DOCKET

REGULATORY DOCKET FILE COPY

Met Ed / GPU

Metropolitan Edison Company
Post Office Box 480
Middletown, Pennsylvania 17057
717 944-4041

Writer's Direct Dial Number

March 4, 1980
TLL 078

TMI Support
Attn: J. T. Collins, Deputy Director
U. S. Nuclear Regulatory Commission
c/o Three Mile Island Nuclear Station
Middletown, Pa. 17057

Dear Sir:

Three Mile Island Nuclear Station, Unit II (TMI-2)
Operating License No. DPR-73
Docket No. 50-320
BOP Diesel Generators

The present mode of decay heat removal at TMI-II is by steaming OTSG "A" to the main condenser. Heat is transferred from the core to the steam generator by natural circulation in the "A" primary loop. This cooling mode requires the operation of circulating water pumps and condensate pumps. These pump drives represent large electrical loads. The original plant design provided that the power supply to these electrical loads was not vital. Therefore, it was not necessary to provide a back-up source of emergency electrical power. After the accident a back-up power source to these busses was supplied by BOP diesel-generators and a 115 kV intertie for the unlikely event of loss-of-off-site power.

Because of the capability to provide power to the 115 kV intertie with combustion turbines, this power source has been classified as an acceptable back-up source of power for necessary equipment for the removal of decay heat from the reactor in the present mode of core cooling. Since sufficient electrical power, in the normal mode and the emergency mode, is available to power the necessary core cooling equipment, removal of the BOP diesel-generators, as an additional back-up source of power, is justified. Attachment A provides further details concerning this justification.

It is anticipated that this submittal provide adequate information to enable your evaluation of this proposal. The schedule for removal of these diesel-generators from service is early April, 1980, dependent on the completion of the work necessary to implement the 115 kV interties and/or alternate modes of reactor heat removal.

Sincerely,

R. F. Wilson
Director, TMI-II

RFW:LJL:hh
cc: R. Vollmer
R. Fitzpatrick

8004040 848

3 1 A

Attachment A
TLL 078

BOP DIESEL - GENERATOR REMOVAL

INTRODUCTION

Following the accident at TMI-II, secondary plant equipment was utilized to provide the necessary core decay heat removal. To ensure a reliable source of power to this equipment in the event of loss of offsite power, additional 2500 kw diesel generators and 10MVA transformer was leased and installed as shown in Figure 1. The 10MVA transformer was connected to the 115 kv transmission grid which was separated from the normal 230 kv grid supplying the station auxiliary transformers. Since the 115 kv grid could be backed up by combustion turbines this source was considered equivalent to an onsite power supply.

Table 1, Vital BOP Electrical Loads for TMI-II, is provided to tabulate those components, supplied from the non-vital busses, that are important for reactor decay heat removal. The current mode of core cooling (steaming OTSG "A" to the condenser on natural circulation), in addition to the backup cooling mode (long term cooling using forced circulation of the secondary side of OTSG "B") require large secondary plant, non-vital electrical loads. Among these loads are the condensate pumps, the circulating water pumps and the new high pressure pump, LTB-P-1. Upon the improbable loss-of-off-site power to the non-vital busses, either the BOP diesel-generators or the installed 10MVA transformer can adequately supply these necessary electrical loads.

Because the capacity of the 10MVA transformer is adequate to supply the necessary secondary plant electrical loads and has been classified an adequate back-up power supply to the station auxiliary transformers, the BOP diesel-generators can be disconnected.

Moreover, the source of power for the 10MVA transformer has been determined to be an acceptable source of backup power for the core cooling components such as condensate pumps, circulating water pumps, etc. Specifically, in a memorandum from V. Stello to R. C. Arnold, dated April 16, 1979, it is stated,

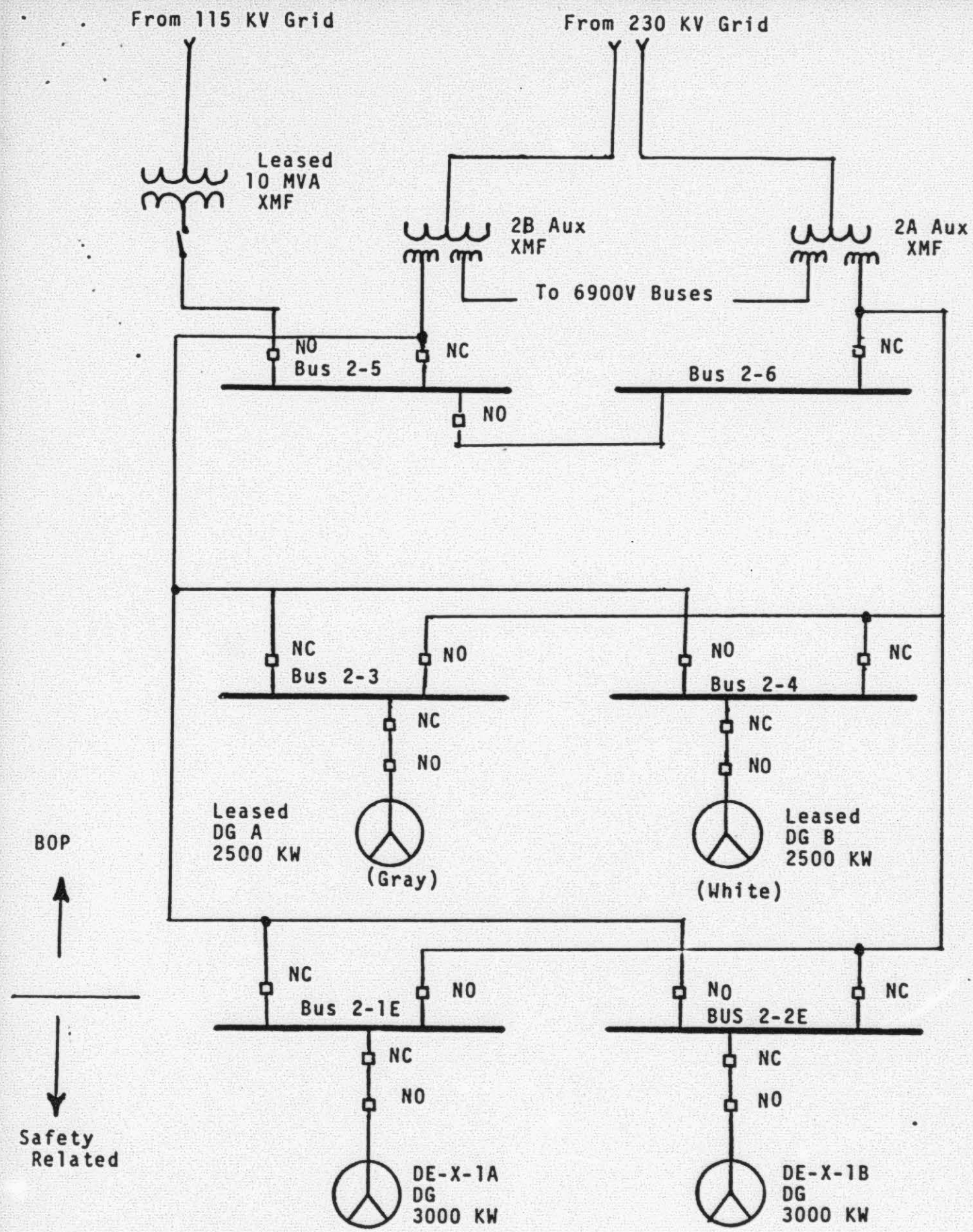
> "We find the design criteria for the use of the 13.8 kv construction power source as a back-up for the circulating water pumps to be acceptable."

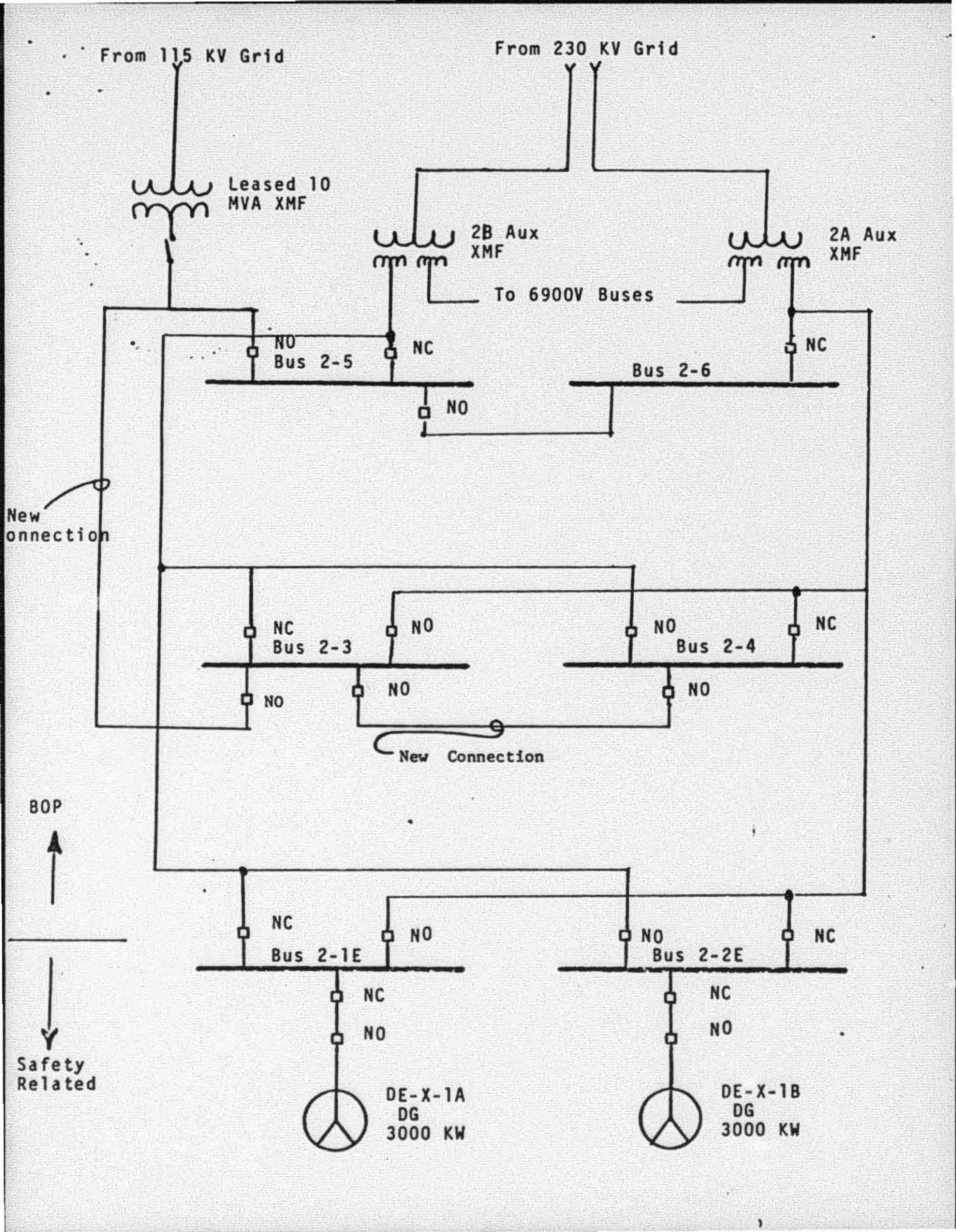
Furthermore, NUREG 0557, Evaluation of Long-Term Post-Accident Core Cooling of Three Mile Island Unit II, Appendix B, states, "We find the addition of the 13.2 kv transmission line as a backup power source to be acceptable given the operational needs and time restraints present at Three Mile Island Unit II."

