appendix B, Table 2, Column 2, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

5.5.~~13~~ 12 Diesel Fuel Oil Testing Program

INSERT 5.0-15-01

<DOC M.1>

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following: CLB.1

the DG fuel oil onsite

a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:

Verification of the

PA.1

1. ~~an API gravity or an absolute specific gravity within limits,~~ CLB.2

Relative density within the limits of 0.83 to 0.89,

(continued)

5.5 Programs and Manuals

5.5.13 Diesel Fuel Oil Testing Program (continued) of 1.8 to 5.8

2. ~~a flash point and~~ kinematic viscosity within limits ~~for ASTM 2D fuel oil~~, and

3. a clear and bright appearance with proper color;

INSERT 5.0-16-01

b. Other properties for ASTM 2D fuel oil are within limits within 31 days following sampling and addition to storage tanks; and

c. Total particulate concentration of the fuel oil is ≤ 10 mg/l when tested every 31 days in accordance with ASTM D-2276, Method A-2 or A-3.

INSERT 5.0-16-02

5.5.14 Technical Specifications (TS) Bases Control Program

This program provides a means for processing changes to the Bases of these Technical Specifications.

a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.

b. Licensees may make changes to Bases without prior NRC approval provided the changes do not involve either of the following:

1. a change in the TS incorporated in the license; or

2. a change to the updated FSAR or Bases that involves an unreviewed safety question as defined in 10 CFR 50.59.

c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR.

d. Proposed changes that meet the criteria of Specification 5.5.14b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).

(continued)

NUREG-1431 Markup Inserts
ITS SECTION 5.5.12 - DIESEL FUEL OIL TESTING PROGRAM [Rev 1]

INSERT: 5.0-15-01

for the DG fuel oil onsite storage tanks and the DG reserve fuel oil storage tanks.

INSERT: 5.0-16-01

b1. Verification of the acceptability of the fuel oil in the onsite storage tanks and the reserve storage tanks every 92 days by verifying that the properties of the fuel oil in the tanks, other than those addressed in item a., are within limits for ASTM2D fuel oil. The sampling technique for the reserve storage tanks may deviate from ASTM D270-1975 in that only a bottom sample is required. (DB.1) (CLB.3)

or

b2. Verification of the acceptability of each new fuel addition made subsequent to the last verification made in accordance with item b1. by verifying within 31 days following the addition that the properties of the new fuel oil, other than those properties addressed in item a. are within limits for ASTM 2D fuel oil. (T.1) (CLB.4)

c. Verification every 92 days that total particulate concentration of the fuel oil in the onsite and reserve storage tanks is less than or equal to 10 mg/l when tested in accordance with ASTM D-2276, Method A-2 or A-3. The sampling technique for the reserve storage tanks may deviate from ASTM D270-1975 in that only a bottom sample is required.

INSERT: 5.0-16-02

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program testing frequencies. (T.2)

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.5.12:
"Diesel Fuel Oil Testing Program"

PART 6:

Justification of Differences between

NUREG-1431 and IP3 ITS

JUSTIFICATION OF DIFFERENCES FROM NUREG-1431
ITS SECTION 5.5.12 - DIESEL FUEL OIL TESTING PROGRAM

RETENTION OF EXISTING REQUIREMENT (CURRENT LICENSING BASIS)

CLB.1 IP3 design and licensing basis requires that each DG has an onsite storage tanks containing oil for 48 hours of minimum safeguards loads and a DG fuel oil reserve storage capacity with sufficient fuel to support an additional 5 days of operation. ITS 5.5.12 will establish fuel oil testing programs for both the onsite DG fuel oil storage tanks and the DG fuel oil reserve storage tanks. The testing program will be consistent with NUREG-1431. The Bases for ITS 3.8.3 will provide the clarification that the program for onsite storage tanks is implemented by NYPA and the program for the reserve stroage tanks is implemented by Consolidated Edison.

CLB.2 NUREG-1431, Rev.1, Section 5.5.13a (ITS 5.5.12a) (as modified by TSTF-106) identifies diesel fuel oil testing requirements by referencing specific ASTM standards. IP3 ITS also references specific ASTM standards for testing stored fuel, however it differs from NUREG-1431 by identifying specific parameters and acceptance criteria for new fuel prior to addition to the DG onsite storage tanks. The specified parameters and limits are based on DG manufacturer recommendations and reflect the onsite testing capability. Neither the CTS or the FSAR establish any requirements for diesel fuel oil testing programs or acceptance criteria for fuel oil parameters. This change is acceptable because other ASTM 2D parameters are subsequently confirmed during testing needed to satisfy IP3 ITS 5.5.12.b. This deviation from NUREG-1431, Rev.1, maintains the current licensing basis and has no adverse impact on safety.

