



Nebraska Public Power District

Always there when you need us

10 CFR 50.90

NLS2004076
July 15, 2004

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Subject: License Amendment Request to Extend Diesel Generator Allowed Outage Time and Utilize Temporary Fuel Oil Storage Tanks on a One-Time Basis, Cooper Nuclear Station, NRC Docket 50-298, DPR-46

Reference: Letter to U.S. Nuclear Regulatory Commission from Stewart B. Minahan (Nebraska Public Power District) dated December 4, 2003, "Confirmation of Commitments" (NLS2003122).

The purpose of this letter is for the Nebraska Public Power District (NPPD) to request an amendment to Facility Operating License DPR-46 in accordance with the provisions of 10 CFR 50.4 and 10 CFR 50.90 to revise the Cooper Nuclear Station (CNS) Technical Specifications (TS). The proposed amendment would revise TS Section 3.8.1, AC Sources - Operating, Condition B, to extend the allowed outage time (AOT) for one Diesel Generator (DG) inoperable from 7 days to 14 days, and TS Section 3.8.3, Diesel Fuel Oil, Lube Oil, and Starting Air, Limiting Condition for Operation, to allow the use of temporary fuel oil storage tanks to supply the required fuel oil storage inventory. This TS change would be applicable through November 30, 2004 to allow corrective maintenance to the fuel oil storage and transfer system, which may take longer than the presently permitted 7 day AOT.

In a letter to the Nuclear Regulatory Commission (NRC), (Reference), NPPD confirmed a commitment to coat the Diesel Generator Fuel Oil Storage Tanks during the next refueling outage, scheduled for January 2005, as a corrective action to mitigate the effects of corrosion, which has caused diesel fuel transfer system strainer fouling. In order to provide a more timely resolution of the corrosion issue, NPPD has scheduled the corrective maintenance as an on-line activity for completion during the Fall of 2004. During this scheduled activity, a high flow flush of the underground transfer piping will also be conducted to remove accumulated corrosion products from the piping.

COOPER NUCLEAR STATION

P.O. Box 98 / Brownville, NE 68321-0098
Telephone: (402) 825-3811 / Fax: (402) 825-5211
www.nppd.com

A001

The current TS Diesel Fuel Oil Storage Requirements, are to support operability of one DG to mitigate Design Basis Accidents (DBAs) during operation in Mode 1, "Power Operation," Mode 2, "Startup," or Mode 3, "Hot Shutdown," and are based on the recommendations of Regulatory Guide 1.137, Revision 1, regulatory position C.1(c) method 1 and ANSI N195-1976. Both storage tanks are required to support DG operation for a period of 7 days.

During tank coating activities the available fuel oil inventory stored in one permanent storage tank will support DG operation for greater than four days. Off-loaded fuel from the other storage tank will be stored in temporary tanks adjacent to the permanent tanks.

NPPD requests NRC approval of the proposed TS change and issuance of the requested license amendment by October 15, 2004 in order to support coating of the Diesel Generator Fuel Oil Storage Tanks. Once approved, the amendment will be implemented within 7 days.

Attachment 1 provides a description of the TS change, the basis for the amendment, the no significant hazards consideration evaluation pursuant to 10 CFR 50.91(a)(1), and the environmental impact evaluation pursuant to 10 CFR 51.22. Attachment 2 provides the proposed changes to the current CNS TS on marked up pages. Attachment 3 provides the revised TS pages in final typed format. Attachment 4 provides the corresponding changes to the current Bases on marked up pages for your information. Attachment 5 provides sketches of the Diesel Generator Fuel Oil Storage and Transfer system as well as system configurations associated with contingency actions.

This proposed TS change has been reviewed by the necessary safety review committees (Station Operations Review Committee and Safety Review and Audit Board). Amendments to the CNS Facility Operating License through Amendment 203 issued March 31, 2004, have been incorporated into this request. NPPD has concluded that the proposed change does not involve a significant hazards consideration and that it satisfies the categorical exclusion criterion of 10 CFR 51.22(c)(9). This request is submitted under oath pursuant to 10 CFR 50.30(b).

By copy of this letter and its attachments, the appropriate State of Nebraska official is notified in accordance with 10 CFR 50.91(b)(1). Copies to the NRC Region IV office and the CNS Resident Inspector are also being provided in accordance with 10 CFR 50.4(b)(1).

Should you have any questions concerning this matter, please contact Mr. Paul Fleming at (402) 825-2774.

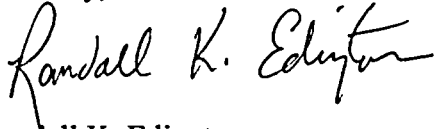
NLS2004076

Page 3 of 3

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 07/15/04
(Date)

Sincerely,



Randall K. Edington
Vice President - Nuclear and
Chief Nuclear Officer

/rar

Attachments

cc: Regional Administrator w/ attachments
USNRC - Region IV

Senior Project Manager w/ attachments
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector w/ attachments
USNRC

Nebraska Health and Human Services w/ attachments
Department of Regulation and Licensure

NPG Distribution w/o attachments

CNS Records w/ attachments

NPPD's Evaluation

- 1.0 Description**
- 2.0 Proposed Change**
- 3.0 Background**
- 4.0 Technical Analysis**
- 5.0 Regulatory Safety Analysis**
 - 5.1 No Significant Hazards Consideration**
 - 5.2 Applicable Regulatory Requirements/Criteria**
- 6.0 Environmental Consideration**
- 7.0 References**

**LICENSE AMENDMENT REQUEST TO EXTEND DIESEL GENERATOR ALLOWED
OUTAGE TIME AND UTILIZE TEMPORARY FUEL OIL STORAGE TANKS ON A
ONE-TIME BASIS**

Cooper Nuclear Station, NRC Docket 50-298, DPR-46

Revised TS Pages

3.8-3

3.8-13

1.0 Description

This letter is a request to amend Operating License (OL) DPR-46 for Cooper Nuclear Station (CNS) on a one-time basis.

The proposed changes would amend the OL by revising the Technical Specifications (TS) to extend the allowed outage time (AOT) for one Diesel Generator (DG) inoperable from 7 days to 14 days and allow the use of temporary fuel oil storage tanks to supply part of the required fuel oil storage inventory. This change is desired to maintain operability of a Diesel Generator with one storage tank drained in support of cleaning and coating the storage tanks. These activities are scheduled to be performed during workweeks that support DG maintenance and are expected to be completed within the current AOT. The extension of the AOT will provide sufficient time to clean, inspect and coat the drained tank, restore the off-loaded fuel oil to the tank and resolve unexpected conditions should they arise. This activity is scheduled for Fall 2004 as a corrective action to mitigate the effects of corrosion on the fuel oil supply system.

2.0 Proposed Change

The current requirements of TS Section 3.8.1, AC Sources - Operating, Condition B, requires the restoration of an inoperable DG within 7 days. This requirement will be extended to allow an inoperable DG for up to 14 days on a one-time basis to support the corrective maintenance activity. The current stored diesel fuel oil level requirements of TS Section 3.8.3, Diesel Fuel Oil, Lube Oil and Starting Air Limiting Condition for Operation will be annotated to allow the use of temporary storage tanks in conjunction with the permanent fuel oil storage bunker tanks to meet this requirement on a one-time basis. The duration of this one-time TS change will be through completion of the tank cleaning and coating maintenance activities, but no later than November 30, 2004.

3.0 Background

The CNS Updated Safety Analysis Report (USAR), Volume VIII, Section 5.0, "Standby AC Power Source," states that the safety objective of the diesel generators is "To provide a single failure proof source of on-site AC power adequate for maintaining the safe shutdown of the reactor following abnormal operational transients and postulated accidents."

USAR, Section VIII-5.0 defines the Safety Design Bases in part as:

The standby AC power system shall consist of two independent AC power sources that are self-contained within the station site and which are independent of off-site power sources.

Each standby generator unit shall be capable of providing sufficient power to satisfy the load on its independent critical bus, upon failure of all off-site power.

Each DG unit shall have a unit fuel day tank. Both unit day tanks shall be supplied from either of two main fuel storage tanks. Both main fuel storage tanks combined shall be capable of providing sufficient fuel for seven days of operation of one DG unit under postulated accident conditions. Each unit day tank will provide enough fuel to allow a minimum of five hours of full load operation on the DG unit.

The standby AC power system shall conform to the applicable sections of "IEEE 308 Criteria for Class 1E Electrical Systems for Nuclear Power Generating Stations," issued in 1970.

CNS Technical Specifications, Section 3.8.1, AC Sources - Operating, require in part that two diesel generators be operable. If one diesel generator is inoperable, the required actions include restoration of the diesel to operable status within seven days.

CNS Technical Specifications, Section 3.8.3, Condition F, requires declaring the diesel generator inoperable if the fuel oil level in the storage tanks is not maintained within the volume limits specified in TS Section 3.8.3, Condition A. The minimum volume was determined based on the recommendations of Regulatory Guide 1.137, Revision 1, regulatory position C.1(c) method 1 and ANSI N195-1976. This method assumes that the diesel generator operates continuously for seven days at its rated capacity of 4000 KW. The resultant fuel volume is provided by the greater than 49,500 gallon TS limit which utilizes the storage capacity provided by both of the diesel fuel oil storage tanks.

In a letter to the Nuclear Regulatory Commission (NRC), dated December 4, 2003, Nebraska Public Power District (NPPD) confirmed a commitment to coat the Diesel Generator Fuel Oil Storage Tanks during the next refueling outage as a corrective action to mitigate the effects of corrosion, which has caused diesel fuel transfer system strainer fouling. In order to provide a more timely resolution of the corrosion issue, NPPD has scheduled the corrective maintenance as an on-line activity to be completed during the Fall of 2004.

Activities to drain, clean, inspect and coat the fuel oil storage tanks will reduce the stored diesel fuel oil in the permanent storage tanks to below the current CNS Technical Specification limits for an operable diesel generator. Additionally, the time to complete the activities may exceed the existing AOT for an inoperable DG if unexpected conditions arise.

To address these matters, this technical specification change request proposes a one time change to increase the AOT for an inoperable DG from 7 days to 14 days and allow the use of temporary storage tanks in conjunction with a permanent fuel oil storage tank to meet the stored fuel oil requirements.

