Enclosure 1 To NL-09-129

CALCULATION IP3-CALC-ED-00207, REVISION 8

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT NUCLEAR GENERATING UNIT NO. 3
DOCKET NO. 50-286

☐ ANO-1	☐ ANO-2	☐ GGNS	☐ IP-2	☒ IP-3	☐ PLP
☐ JAF	☐ PNPS	☐ RBS	☐ VY	☐ W3	
☐ NP-GGNS-3	☐ NP-RBS-3				

CALCULATION COVER PAGE	(1) EC # 16788	(2) Page 1 of 69

(3) Design Basis Calc. ☒ YES ☐ NO	(4) ☒ CALCULATION ☐ EC Markup
(5) Calculation No: IP3-CALC-ED-00207	(6) Revision: 8
(7) Title: 480V Buses 2A, 3A, 5A & 6A and EDG's 31, 32 and 33 Accident Loading	(8) Editorial ☐ YES ☒ NO
(9) System(s): 480V	(10) Review Org (Department): Electrical Design

(11) Safety Class:

☒ Safety / Quality Related
☐ Augmented Quality Program
☐ Non-Safety Related

(12) Component/Equipment/Structure Type/Number:

EDG 31	EDG 32	EDG 33
SST 2	Bus 2A	
SST 3	Bus 3A	
SST 5	Bus 5A	
SST 6	Bus 6A	

(13) Document Type: CALC

(14) Keywords (Description/Topical Codes):

480V

LOADING

(15) Name/Signature/Date	(16) Name/Signature/Date	(17) Name/Signature/Date
A. Zografos 8/27/09	F. Bloise 8/27/09	J. Raffaele 8/27/09
Responsible Engineer	☒ **Design Verifier** ☐ **Reviewer** ☐ Comments Attached	**Supervisor/Approval** ☐ Comments Attached

CALCULATION REFERENCE SHEET	CALCULATION NO: IP3-CALC-ED-00207 REVISION: 8

I. EC Markups Incorporated (N/A to NP calculations)

II. Relationships:	Sht	Rev	Input Doc	Output Doc	Impact Y/N	**Tracking No.**
1. See IAS			☐	☐		
2.			☐	☐		
3.			☐	☐		
4.			☐	☐		
5.			☐	☐		

III. CROSS REFERENCES:

1.
2.
3.
4.
5.

IV. SOFTWARE USED:

Title:_____ Version/Release:_____Disk/CD No._____

V. DISK/CDS INCLUDED:

Title:_____ Version/Release_____Disk/CD No._____

VI. OTHER CHANGES:

Revision	Record of Revision
0	Initial issue. Determined bus loading with no load management.
1	Calculated the loading using maximum brake horsepower requirements and temporary load management per TOP-67, Rev. 2
2	Recalculated the maximum brake horsepower loading requirements.
3	Determined the 480V Buses and EDGs loading based on the revised Emergency Operating Procedures (EOP). The EOPs were revised to incorporate load management to prevent overcurrent tripping of the 480V buses main supply breaker and subsequent lockout of its associated EDG breaker (and for EDG 31 tie breaker 2AT 3A). This revision also calculated bus loadings with Off-Site Power available and EDG loading for loss of Off-Site Power for each of the accident scenarios. The EDG loading was included in revision 3 because the EOPs had been revised to include both EDG (kW) and 480V, 6.9 kV equivalent bus (amps) loading values in the same procedures.
4	Incorporated plant modifications, updated loading, incorporated instrument accuracies in load monitoring tables, deleted Loss of Secondary Heat Sink scenario, incorporated 480V PIP outage modifications and revised attached loading tables as per revised EOPs.
5	Incorporated latest revisions to the EOPs, plant modifications (RO8), and revised load data as summarized in Appendix A.13.
6	Incorporated the latest revision to the EOPs (this was an extensive revision generated by an engineering / operations review), plant modifications (R09) and the effect of frequency variation on EDG loading. A major revision was made to all the Accident Loading Step Descriptions and a summary of the loads running at end of each scenario was added. For each of the accident scenarios, loading with total MCC and lighting load reset was calculated. This revision also consolidates the Small Break LOCA no Spray Required (RCS temperature > 350 Deg. - F) and Small Break LOCA no Spray Required (RCS temperature < 350 Deg. - F) into one Small Break LOCA accident scenario.

