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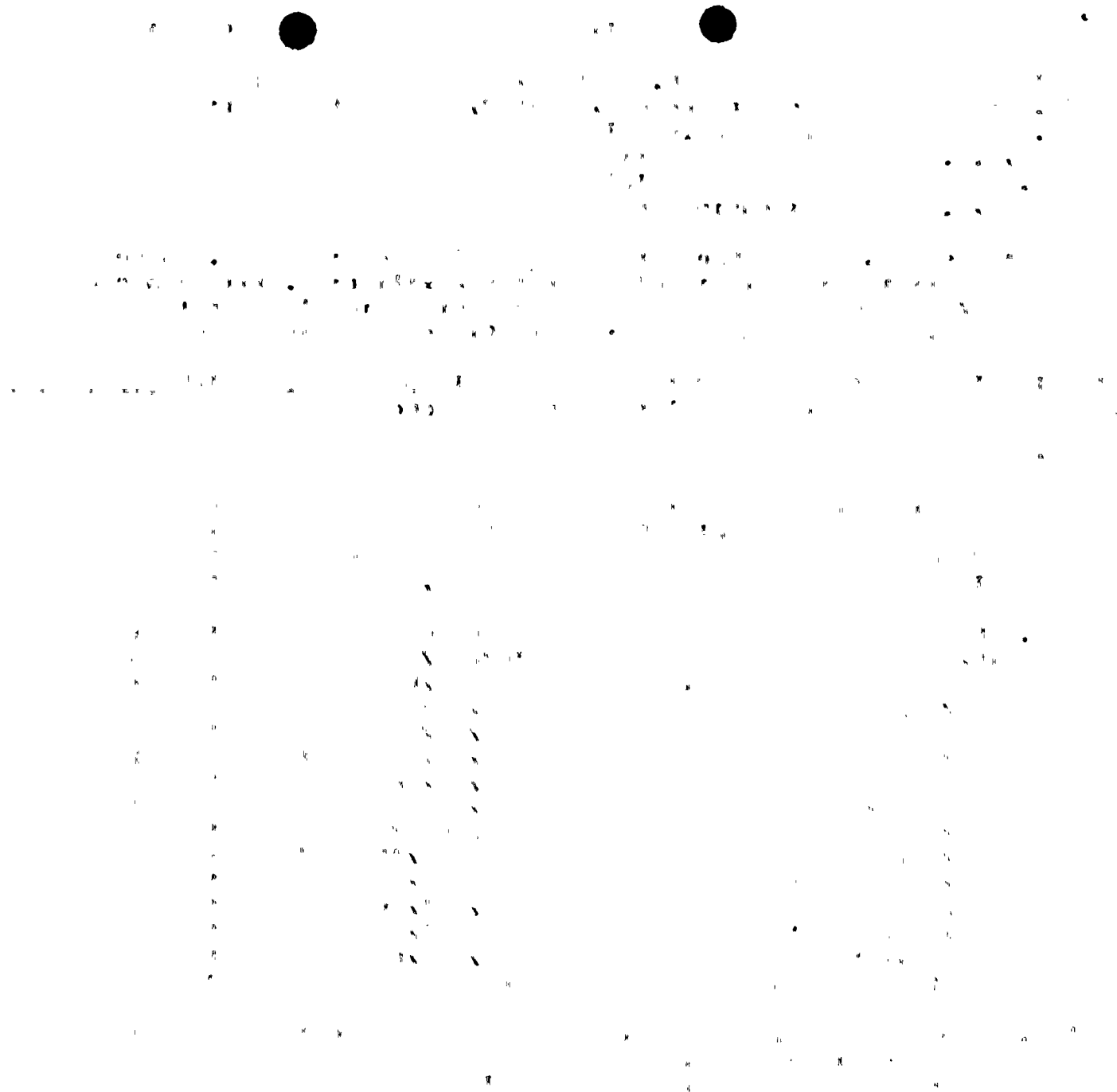
SUBJECT: Responds to SER Open Items 15 & FSAR Question 0040.084, re qualification of diesel generator auxiliaries. Util disagrees w/NRC proposal to upgrade skid-mounted diesel generator auxiliaries to ASME Section III Class 3 requirements.

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May 25, 1982
G02-82-466
SS-L-02-KAH-82-001

Docket No. 50-397

Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Schwencer:

Subject: NUCLEAR PROJECT NO. 2
SER OPEN ITEMS - DIESEL GENERATOR
AUXILIARY QUALIFICATIONS

This letter is provided in response to SER Open Item 15 and FSAR Question Q040.084, regarding qualification of diesel generator auxiliaries. Accordingly, please find attached marked-up revisions to FSAR Table 3.2-1 and Figure 9.5-4, which will be incorporated into a future FSAR amendment. Also attached is a detailed response to Q040.084.

The Supply System disagrees with the NRC Staff's proposal to upgrade the WNP-2 skid-mounted diesel generator auxiliaries to ASME Section III, Class 3 requirements. The Supply System's central contention is that Regulatory Guide 1.26 specifically excludes diesel engine auxiliaries from the need to meet the ASME Code by requiring only that quality commensurate with importance to safety be ensured. The Supply System has ensured that the diesel generator auxiliaries were adequately designed, have a proven history of reliable operational experience, and will operate at pressures below design capabilities. Additionally, imposition of requirements for qualification testing and vendor surveillance of materials, and specification of seismic category I and quality class I designs, essentially eliminated technical differences between ANSI B31.1 and ASME Section III, Class 3 requirements. Based on these considerations, it is our conclusion that backfitting of the diesel generator auxiliaries to fully comply with Section III of the ASME code is not necessary to achieve the requisite level of safety and is not warranted on a cost-benefit basis.

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We believe the attachment to this letter provides ample technical justification for the adequacy of the present WNP-2 design. Further, the Regulatory Guides are guidance documents, and the Staff has made no finding requiring backfitting in accordance with 10CFR50.109. Consequently, we submit that the Staff is not justified in attempting to impose an interpretation of a Regulatory Guide that would require backfitting of the WNP-2 diesels as if it were a legally binding requirement. Accordingly, we request that NRC Staff and management re-evaluate this matter and remove this item as an open issue in the WNP-2 SER.

Very truly yours,



G. D. Bouchey, Deputy Director
Safety and Security

GDB/rch
Attachment

cc: R Auluck - NRC
WS Chin - BPA - 399
HR Denton - NRC
WJ Dircks - NRC
DG Eisenhut - NRC
R Feil - NRC Site - 917Q
ND Lewis - EFSEC
NS Reynolds - D&L
V Stello - NRC
R Tedesco - NRC
RJ Giardina - NRC

Q040.084

The FSAR text, Table 3.2-1 and Figure 9.54 show that the components and piping systems for the diesel generator auxiliaries (fuel oil system, cooling water, lubrication, air starting, and intake and combustion systems) that are mounted on the auxiliary skids are designed to Seismic Category I, and ASME Section III, Class 3 quality, or designed to ANSI B31.1. The engine-mounted components and piping are normally designed and manufactured to DEMA standards, and are Seismic Category I. This is not in accordance with Regulatory Guide 1.26 which requires the entire diesel generator auxiliary systems to be designed to ASME Section III, Class 3 or Quality Group C.

- a. Upgrade the generator auxiliary systems components and piping up to the engine interface to ASME Section III, Class 3 (Quality Group C) requirements.
- b. Provide the industry standards that are used in the design, manufacture, and inspection of the engine-mounted piping and components. Also show on the appropriate P&ID's where the Quality Group Classification changes from Quality Group C.

Response

Regulatory Guide 1.26 specifically excludes diesel engine auxiliaries, requiring only quality commensurate with importance to safety. The technical differences between ANSI B31.1 and ASME Section III, Class 3 are few and specification that all auxiliaries are Quality Class I, Seismic Category I, and qualification tested, further reduces these differences, as reflected in the following table. The discussion following the table specifically delineates the differences and demonstrates that all are essentially eliminated. The Supply System considers that an acceptable alternative to the guidance of Regulatory Guide 1.26 has thus been provided.

<u>ASME Section III, 3</u>	<u>ANSI B31.1</u>
1) Requires ASME materials and mill test reports for piping.	1) Requires only material certifications.
2) Requires seismic design in addition to the B31.1 requirements.	2) Requires design for pressure, temperature, and normal operating loads.
3) Requires liquid penetrant examination for welds over 4" IPS.	3) Requires only visual inspection of welds for design pressure and temperatures of the auxiliaries.
4) Requires hydrostatic test to 1.25 x design pressure.	4) Requires initial service leak test.

The diesel generator auxiliaries are separated into three different segments for design and manufacture, as shown on Figure 9.5-4:

- The auxiliaries that were supplied as a part of the diesel engine skid and diesel starting air skid.
- The fuel oil storage tanks and day tanks (provided by a tank fabricator).
- The piping that connects the DSA skid with the engine skid, fuel oil storage tanks and day tanks to the engine skid, the cooling water reservoir tank to the cooling water heat exchanger and the diesel engine air intake and exhaust (designed by the Architect/Engineer and supplied and installed by the mechanical contractor).

A discussion of each segment follows.

Diesel Engine and Diesel Starting Air (DSA) Skid

The diesel generator units and their skidmounted auxiliary systems are designed, fabricated, shop installed, inspected and examined, and tested in accordance with the commitments in FSAR Table 3.2-1, "Equipment Classification."

The engine-mounted piping and components of the fuel oil, engine cooling water (except heat exchangers - ASME Section III, Class 3), starting air and lubricating oil systems are seismically qualified to Category I requirements as part of the diesel engine skid. These systems, furnished with the engine, are the standard systems developed by the engine manufacturer in accordance with DEMA standards, and have a long history of service and reliability. These systems, piping, and components, are designed, fabricated, inspected, installed, examined, and tested in accordance with the guidelines and requirements of ANSI B31.1 and are specified as Quality Class I.

It should be also noted that it is not possible to obtain all auxiliary components to ASME Section III, Class 3 requirements. For example, the diesel oil pump, lubricating oil pump, filters and flex hoses could not be purchased to ASME Section III, Class 3, since they are unique to engine component manufacturers, which do not manufacture to ASME Section III, Class 3 requirements.

For the engine skid and DSA skid, the technical differences between ANSI B31.1 and ASME Section III, Class 3 are largely closed by the specification of Quality Class I and Seismic Category I. The technical differences are delineated in the following, formatted consistent with the above table. (Technical differences are distinguished from the Section III, Class 3 administrative requirements in that a technical difference will result in a difference in construction, whereas an administrative requirement provides additional paper evidence the work was done in accordance with the Code.)

- 1) By specifying Quality Class I, the Supply System obtained mill test reports for the piping and material certifications for the components. The piping materials meet the material requirements of ASME Section III, Class 2 materials and the components are to standards recognized by ASME Section III, Class 3.
- 2) By specifying the skids to be Seismic Category I, the skids and auxiliaries on them will withstand a seismic event.
- 3) The only piping on the diesel engine skids that is over 4" are the 6" lines between the cooling water heat exchanger, expansion tank, and engine block. These have not been liquid penetrant examined.
- 4) The engine auxiliary systems will be at operating pressure for a considerable period of time throughout plant startup testing and thus, will provide a good test of their leak tightness before the systems are put into operation. Because of the overspecified design pressure of the components and piping, the chance for leakage at other than mechanical joints is low. The expansion tank was hydrostatically tested at 1.5 times its design pressure and the reservoir tank will be tested at 1.5 times its design pressure. The time at operating pressure during preoperational testing will be as likely to expose a leak as would occur during operation at the higher, but shorter duration test time of 10 minutes required by ASME Section III, Class 3.

Diesel Oil Storage Tank, Day Tank Supplied By Fabricator

These components are ASME Section III, Class 3.

Piping and Components Connecting Skids

The fuel oil piping up to the diesel engine skid, and the cooling water system's piping and components up to the diesel engine heat exchanger, are designed, fabricated, inspected, installed, examined, and tested in accordance with ASME Section III, Class 3 requirements.

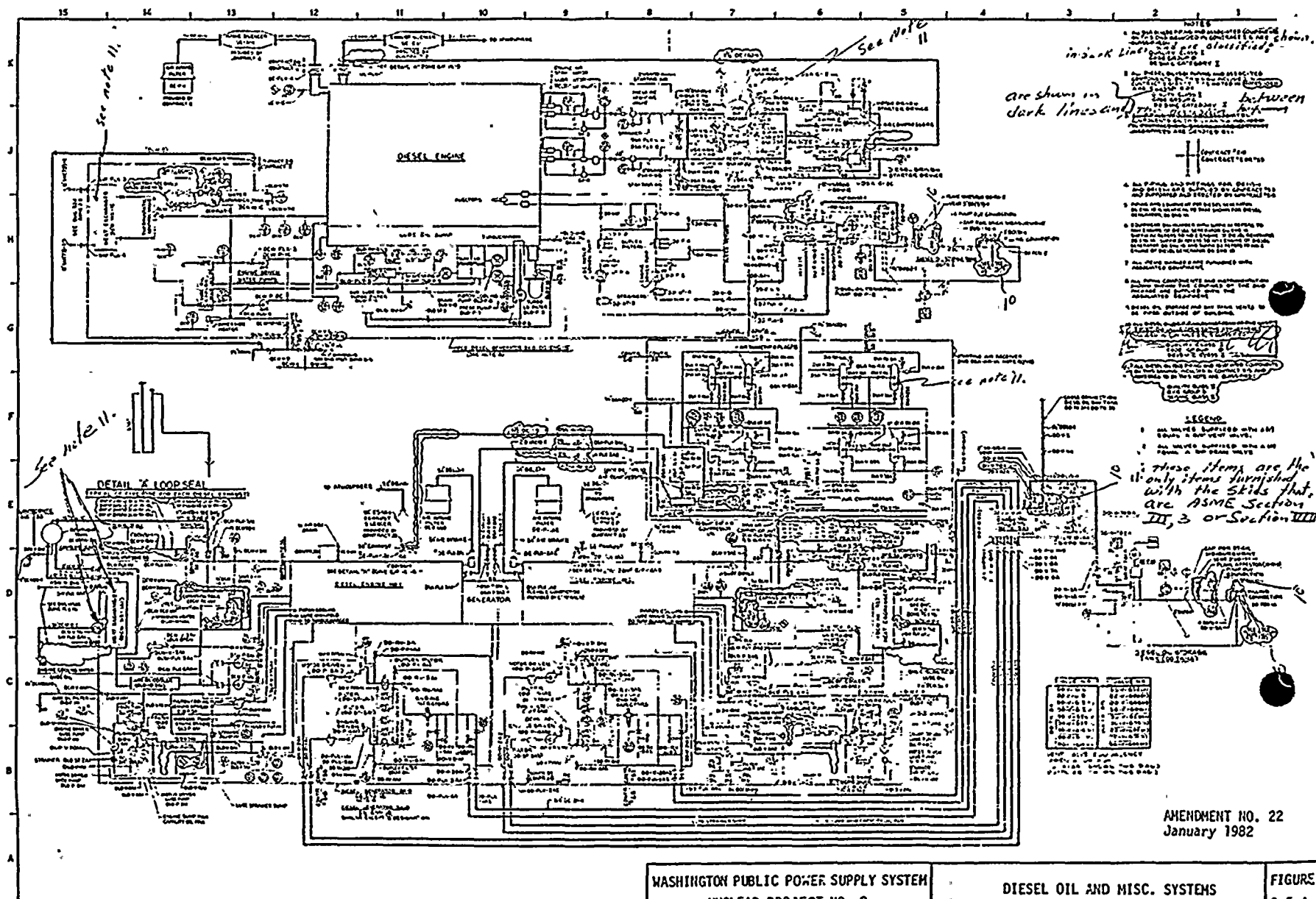
The piping connecting the diesel oil storage tank, day tank, and engine skid, is ASME Section III, Class 3. The piping connecting the DSA skid to the engine skid and the piping connecting the cooling water reservoir tank and the cooling water heat exchanger are designed, fabricated, inspected, installed, examined, and tested in accordance with ANSI B31.1, plus are Quality Class I, Seismic Category I, liquid penetrant examined (for piping over 4" IPS), and hydrostatically tested to 1.5 times design pressure. Therefore, the technical differences between ANSI B31.1 and ASME Section III, Class 3 are completely eliminated for this portion of the auxiliaries.

The starting air, air intake, and exhaust systems piping and components (except the air receivers which are ASME Section VIII, Division 1), up to the diesel engine interface, are designed, fabricated, inspected, installed, examined, and tested in accordance with ANSI B31.1 requirements. These

systems are Quality Class I and Seismic Category I. Piping over 4" in diameter are liquid penetrant examined as required by ASME Section III. The time at operating pressure during preoperational testing will be as likely to expose a leak as would occur during operation at the higher, but shorter duration test time of 10 minutes required by ASME Section III, Class 3. Therefore, the technical differences between ANSI B31.1 and ASME Section III, Class 3 are largely closed.

TABLE 3.2-1 (Continued)

Principal Component (1)	Scope of Supply (2)	Safety Class (3)	Loca- tion (4)	Quality Group Classi- fication (5)	Quality Class (6)	Seismic Category (7)	Com- ments
37. Containment Instrument Air System (Figure 3.2-21)							
.1 Piping and Valves Inside Containment to and Including Outboard Isolation Valve	P	2	C,R	B	I	I	
.2 Piping and Valves to Main Steam Relief Valves	P	2	R	B	I	I	
.3 Other Piping and Valves	P	G	R	D	II	II	(32)
.4 Compressors	P	G	R	D	II	II	(32)
.5 Receiver	P	G	R	D	II	II	(32)
.6 Piping and Valves Outside Con- tainment Isolation Valves to Nitrogen Bottles	P	3	R	C	I	I	
38. a. Diesel Generator Systems (HPCS)							
.1 Day Tanks	P	3	DG	C	I	I	
.2 Piping and Valves, fuel oil system	GE P	3	DG	C	I	I	
.3 Pumps, fuel oil system	GE P	3	DG	C	I	I	
.4 Pump-motors, fuel oil system	P	3	DG	C	I	I	
.5 Diesel-Generators	GE	2	DG	N/A (40)	I	I	
.6 Electrical modules with safety functions	GE	2	DG	N/A	I	I	
.7 Cable, with safety functions	P	3	DG	N/A	I	I	
.8 Diesel fuel storage tanks	P	3	DG	C	I	I	
.9 Diesel-Generators Ser- vice water pump supply	GE P	3	P	C	I	I	
.10 Diesel Starting Air	P	3	DG	D (34)	I	I	
.11 Diesel Intake/Exhaust Piping	P	3	OC	D (34)	I	I	
38. b. Standby AC Power Systems (Other Than HPCS)							
.1 Storage and Day Tanks	P	3	DG	C	I	I	
.2 Piping and Valves Diesel Oil	P	3	DG	C	I	I	
.3 Pumps Diesel Oil	P	3	DG	C	I	I	
.4 Diesel-Generators	P	2	DG	N/A (40)	I	I	
.5 Mechanical Modules with Safety Function	P	3	DG	N/A	I	I	
.6 Diesel Cooling Water System	P	3	DG	C	I	I	
.7 Cable with Safety Function	P	3	DG	N/A	I	I	
.8 Diesel Intake/Exhaust Air Piping	P	3	DG	D (34)	I	I	
.9 Diesel Starting Air	P	3	DG	D (34)	I	I	
39. Auxiliary AC Power System							
.1 Essential Components	P	2	W,R,DG	N/A	I	I	
.2 Nonessential Components	P	G	W,R,T,O	N/A	II	II	(32)
40. Auxiliary 125/250 Volt DC Power System							
.1 Batteries	P	2	W	N/A	I	I	
.2 Battery Charges	P	3	W	N/A	I	I	
.3 Cables	P	2	W,R	N/A	I	I	
.4 Modules	P	2	W,R	N/A	I	I	



WASHINGTON PUBLIC POWER SUPPLY SYSTEM
NUCLEAR PROJECT NO. 2

DIESEL OIL AND MISC. SYSTEMS

FIGURE
9.5-4