4.0 Technical Analysis

4.1 DG and Diesel Generator Diesel Oil System Design and Operation Details

The Standby AC Power System consists of two 4000 KW DGs. Each DG and its associated support systems is separated from the corresponding systems of the other DG. Each unit is operated independently of the other unit.

The DGs provide a single failure proof source of on-site AC power adequate for maintaining the safe shutdown of the reactor following abnormal operational transients and postulated accidents.

A DG starts automatically on a loss of coolant accident signal or on a critical bus loss of voltage signal. After the DG has started, it automatically ties to its respective bus after off site power has been lost to the critical bus. When the DG circuit breaker closes, loads are then sequentially connected to its respective critical bus. The emergency loads are divided between the two 4160 volt critical buses so that the failure of one DG or one 4160 critical bus will not prevent a safe shutdown of the reactor.

Each DG unit is supplied from its own fuel day tank. Cross-ties are provided such that both day tanks can be supplied from either of two diesel oil storage tanks, each with its own transfer pump and piping connections. Both diesel oil storage tanks combined

contain sufficient fuel for seven days operation of one DG at its rated continuous load of 4,000 KW. Each DG unit day tank will provide enough fuel to allow a minimum of five hours of full load operation.

Each diesel fuel oil transfer pump provides sufficient fuel flow to one diesel engine to meet consumption requirements. To support continuous Diesel Generator operation at full load, each transfer pump must be capable of delivering greater than 4.64 gpm.

4.2 Diesel Generator Reliability and Unavailability

As stated in USAR, Section VIII-5.3.3, Diesel Generator Reliability Assurance, CNS is required to monitor the Diesel Generators to maintain a minimum reliability of 95 percent. The current reliability of the CNS diesel generators is 100 percent, which is based on zero valid start and load run failures during the last 100 demands. Additionally, the NRC performance indicator for EDG Safety System Unavailability, through May 2004, is green with unavailability at 1.1 percent.

4.3 Tank Coating Evolution Details

During tank cleaning and coating activities, the affected storage tank and transfer pump will be isolated from the system. Part of the fuel will be transferred from the isolated tank to the in-service tank to establish a minimum volume which supports greater than 4 days of DG operation at full load. The transfer pump will be electrically isolated by opening the associated Motor Control Center 480 volt breaker. A normally open cross-tie at the day tanks will be closed to allow installation of a blank flange to isolate the transfer piping. Once the blind flange is installed, the cross-tie at the day tank will be re-opened to allow the in-service storage tank and transfer pump to supply fuel to either of the day tanks. The remaining fuel will be transferred to a temporary tank and as necessary, a temporary overflow tank. Attachment 5, Figure 2, illustrates the normal Fuel Oil Transfer System configuration. Attachment 5, Figure 4, illustrates the Fuel Oil Transfer System temporary configuration during the cleaning and coating activities.

Upon completion of the tank maintenance activities and the high flow flush of the transfer piping, the piping configuration will be restored, the off-loaded fuel will be filtered and transferred to the permanent tank, and post maintenance testing will be performed to ensure DG operability.

The temporary equipment required to perform fuel movement will be located on an area of engineered fill, which is resistant to damage caused by seismic events, adjacent to the permanent underground tank location.

4.4 Ability to Restore Off-loaded Fuel to Permanent Tank

During the tank maintenance activities, the Technical Specification minimum 49,500 gallons of diesel fuel oil will be available in one of the two permanent storage tanks and the temporary storage tanks.

In the event of a DG start during the maintenance activities, temporary pump/filter equipment, independent of electrical power sources, in place to perform the maintenance activities will be configured to transfer the off-loaded fuel oil to the in-service permanent storage tank (Attachment 5, Figure 6). This equipment has a transfer capacity which is considerably in excess of the DG fuel consumption rate of 4.64 gpm. A back-up pump with a similar capacity will be pre-staged in the event of a failure of the primary pump/filter equipment. Pump performance will be verified prior to removing the permanent storage tank and transfer pump from service.

Work instructions to restore off-loaded fuel to the permanent storage tank, in the event of a DG start, will be incorporated into an approved procedure. Training/briefing in accordance with station procedures, as appropriate, to implement the work instructions will be provided prior to the start of the tank cleaning and coating activities. The tank cleaning and coating activities will be worked on a 24 hour/day, seven day/week basis. Personnel will be continuously available to implement actions necessary to ensure adequate fuel oil is supplied to the diesel generators.

4.5 Availability of Operable and Inoperable DGs

The fuel transfer pumps are powered from their respective division's emergency 480 VAC power source. An inoperable fuel transfer pump renders that division's diesel generator inoperable as well. During this maintenance evolution, one of the two main diesel fuel storage tanks will be emptied rendering the associated fuel transfer pump and diesel generator inoperable.

Fuel Oil Storage and Transfer system configuration, instructions to restore fuel to the permanent tank, and defense in depth measures to be implemented during this activity will ensure that a 7-day fuel supply remains available to both the operable and inoperable diesel generators. One exception to the 7-day fuel supply remaining available to the inoperable but available diesel generator is that for a very short period of time, the day tank crosstie valve will be closed to support the installation of a blank flange downstream of the duplex strainer in preparation for the tank coating activities. During this period, level in the associated day tank will be maintained adequate to support at least 5-hours of diesel operation at rated load in accordance with existing TS requirements. The day tank crosstie valve will only be closed for approximately 2 hours. Restoration of the system

configuration upon completion of the tank coating activities will require the day tank crosstie valve to be closed for a similar period of time.

Configuration controls implemented during this evolution will ensure that the inoperable DG remains capable of starting, loading, and operating for 7-days continuous at rated load. Therefore, the inoperable diesel generator will remain available at all times.

4.6 Offsite Power System and Reliability

The offsite power sources at CNS are a Startup Station Service Transformer (SSST) which connects to the CNS 161 kV switchyard and the 345/161 kV, 300 MVA auto-transformer connected to the 345 kV switchyard, and a separate Emergency Station Service Transformer (ESST) energized by a 69 kV line. The 161 kV switchyard is connected to one 161 kV line which terminates in a switchyard near Auburn, Nebraska, and the 345/161 kV, 300 MVA auto-transformer which connects to the CNS 345 kV switchyard. The 345 kV switchyard has five (5) lines which terminate in switchyards near Booneville, Iowa; Hallam, Nebraska; St. Joseph, Missouri; Fairport, Missouri, and Nebraska City, Nebraska. Attachment 5, Figure 9 provides a one-line diagram of the 345 kV switchyard. The emergency station service transformer is fed by a 69 kV line which is part of a subtransmission grid of another utility.

If the Normal Station Service Transformer (powered by the main generator) is lost, the SSST, which is normally energized, will automatically energize 4160 volt buses 1A and 1B (non-critical buses) as well as their connected loads, including the critical buses. If the SSST fails to energize the critical buses, the ESST, which is normally energized, will automatically energize both critical buses. If the ESST were also to fail, the DGs would automatically energize their respective buses.

The unavailability of the ESST and the SSST are monitored by Maintenance Rule functions over the previous 36 months. As of June 1, 2004, the ESST unavailability was less than 1.2 percent, and the SSST unavailability was less than 0.88 percent. A review of the previous 20 years identified one event where both offsite power sources were inoperable. CNS Licensee Event Report 2001-004 documents the event where both the ESST and SSST were declared inoperable for 44 minutes during a lightning storm. During that period of time the emergency buses were supplied by normal power and the unit did not trip.

The weather near CNS from late October through early November is generally fair. However, since it is toward the end of the change in seasons from warm Fall weather, to colder Winter weather, it can be highly variable. Temperatures generally are in the mid 50s degrees Fahrenheit (°F) for highs in late October, dropping to around 50°F by early

November. Overnight lows are generally in the upper 30s°F in late October and around 30°F in early November. However, temperatures over the last three years have ranged as high as low 70s°F and as low as 12°F during this period.

Average wind speeds are lightest in October averaging around 7-7.5 mph. In November, they increase to 8-8.5 mph. However, after strong cold fronts, particularly in November, winds can increase for one or two days to over 30 mph with gusts to 40 mph.

Due to the frequent passing of cold fronts during this seasonal transition period, the wind direction exhibits a bimodal distribution. For both October and November, the average wind direction is equally divided between the north-northwest and the south-southeast sectors.

The air is generally dry with daytime relative humidity near 45 percent. Due to the drop in temperatures at night, the relative humidity jumps to around 70 percent.

The Fall season is generally the driest time of year in Nebraska. Rainfall can be expected on an average of 8 days in the month, but most of it is light. Days with precipitation over 1 inch have occurred in both October and November in the last three years, including 2.87 inches in one 24-hour period in November 2003. Thunderstorms are not very frequent in October or November, but 1 or 2 days with thunderstorms are possible. Unlike the Spring and Summer seasons, these thunderstorms are rarely severe.

A review of computer generated historical monthly peak system load for the offsite power grid which considers generation, purchases and sales was performed. This review indicates that during October and November the demand on the grid is well below the maximum demand experienced.

This lower demand on the system, combined with a low probability of grid instability due to severe weather, minimizes the potential for challenges to the Standby AC Power System during performance of the proposed maintenance activities.

4.7 Plant Activities with the Potential to Challenge the Diesel Generators

The fuel oil tank cleaning and coating maintenance activities are scheduled to be performed during workweeks that support diesel generator maintenance. No other scheduled activities challenging diesel generator operability or availability, or availability of Emergency Core Cooling Systems, critical switchgear/electrical buses, offsite power sources or safety related cooling water systems are planned for the duration of these activities. No corrective or elective (optional) maintenance will be scheduled on these systems/components. Required routine surveillance testing that does not render the above

equipment unavailable will be evaluated and performed if appropriate. Existing administrative controls for coordination of work in switchyards and transformer yards will be utilized to minimize the risk of power loss to equipment important to plant safety. Emergent work impacting protected equipment or systems will be handled on a priority basis.