CLB.3 NUREG-1431, Rev.1, Section 5.5.13b (ITS 5.5.12b)identifies diesel fuel oil testing requirements after fuel oil has been added to a storage tank. IP3 ITS identifies similar testing requirements, however it differs from NUREG-1431 because of the way that the reserve storage tanks, owned by Consolidated Edison are used to supply fuel for their gas turbine peaking units. IP3 ITS 5.5.12.b describes two options for verifying the stored oil properties. This change is needed because when the peaking units are in operation, as many as 10 fuel additions per day may be made to the offsite reserve tanks. During these periods of high turnover rate of stored fuel, tank sampling is both more practical and

more representaative of the actual status of the fuel oil in the tanks. Conversely, at other times, few additions may be made these reserve tanks. During these periods, the option of sampling each addition of new fuel to the tank is maintained. The option of sampling either each addition or periodic tank sampling will also apply to the onsite tanks because the relatively small volume of these tanks will require that frequent additions be made, especially during periods of DG testing.

CLB.4 NUREG-1431, Rev 1, Section 5.5.13c (ITS 5.5.12c)identifies testing of stored fuel for total particulate concentration at a frequency of 31 days. IP3 ITS maintains as testing requirment for total particulate concentration and applies this requirement to the onsite DG fuel oil storage tanks and the reserve storage tanks. However, the specified frequency is 92 days which is consistent with frequency for testing specified in IP3 ITS 5.5.12.b1. Neither the CTS or the FSAR establish any requirements for diesel fuel oil testing programs or acceptance criteria for fuel oil parameters. Testing at the 92 day frequency is the current practice at IP3. This is acceptable because the relatively small volume of the onsite tanks and the use of the reserve tanks for gas turbine operations results in a turnover rate that is not lead to fuel degradation and the buildup of particulate contaminants. This deviation from NUREG-1431, Rev.1, maintains the current licensing basis and has no adverse impact on safety.

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT

PA.1 Addition of the terms [Verification of the], [Verification every 92 days that], [each], [properties], and [following the addition] are editorial changes to improve clarity.

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN OR DESIGN BASIS

DB.1 The exception "The sampling technique for the reserve storage tanks may deviate from ASTM D270-1975 in that only a bottom sample is required" is needed because the reserve storage tanks are not configured to permit samples other than at the bottom.

JUSTIFICATION OF DIFFERENCES FROM NUREG-1431
ITS SECTION 5.5.12 - DIESEL FUEL OIL TESTING PROGRAM

DIFFERENCE BASED ON A GENERIC CHANGE TRAVELER FOR NUREG-1431

T.1 This change incorporates Generic Change TSTF-106 (WOG-41) which provides additional clarification about which fuel oil testing requirements apply to new fuel and which requirements apply to fuel in the storage tank.

T.2 This change incorporates Generic Change TSTF-118 (BWOG-10), Revision 0, which adds the allowance that the provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program frequencies. ITS SR 3.0.2 allows a 25% extension of SR interval and ITS SR 3.0.3 allows a grace period for SRs not completed within specified Frequency. This change is acceptable because the 25% extension or a 24 hour grace period does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs. Therefore, this change has no significant adverse impact on safety.

DIFFERENCE FOR ANY REASON OTHER THAN ABOVE

None

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.6:

"Reporting Requirements"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

1. Specification 3.1.1, Shutdown Margin;

2. Specification 3.1.3, Moderator Temperature Coefficient;

3. Specification 3.1.5, Shutdown Bank Insertion Limits;

4. Specification 3.1.6, Control Bank Insertion Limits;

5. Specification 3.2.1, Heat Flux Hot Channel Factor (FQ(Z));

6. Specification 3.2.2, Nuclear Enthalpy Rise Hot Channel Factor;

7. Specification 3.2.3, AXIAL FLUX DIFFERENCE (AFD); and

8. Specification 3.9.1, Boron Concentration.

NYPA

NYPA

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

1. WCAP-9272-P-A, "WESTINGHOUSE RELOAD SAFETY EVALUATION METHODOLOGY," July 1985 (W Proprietary). (Specifications 3.1.5, Shutdown Bank Insertion Limits, 3.1.6, Control Bank Insertion Limits, and 3.2.2, Nuclear Enthalpy Rise Hot Channel Factor);

2a. WCAP-8385, "POWER DISTRIBUTION CONTROL AND LOAD FOLLOWING PROCEDURES, TOPICAL REPORT," September 1974 (W Proprietary). (Specification 3.2.3, Axial Flux Difference (AFD) (Constant Axial Offset Control);

