

ATTACHMENT 2 TO AEP:NRC:0896G

REVISED PAGES FOR THE

DONALD C. COOK NUCLEAR PLANT UNITS 1 AND 2

TECHNICAL SPECIFICATIONS

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ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4.8.1.1.2 Each diesel generator shall be demonstrated OPERABLE:

- a. In accordance with the frequency specified in Table 4.8-2 on a STAGGERED TEST BASIS by:
 1. Verifying the fuel level in the day tank,
 2. Verifying the fuel level in the fuel storage tank,
 3. Verifying that the fuel transfer pump can be started and that it transfers fuel from the storage system to the day tank,
 4. Verifying that the diesel starts from ambient condition and that it accelerates to at least 514 rpm in less than or equal to 10 seconds,*
 5. Verifying that the generator is loaded to greater than or equal to 1700 kw and that it operates for greater than or equal to 60 minutes and verifying that the generator output breaker to the emergency bus is OPERABLE, and
 6. Verifying that the diesel generator is aligned to provide standby power to the associated emergency busses.
- b. At least once per 31 days, and after each operation of the diesel of greater than or equal to 1 hour, by removing accumulated water, if any, from the day tank.
- c. By sampling new fuel oil** in accordance with the applicable guidelines of ASTM D4057-81 prior to adding new fuel to the storage tanks and
 - 1) By verifying, in accordance with the tests specified in ASTM D975-81 and prior to adding the new fuel to the storage tanks, that the sample has a kinematic viscosity of greater than or equal to 1.9 centistokes but less than or equal to 4.1 centistokes at 40°C.
 - 2) By verifying, in accordance with the test specified in ASTM D1298-80 and prior to adding the new fuel to the storage tanks, that the sample has an API gravity of greater than or equal to 30 degrees but less than or equal to 40 degrees at 60°F.

*The diesel generator start (10 seconds) from ambient conditions shall be performed at least once per 184 days in these surveillance tests. All other engine starts for the purpose of this surveillance testing and compensatory action may be at reduced acceleration rates as recommended by the manufacturer so that mechanical stress and wear on the diesel engine are minimized.

**The OPERABILITY status of the diesel generators as it relates to fuel oil testing is found in the Bases.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- 3) By verifying, in accordance with the test specified in ASTM D4176-82 and prior to adding new fuel to the storage tanks, that the sample has a clear and bright appearance with proper color.
 - 4) By verifying within 14 days of obtaining the sample that the other properties specified in Table 1 of ASTM D975-81 are within the appropriate limits when tested in accordance with ASTM D975-81.
- d. At least once per 31 days by sampling oil from the bottom of the storage tanks in accordance with the applicable guidelines of ASTM D4057-81 and by verifying, in accordance with the kinematic viscosity, clear and bright, and API gravity tests specified in ASTM D975-81, ASTM D4176-82, and ASTM D1298-80, respectively, that the sample meets the criteria of Surveillance Requirements 4.8.1.1.2.c.1., 4.8.1.1.2.c.2, and 4.8.1.1.2.c.3. If water and sediment content is determined to be unacceptable based on the results of the clear and bright test, the bottom of the affected tank shall be pumped out to remove the accumulated water. The test shall be repeated, and the bottom of the tank pumped out as necessary, until the test results are determined to be acceptable.
- e. At least once per 18 months, during shutdown, by:
1. Subjecting the diesel engine to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service,
 2. Verifying the generator capability to reject a load greater than or equal to 600 kw while maintaining voltage at 4160 ± 420 volts and frequency at 60 ± 1.2 Hz,
 3. Verifying the generator capability to reject a load of 3500 kw without exceeding 75% of the difference between nominal speed and the overspeed trip setpoint,
 4. Simulating a loss of offsite power by itself, and:
 - a) Verifying de-energization of the emergency busses and load shedding from the emergency busses,
 - b) Verifying that the diesel starts on the auto-start signal, energizes the emergency busses with

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

permanently connected loads within 10 seconds, energizes the auto-connected shutdown loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the shutdown loads. After load sequencing is completed, the steady state voltage and frequency of the emergency busses shall be maintained at 4160 ± 420 volts and 60 ± 1.2 Hz during the test.