4.8 Defense In Depth Contingency Measures

In the event of a DG start during the maintenance activities and a failure of the fuel oil transfer pump associated with the full permanent storage tank, temporary pump/filter equipment in place to perform the tank maintenance activities can be configured to transfer the off-loaded fuel oil and/or the fuel in the permanent storage tank directly to the fuel oil transfer piping system (Attachment 5, Figure 7). This equipment has a transfer capacity which is considerably in excess of the DG fuel consumption rate of 4.64 gpm. A back-up pump will be pre-staged in the event of a failure of the primary pump/filter equipment.

In the event of a loss of power to the operable fuel oil transfer pump, a pre-staged 480 volt AC jumper cable will be used to permit powering the affected pump from the opposite division's emergency AC power (Attachment 5, Figure 8). Existing control circuitry provides automatic day tank level control with the pump control switch placed in the "AUTO-ALTERN" position which provides a pump start signal at the day tank "Low Low" level.

In addition to the above described contingency measures, the ability to provide fuel directly to the DG day tank from either the permanent tank or the temporary storage tank can be accomplished using the temporary pump/filter equipment or the pre-staged back-up pump.

Instructions to accomplish these defense in depth measures will be incorporated into an approved procedure. Training/briefing in accordance with station procedures, as appropriate, to implement the work instructions will be provided prior to the start of the tank cleaning and coating activities. Trained personnel will be continuously available to implement actions necessary to ensure adequate fuel oil is supplied to the diesel generators.

A temporary fuel tanker with approximately 7000 gallons of fuel, and gasoline powered transfer pump was staged inside the protected area in late May 2004 to provide a fuel oil source independent of the installed system if all following events exist: loss of offsite power event, a DG is the only source of power, and the fuel transfer system on the available DG is inoperable and unavailable. This action provides the capability to supply

fuel directly to the day tanks and supports greater than 24 hours of full load operation for one DG. Work instructions to supply fuel oil from the temporary tanker directly to the day tanks have been incorporated into an approved procedure. CNS currently maintains a separate tanker with approximately 7000 gallons of fuel at the site to support refilling the storage tanks after normal DG surveillance runs. These fuel tankers are considered available as additional defense in depth fuel sources for the DGs.

The manual actions required to ensure a seven day supply of fuel oil are performed outside the reactor building, with the exception of breaker operation to install the temporary 480 volt jumper. The additional defense in depth strategies ensure that fuel oil will be supplied to the DGs for the required seven days.

The permanent fuel oil storage tanks and the temporary storage tanks associated with the tank cleaning and coating activities are located in the southeast corner of the protected area. The fuel tanker which is currently maintained on site to support refilling of the storage tanks is located outside the southwest corner of the protected area. This provides a diversity of locations for fuel supporting a minimum of 24 hours of full load DG operation.

4.9 Replenishment of Fuel Oil

Replenishment of fuel oil from offsite, if necessary, can be accomplished in approximately 24 hours through the use of existing purchase orders for fuel oil and diesel fuel analysis.

4.10 Probabilistic Risk Assessment Evaluation

The function of the DGs as described in the Probabilistic Risk Assessment (PRA) is to provide power to critical 4160V Buses 1F (Division I) and 1G (Division II) if a loss of offsite power occurs (or power is unavailable from 4160V Bus 1A or 1B) and power is unavailable from the emergency transformer. The mission time for the DGs in the CNS PRA is 8 hours which is based on time required for recovery of 95% of loss of offsite power events. The mission time typically used in PRA is 24 hours since 24 hours provides sufficient time to stabilize a reactor following a transient.

A review of the ORAM-Sentinel model used for schedule risk assessment (as required by 10CRF50.65(a)(4)), shows an allowed outage time of 7-8 days prior to reaching an increased core damage probability of 1E-06. However, both DGs will be considered available based on the contingency actions (defense in depth strategies) put in place.

The risk impact for the one-time extension of the DG AOT is negligible. This conclusion is based on maintaining both DGs available during the work on each fuel oil storage tank.

Only one tank will be out of service at any given time and contingencies have been developed to ensure adequate fuel oil is available for the duration of the work. The availability of the DGs during the work on each storage tank was evaluated by comparing the probability of failure to implement the defense in depth strategies, using human reliability analysis, to a conservative estimate of the probability of failure of a DG. The evaluation determined that the probability of failure to implement the contingency actions is sufficiently low that it does not adversely impact the availability of the Standby AC Power System.

The vulnerability to external events, seismic, high winds and fire, was also evaluated and judged to be not significant due to the low probability of these events during the period of time this proposed amendment will be in effect, and the defense in depth strategies being put in place during the work on the fuel oil storage tanks.

5.0 Regulatory Safety Analysis

5.1 No Significant Hazards Consideration

10 CFR 50.91(a)(1) requires that licensee requests for operating license (OL) amendments be accompanied by an evaluation of significant hazard posed by issuance of an amendment. Nebraska Public Power District (NPPD) has evaluated this proposed amendment with respect to the criteria given in 10 CFR 50.92 (c).

The proposed changes would amend the OL by revising the Technical Specifications (TS) to increase the Allowed Outage Time for an inoperable Diesel Generator (DG) from seven (7) days to fourteen (14) days, on a one-time basis, to support cleaning and coating of the permanent fuel oil storage tanks. The inoperable DG would remain available to perform its safety function by maintaining sufficient fuel oil in the associated day tank to support a minimum of five (5) hours of full load operation. The design of the fuel oil transfer system is such that the operable fuel oil transfer pump can supply fuel to the inoperable, but available, diesel generator for operation beyond the 5 hours.

Additional proposed changes would amend the OL by revising the TS, on a one-time basis, to consider fuel off-loaded from the permanent tanks and stored in adjacent temporary tanks to be available to support seven (7) day full load operation of a DG during the cleaning and coating of the permanent storage tanks. Pump/filter equipment to support the tank cleaning and coating activities, and an additional back-up pump, will be available to transfer the fuel to the operable permanent storage tank, directly to the fuel oil transfer piping or directly to the day tanks.

These changes are desired to allow Cooper Nuclear Station to maintain operability of a DG with one permanent fuel oil storage tank drained during the tank cleaning and coating activities, and allow sufficient time to perform the cleaning and coating activities. These temporary changes expire upon completion of the fuel oil storage tank cleaning and coating activities, but no later than November 30, 2004.

The following evaluation supports a finding of “no significant hazards consideration” associated with this proposed change.

- 1. Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?**

Response: No

The Standby AC Power System (Diesel Generators) provides onsite electrical power to vital systems should offsite electrical power be interrupted. It is not an initiator to any accident previously evaluated. Therefore, the extended period of operation with one diesel generator inoperable and the seven day required fuel oil supply being provided in part by temporary storage tanks will not increase the probability of an accident previously evaluated.

The Standby AC Power System acts to mitigate the consequences of design basis accidents that assume a loss of offsite power. For that purpose, redundant diesel generators are provided to protect against a single failure. During the Technical Specification seven day allowed outage time, an operating unit is allowed by the Technical Specifications to remove one diesel generator from service, thereby losing this single failure protection. During the requested fourteen day allowed outage time for fuel oil storage tank cleaning and coating maintenance activities, the inoperable diesel generator will be maintained available to start and load, with a minimum of five (5) hours of fuel available in the day tank. Manual actions contained in approved procedures to provide fuel from temporary storage tanks to either the operable diesel generator or the inoperable but available diesel generator will be implemented. A risk evaluation determined that the probability of failure to implement the contingency actions is sufficiently low that it does not adversely impact the availability of the Standby AC Power System.

The vulnerability to external events, seismic, high winds and fire, was also evaluated and judged to be not significant due to the low probability of these events during the period of time this proposed amendment will be in effect, and the defense in depth strategies being put in place during the tank maintenance activities.

In the event that fuel stored in the temporary tanks is not available to support full load operation of the diesel generator beyond four (4) days, replenishment of fuel oil from offsite can be accomplished in approximately 24 hours through the use of existing purchase orders for fuel oil and diesel fuel analysis. Therefore, during the period of the extended allowed outage time and the use of temporary fuel oil storage tanks, there is no significant increase in the consequences of an accident previously evaluated.

Based on the above, NPPD concludes that the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

- 2. Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?**

Response: No

Operation with one diesel generator inoperable but available for an extended period or with part of the required diesel fuel stored in temporary tanks does not involve any new mode of plant operation or different function for plant equipment. Operation in this configuration does introduce proceduralized manual actions to supply fuel to either diesel generator from the permanent storage tank or the temporary tank. These actions can be accomplished within the five hours of full load diesel operation from fuel stored in the day tank. A risk evaluation determined that the probability of failure to implement the contingency actions is sufficiently low that it does not adversely impact the availability of the Standby AC Power System. There are no new accident precursors generated due to this temporary extension of allowed outage time or the use of a temporary fuel oil storage system.

Based on the above, NPPD concludes that the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

- 3. Do the proposed changes involve a significant reduction in the margin of safety?**

Response: No

A single failure of the operable fuel oil transfer pump could prevent DG operation beyond five hours. Proceduralized manual actions to supply fuel to either diesel generator from the permanent storage tank or the temporary tank will be

implemented to mitigate this single failure vulnerability. These actions can be accomplished within the five (5) hours of full load diesel operation from fuel stored in the day tank. A risk evaluation determined that the probability of failure to implement the contingency actions is sufficiently low that it does not adversely impact the availability of the Standby AC Power System. Therefore, during the extended allowed outage time and the use of a temporary fuel oil storage system, the Standby AC Power System maintains the ability to provide a source of on-site AC power adequate for maintaining the safe shutdown of the reactor following abnormal operational transients and postulated accidents.

IEEE Design Standard 308-1970, "IEEE Criteria for Class 1E Electric Systems for Nuclear Power Generating Station," Section 5.2.4, "Standby Power Supply," Paragraph 6), "Energy Storage," contains the requirement for stored energy capacity to be the longer of (a) seven days or (b) time required to replenish the energy from sources away from the generating unit's site following the limiting design basis event. Cooper Nuclear Station's Updated Safety Analysis Report documents that the Standby AC Power System conforms to the applicable sections of IEEE 308-1970.