7	Major revision to EOPs generated by the implementation of Rev. 1C of the WOG ERGs, has resulted in a general revision of all the scenarios. E-O Accident not Identified and Steam Generator Tube Rupture (with phase B isolation) scenarios are not creditable DBAs and have been deleted from the calculation see Attachment 1. This revision has also incorporated the use of Containment Recirculation Switches RS-2, RS-4, RS-7 and plant modifications that resulted in load changes. Appendixes E, F and G have been added to the calculation.
8	Incorporated the latest revision to EOPs and the latest revisions of calculations IP-CALC-04-00809 Rev.2 "Brake Horsepower Values Related to Certain Pumps and Fans for EDG Electrical Loading" and IP-CALC-ED-00201 Rev.2 "480V Buses 2A, 3A, 5A and 6A Non-Accident Loading".

New York Power Authority

Calculation No. IP3-CALC-ED-00207 Revision 8

Project: Electrical Load Study Page 1 of 69

Subject: 480V Bus 2A, 3A, 5A, and 6A and EDG's 31, 32 and 33 Accident Loading

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1.0 OBJECTIVE

The objective of this calculation is to determine the "worst case" loadings for 480V Safety Buses 2A, 3A, 5A, and 6A, and Emergency Diesel Generators (EDG) 31, 32 and 33, during Design Basis Accidents (DBA).

2.0 DESIGN BASIS/ASSUMPTIONS

1. The Design Basis Accidents (DBA) identified below are evaluated in this calculation for loading on the 480V Safety Buses and the Emergency Diesel Generators as per the Emergency Operating Procedures operator actions. The loading is calculated with Off-Site Power available, Off-Site Power available with loss of a Bus, loss of Off-Site Power (Loop), and Loop with loss of a Bus.

   Large Break LOCA (RCS Pressure < 325 psi)

   Small Break LOCA

   Small Break LOCA with Phase B Isolation (Containment Spray Required)

   Steam Break with Phase B Isolation (Containment Spray Required)

   Steam Break

   Inadvertent Safety Injection (SI) with Phase B Isolation (Containment Spray Required)

   Inadvertent SI

   Steam Generator Tube Rupture

2.0 DESIGN BASIS/ASSUMPTIONS (Continued)

2. For the Design Basis Accidents identified in this calculation, one or more of the following 480V Safety Bus alignments are postulated.

   - All 480V Safety Buses are available and powered from off-site.
   - Off-Site Power available, Station Service Transformer (SST) No. 3 is lost (i.e. loss of voltage on 480V Bus 3A), 480V Bus Tie Breaker 2AT3A auto closes and a subsequent safety injection occurs. Because of the auto closure of Bus Tie Breaker 2AT3A, this alignment produces the worst case loading when a single failure is postulated.
   - Loss of Off-Site Power (LOOP), Bus Tie Breaker 2AT3A automatically closes to power Bus 3A from EDG 31, via Bus 2A (480V Bus 2A/3A is considered one safety bus).

3. This calculation is based on the assumptions of a single active failure of an entire safeguards BUS/EDG and that one Component Cooling Water Pump (CCWP) and one Non-Essential Service Water Pump (NESWP) may be out of service. The loss of one of the station service transformers is not a bounding condition since the associated EDG would automatically assume the bus loading in the event of a station service transformer failure. Also, the station service transformers are Non-Category I, so loss of a station service transformer cannot be considered as a single failure.

4. In order to determine the worst case bus current (Amp) loadings, the current values for the accident scenarios (with Off-Site Power available) have been calculated for a minimum degraded bus voltage of 444 Volts. Below this 444 Volts level, the 480V Safeguard Bus undervoltage alarm is actuated (Ref. 2) the associated station service transformer feeder breaker will be manually tripped and the bus will be automatically fed from its respective diesel generator. This measure (via Ref. 2) ensures that the degraded voltage condition will not result in overcurrent tripping of SS XFMR feeder breakers and subsequent lockout of EDG breakers and Bus Tie Breaker 2AT3A.