2b. T. M. Anderson to K. Kneil (Chief of Core Performance Branch, NRC) January 31, 1980 -- Attachment: Operation and Safety Analysis Aspects of an Improved Load Follow Package. (Specification 3.2.3, Axial Flux Difference (AFD) (Constant Axial Offset Control));

2c. NUREG-0800, Standard Review Plan, U.S. Nuclear Regulatory Commission, Section 4.3, Nuclear Design, July 1981. Branch

(continued)

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

Position CPB 4.3-1, Westinghouse Constant Axial Offset Control (CAOC), Rev. 2, July 1981. (Specification 3.2.3, Axial Flux Difference (AFD) (Constant Axial Offset Control));

3a. WCAP-9220-P-A, Rev. 1, "WESTINGHOUSE ECCS EVALUATION MODEL-1981 VERSION," February 1982 (W Proprietary). (Specification 3.2.1, Heat Flux Hot Channel Factor (FQ(Z)));

3b. WCAP-9561-P-A ADD. 3, Rev. 1, "BART A-1: A COMPUTER CODE FOR THE BEST ESTIMATE ANALYSIS OF REFLOOD TRANSIENTS, SPECIAL REPORT: THIMBLE MODELING W ECCS EVALUATION MODEL," July 1986 (W Proprietary). (Specification 3.2.1, Heat Flux Hot Channel Factor (FQ(Z)));

3c. WCAP-10266-P-A Rev. 2, "THE 1981 VERSION OF WESTINGHOUSE EVALUATION MODEL USING BASH CODE," March 1987, (W Proprietary).(Specification 3.2.1, Heat Flux Hot Channel Factor (FQ(Z)));

3d. WCAP-10054-P-A, "SMALL BREAK ECCS EVALUATION MODEL USING NOTRUMP CODE," (W Proprietary). (Specification 3.2.1, Heat Flux Hot Channel Factor (FQ(Z));

3e. WCAP-10079-P-A, "NOTRUMP NODAL TRANSIENT SMALL BREAK AND GENERAL NETWORK CODE," (W Proprietary). (Specification 3.2.1, Heat Flux Hot Channel Factor (FQ(Z))); and

3f. WCAP-12610, "VANTAGE+ Fuel Assembly Report," (W Proprietary). (Specification 3.2.1, Heat Flux Hot Channel Factor).

c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

d. The COLR, including any midcycle revisions or supplements, shall be provided for each reload cycle to the NRC.

5.6.6 NOT USED

NYPA

(continued)

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.6:

"Reporting Requirements"

PART 3:

DISCUSSION OF CHANGES

Differences between CTS and ITS

inoperable containment high-range radiation monitor. A requirement for submittal of a special report for these specific monitors is not included in the ITS because these monitors are post accident monitoring instrumentation required by Regulatory Guide 1.97 and are governed by ITS 3.3.3, PAM Instrumentation. As such, requirements for submittal of a Post Accident Monitoring Report in the event of the inoperability of these instruments is included in ITS 3.3.3 with the details in ITS 5.6.7. This is an administrative change with no significant adverse impact on safety.

MORE RESTRICTIVE

None

LESS RESTRICTIVE

L.1 CTS 6.9.1.5 specifies special reporting requirements associated with reactor coolant exceeding specific activity limits. This requirement for a special report when reactor coolant exceeds specific activity limits is deleted because ITS 3.4.16, RCS Specific Activity, establishes requirements maintaining RCS specific activity and actions with completion times if these limits are not maintained. ITS 3.4.16 establishes all necessary requirements for ensuring that analysis assumptions about specific activity (2 hour doses at the site boundary will not exceed a small fraction of the 10 CFR 100 dose guideline limits following a SGTR accident) are maintained and/or restored to required limits within an appropriate completion time. Deleting the requirements for a special report is acceptable because if the requirements of ITS 3.4.16 are not met a reactor shutdown is required. This reactor shutdown and associated details would be reported in accordance with 10 CFR 50.73. This change is consistent with NUREG-1431, Rev 1. Deletion of a duplicate requirement for a follow-up report has no significant adverse impact on safety.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.6:

"Reporting Requirements"

PART 5:

NUREG-1431
Annotated to show differences between
NUREG-1431 and ITS

<CTS> 5.6 Reporting Requirements (continued)

<6.9.1.4> 5.6.4 Monthly Operating Reports

<6.9.2.g>

Routine reports of operating statistics and shutdown experience, including documentation of all challenges to the pressurizer power operated relief valves or pressurizer safety valves, shall be submitted on a monthly basis no later than the 15th of each month following the calendar month covered by the report.

<6.9.1.6> 5.6.5 CORE OPERATING LIMITS REPORT (COLR)

<6.9.1.6.a> a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

Insert: 5.0-20-01

The individual specifications that address core operating limits must be referenced here.

<6.9.1.6.b> b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

Insert: 5.0-20-02

Identify the Topical Report(s) by number, title, date, and NRC staff approval document, or identify the staff Safety Evaluation Report for a plant specific methodology by NRC letter and date.

<6.9.1.6.c> c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.

<6.9.1.6.d> d. The COLR, including any midcycle revisions or supplements, shall be provided ~~upon issuance~~ for each reload cycle to the NRC. (FF1)

<DOC M.1> 5.6.6 Not Used

Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

a. RCS pressure and temperature limits for heat up, cooldown, low temperature operation, criticality, and hydrostatic

(continued)

R.1

NUREG-1431 Markup Inserts
ITS SECTION 5.6 - REPORTING REQUIREMENTS
(REV 1)

INSERT: 5.0-20-01:

1. Specification 3.1.1, Shutdown Margin;
2. Specification 3.1.3, Moderator Temperature Coefficient;
3. Specification 3.1.5, Shutdown Bank Insertion Limits;
4. Specification 3.1.6, Control Bank Insertion Limits;
5. Specification 3.2.1, Heat Flux Hot Channel Factor (FQ(Z));
6. Specification 3.2.2, Nuclear Enthalpy Rise Hot Channel Factor;
7. Specification 3.2.3, AXIAL FLUX DIFFERENCE (AFD); and
8. Specification 3.9.1, Boron Concentration.

INSERT: 5.0-20-02:

1. WCAP-9272-P-A, "WESTINGHOUSE RELOAD SAFETY EVALUATION METHODOLOGY," July 1985 (W Proprietary). (Specifications 3.1.5, Shutdown Bank Insertion Limits, 3.1.6, Control Bank Insertion Limits, and 3.2.2, Nuclear Enthalpy Rise Hot Channel Factor);

2a. WCAP-8385, "POWER DISTRIBUTION CONTROL AND LOAD FOLLOWING PROCEDURES, TOPICAL REPORT," September 1974 (W Proprietary). (Specification 3.2.3, Axial Flux Difference (AFD) (Constant Axial Offset Control);

2b. T. M. Anderson to K. Kneil (Chief of Core Performance Branch, NRC) January 31, 1980 -- Attachment: Operation and Safety Analysis Aspects of an Improved Load Follow Package. (Specification 3.2.3, Axial Flux Difference (AFD) (Constant Axial Offset Control));

5.6 Reporting Requirements

<DOC M/1>

5.6.6 Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR) (continued)

testing as well as heatup and cooldown rates shall be established and documented in the PTLR for the following:

Insert: 5.0-21-01

[The individual specifications that address RCS pressure and temperature limits must be referenced here.]

b. The analytical methods used to determine the RCS pressure and temperature limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents: [Identify the NRC staff approval document by date.]

Insert 5.0-21-02

c. The PTLR shall be provided to the NRC ~~upon issuance~~ for each reactor vessel fluence period and for any revision or supplement thereto.

PA.1

R.1

Reviewers' Notes: The methodology for the calculation of the P-T limits for NRC approval should include the following provisions:

1. The methodology shall describe how the neutron fluence is calculated (reference new Regulatory Guide when issued).

2. The Reactor Vessel Material Surveillance Program shall comply with Appendix H to 10 CFR 50. The reactor vessel material irradiation surveillance specimen removal schedule shall be provided, along with how the specimen examinations shall be used to update the PTLR curves.

3. Low Temperature Overpressure Protection (LTOP) System lift setting limits for the Power Operated Relief Valves (PORVs), developed using NRC-approved methodologies may be included in the PTLR.

4. The adjusted reference temperature (ART) for each reactor beltline material shall be calculated, accounting for radiation embrittlement, in accordance with Regulatory Guide 1.99, Revision 2.

5. The limiting ART shall be incorporated into the calculation of the pressure and temperature limit curves in accordance with NUREG-0800 Standard Review Plan 5.3.2, Pressure-Temperature Limits.

(continued)

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.7:

"High Radiation Area"

PART 1:

Indian Point 3
Improved Technical Specifications and Bases

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

5.7.1 Pursuant to 10 CFR 20, paragraph 20.1601(c), in lieu of the requirements of 10 CFR 20.1601, each high radiation area, as defined in 10 CFR 20, in which the intensity of radiation is > 100 mrem/hr but < 1000 mrem/hr, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g., radiation protection technicians) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates < 1000 mrem/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas.

Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

a. A radiation monitoring device that continuously indicates the radiation dose rate in the area.

b. A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel are aware of them.

c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the radiation protection manager in the RWP.

5.7.2 In addition to the requirements of Specification 5.7.1, areas with radiation levels ≥ 1000 mrem/hr shall be provided with locked or continuously guarded doors to prevent unauthorized entry and the keys shall be maintained under the administrative control of the shift supervisor on duty or health physics supervision. Doors shall remain locked except during periods of access by personnel under an approved RWP that shall specify the dose rate levels in the immediate work areas and the maximum allowable stay times for individuals in those areas. In lieu of the stay time specification of the RWP, direct or remote (such as closed circuit TV cameras) continuous surveillance may be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities being performed within the area.

(continued)

NYPA

5.0 ADMINISTRATIVE CONTROLS

5.7 High Radiation Area

5.7.3 For individual high radiation areas with radiation levels of > 1000 mrem/hr, accessible to personnel, that are located within large areas such as reactor containment, where no enclosure exists for purposes of locking, or that cannot be continuously guarded, and where no enclosure can be reasonably constructed around the individual area, that individual area shall be barricaded and conspicuously posted, and a flashing light shall be activated as a warning device.

NYPA

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.7:
"HIGH RADIATION AREA"

PART 2:

CURRENT TECHNICAL SPECIFICATION PAGES

Annotated to show differences between CTS and ITS

CTS PAGE	AMENDMENT FOR REV O SUBMITTAL	AMENDMENT FOR REV 1 SUBMITTAL	COMMENT
6-21	117;98-018	199	No impact
6-22	174;98-018	199	No impact

~~6.11~~

~~6.11~~.1 RADIATION AND RESPIRATORY PROTECTION PROGRAM

Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure so as to maintain exposures as far below the limits specified in 10 CFR 20 as reasonably achievable. Pursuant to 10 CFR 20.1703, allowance may be made for the use of respiratory protection equipment in conjunction with activities authorized by the operating license for this plant in determining whether individuals in restricted areas are exposed to concentrations in excess of the limits specified in Appendix B, Table 1, Column 3 of 10 CFR 20.

LA.1

~~6.12~~ 5.7 HIGH RADIATION AREA

~~6.12.1~~ 5.7.1 In lieu of the "control device" or "alarm signal" required by paragraph 20.1601 of 10 CFR 20, each high radiation area in which the intensity of radiation is greater than 100 mrem/hr** but less than 1000 mrem/hr** shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP)*. Any individual or group of individuals permitted to enter such areas shall be provided or accompanied by one or more of the following:

5.7.1.a a. A radiation monitoring device which continuously indicates the radiation dose rate in the area.

5.7.1.b b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made knowledgeable of them.

5.7.1.c c. An individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device. This individual shall be responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the facility ~~Health Physicist~~ radiation protection manager in the Radiation Work Permit.

A.2

5.7.1* Health Physics Personnel shall be exempt from the RWP issuance requirements for entries into high radiation areas during the performances of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas.

** Measured at 30 centimeters (12 inches) from the source of radioactivity

LA.2

with exposure rates ≤ 1000 mrem/hr

or personnel continuously escorted by such personnel

L.1

Amendment No. 11, 12, 88, 103, 116, 117, TSCR 98-018

Issued as Amendment 199

R,

~~6.12.2*~~ 5.7.2 In addition to the requirements of 6.12.1 above, areas accessible to individuals with radiation levels such that an individual could receive in 1 hour a dose greater than 1000 mrem**, shall be provided with locked doors to prevent unauthorized entry, and the keys shall be maintained under the administrative control of the Shift Supervisor on duty and/or the plant Radiological and Environmental Services Manager or his designee. (health physics supervisor) (A.2) (L.2) R.1

Add 5.7.3

6.13 ENVIRONMENTAL QUALIFICATION

6.13.1 Environmental qualification of electric equipment important to safety shall be in accordance with the provisions of 10 CFR 50.49. Pursuant to 10 CFR 50.49, Section 50.49 (d), the EQ Master List identifies electrical equipment requiring environmental qualification.

SEE ITS 5.4

6.13.2 Complete and auditable records which describe the environmental qualification method used, for all electrical equipment identified in the EQ Master List, in sufficient detail to document the degree of compliance with the appropriate requirements of 10 CFR 50.49 shall be available and maintained at a central location. Such records shall be updated and maintained current as equipment is replaced, further tested, or otherwise further qualified.

6.14 CONTAINMENT LEAKAGE RATE TESTING PROGRAM

SEE ITS 5.5.15

A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak Test Program, Dated September 1995" as modified by the following exception:

a. ANS 56.8 - 1994, Section 3.3.1: WCCPPS isolation valves are not Type C tested.

The peak calculated primary containment internal pressure for the design basis loss of coolant accident, P_a, is 42.39 psig. The minimum test pressure is 42.42 psig.

The maximum allowable primary containment leakage rate, L_a, at P_a, shall be 0.1% of primary containment air weight per day.

Leakage acceptance criteria are:

a. Containment leakage rate acceptance criterion is $\leq 1.0\ L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are $\leq 0.60\ L_a$ for the Type B and C tests and $\leq 0.75\ L_a$ for Type A tests;

b. Air lock acceptance criteria are:

1) Overall the air lock leakage rate is $\leq 0.05\ L_a$ when tested at $\geq P_a$,

2) For each door, leakage rate is $\leq 0.01\ L_a$ when pressurized to $\geq P_a$.

c. Isolation valves sealed with the service water system leakage rate into containment acceptance criterion is ≤0.36 gpm per fan cooler unit

5.7.1 * Health Physics Personnel shall be exempt from the RWP issuance requirements for entries into high radiation areas during the performances of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas.

** Measured at 30 centimeters (12 inches) from the source of radioactivity (LA.2)

See page CTS 6-21

TSCR 98-018

Amendment No. 11, 88 (Order dated October 24, 1980), 88, 101, 103, 116, 117, 162, 174

R.1

SEE ALSO AMENDMENT 185 No impact on ITS 5.7

Issued as Amendment 199

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.7:

"High Radiation Area"

PART 3:

DISCUSSION OF CHANGES

Differences between CTS and ITS

DISCUSSION OF CHANGES
ITS SECTION 5.7 - HIGH RADIATION AREA

ADMINISTRATIVE

A.1 In the conversion of the Indian Point Unit 3 current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS) certain wording preferences or conventions are adopted which do not result in technical changes (either actual or interpretational). Additionally, editorial changes, reformatting, and revised numbering are adopted to make ITS consistent with the conventions in NUREG-1431, Standard Technical Specifications, Westinghouse Plants, Rev. 1, i.e., the improved Standard Technical Specifications.

A.2 CTS 6.12 specifies duties and responsibilities using NYPA specific job titles. ITS 5.7 specifies duties and responsibilities using generic titles consistent with the titles used in ANSI N18.1-1971 and/or Regulatory Guide 1.8, 1975. This is an administrative change with no impact on safety (see ITS 5.7, JD T.1).

MORE RESTRICTIVE

None

LESS RESTRICTIVE

L.1 CTS 6.12.1, footnote *, specifies that Health Physics Personnel shall be exempt from the RWP issuance requirements for entries into high radiation areas during the performances of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas. ITS 5.7.1 expands this allowance to include personnel continuously escorted by health physics personnel provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas. Allowing personnel continuously escorted by health physics personnel to enter a high radiation area without a radiation work permit is acceptable because, in accordance with ITS 5.7.1.c, the health physics person must be equipped with a radiation dose rate monitoring

device, must perform periodic radiation surveillances, and must be responsible for providing positive control over the activities within the area. Therefore, having a health physics person with a group in an high radiation area continuously provides the group with the ability to identify and respond to radiological situations that is equal to or better than the ability of a group without a health physics person working under the requirements established by a radiation work permit. Therefore, this change has no significant adverse impact on personnel safety.

L.2 CTS 6.12, High Radiation Area, does not contain alternative methods for access control in areas with exposure rates are >1000 mrem/hr. STS 5.7.2 allows direct or remote continuous surveillance by personnel qualified in radiation protection procedures in lieu of stay time requirements of an RWP. STS 5.7.3 allows the use of conspicuously posted barricades, with a flashing light activated as a warning device, in accessible areas with radiation levels >1000 mrem/hr, where no enclosure exists and one cannot be reasonably constructed and the area cannot be continuously guarded. ITS 5.7.2 and 5.7.3 adopt the alternative methods of access control listed in STS 5.7.2.

Allowing these alternative methods to access control in areas where radiation levels are >1000 mrem/hr is acceptable because they ensure radiation practices are ALARA by allowing the use of remote monitoring. The stated alternatives also provide for positive methods of access control through barricades and flashing lights in areas where enclosures and guarding are not feasible. In addition, these controls have been found acceptable by the NRC as an alternative to the requirements in 10 CFR 1601(a), that may cause unnecessary restrictions on plant operations, as discussed in Reg Guide 8.3.8 dated 6/1/1993. Therefore, this change has no significant adverse impact on personnel safety.

REMOVED DETAIL

LA.1 CTS 6.11.1 specifies that procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20. Additionally, CTS 6.11.1 specifies that allowance may be made for the use of respiratory protective equipment pursuant to 10 CFR 20.1703.

These CTS requirements are identical to requirements imposed by 10 CFR 20.1101, Radiation Protection programs, and 10 CFR 20.1703, Use of individual respiratory protection equipment, and do not need to be repeated in the ITS. This change is acceptable because these requirements are specified in 10 CFR 20; therefore, there is no change to the existing requirements and future changes are appropriately controlled. Additionally, adequate administrative controls exist to ensure this requirement is understood and properly implemented.

LA.2 CTS 6.12 identifies exceptions taken to the requirements of 10 CFR 20.1601 pursuant to 10 CFR 20, paragraph 20.1601(c). CTS 6.12 includes the specification that mrem are measured at 30 centimeters (12 inches) from the source of radioactivity and rads are measured at 1 meter from the source of radioactivity. These specifications are not included in the ITS because equivalent but more precise definitions are found throughout 10 CFR 20. Specifically, 10 CFR 20 specifies that mrem are measured 30 centimeters from the radiation source or from any surface that the radiation penetrates and that rads are measured at 1 meter from a radiation source or any surface through which the radiation penetrates. This change is acceptable because these requirements are specified in 10 CFR 20; therefore, there is no change to the existing requirements and future changes are appropriately controlled. Additionally, adequate administrative controls exist to ensure this requirement is understood and properly implemented.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.7:

"High Radiation Area"

PART 4:

No Significant Hazards Considerations for Changes between CTS and ITS that are Less Restrictive

No Significant Hazard Considerations for Changes that are Administrative, More Restrictive, and Removed Details are the same for all Packages. A Copy is included at the end of the Package.

NO SIGNIFICANT HAZARDS EVALUATION
ITS SECTION 5.7 - HIGH RADIATION AREA

LESS RESTRICTIVE
("L.1" Labeled Comments/Discussions)

New York Power Authority has evaluated the proposed Technical Specification change identified as "Less Restrictive" in accordance with the criteria set forth in 10 CFR 50.92, and has determined that the proposed change does not involve a significant hazards consideration. The bases for the determination that the proposed change does not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   This change expands an allowance permitting health physics personnel to enter high radiation areas without a radiation work permit to include personnel continuously escorted by health physics personnel provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas. This change will not result in a significant increase in the probability or consequences of an accident previously evaluated because administrative controls intended to ensure radiation protection do not affect the initiators of any analyzed event or alter any assumptions related to the mitigation of accident or transient events.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change does not involve any physical changes to plant systems, structures, or components (SSC), changes in parameters governing normal plant operation, or methods of operation. Therefore, this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

   The proposed change does not involve a significant reduction in a margin of safety because this change affects administrative controls intended to ensure radiation protection. Additionally, allowing personnel continuously escorted by health physics personnel to enter a high

radiation area without a radiation work permit is acceptable because, in accordance with ITS 5.7.1.c, the health physics person must be equipped with a radiation dose rate monitoring device, must perform periodic radiation surveillances, and must be responsible for providing positive control over the activities within the area. Therefore, this change maintains the ability to identify and respond to radiological situations encountered during entries into high radiation areas.

("L.2" Labeled Comments/Discussions)

New York Power Authority has evaluated the proposed Technical Specification change identified as "Less Restrictive" in accordance with the criteria set forth in 10 CFR 50.92, and has determined that the proposed change does not involve a significant hazards consideration. The bases for the determination that the proposed change does not involve a significant hazards consideration are discussed below.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   This change allows direct or remote continuous surveillance by personnel qualified in radiation protection procedures in lieu of stay time requirements of an RWP and the use of conspicuously posted barricades, with a flashing light activated as a warning device, in accessible areas with radiation levels >1000 mrem/hr, where no enclosure exists and one cannot be reasonably constructed and the area cannot be continuously guarded. This change will not result in a significant increase in the probability or consequences of an accident previously evaluated because the administrative controls intended to ensure radiation protection do not affect the initiators of any analyzed event or alter any assumptions related to the mitigation of an accident.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

   The proposed change does not involve any physical changes to plant systems, structures, or components (SSC), changes in parameters governing normal operation, or methods of operation. Therefore, this

change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does this change involve a significant reduction in a margin of safety?

The proposed change does not involve a significant reduction in a margin of safety because this change affects administrative controls intended to ensure radiation protection. Additionally, the alternative methods for access control to areas >1000 mrem/hr is acceptable because the alternative methods discussed herein have been reviewed and approved by the NRC as discussed in Reg Guide 8.3.8 dated 6/1/1993.

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.7:

"High Radiation Area"

PART 5:

NUREG-1431
Annotated to show differences between
NUREG-1431 and ITS

<CTS> 5.0 ADMINISTRATIVE CONTROLS

[5.7 High Radiation Area]

<6.12>
<6.12.1>

5.7.1 Pursuant to 10 CFR 20, paragraph 20.1601(c), in lieu of the requirements of 10 CFR 20.1601, each high radiation area, as defined in 10 CFR 20, in which the intensity of radiation is > 100 mrem/hr but < 1000 mrem/hr, shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by requiring issuance of a Radiation Work Permit (RWP). Individuals qualified in radiation protection procedures (e.g., ~~[Health Physics~~ Technicians~~]~~) or personnel continuously escorted by such individuals may be exempt from the RWP issuance requirement during the performance of their assigned duties in high radiation areas with exposure rates ≤ 1000 mrem/hr, provided they are otherwise following plant radiation protection procedures for entry into such high radiation areas.

radiation protection

T.1

Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:

<6.12.1.a>

a. A radiation monitoring device that continuously indicates the radiation dose rate in the area.

<6.12.1.b>

b. A radiation monitoring device that continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate levels in the area have been established and personnel are aware of them.

<6.12.1.c>

c. An individual qualified in radiation protection procedures with a radiation dose rate monitoring device, who is responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the [Radiation Protection Manager] in the RWP.

T.1

5.7.2 In addition to the requirements of Specification 5.7.1, areas with radiation levels ≥ 1000 mrem/hr shall be provided with locked or continuously guarded doors to prevent unauthorized entry and the keys shall be maintained under the administrative control of the Shift Foreman on duty or health physics supervision. Doors shall remain locked except during periods of access by personnel under an approved RWP that shall specify the dose rate levels in

supervision

R1

(continued)

[5.7 High Radiation Area]

5.7.2 (continued)

the immediate work areas and the maximum allowable stay times for individuals in those areas. In lieu of the stay time specification of the RWP, direct or remote (such as closed circuit TV cameras) continuous surveillance may be made by personnel qualified in radiation protection procedures to provide positive exposure control over the activities being performed within the area.

5.7.3 For individual high radiation areas with radiation levels of > 1000 mrem/hr, accessible to personnel, that are located within large areas such as reactor containment, where no enclosure exists for purposes of locking, or that cannot be continuously guarded, and where no enclosure can be reasonably constructed around the individual area, that individual area shall be barricaded and conspicuously posted, and a flashing light shall be activated as a warning device.

R.1

Indian Point 3
Improved Technical Specifications (ITS)
Conversion Package

Technical Specification 5.7:
"High Radiation Area"

PART 6:

Justification of Differences between

NUREG-1431 and IP3 ITS

JUSTIFICATION OF DIFFERENCES FROM NUREG
ITS SECTION 5.7 - HIGH RADIATION AREA

RETENTION OF EXISTING REQUIREMENT (CURRENT LICENSING BASIS)

None

PLANT-SPECIFIC WORDING PREFERENCE OR MINOR EDITORIAL IMPROVEMENT

None

PLANT-SPECIFIC DIFFERENCE IN THE DESIGN OR DESIGN BASIS

None

DIFFERENCE BASED ON A GENERIC CHANGE TRAVELER FOR NUREG-1431

T.1 This change incorporates Generic Change TSTF-65 (CEOG-17), Use of Generic Titles for Utility Positions. This change allows identifying organizational responsibilities in the ITS using generic titles consistent with the titles used in ANSI N18.1-1971 and/or Regulatory Guide 1.8, 1975. This change is needed because ANSI N18.1-1971 and/or Regulatory Guide 1.8, 1975 are used in CTS 6.3.1 and ITS 5.3 to define the minimum qualifications for key members of the plant staff. Therefore, use of the generic titles provides a direct link between the personnel qualifications as identified in the ITS 5.7 and the ITS defined responsibilities. NYPA plant specific management titles used in the CTS are moved to the Quality Assurance Plan which will define the relationship between the NYPA specific titles and the generic titles used in ANSI N18.1 and the ITS. Changes to NYPA specific titles in the FSAR/QA Plan will be controlled in accordance with 10 CFR 50.54(a). This approach is consistent with Generic Letter 88-06 which recommended relocation of the corporate and plant organization charts to licensee controlled documents. The intent of Generic Letter 88-06 and this change is to reduce the unnecessary burden associated with processing license amendments for organizational title changes.

JUSTIFICATION OF DIFFERENCES FROM NUREG
ITS SECTION 5.7 - HIGH RADIATION AREA

DIFFERENCE FOR ANY REASON OTHER THAN ABOVE

X.1 Not used.