The Diesel Generator Diesel Oil Storage and Transfer System will be configured to ensure a minimum fuel oil inventory to support greater than four (4) days of full load diesel generator operation is maintained in the operable permanent storage tank. Existing cross-tie capabilities in the fuel storage and transfer system piping, in conjunction with proceduralized manual actions, ensure the four day fuel supply is available to either diesel generator. The remaining three (3) day fuel supply will be stored in temporary non-Class I tanks and would potentially be vulnerable to external events. The vulnerability to external events, seismic, high winds and fire, was evaluated and judged to be not significant due to the low probability of these events during the period of time this proposed amendment will be in effect, and the defense in depth strategies being put in place during the tank maintenance activities.

In the event that fuel stored in the temporary tanks is not available to support full load operation of the diesel generator beyond four (4) days, replenishment of fuel oil from offsite can be accomplished in approximately 24 hours through the use of existing purchase orders for fuel oil and diesel fuel analysis.

Based on the above, NPPD concludes that the proposed changes do not involve a significant reduction in the margin of safety.

From the above discussions, NPPD concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of “no significant hazards consideration” is justified.

5.2 Applicable Regulatory Requirements/Criteria

1. General Design Criterion 17, “Electric Power Systems,” of Appendix A, “General Design Criteria for Nuclear Power Plants,” to 10 CFR Part 50, “Domestic Licensing of Production and Utilization Facilities,” requires that an onsite electric power system and an offsite electric power system be provided to permit functioning of structures, systems, and components important to safety. In addition, Criterion 17 contains requirements concerning system capacity, capability, independence, redundancy, availability, testability, and reliability.
2. Regulatory Guide (RG) 1.137, “Fuel-Oil Systems for Standby Diesel Generators,” Revision 1, indicates that the requirements for the design of fuel-oil systems for diesel generators that provide standby electrical power included in ANSI N195-1976, “Fuel Oil Systems for Standby Diesel,” provide a method acceptable to the NRC staff for complying with the pertinent requirements of General Design Criterion 17.
3. RG 1.137, provides a discussion of the two methods for calculation of fuel oil storage requirements set forth in Section 5.4 of ANSI N195-1976. The two methods are (1) calculations based on the assumption that the diesel generator operates continuously for 7 days at its rated capacity, and (2) calculations based on the time-dependent loads of the diesel generator. For the time-dependent load method, the minimum required capacity should include the capacity to power the engineered safety features.
4. IEEE Design Standard 308-1970, “IEEE Criteria for Class 1E Electric Systems for Nuclear Power Generating Station,” Section 5.2.4, “Standby Power Supply,” Paragraph 6), “Energy Storage,” contains the requirement for stored energy capacity to be the longer of (a) seven days or (b) time required to replenish the energy from sources away from the generating unit’s site following the limiting design basis event.

With the implementation of the proposed change, Cooper Nuclear Station continues to meet the applicable design criteria with the exception of permanent fuel oil storage and redundant fuel oil transfer requirements. Contingency actions to supply the required fuel

from temporary storage facilities to support 7 days of diesel operation will be available for the duration of this temporary change.

In conclusion, based on the deterministic and Probabilistic Risk Assessment considerations discussed in this submittal, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 Environmental Consideration

10 CFR 51.22(b) allows that an environmental assessment or an environmental impact statement is not required for any action included in the list of categorical exclusions in 10 CFR 51.22(c). 10 CFR 51.22(c)(9) identifies an amendment to an operating license which changes a requirement with respect to installation or use of a facility component located within the restricted area, or which changes an inspection or a surveillance requirement, as a categorical exclusion if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant hazards consideration, (2) result in a significant change in the types or significant increase in the amount of any effluents that may be released off-site, or (3) result in an increase in individual or cumulative occupational radiation exposure.

NPPD has reviewed the proposed license amendment and concludes that it meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(c), no environmental impact statement or environmental assessment needs to be prepared in connection with issuance of the proposed license changes. The basis for this determination is as follows:

1. The proposed license amendment does not involve significant hazards as described previously in the No Significant Hazards Consideration Evaluation.
2. This proposed change does not result in a significant change in the types or significant increase in the amounts of any effluents that may be released off-site. The proposed license amendment does not introduce any new equipment, nor does it require any existing equipment or systems to perform a different type of function than they are presently designed to perform. NPPD has concluded that there will not be a significant increase in the types or amounts of any effluents that may be released off-site and these changes do not involve irreversible environmental consequences beyond those already associated with normal operation.

3. This change does not adversely affect plant systems or operation and therefore, does not significantly increase individual or cumulative occupational radiation exposure beyond that already associated with normal operation.

7.0 References

- 7.1 Letter to Florida Power and Light Company, from USNRC, dated June 9, 1998, "Turkey Point Units 3 and 4 - Issuance of Amendments Regarding Diesel Fuel Oil Storage and Transfer System (TAC NOS. M97376 and M97377)"

This letter issued Amendment 197 to Operating License DPR-31 and Amendment 191 to Operating License DPR-41 for Turkey Point Units 3 and 4, respectively. These amendments approved the use of temporary storage tanks, in conjunction with excess fuel stored in the Unit 4 fuel storage tanks, to maintain operability of one Unit 3 emergency diesel generator during Technical Specification storage tank maintenance.

- 7.2 Letter to South Texas Project Nuclear Operating Company, from USNR, dated December 30, 2003, "South Texas Project, Unit 2 - Issuance of Amendment Concerning one-time Allowed Outage Time Extension for No. 22 Standby Diesel Generator (TAC NO. MC1643)"

This letter issued Amendment 149 to Operating License NPF-80 for South Texas Project, Unit 2. The amendment approved an extension to 113 days for the allowed outage time, on a one-time basis for the purpose of making repairs to diesel generator No. 22. During the repair time diesel generator No. 22 was unavailable to perform its safety function.

ATTACHMENT 2
PROPOSED TECHNICAL SPECIFICATIONS
MARKUP FORMAT

COOPER NUCLEAR STATION
NRC DOCKET 50-298, LICENSE DPR-46

Listing of Revised Pages

TS Pages

3.8-3

3.8-13

INSERT 1, for TS 3.8.1, Condition B.4 Completion Time TS Page 3.8-3

-----Temporary Note-----


A Diesel Generator which is INOPERABLE solely due to its alignment to a fuel oil storage tank drained in support of fuel oil storage tank cleaning and coating shall be restored to OPERABLE status within 14 days. This temporary note is applicable only if the fuel oil level in the associated DG day tank is maintained above the low level alarm setpoint. This temporary note expires upon completion of the fuel oil storage tank cleaning and coating maintenance activity, but no later than November 30, 2004.

INSERT 2, for TS 3.8.3 TS Page 3.8-13

-----Temporary Note-----

Fuel oil level in temporary storage tanks may be utilized to support OPERABILITY of a DG during tank cleaning and coating maintenance activities. Equipment (temporary transfer pump, hoses, and appropriate fittings) capable of supplying the fuel oil in the temporary tanks to the DG must be available. The fuel oil level in the temporary tanks, in conjunction with the fuel in the permanent tank must be within the limits of Condition A and Condition C. This note is applicable only to the DG aligned to the full permanent tank. This temporary note expires upon completion of the fuel oil storage tank cleaning and coating maintenance activities but no later than November 30, 2004.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3.1 Determine OPERABLE DG is not inoperable due to common cause failure.	24 hours
	<u>OR</u>	
	B.3.2 Perform SR 3.8.1.2 for OPERABLE DG.	24 hours
	<u>AND</u>	
C. Two offsite circuits inoperable.	B.4 Restore DG to OPERABLE status.	7 days 
	<u>AND</u>	
<i>Insert 1</i>		
	C.1 Declare required feature(s) inoperable when the redundant required feature(s) are inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	
	C.2 Restore one offsite circuit to OPERABLE status.	24 hours

(continued)

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

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).

Insert 2 →

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each DG, except for Conditions A, C, and D.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel oil level < 49,500 gal and > 42,800 gal in storage tanks.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil inventory < 504 gal and > 432 gal.	B.1 Restore lube oil inventory to within limits.	48 hours
C. Stored fuel oil total particulates not within limit.	C.1 Restore stored fuel oil total particulates to within limit.	7 days

(continued)

ATTACHMENT 3
PROPOSED TECHNICAL SPECIFICATIONS
FINAL TYPED FORMAT

COOPER NUCLEAR STATION
NRC DOCKET 50-298, LICENSE DPR-46

Listing of Revised Pages

TS Pages

3.8-3

3.8-13

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. (continued)	B.3.1 Determine OPERABLE DG is not inoperable due to common cause failure.	24 hours
	<u>OR</u>	
	B.3.2 Perform SR 3.8.1.2 for OPERABLE DG.	24 hours
	<u>AND</u>	
	B.4 Restore DG to OPERABLE status.	7 days* <u>AND</u> 14 days from discovery of failure to meet LCO

-----TEMPORARY NOTE-----

* A Diesel Generator which is INOPERABLE solely due to its alignment to a fuel oil storage tank drained in support of fuel oil storage tank cleaning and coating shall be restored to OPERABLE status within 14 days. This temporary note is applicable only if the fuel oil level in the associated DG day tank is maintained above the low level alarm setpoint. This temporary note expires upon completion of the fuel oil storage tank cleaning and coating maintenance activity, but no later than November 30, 2004.

C. Two offsite circuits inoperable.	C.1 Declare required feature(s) inoperable when the redundant required feature(s) are inoperable.	12 hours from discovery of Condition C concurrent with inoperability of redundant required feature(s)
	<u>AND</u>	
	C.2 Restore one offsite circuit to OPERABLE status.	24 hours

(continued)

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

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).

-----TEMPORARY NOTE-----

Fuel oil level in temporary storage tanks may be utilized to support OPERABILITY of a DG during tank cleaning and coating maintenance activities. Equipment (temporary transfer pump, hoses, and appropriate fittings) capable of supplying the fuel oil in the temporary tanks to the DG must be available. The fuel oil level in the temporary tanks, in conjunction with the fuel in the permanent tank must be within the limits of Condition A and Condition C. This note is applicable only to the DG aligned to the full permanent tank. This temporary note expires upon completion of the fuel oil storage tank cleaning and coating maintenance activities but no later than November 30, 2004.

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

-----NOTE-----

Separate Condition entry is allowed for each DG, except for Conditions A, C, and D.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel oil level < 49,500 gal and > 42,800 gal in storage tanks.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with lube oil inventory < 504 gal and > 432 gal.	B.1 Restore lube oil inventory to within limits.	48 hours
C. Stored fuel oil total particulates not within limit.	C.1 Restore stored fuel oil total particulates to within limit.	7 days

(continued)

ATTACHMENT 4

**PROPOSED TECHNICAL SPECIFICATIONS BASES REVISIONS
MARKUP FORMAT**

**COOPER NUCLEAR STATION
NRC DOCKET 50-298, LICENSE DPR-46**

Listing of Revised Pages

TS Bases Pages

**B 3.8-11
B 3.8-33**

Note: TS Bases pages are provided for information. Following approval of the proposed TS change, Bases changes will be implemented in accordance with TS 5.5.10, "Technical Specification (TS) Bases Control Program."

INSERT 3, for TS 3.8.1, Condition B.4 Bases Bases Page B 3.8-11

-----Temporary Note-----

The 7 day completion time to restore a DG to OPERABLE status is temporarily extended to 14 days if the DG is inoperable due to alignment to a fuel oil storage tank that is drained in support of tank cleaning and coating maintenance activities. The inoperable DG must be available to start and load. The day tank level for the inoperable DG must be maintained above the low level alarm setpoint to ensure the DG safety function is maintained while actions to supply fuel from the opposite division fuel oil storage tank are being performed. A DG that is inoperable for any other reason must be restored within the 7 day completion time requirement. This temporary extension of Condition B.4 Completion Time does not apply to the 14 day maximum Completion Time. The maximum time allowed for any combination of required AC power sources to be inoperable remains 14 days. This temporary extension to Condition B.4 Completion Time expires upon completion of the fuel oil storage tank cleaning and coating maintenance activity, but no later than November 30, 2004.

INSERT 4, for TS 3.8.3 Bases Bases Page B 3.8-33

-----Temporary Note-----

The Limiting Condition for Operation is modified by a temporary note indicating temporary storage tanks may be used on a one time basis during tank cleaning and coating maintenance activities. Fuel stored in the temporary tanks, in conjunction with fuel oil in one permanent storage tank, may be utilized to maintain the DG aligned to the permanent storage tank OPERABLE. A temporary transfer pump with a capacity greater than 5 gpm must be pre-staged and available to transfer the off-loaded fuel to the DG. This is considered sufficient based on fuel in the permanent tank providing a minimum of 4 days full load operation of the DG, contingency measures which pre-stage equipment necessary to transfer the fuel in the temporary tanks to the permanent tank or directly to the DG day tank, and the initiation of actions to obtain replenishment fuel. This temporary note expires upon completion of the fuel oil storage tank cleaning and coating maintenance activity, but no later than November 30, 2004.

BASES

ACTIONS
(continued)

B.4

In Condition B, the remaining OPERABLE DG and offsite circuits are adequate to supply electrical power to the onsite Class 1E Distribution System. The 7 day Completion Time takes into account the capacity and capability of the remaining AC sources, reasonable time for repairs, and low probability of a DBA occurring during this period.



The second Completion Time for Required Action B.4 establishes a limit on the maximum time allowed for any combination of required AC power sources to be inoperable during any single contiguous occurrence of failing to meet the LCO. If Condition B is entered while, for instance, an offsite circuit is inoperable and that circuit is subsequently restored OPERABLE, the LCO may already have been not met for up to 7 days. This situation could lead to a total of 14 days, since initial failure of the LCO, to restore the DG. At this time, an offsite circuit could again become inoperable, the DG restored OPERABLE, and an additional 7 days (for a total of 21 days) allowed prior to complete restoration of the LCO. The 14 day Completion Time provides a limit on the time allowed in a specified condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which Conditions A and B are entered concurrently. The "AND" connector between the 7 day and 14 day Completion Times means that both Completion Times apply simultaneously, and the more restrictive must be met.

Similar to Required Action B.2, the second Completion Time of Required Action B.4 allows for an exception to the normal "time zero" for beginning the allowed outage time "clock." This exception results in establishing the "time zero" at the time that the LCO was initially not met, instead of the time that Condition B was entered.

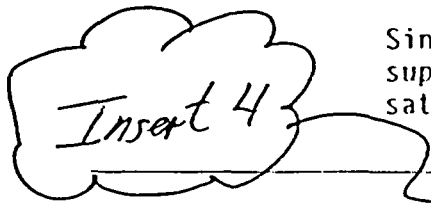
(continued)

BASES (continued)

APPLICABLE
SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in USAR, Chapter VI (Ref. 4), and Chapter XIV (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 3.5, Emergency Core Cooling Systems (ECCS) and Reactor Core Isolation Cooling (RCIC) System; and Section 3.6, Containment Systems.

Since diesel fuel oil, lube oil, and starting air subsystems support the operation of the standby AC power sources, they satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 6).



LCO

Stored diesel fuel oil is required in sufficient supply for 7 days of operation at maximum post-LOCA load demand. It is also required to meet specific standards for quality. Additionally, sufficient lube oil supply must be available to ensure the capability to operate for 7 days at maximum post-LOCA load demand. 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 abnormal operational transient or a postulated DBA with loss of offsite power. DG day tank fuel oil 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 multiple DG start attempts in accordance with Reference 7, without recharging the air start receivers. Only one air receiver (and associated airstart header) per DG is required, since each air receiver has the required capacity.

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

(continued)

ATTACHMENT 5

DIESEL GENERATOR FUEL OIL STORAGE AND TRANSFER SYSTEM SIMPLIFIED SKETCHES

List of Figures

- Figure 1 - Site/DGDO System Layout**
- Figure 2 - Present Day Arrangement**
- Figure 3 - Staging Equipment**
- Figure 4 - Configuration During Tank Coating**
- Figure 5 - Configuration During Pipe Flush**
- Figure 6 - Defense in Depth Strategy #1**
- Figure 7 - Defense in Depth Strategy # 2**
- Figure 8 - Defense in Depth Strategy #3**
- Figure 9 - 345 kV Switchyard One Line Diagram**

Site/DGDO System Layout

NLS2004076
Attachment 5
Figure 1

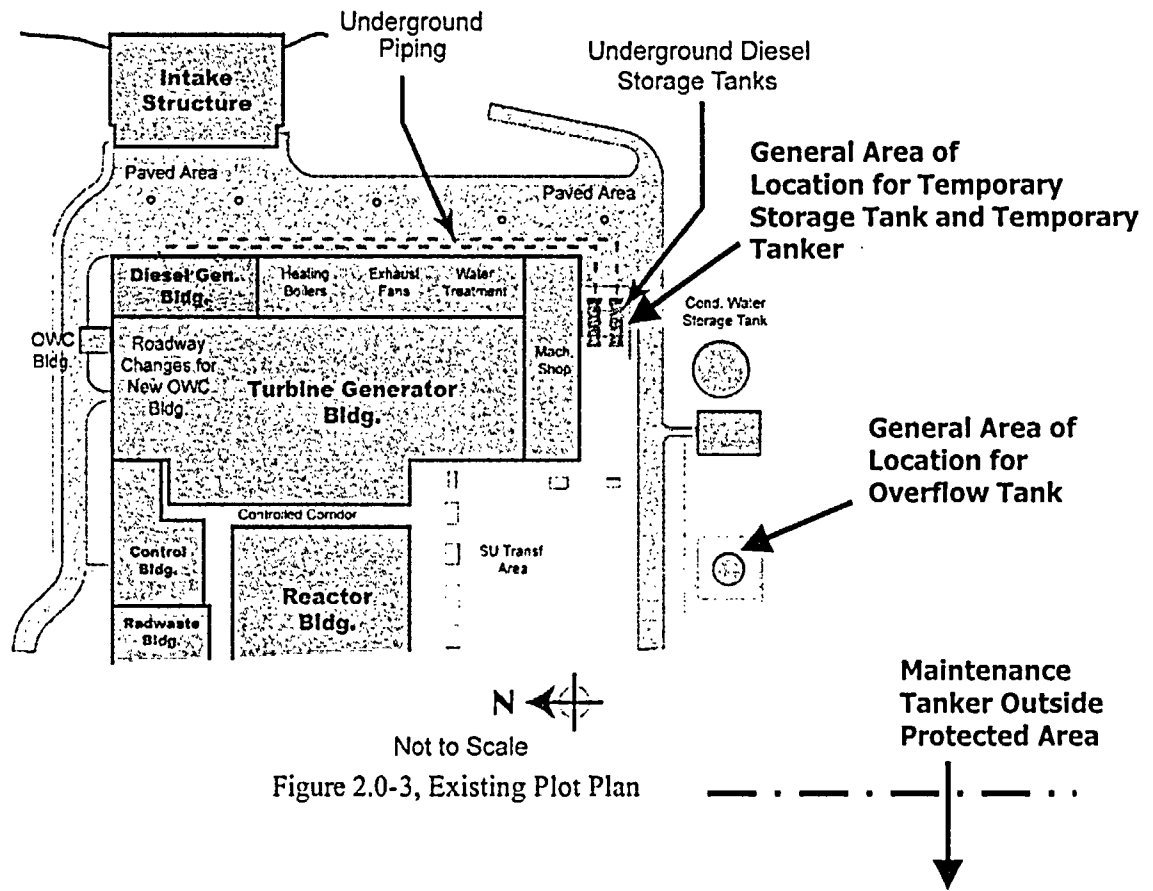
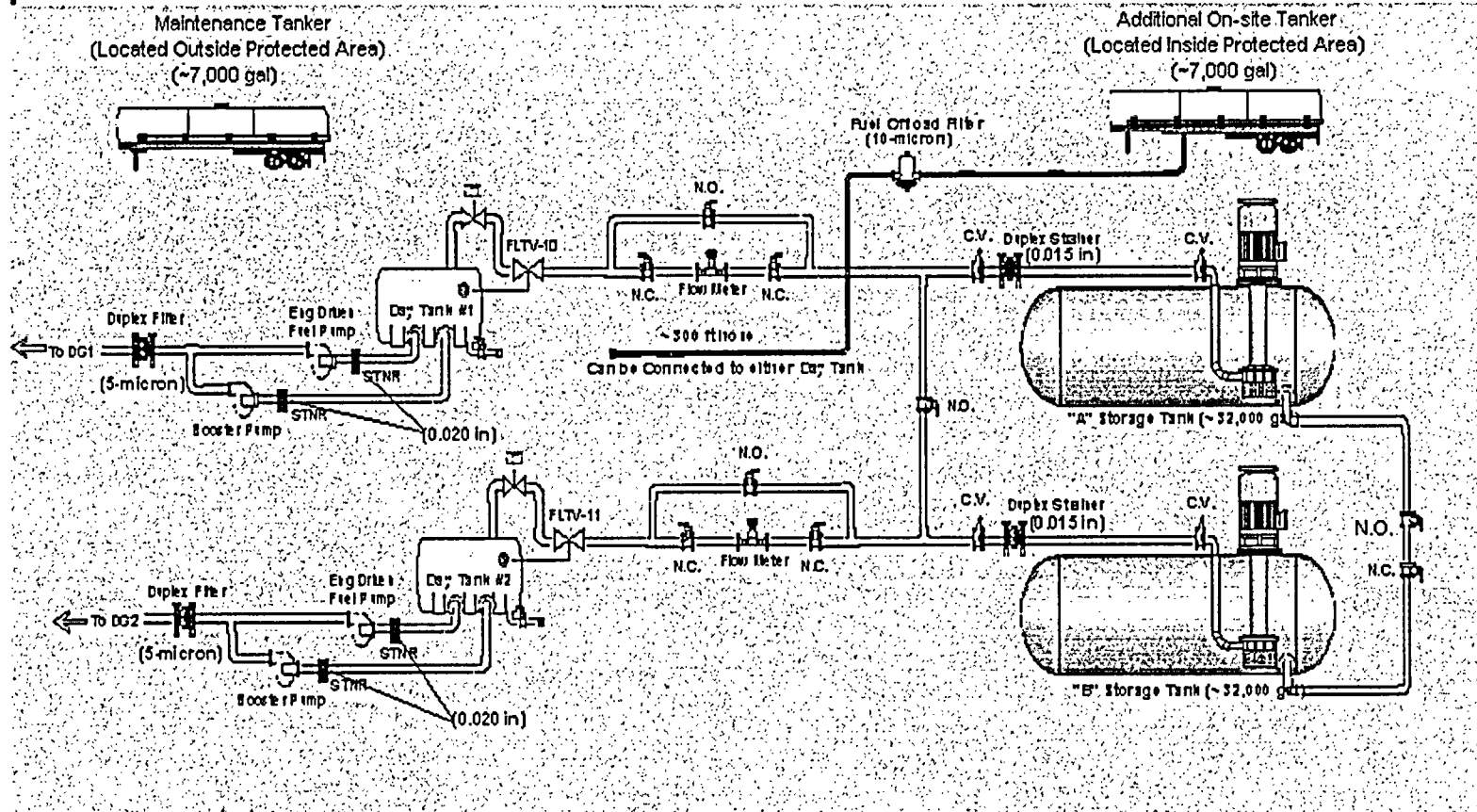


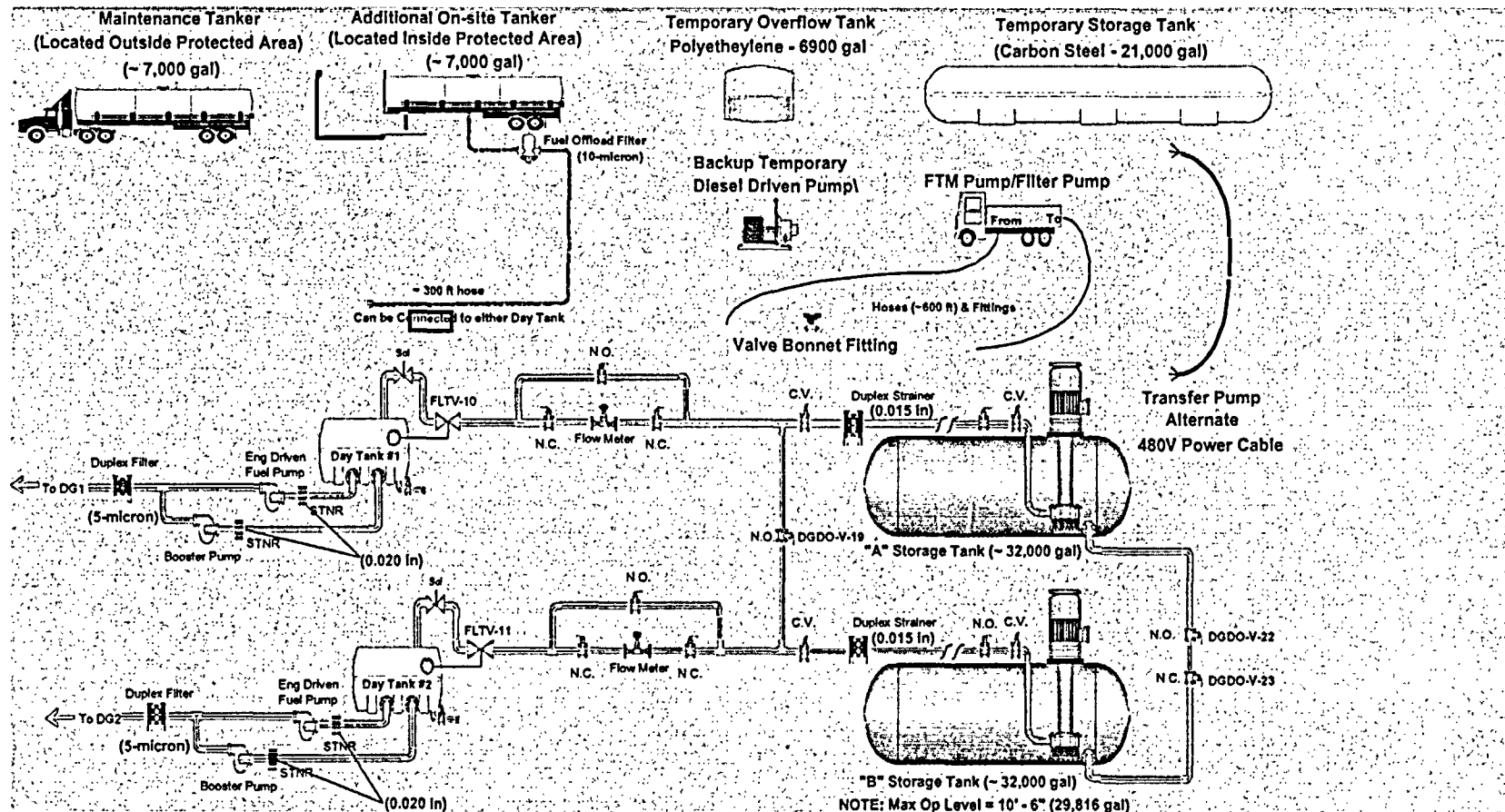
Figure 2.0-3, Existing Plot Plan

7/9/2004

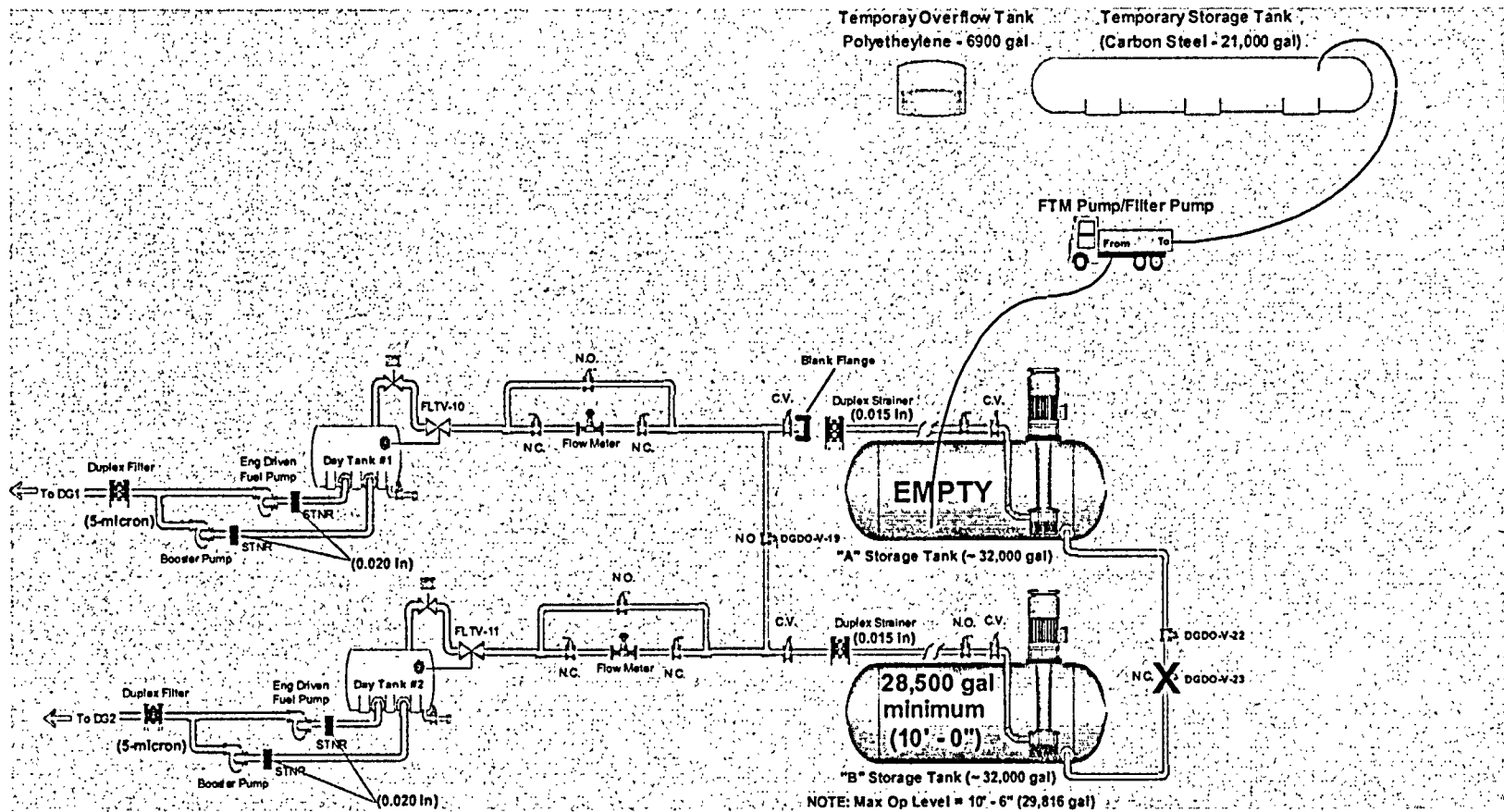
Present Day Arrangement



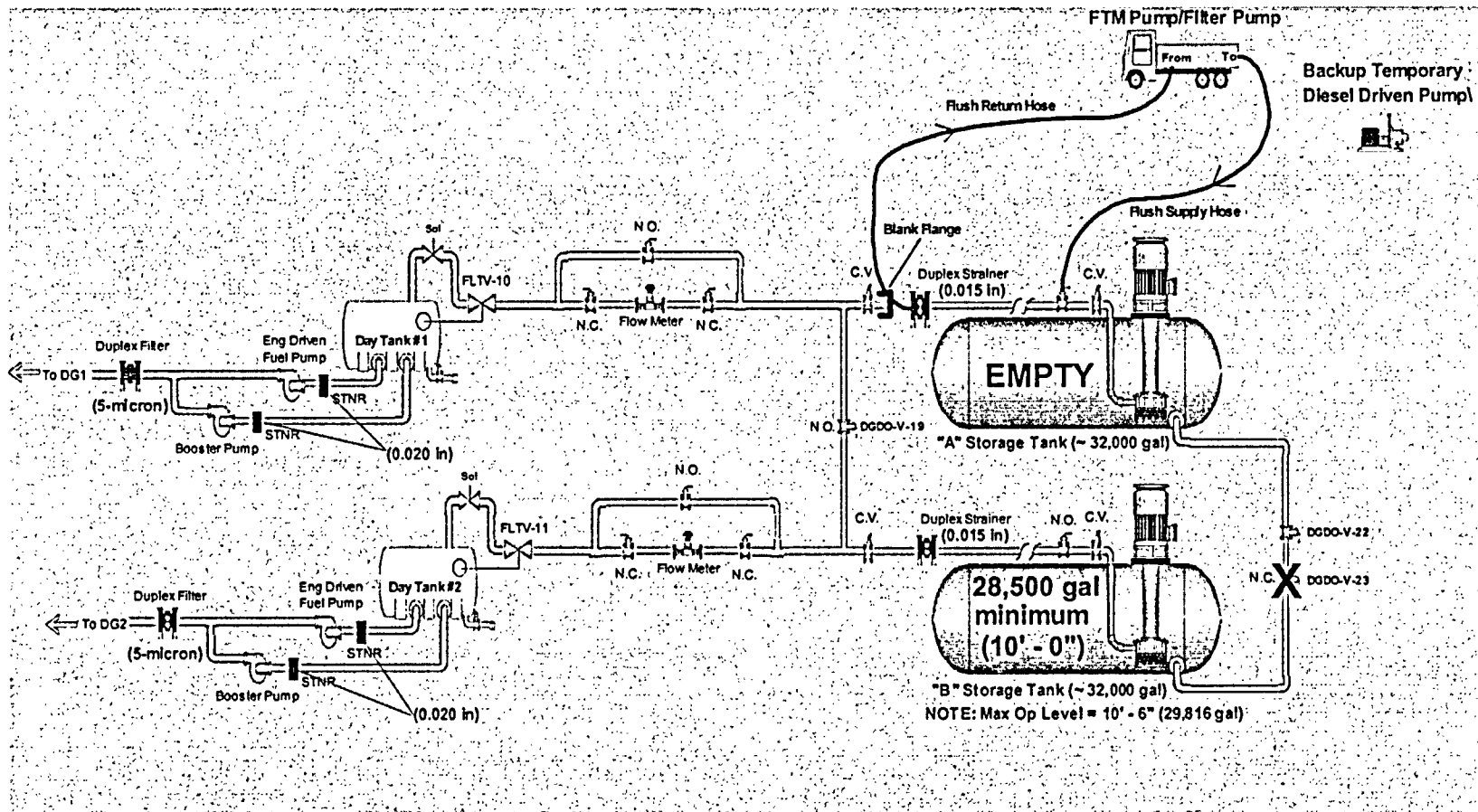
Staging Equipment



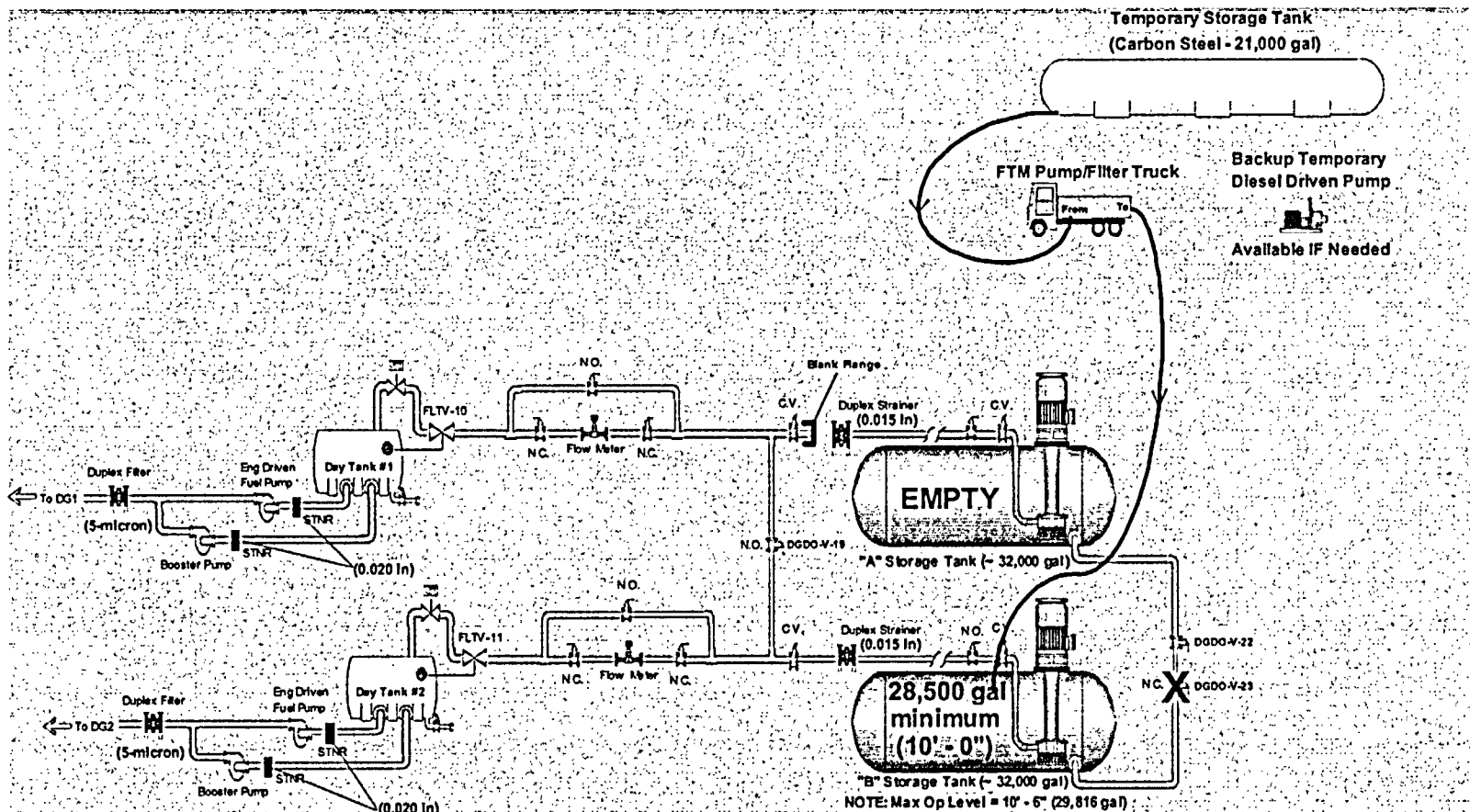
Configuration During Tank Coating (Shown for "A" Tank)



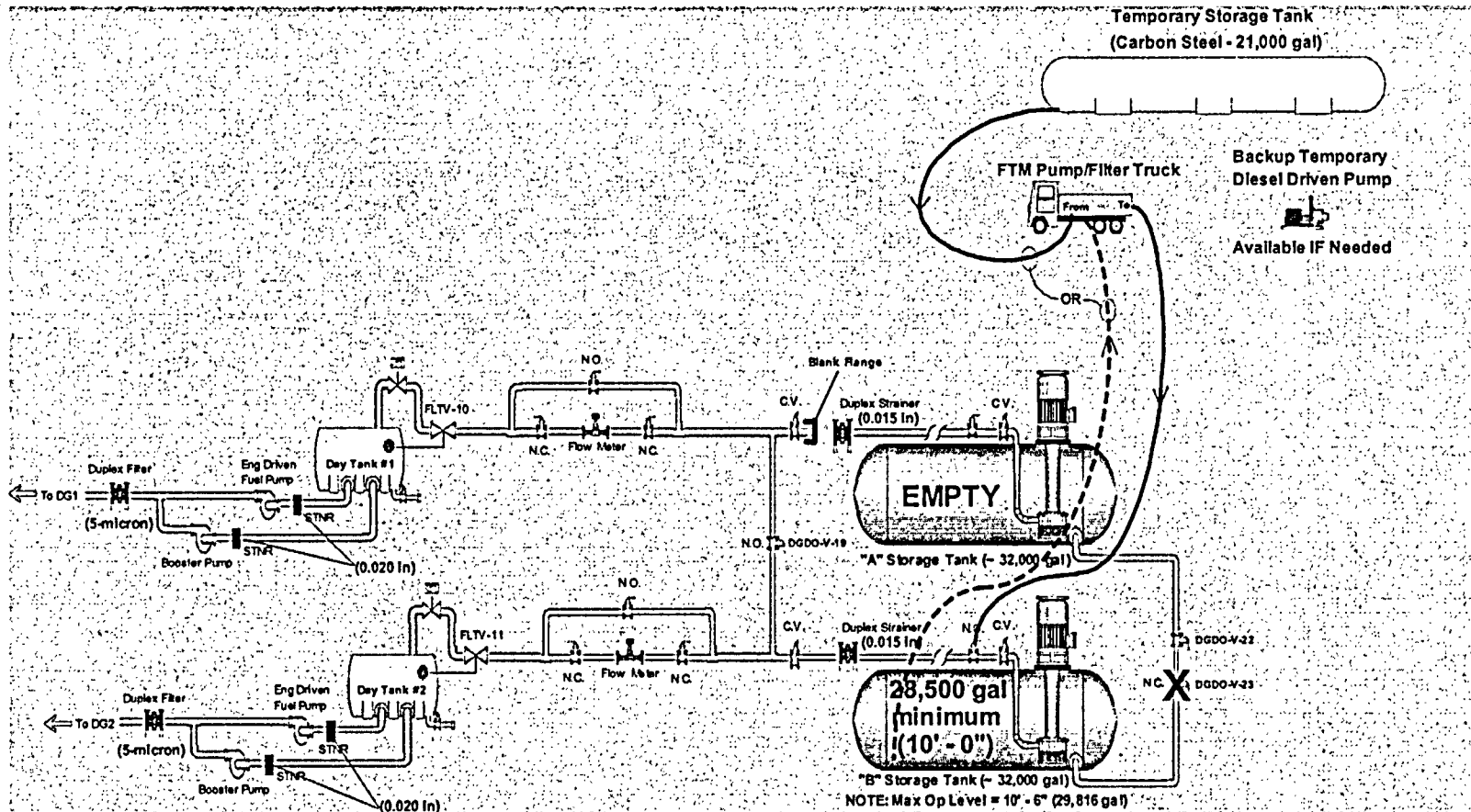
Configuration During Pipe Flush (Shown for "A" System)



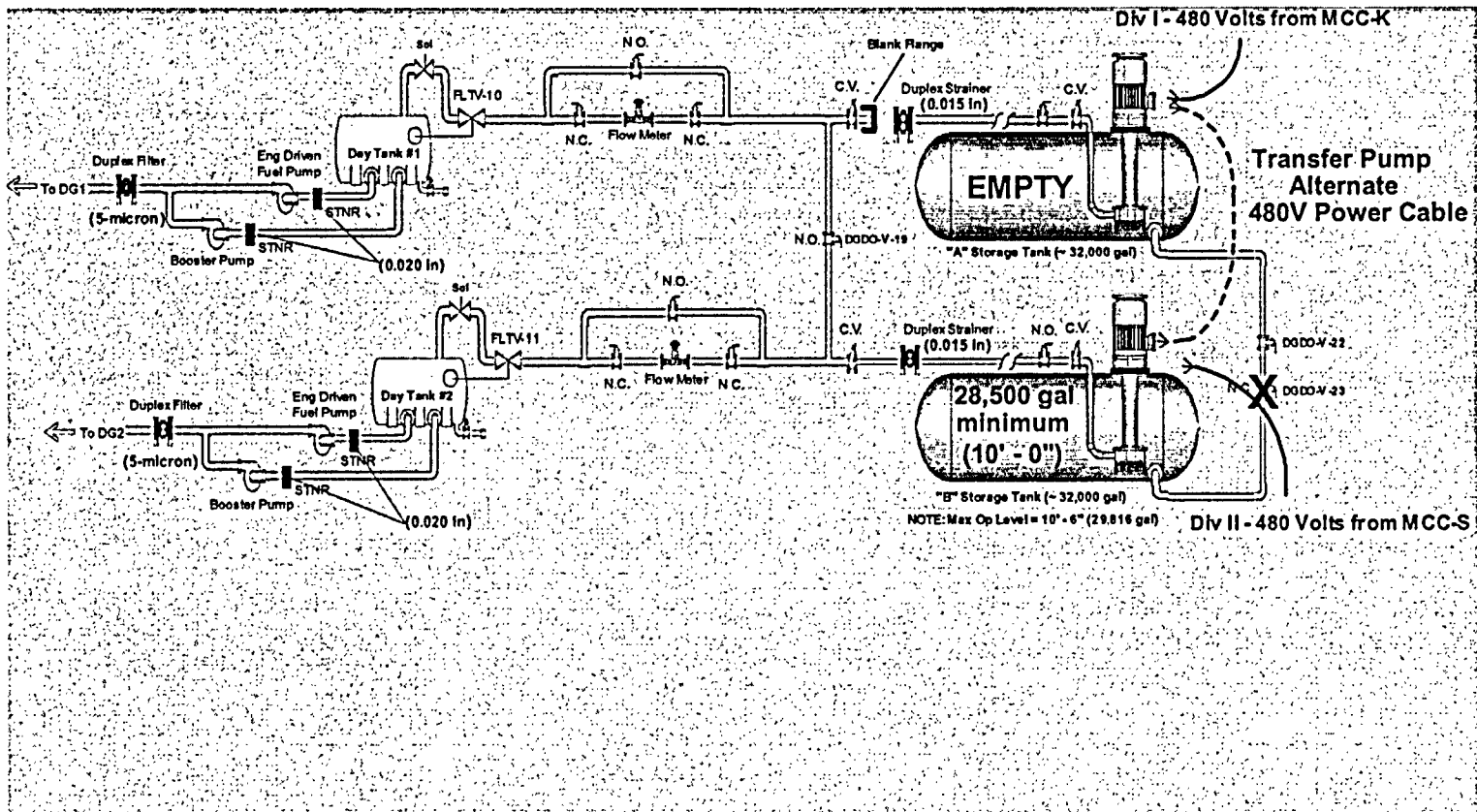
Defense in Depth Strategy #1 – Response to a Start of EDG's (Shown for "A" System Drained)

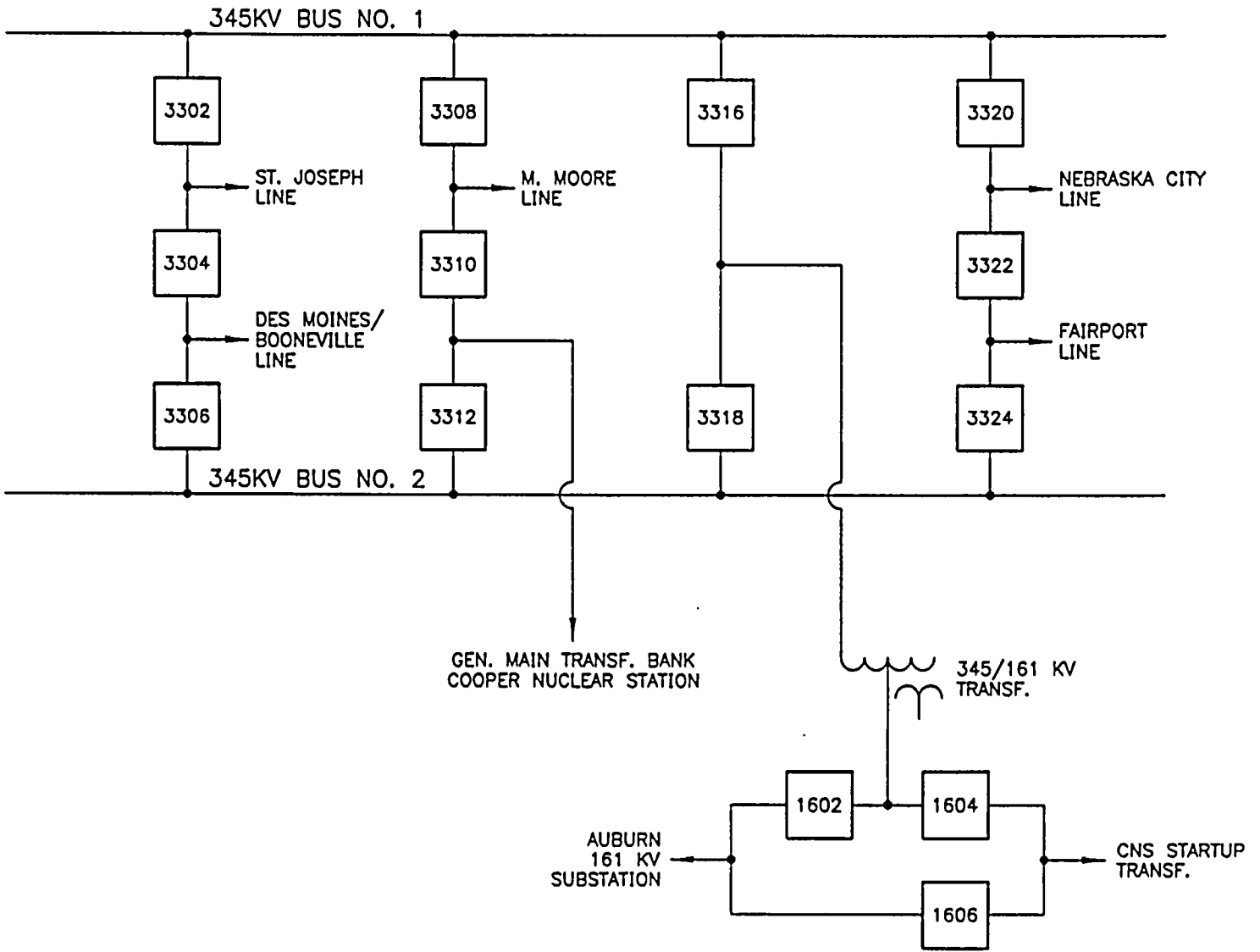


Defense in Depth Strategy #2 – Response to a Failure of the Available Fuel Transfer Pump (Shown for "A" System Drained)



Defense in Depth Strategy #3 – Response to a Loss of Power to the Available Fuel Transfer Pump (Shown for "A" System Drained)





Nebraska Public Power District
 COOPER NUCLEAR STATION
 UPDATED SAFETY ANALYSIS REPORT (USAR)
 345KV SWITCHYARD
 ONE LINE DIAGRAM
 Figure VIII-2-3
 07/22/95