5. Verifying that, on a Safety Injection actuation test signal (without loss of offsite power), the diesel generator starts on the auto-start signal and operates on standby for greater than or equal to 5 minutes,
6. Simulating a loss of offsite power in conjunction with a Safety Injection actuation test signal, and by:
 - a) Verifying de-energization of the emergency busses and load shedding from the emergency busses,
 - b) Verifying the diesel starts on the auto-start signal, energizes the emergency busses with permanently connected loads within 10 seconds, energizes the auto-connected emergency (accident) loads through the load sequencer and operates for greater than or equal to 5 minutes while its generator is loaded with the emergency loads. After load sequencing is completed, the steady state voltage and frequency of the emergency busses shall be 4160 ± 420 volts and 60 ± 1.2 Hz. The voltage and frequency shall be maintained within these limits for the remainder of this test, and
 - c) Verifying that all automatic diesel generator trips, except engine overspeed and generator differential, are automatically bypassed upon loss of voltage on the emergency bus and/or Safety Injection actuation signal.
7. Verifying that the diesel generator operates for at least 24 hours. During this test the diesel generator shall be loaded to 3500 kw. Within 5 minutes after completing this 24-hour test, perform Surveillance Requirement 4.8.1.1.2.e.4.
8. Verifying that the auto-connected loads to each diesel generator do not exceed 3500 kw.
9. Verifying the diesel generator's capability to:
 - a) Synchronize with the offsite power source while the generator is loaded with its emergency loads upon a simulated restoration of offsite power,

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- b) Transfer its loads to the offsite power source, and
 - c) Be restored to its standby status.
- 10. Verifying that with the diesel generator operating in a test mode while connected to its test load, a simulated Safety Injection signal overrides the test mode by:
 - a) Returning the diesel generator to standby operation, and
 - b) Verifying the emergency loads are serviced by offsite power.
- f. At least once per 10 years by either removing the accumulated sediment and cleaning the tank, or agitating the fuel oil in the storage tank and then pumping the oil from the bottom of the tank, through a less than or equal to 5-micron filter, and back to the opposite end of the tank.

BASES

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criteria 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining at least one of each of the onsite A.C. and D.C power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the facility status.

In reference to Specification 3.8.1.1 Action b, the phrase "and an accumulated annual outage time of 576 hours exclusive of MODES 5 and 6" shall be interpreted as follows. This phrase refers to the amount of time the diesel generator has been inoperable in the past 365 days while in MODES 1, 2, 3, and 4. This time includes the amount of time spent in ACTION statements except for the time utilized for regularly scheduled surveillances. The accumulated annual outage time is reset to zero upon successful completion of the diesel generator requalification program (Attachment 2 to Table 4.8-1).

The train N station battery system provides an independent 250 volt DC power supply for power and control of the turbine driven auxiliary feedwater pump train. The limiting conditions of operation for the train N battery are consistent with the requirements of the auxiliary feedwater system. The surveillance requirements for the train N battery system are consistent with the requirements of the AB and CD station batteries. The train N battery loads are derived from equipment in the turbine driven auxiliary feedwater pump train and battery sizing is consistent with the functional requirements of these components. Simulated loads for battery tests are loads equivalent to measured actual loads.

In reference to surveillance requirements 4.8.1.1.2.c.1, 4.8.1.1.2.c.2, 4.8.1.1.2.c.3, and 4.8.1.1.2.c.4, the water and sediment content and kinematic viscosity are the fuel oil properties having the most significant impact on diesel generator OPERABILITY. The other properties, although they may affect the diesel generator over the long

3/4.8 ELECTRICAL POWER SYSTEMS (Continued)

BASES

term by increasing maintenance requirements, have little influence on the ability of the diesel generators to operate properly during the short term. Therefore, if these other properties are found to be outside the limits specified, they should be expeditiously brought back to within specified limits, and the affected diesel generators will still be considered OPERABLE. The sample specified in 4.8.1.1.2.c.4 is sent offsite for testing. If for some reason the 14-day time cannot be met (e.g., if the sample is lost or broken or if the offsite test results are not received in 14 days), the diesel generators will still be considered OPERABLE. If the sample is lost or broken and the new oil has already been put into the storage tank, the offsite tests will be performed on a sample taken from the storage tank.

ELECTRICAL POWER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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SURVEILLANCE REQUIREMENTS (Continued)

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SURVEILLANCE REQUIREMENTS (Continued)

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SURVEILLANCE REQUIREMENTS (Continued)

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BASES

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ATTACHMENT 3 TO AEP:NRC:0896G

FLOW DIAGRAM OF DIESEL FUEL OIL TANKS
AND EXPLANATION OF WHY EMPTYING TANKS
REQUIRES DUAL UNIT SHUTDOWN

As shown on Figures 1 and 2, the "AB" tank supplies fuel to the Unit 1 "AB" diesel generator and the Unit 2 "AB" diesel generator, while the "CD" tank supplies fuel to the Unit 1 "CD" diesel generator and the Unit 2 "CD" diesel generator. Figure 3 shows the location of the tanks relative to each other. There is no cross-tie between the tanks; therefore, to empty either tank to clean it would require making a diesel generator in each unit inoperable. Since cleaning the tanks cannot be accomplished within the 72-hour Action Statement of T/S 3.8.1.1, emptying the tanks to clean them would require both units to be shut down.

DIESEL FUEL OIL STORAGE AND TRANSFER SYSTEM

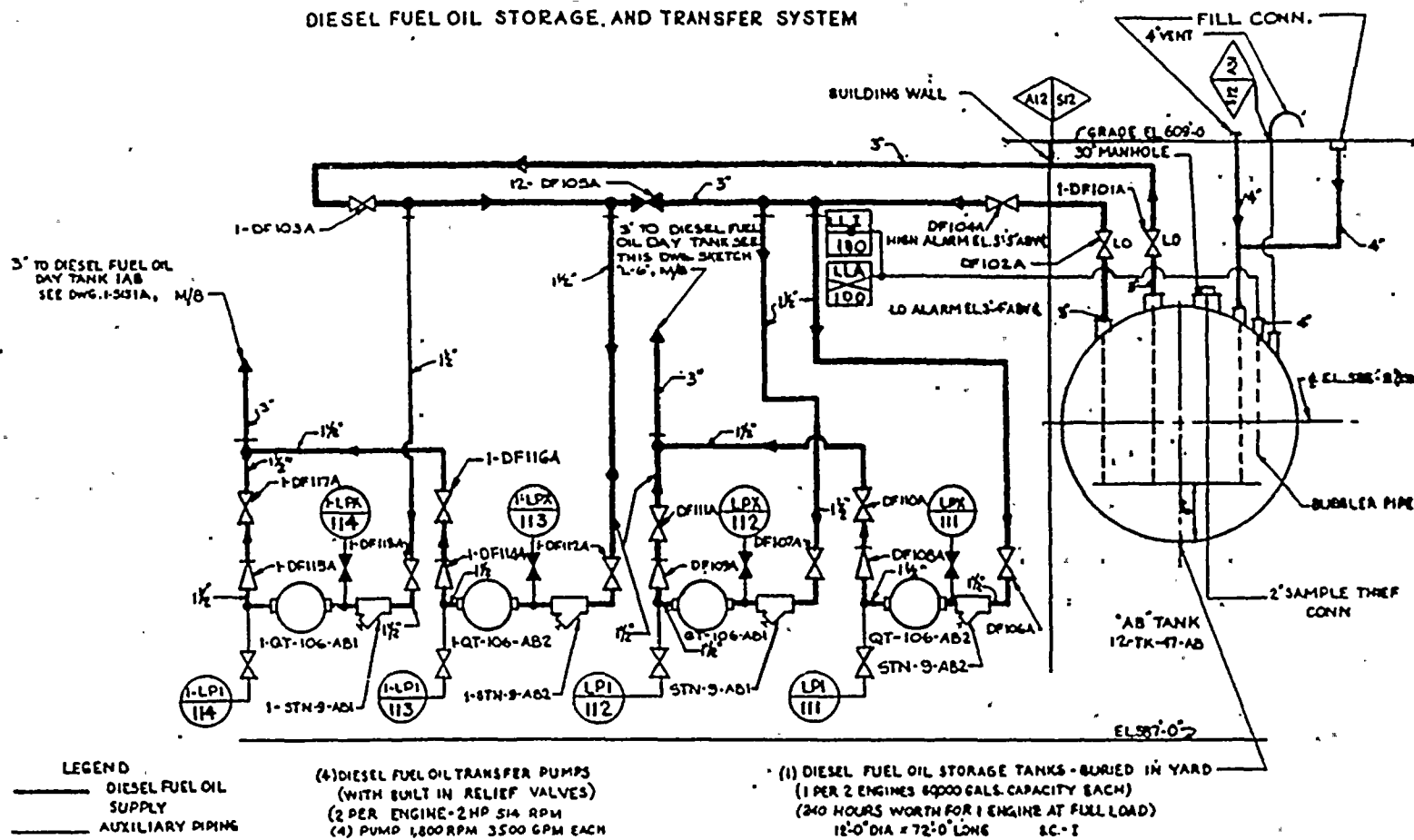


Figure 1

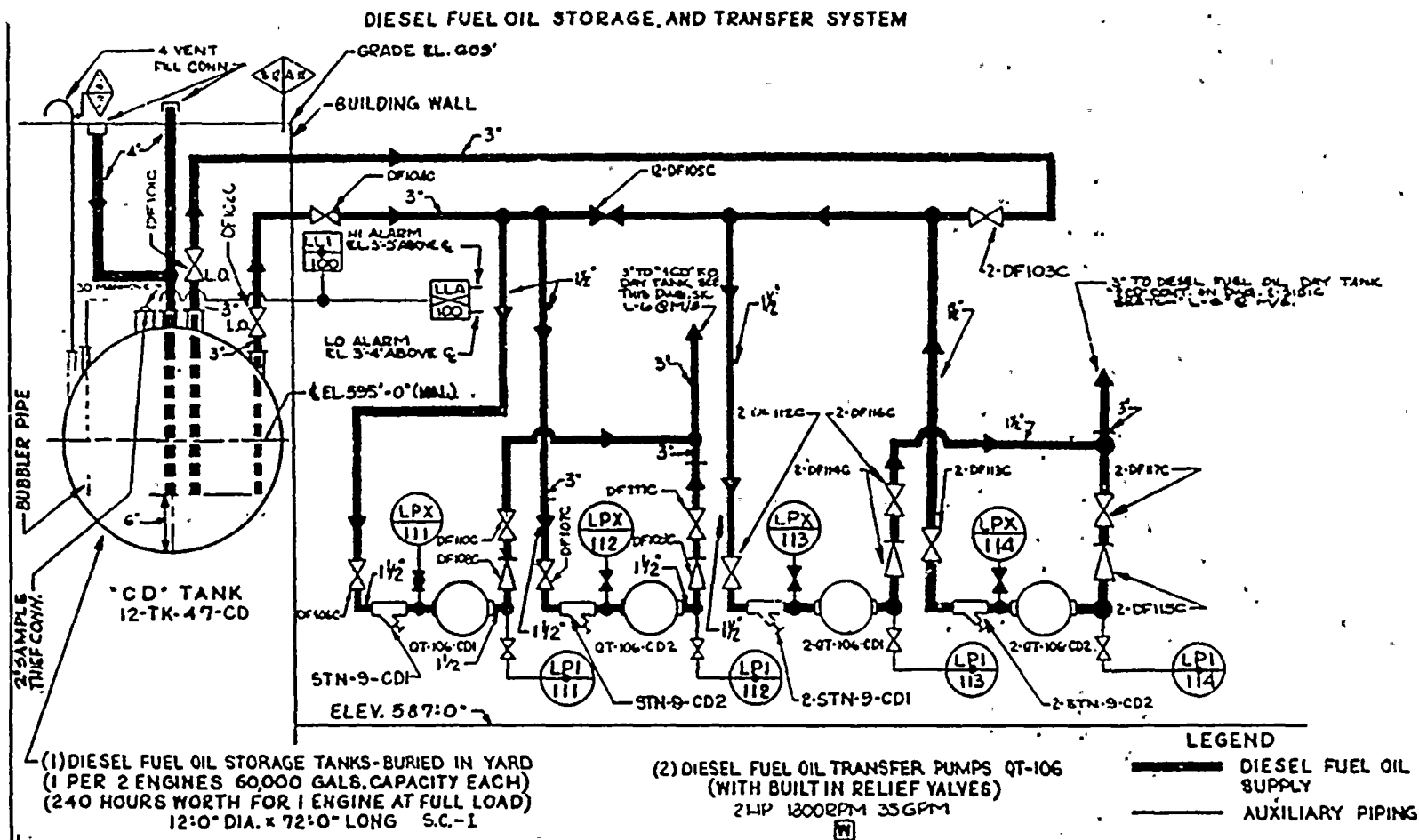


Figure 2

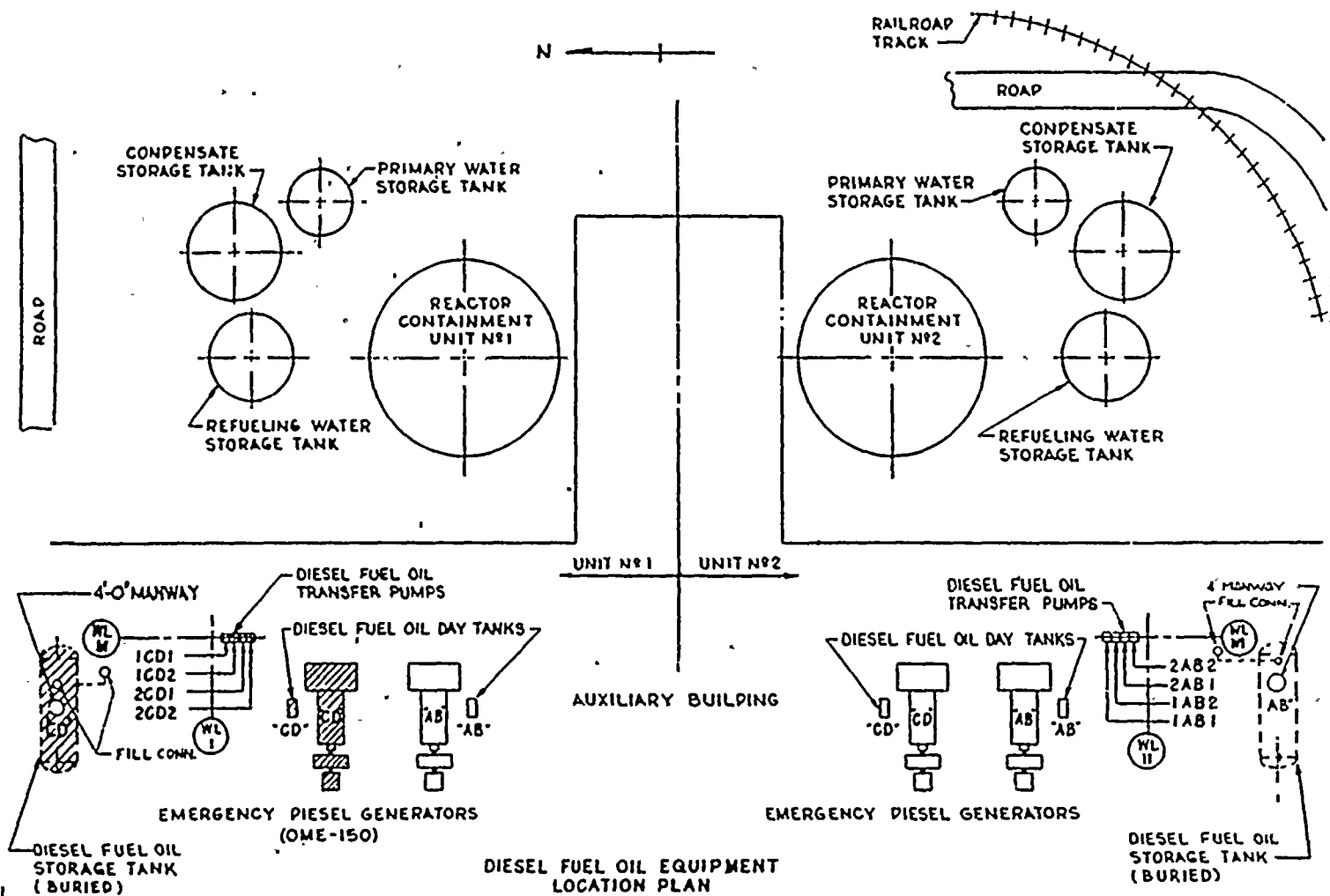


Figure 3