TECHNICAL APPROACH

The technical approach to be taken to implement this proposed change will be to supply the non-vital busses from the 10MVA transformer that is supplied from the 115 kv, combustion-turbine powered bus. (Significantly, the combustion turbines have a "black start" capability.) To implement this technical approach it is necessary to install new connections as shown on Figure 2.

Because the capacity of the 10MVA transformer is adequate to provide power to the long-term cooling components required of OTSG "A" cooling or OTSG "B" cooling, the requirement to retain the BOP diesel-generators no longer exists.


From 115 KV Grid
From 230 KV Grid
Leased
10 MVA
XMF
2B Aux
XMF
2A Aux
XMF
To 6900V Buses
NO
Bus 2-5
NC
Bus 2-6
NC
NO
NC
Bus 2-3
NO
NO
Bus 2-4
NC
NC
NO
NC
NO
Leased
DG A
2500 KW
(Gray)
Leased
DG B
2500 KW
(White)
BOP
NC
Bus 2-1E
NO
NO
BUS 2-2E
NC
NC
NO
NC
NO
Safety
Related
DE-X-1A
DG
3000 KW
DE-X-1B
DG
3000 KW


From 115 KV Grid
From 230 KV Grid
Leased 10 MVA XMF
2B Aux XMF
2A Aux XMF
To 6900V Buses
NO
Bus 2-5
NC
NC
Bus 2-6
NO
New onnection
NC
Bus 2-3
NO
NO
Bus 2-4
NC
NO
NO
NO
New Connection
BOP
NC
Bus 2-1E
NO
NO
Bus 2-2E
NC
NC
NO
NC
NO
Safety Related
DE-X-1A DG 3000 KW
DE-X-1B DG 3000 KW

VITAL BOP ELECTRICAL LOADS FOR TMI-II

FUNCTION SYSTEM	COMPONENT	BUS	LOAD SIZE/SUPPLY 13.8 KV LINE	GRAY D.G.	WH D.C.	OPERATION REQ'D COOLING MODE OTSG A	OTSG B H.P.	REMARKS
DECAY HEAT REMOVAL								
Circ. Water System	Circ. Water Pump CW-P-1A	2-5	2250 HP			X		Use one of two pumps
	Circ. Water Pump CW-P-1C	2-5	2250 HP			X		
	Circ. Water PP Valves CW-V-1A, CW-V-1C	2-51	1 HP			X		
Condensate System	Condensate Pumps							
	CO-P-1A	2-3		900 HP		X		Use one of two only
	CO-P-1C	2-3		900 HP	900 HP	X		in OTSG A Cooling Schedule
Long Term OTSG B Cooling	New H.P. Pump B	2-4			700 HP		X	
Sec. Services Closed Cooling Water System	Sec. Closed Cooling PP SC-P-1B	2-41B			200 HP		X	Use two of three
	Sec. Closed Cooling PP SC-P-1C	2-41B			200 HP		X	
	Sec. Closed Cooling PP SC-P-1A	2-31B		200 HP			X	
Condenser Vacuum System	VA-P-1B	2-31A 2-41A			200 HP	X		Two of Three Requited Concurrently. VA-P-1B may be swung to either base.
	VA-P-1C	2-31A		200 HP		X		
	VA-P-1A	2-31A		200 HP		X		
Temporary Auxiliary Boiler		2-41C			15 KW	X		

TABLE 1
TLL 078