5. Emergency Diesel Generator Ratings. (Ref. Sections 4.0, 3-(12) and 5-(9))

   Continuous = 1750kW
   2000 Hour = Peak 1950kW
   2 Hour = 1950 kW
   ½ Hour = 2000kW

   Maximum Non Warranted 2 Hour is 2250kW
   Stall Rating is 2385kW

2.0 **DESIGN BASIS/ASSUMPTIONS** (Continued)

6. All accident scenarios loadings are based on the sequential execution of Emergency Operating Procedures (EOPs) in response to the DBAs postulated in this calculation. The latest revisions of the following EOPs are utilized in the analysis.

GENERIC FOLDOUT PAGE

RO-1	BOP Operator Actions During Use of EOPs
E-0	Reactor Trip or Safety Injection
E-1	Loss of Reactor or Secondary Coolant
E-2	Faulted Steam Generator Isolation
E-3	Steam Generator Tube Rupture
ES-1.1	SI Termination
ES-1.2	Post LOCA Cooldown and Depressurization
ES-1.3	Transfer to Cold Leg Recirculation
ES-1.4	Transfer to Hot Leg Recirculation
ES-3.1	Post - SGTR Cooldown using Backfill
SOP-EL-15	Operation of Non-Safeguards Equipment During Use of EOPs
SOP-RHR-1	Residual Heat Removal System

7. In Revision 0 of this calculation, since the NYPA Emergency Operating Procedures (EOPs) for a Safety Injection (SI) did not provide any load management instructions when Off-Site Power is available, whenever a load may have been energized on a particular bus per the NYPA EOPs, it was assumed to be energized on that bus at all times. This resulted in extremely conservative Bus loading. Subsequent revisions and specifically revision 7 of this calculation recalculated the loadings actual operator actions provided by the procedures in effect at the time.

2.0 DESIGN BASIS/ASSUMPTIONS (Continued)

8. In all accident scenarios postulated, if Buses 2A and 3A are tied together via Breaker 2AT3A when MCCs are reset it is as per SOP-EL-15. This procedure requires the operators to manually open all disconnect switches, except for required loads, prior to resetting MCC's loads. Lighting reset is not required since Control Room lighting is now relocated to MCC 36C which remains energized.

9. In all scenarios where MCC/lighting and Pressurizer Heaters resets occur, the reset is as per SOP-EL-15.

10. Motor loading data was derived using calculated brake horse powers as determined by Calculation No. IP3-CALC-ED-00293 Rev. 0 entitled "Brake Horsepower Requirements of Safety Related Pumps and Fans" and IP3-CALC-MULT-00365 Rev. 0 entitled "BHP Requirements of Pumps and Fans", except where otherwise indicated. Power factors and efficiencies for motor loads were obtained from manufacturer's motor data sheets unless otherwise noted. If manufacturer's data was unavailable, a power factor (pf) of 0.85 and an efficiency (eff) of 0.90 was assumed for motor loads for conservatism.

11. Maximum run time for Containment Spray Pump (CSP) is 30 minutes as per NSE-99-03-075 ADMIN, Rev.0. Battery Chargers 31, 32 and 34 are reset per EOP (R0-1-15).

12. 480V Safeguards Buses 2A, 3A, 5A and 6A are rated at 3200 Amps continuous. However, the bus supply breakers from the Station Service Transformers are set to trip at 4000 Amps. The breaker trip devices (Amptectors) have a 10 percent pickup tolerance band. Therefore, the supply breakers could trip at a minimum of 3600 Amps. An engineering analysis has been performed to verify that the 480V buses, supply breakers and SS XFMRs can sustain peak loadings of up to 3600 Amps (Ref. IP3-CALC-ED-00300, 301 and 302). If a bus supply breaker were to trip on overcurrent, then the associated EDG breaker would be locked out, preventing the EDG from automatically powering the de-energized safeguards bus, until the bus lockout can be manually reset.

13. In order to prevent unnecessary overloading of one 480V Bus or EDG, the operators are instructed to start a load on the lightest loaded Bus/EDG and to reduce load on the heaviest loaded Bus/EDG.

14. Inaccuracies of alarms and meters are not being justified in this calculation, since this is not a setpoint calculation. Calculation IP3-CALC-ED-00297, Rev.2 titled "480 Volt Buses 2A, 3A, 5A and 6A Degraded Voltage Relay Setpoint Calculation", addresses the adequacy of the under voltage alarm relay setpoints and voltmeters used for monitoring 480 volt bus voltages.

2.0 DESIGN BASIS/ASSUMPTIONS (Continued)

15. Current values for 480V bus loadings for scenarios with Off-Site Power available, are calculated as follows:

$$\text{Current (Amps)} = \frac{\text{kVA x 1000}}{\text{Voltage x 1.73}}$$

16. For 6.9kV ammeter amperage the following calculation is used in converting from 480V amps:

$$\text{Equiv. 6.9kV Current} = (\text{Load Current on 480V Bus}) \quad \frac{(480\text{V})(1.02)}{(6900\text{V})}$$

where 1.02 is the correction factor for inaccuracies in the current monitoring loop. (See IP3-CALC-ED-00285, Rev. 1).

17. In order to account for cable losses, the voltage used in calculating current loading is the terminal voltage at the loads. This terminal voltage was determined by subtracting typical calculated voltage drops, where available (Ref. Document No. SS-4-10, Rev. 1 entitled "1991 Update of IP3 Degraded Grid Voltage Studies"), from the minimum degraded bus voltage of 444 Volts. Based on the 1997 update of the IP3 Degraded Grid Voltage Study, the voltage variations from the original study are minor and will have no impact on the conclusion of this calculation. See Appendix G for comparison between the two studies.

18. The Emergency Diesel Generators (EDGs) governor maintains a frequency of 60HZ as demonstrated by plant procedures (SOP-EL-1 and IC-PC-I-31, 32 and 33). For postulated failure of the EDGs to maintain a 60HZ frequency see Section 7 of this calculation.

19. The only motor operated valves (MOVs) actuated during the DBA are located on MCCs 36A and 36B (see Appendix F for valve list). The valves of consequence to loading are those that are SI automatically actuated. The worst case maximum stroke time for any of the automatic actuated MOVs is less than 4 minutes; therefore the load generated is transient in nature occurring during the first few minutes of an SI actuation when loading is at a minimum. For this reason MOV loads are not accounted for as part of the MCC load.

20. Only worst case peak and steady state loading scenarios are considered for cable loss calculations.

21. In this analysis, the EOP response paths postulated in the accident scenario calculations are the ones that will result in worst case loading.

2.0 **DESIGN BASIS/ASSUMPTIONS** (Continued)

22. Equipment load arrangements on the buses are as follows.

Description	Bus 5A EDG 33	Bus 2A/3A EDG 31	Bus 6A EDG 32
Aux. FW Pumps (AFWP)		31	33
Component Cooling Water Pumps (CCWP)	31	32	33
Charging Pumps	31	32	33
Containment Recirc. Pumps (CRP)	31		32
Containment Spray Pumps (CSP)	31		32
Essential Service Water Pumps (ESWP)*	34	35	36
Non-Essential Service Water Pumps (NESWP)*	31	32	33
Safety Injection Pumps	31	32	33
RHR Pumps		31	32
Fan Cooler Units (FCU)	31, 33	32, 34	35
Pressurizer Heater Group	33	31,32	Control
PAB Fans		31	32
MCCs (Never Stripped)	36A, 36E,	36C,	36B,36D,
(Reset During Scenarios)	38, 39.	32,33, 34,35	37
(Stripped during a SI with LOOP, not reset in any scenarios.)	311	31, 210	

* Switch 43/SW on control room panel SB1F is used for selecting the essential header. Placing the switch in position 4, 5, 6 selects service water pumps 34, 35 and 36 as the Essential Service Water Pumps and pumps 31, 32 and 33 as Non-Essential Service Water pumps. This calculation assumes the 43/SW switch is in position 4, 5, 6.

3.0 SUMMARY/CONCLUSIONS

SUMMARY:

Based on the analysis of each accident and the loading shown in the Loading Summary (see Section 8.0) the following summation and conclusions are arrived at.

OFF SITE POWER AVAILABLE

Worst Case Accident Scenarios	**Peak & Steady State Loading (With Degraded Grid Voltage - 444V)**	**Peak & Steady State Loading (With Normal Voltage - 480V)**
Peak Load* Large Break LOCA Bus 2A and 3A tied. Bus 5A not available.	Bus 2A/3A **3436 amps**	Bus 2A/3A 3436 x 444/480 = 3178.3 amps
Steady State** Large Break LOCA Bus 2A and 3A tied. Bus 6A not available.	Bus 5A **3126 amps**	Bus 5A 3126 x 444/480 = 2891.6 amps

* In all the accident scenarios where Off-Site Power is available, (normal plant configuration – no degraded voltage condition), the highest load reached was 3178.3 amps on Buses 2A/3A for a Large Break LOCA accident. This load is a peak load, and at the end of the scenario the Bus loading is 2550.2 amps (2757 amps under degraded voltage conditions).

** In all the accident scenarios where Off-Site Power is available, (normal plant configuration – no degraded grid voltage condition), the highest steady state load reached 2891.6 amps (3126 amps under degraded grid voltage conditions) on Bus 5A for a Large Break LOCA accident.

3.0 SUMMARY/CONCLUSIONS (Continued)

LOSS OF OFF SITE POWER (LOOP)

Worst Case Accident Scenarios	**Peak Loading on EDGs**	**Steady State Loading on EDGs**
Peak Load* Large Break LOCA EDG 31 (Bus 2A/3A) not available.	EDG 32 (Bus 6A) **1895.6 kW**	*(At the end of this scenario the loading on EDG 32 is down to 1580 kW)*
Steady State** Large Break LOCA EDG 32 (Bus 6A) not available.	EDG 33 (Bus 5A) *(Peak loading never exceeds 1950 kW)*	EDG 33 (Bus 5A) **1674.7 kW**

* The Worst Case Peak loading during a LOOP occurs on EDG 32 for a Large Break LOCA with loss of EDG 31 (Bus 2A/3A). This accident results in a peak load of 1895.6 kW (1873.5 kW plus cable losses of 22.1 kW, Ref. Appendix E-1). This loading on the EDG lasts for less than 30 minutes. The time is validated in NSE 99-3-075 Rev.0 section 4.2.20, which states that the duration of possible spray operation is limited by the inventory in the RWST (60,000 gallons). A single Containment Spray Pump (CSP) would deliver that inventory in less than 30 minutes. During this scenario both CSPs start about 1 minute after the LOOP. Loading on EDG 32 drops to 862 kW before the last CSP is stopped therefore EDG 32 was operating at 1895.6 kW for less than 30 minutes which is within the EDG's 2 hour 1950 kW design rating. At the end of the scenario, EDG 32 is at a steady state load of 1580 kW.

** The Worst Case Steady state loading occurs on EDG 33 during a Large Break LOCA with loss of EDG 32 (Bus 6A). This scenario results in a steady state continuous load of 1674.7 kW (1651.6 plus cable losses of 23.1 kW, Ref. Appendix E-2) on EDG 33.

3.0 SUMMARY/CONCLUSIONS (Continued)

CONCLUSION

- Single Failure:

  Where single failure of entire Bus or EDG is assumed no overloading conditions exist during the final manual recovery phase of any accident scenario. In all the scenarios analyzed where a Bus/EDG failure is not postulated, a single failure of any piece of equipment (such as a FCU or AWFP) will not result in an overload condition on any Bus or EDG.

- Effect of Generator Frequency Variation on EDG Loading:

  For the two bounding cases identified above an analysis was performed in Section 7.0 of this calculation to determine what effect a frequency deviation on the EDGs would have on loading. In both cases, which happen to be beyond Design Basis (Double Failure), the EDG design ratings were not exceeded.

- EDG Loading:

  The Worst case EDG (32) loading of kW may reach 1915.15 kW if generator frequency variation is considered. Even under this condition, EDG 32 would be within its design ratings. In none of the accidents do any of the EDGs exceed the 1750 kW continuous rating after the two hour steady state plant condition is reached.

- 480V Bus loading with Offsite power available:

  Engineering calculations IP3-CALC-ED-00301, 00302 and IP3-NSE-93-3-427, Rev.0 have determined that the 480V Buses, supply breakers and station service transformer can function properly for a continuous load of 3600 amps up to 4 hours. This evaluation of bus, supply breaker and transformer overload capabilities has also shown that the buses, breakers and transformers can withstand a peak load of 4400 Amps for 5 minutes.

  Worst case peak loading (3436 Amps) occurs based on the most conservative assumptions. Station Service Transformer No.3 is lost resulting in Buses 2A & 3A being tied with loss of Bus 6A (single failure) and Bus 5A is at a degraded voltage of 444 Volts (double failure). This bounding case does not exceed the Bus supply breaker minimum overcurrent trip pickup values of 3600 Amps. Therefore, this potential but highly unlikely overload condition will not result in overcurrent tripping of the 480V Bus Supply Breakers and subsequent lockout of EDG Breakers and Bus Tie Breaker 52/2AT3A.

3.0 SUMMARY/CONCLUSIONS (Continued)

The conclusion of this calculation is that the latest revision to the EOPs and SOPs maintains loading within the 480V Electrical Distribution System design loading limits. The electrical distribution equipment will perform their required safety functions during a Design Basis Accident. Section 8.0 clearly demonstrates this conclusion.

4.0 REFERENCES

1. Westinghouse Diesel Generator Final Load Study, dated June 5, 1989.

2. ARP-5, Rev. 21, Panel SBF-2 Safeguards.

3. NYPA Calculations/Studies:

   (1) IP3-CALC-MULT-00365, Rev. 0 BHP Requirements of Pumps and Fans.

   (2) IP-CALC-04-00809, Rev. 2, Brake Horsepower Values Related to Certain Pumps and Fans for EDG Electrical Loading.

   (3) IP3-CALC-EL-00185, Rev. 2, Component Sizing-125V DC-32 Battery, Charger, Panels and Cables.

   (4) IP3-CALC-EL-00184, Rev. 2, 31 Battery, Charger, Associated Panels and Cables Component Sizing.

   (5) IP3-CALC-EL-00186, Rev. 3, 33 Battery, Charger, Associated Panels and Cables Component Sizing and Voltage Drop Calculations.

   (6) IP3-CALC-EL-00187, Rev. 1, Component Sizing -125V DC-34 Battery, Charger, Panels and Cables.

   (7) IP3-CALC-ED-00297, Rev. 2, 480 Volt Buses 2A, 3A, 5A and 6A Degraded Voltage Relay Setpoint Calculation.

   (8) IP3-CALC-EL-01972, Rev. 0, 1997 Update of IP3 Degraded Grid Voltage Study.

   (9) IP3-CALC-ED-00201, Rev. 2, 480V Buses 2A, 3A, 5A and 6A Loading (Non-Accident).

   (10) IP3-CALC-ED-00300 Rev. 1, 00301 Rev. 1 and 00302 Rev. 3, 480V SWGR and Transformer Calculation.

   (11) UE&C Calculation 6604.346-6-PAB-001 Rev. 2, PAB Ventilation System Analysis without the Supply Fan.

   (12) IP3-NSE-99-03-004, Rev. 0, EDGs Short-Term Capacity Rating Clarification.

4.0 REFERENCES (Continued)

(13) IP3-CALC-ED-02960, Rev. 0, Utilization of Containment Recirculation Switches RS-2, RS-4, and RS-7 in EOP ES-1.3 for DBAs.

(14) IP3-ANAL-SI-02802, Rev. 0, D16-0169/Safety Injection /Recirculation Evaluation of Recirculation Pump Amptector Setting Relative to Head /Flow Curve.

(15) IP3-NSE-99-3-075 ADMIN, Rev.0, Implementation of Rev.1C of the WOG ERGs.

4. NYPA Drawings:

(1)	617F644, Rev. 28	480V One Line Diagram
(2)	9321-F-30043, Rev. 46 SH. 1 of 2	Single Line Diagram 480V Motor Control Centers SH. 1
(3)	9321-F-30043, Rev. 12 SH. 2 of 2	Single Line Diagram 480V Motor Control Centers SH. 2
(4)	9321-F-30053, Rev. 57	Single Line Diagram 480V Motor Control Centers
(5)	9321-F-30063, sht. 1 Rev. 69, sht. 2 Rev. 7	Single Line Diagram 480V Motor Control Centers
(6)	9321-LL-31173 Series	Schematics - 480V SWGR 31
(7)	9321-LL-31183 Series	Schematics - 480V SWGR 32
(8)	500B971 Series	Westinghouse Elementaries 480V SWGR 31 and 32
(9)	9321-F-39893, Rev. 22	Single Line Diagram 118V AC Instrument Buses

4.0 REFERENCES (Continued)

5. