

ATTACHMENT I TO IPN-94-101

PROPOSED TECHNICAL SPECIFICATION CHANGES

ASSOCIATED WITH

THE MINIMUM FUEL OIL REQUIRED FOR THE

EMERGENCY DIESEL GENERATORS

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

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3.7 AUXILIARY ELECTRICAL SYSTEMS

Applicability

Applies to the availability of electrical power for the operation of plant auxiliaries.

Objective

To define those conditions of electrical power availability necessary (1) to provide for safe reactor operation, and (2) to provide for the continuing availability of engineered safety features.

Specification

- A. The reactor shall not be brought above the cold shutdown condition unless the following requirements are met:
1. Two physically independent transmission circuits to Buchanan Substation capable of supplying engineered safeguards loads.
 2. 6.9 KV buses 5 and 6 energized from either 138 KV feeder 95331 or 95332.
 3. Either 13.8 KV feeder 13W92 or 13W93 and its associated 13.8/6.9 KV transformer available to supply 6.9 KV power.
 4. The four 480-volt buses 2A, 3A, 5A and 6A energized and the bus tie breakers between buses 5A and 2A, and between buses 3A and 6A, opened.
 5. Three diesel generators operable with a minimum onsite supply of 7056 gallons of fuel in each of the three individual underground storage tanks. In addition to the underground storage tanks, 30,026 gallons of fuel compatible for operation with the diesels shall be available onsite or at the Buchanan substation. This 30,026 gallon reserve is for Indian Point Unit No. 3 usage only

4. Two operable diesel generators together with total underground storage containing a minimum of 7056 gallons of fuel.
- 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.

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.

3.7-3a

Amendment No. 34, 38,

The bus arrangements specified for operation ensure that power is available to an adequate number of safeguards auxiliaries. With additional switching, more equipment could be out of service without infringing on safety.

Two diesel generators have sufficient capacity to start and run within design load the minimum required engineered safeguards equipment.⁽¹⁾ The minimum onsite underground stored diesel fuel oil inventory is maintained at all times to assure the operation of two diesels carrying the minimum required engineered safeguards equipment load for at least 48 hours.⁽²⁾ The minimum required storage tank volume (when above cold shutdown) of 7056 gallons includes allowances for fuel not usable due to the oil transfer pump cutoff switch (760 gallons), calibration tolerances of the installed level indicators used to measure fuel volume (385 gallons) and a safety margin (20 gallons). If the installed level indicators are unavailable, the fuel volume can be measured by sounding the tanks. If this method is used, 6671 gallons of fuel must be in each storage tank (7056 gallons minus the 385 gallon uncertainty associated with the level indicators).

When in cold shutdown, two diesel generators must be operable with a total underground storage of 7056 gallons of fuel oil. The same methodology used to measure fuel volume above cold shutdown should be used. Additional fuel oil suitable for use in the diesel generators will be stored either on site or at the Buchanan Substation. The minimum storage of 30,026 gallons of additional fuel oil will assure continuous operation of two diesels at the minimum engineered safeguards load for a total of 7 days. A truck with hosing connections compatible with the underground diesel fuel oil storage tanks is available for transferal of diesel oil from storage areas either on site or at the Buchanan Substation. Commercial oil supplies and trucking facilities are also available.

Periodic diesel outages will be necessary to perform the corrective maintenance required as a result of previous tests or operations and the preventive maintenance recommended by the manufacturer. If a diesel generator is out of service due to preplanned preventive maintenance or testing, special surveillance testing of the remaining diesel generators is not required because the required periodic surveillance testing suffices to provide assurance of their operability. The fact that preplanned corrective maintenance is sometimes performed in conjunction with this preventive maintenance or testing does not necessitate that the remaining diesels be tested, because this corrective maintenance is on defects or potential defects that never called diesel operability into question. If a diesel generator defect or operability concern is discovered while performing this preplanned preventive maintenance or testing, the concern or defect is evaluated to determine if the same concern or defect could render the remaining diesel generators inoperable. Unless this evaluation determines that the potential for the defect or concern to effect the remaining diesel generators has been eliminated, performance of a surveillance test on each of the remaining diesel generators provides adequate assurance of their operability.

One battery charger shall be in service on each battery so that the batteries will always be at full charge in anticipation of a loss-of-AC power incident. This insures that adequate D.C. power will be available for starting the emergency generators and other emergency uses.

The plant can be safely shutdown without the use of offsite power since all vital loads (safety systems, instruments, etc.) can be supplied from the emergency diesel generators.

Any two of three diesel generators, the station auxiliary transformer or the separate 13.8 to 6.9 KV transformer are each capable of supplying the minimum safeguards loads, and therefore provide separate sources of power immediately available for operation of these loads. Thus the power supply system meets the single failure criteria required of safety systems. To provide maximum assurance that the redundant or alternate power supplies will operate if required to do so, the redundant or alternate power supplies are verified operable prior to initiating repair of the inoperable power supply. Continued plant operation is governed by the specified allowable time period for the power source, not the specified allowable time period for those items determined to be inoperable solely because of the inoperability of its normal or emergency power source provided the conditions defined in specification 3.7.G are satisfied. These conditions assure that the minimum required safeguards will be operable. If it develops that (a) the inoperable power supply is not repaired within the specified allowable time period, or (b) a second power supply in the same or related category is found to be inoperable, the reactor, if critical, will initially be brought to the hot shutdown condition utilizing normal operating procedures to provide for reduction of the decay heat from the fuel, and consequent reduction of cooling requirements after a postulated loss-of-coolant accident. If the reactor was already subcritical, the reactor coolant system temperature and pressure will be maintained within the stated values in order to limit the amount of stored energy in the Reactor Coolant System. The stated tolerances provide a band for operator control. After a limited time in hot shutdown, if the malfunction(s) are not corrected, the reactor will be brought to the cold shutdown condition, utilizing normal shutdown and cool-down procedures. In the cold shutdown condition there is no possibility of an accident that would release fission products or damage the fuel elements.

Conditions of a system-wide blackout could result in a unit trip. Since normal off-site power supplies as required in Specification 3.7.A.1 are not available for startup, it is necessary to be able to black start the unit with gas turbines providing the incoming power supplies as a first step in restoring the system to an operable status and restoring power to customers for essential services. Specification 3.7.C provides for startup using 37 MW's of gas turbine power (nameplate rating at 80°F) which is sufficient to carry out a normal plant startup. A system-wide blackout is deemed to exist when the majority of Con Edison electric generating facilities are shutdown due to an electrical disturbance and the remainder are incapable of supplying the system therefore necessitating major load shedding.

Since the backup lighting supply is stripped on safety injection, the requirement that not more than one 120 volt A.C. instrument bus be energized from the backup lighting supply is to assure minimum operable containment spray actuation channels.

As a result of an investigation of the effect components that might become submerged following a LOCA may have on ECCS, containment isolation and other safety-related functions, a fuse and a locked open circuit breaker were provided on the electrical feeder to emergency lighting panel 318 inside containment. With the circuit breaker in the open position, containment electrical penetration H-70 is de-energized during the accident condition. Personnel access to containment may be required during power operation. Since it is highly improbable that a LOCA would occur during this short period of time, the circuit breaker may be closed during that time to provide emergency lighting inside containment for personnel safety.

When the 138 KV source of offsite power is out of service and the 13.8KV power source is being used to feed Buses 5 and 6, the automatic transfer of 6.9 KV Buses 1, 2, 3 and 4 to offsite power after a unit trip could result in overloading of the 20 MVA 13.8 KV/6.9 KV auto-transformer. Accordingly, the intent of specification 3.7.B.3 is to prevent the automatic transfer when only the 13.8 KV source of offsite power is available. However, this specification is not intended to preclude subsequent manual operations or bus transfers once sufficient loads have been stripped to assure that the 20 MVA auto-transformer will not be overloaded by these manual actions.

References

- 1) FSAR - Section 8.2.1
- 2) NYPA Calculation, IP3-CALC-EG-00217, Revision 3, dated May 25, 1994.

ATTACHMENT II TO IPN-94-101

SAFETY EVALUATION OF
TECHNICAL SPECIFICATION CHANGES
ASSOCIATED WITH
THE MINIMUM FUEL OIL REQUIRED FOR THE
EMERGENCY DIESEL GENERATORS

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

SAFETY EVALUATION
RELATED TO
PROPOSED TECHNICAL SPECIFICATION CHANGES ASSOCIATED WITH
THE MINIMUM FUEL OIL REQUIRED FOR THE
EMERGENCY DIESEL GENERATORS

Section I - Description of Changes

This application for amendment to Section 3.7 (including the basis) of the Indian Point 3 Technical Specifications proposes to revise the fuel oil availability requirements for the Emergency Diesel Generators (EDGs). These changes are required as a result of a recent engineering evaluation of the EDG fuel oil storage tank levels.

Section II - Evaluation of Changes

The EDGs are each supplied with a 7700 gallon capacity fuel oil storage tank and an oil transfer pump. The 7700 gallons of oil can be divided into two zones of fuel; one zone which is available for use in the EDGs and one zone which must remain in the tank to protect the pump from the damaging effects of vortexing. The FSAR (Reference 1) states that each fuel oil storage tank must contain a minimum amount of usable oil. This requirement assures that sufficient fuel is available to run the diesels, and thus power the minimum safeguards equipment for 48 hours, assuming two EDGs are operable.

The FSAR currently states that 5238 gallons of usable fuel must be available in each EDG storage tank. Similarly, the current technical specifications (section 3.7.A.5) require that 5676 gallons of fuel (5238 gallons usable and 438 gallons unusable) be available in each EDG storage tank. As a result of a recent engineering evaluation and subsequent LER (Reference 2), a calculation (Reference 3) was performed which redefined the minimum fuel oil required for each EDG storage tank as well as the minimum fuel oil required to be available onsite.

The results of this calculation indicate that 5891 gallons of usable fuel must be available in each EDG storage tank. This new value takes into account the temperature effect on the fuel density, an updated fuel consumption profile, and other factors associated with the equipment installation and design tolerances. The new value ensures an adequate margin of safety for the EDG fuel oil system by taking into account known variables which can affect the level instruments' accuracy and compensating for any cumulative error produced.

Consequently, the technical specification requirement concerning the minimum volume of fuel for each EDG storage tank must be modified from 5676 gallons to 7056 gallons (5891 gallons of usable fuel, 760 gallons of unusable fuel, 385 gallons for instrument uncertainty, and 20 gallons of fuel for a safety margin). This volume accounts for the calibration tolerances of the equipment if the fuel volume is measured using the installed level indicators. These indicators have a ± 385 gallon uncertainty associated with them, and this required volume ensures that even in the worst case scenario (the gauge is calibrated at +385 gallons) the fuel oil storage tank still holds the minimum required volume. The basis states that if the level indicators are unavailable, fuel volume may be measured by sounding the tanks. The uncertainties

associated with the level indicators need not be considered, and the required volume is 6671 gallons (7056 minus the 385 gallon uncertainty). These new Technical Specification requirements ensure that the newly calculated minimum requirement of 5891 available gallons of fuel oil in each storage tank is not violated.

Additionally, the results of Reference 3 indicate that 42,038 gallons of fuel must be stored onsite to ensure operation of two diesels at minimum safeguards load for a total of 168 hours. This is an increase over the existing Indian Point 3 requirement and is the result of an updated fuel consumption profile. Therefore, this application proposes to change the technical specifications to require that 30,026 gallons of fuel oil be available onsite in addition to the oil in the EDG storage tanks (5891 gallons of usable oil in each tank) and the day tanks (115 gallons of usable oil in each tank). This ensures that sufficient oil (42,038 gallons) is present onsite even in the unlikely event that one EDG storage tank (and its associated day tank) is unavailable.

Consistent with the discussion above, specification 3.7.F.4 is also being changed to require a total of 7056 gallons of fuel in the EDG fuel oil storage tanks.

Lastly, several administrative changes are being proposed by this application. The word "available" is being removed from the phrase "... gallons of fuel available..." in section 3.7.A.5 (for the individual storage tanks) to avoid any confusion regarding the amount of usable fuel in the tanks. This is consistent with the Westinghouse Standard Technical Specifications, contained in NUREG-1431. Also, Reference 2 in Section 3.7 now refers to the calculation (Reference 3 of this safety evaluation) that supports the changes in this application, instead of FSAR Section 8.2.3. The FSAR will be updated during the next applicable annual update following approval of the technical specification change.

Section III - No Significant Hazards Evaluation

Consistent with the criteria of 10 CFR 50.92, the enclosed application is judged to involve no significant hazards based on the following information:

- (1) Does the proposed license amendment involve a significant increase in the probability or consequences of an accident previously analyzed?

Response:

The proposed changes do not involve a significant increase in the probability or consequences of an accident previously analyzed. The change in the minimum required volume for the EDG fuel oil storage tanks ensures that two EDGs can power minimum safeguards equipment for 48 hours. The new required levels allow for temperature effects on fuel density and calibration uncertainties. The change to the minimum amount of fuel that must be stored onsite is based on a new fuel consumption profile and ensures that sufficient oil is present, even in the unlikely event that one EDG storage tank (and its associated day tank) is unavailable. The change to

specification 3.7.F.4 is consistent with the newly calculated amount of usable fuel and instrument uncertainties.

The deletion of the word "available" from Section 3.7.A.5 (concerning the individual storage tanks) and the change to Reference 2 of Section 3.7 are administrative in nature and do not involve a significant increase in the probability or consequences of a previously analyzed accident.

- (2) Does the proposed license amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

Response:

The proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated because the changes do not affect current plant configuration or how the plant operates. The proposed change in the minimum required volume for the EDG fuel oil storage tanks ensures an adequate amount of usable fuel and allows for temperature effects on fuel density and calibration uncertainties. The change to the minimum amount of fuel that must be stored onsite is based on a new fuel consumption profile and ensures that sufficient oil is present, even in the unlikely event that one EDG storage tank (and its associated day tank) is unavailable. These changes do not alter how the fuel storage tanks operate and therefore do not create the possibility of a new or different kind of accident. Specification 3.7.F.4 is being changed consistent with the revised calculation.

The deletion of the word "available" from Section 3.7.A.5 (concerning the individual storage tanks) and the change to Reference 2 of Section 3.7 are administrative in nature and do not create the possibility of a new or different kind of accident.

- (3) Does the proposed amendment involve a significant reduction in a margin of safety?

Response:

The proposed changes do not involve a significant reduction in a margin of safety. The proposed change in the minimum required volume for the EDG fuel oil storage tanks ensures the required amount of usable fuel is available for two EDGs to operate minimum safeguards for 48 hours, and it allows for temperature effects on fuel density and calibration uncertainties. The change to the minimum amount of fuel that must be stored onsite is based on a new fuel consumption profile and ensures that sufficient oil is present, even in the unlikely event that one EDG storage tank (and its associated day tank) is unavailable. Specification 3.7.F.4 is being changed consistent with the revised calculation.

The deletion of the word "available" from Section 3.7.A.5 (concerning the individual storage tanks) and the change to Reference 2 of Section 3.7 are administrative in nature and do not involve a significant reduction in a margin of safety.

Section IV - Impact of Changes

These changes will not adversely affect the following:

ALARA Program
Security and Fire Protection Programs
Emergency Plan
FSAR or SER Conclusions
Overall Plant Operations and the Environment

Section V - Conclusions

The incorporation of these changes: a) will not increase the probability nor the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the Safety Analysis Report; b) will not increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report; c) will not reduce the margin of safety as defined in the bases for any technical specification; d) does not constitute an unreviewed safety question; and e) involves no significant hazards considerations as defined in 10 CFR 50.92.

Section VI - References

1. IP3 FSAR, Section 8.2, July 1994.
2. NYPA letter to NRC, Licensee Event Report 93-033-00, dated October 4, 1993.
3. NYPA Calculation, IP3-CALC-EG-00217, Rev. 3, dated May 25, 1994.

ATTACHMENT III TO IPN-94-101

AUTHORITY COMMITMENTS FOR
TECHNICAL SPECIFICATION CHANGES ASSOCIATED WITH
THE MINIMUM FUEL OIL REQUIRED FOR THE
EMERGENCY DIESEL GENERATORS

NEW YORK POWER AUTHORITY
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

COMMITMENTS ASSOCIATED WITH IPN-94-101

Comm. No.	Commitment Description	Due Date
IPN-94-101-01	A minimum onsite supply of 7056 gallons of fuel shall be in each EDG Fuel Oil Storage Tank, when above the cold shutdown condition.	30 days after NRC approval of amendment
IPN-94-101-02	In addition to the underground storage tanks, 30,026 gallons of fuel compatible for operation with the diesels shall be available onsite or at the Buchanan substation.	30 days after NRC approval of amendment
IPN-94-101-03	Total underground storage is required to contain a minimum of 7056 gallons of fuel under all conditions, including cold shutdown.	30 days after NRC approval of amendment
IPN-94-101-04	Update the FSAR to reflect the minimum fuel oil required for the Fuel Oil Storage Tanks as well as the minimum fuel oil required onsite.	Next applicable annual FSAR update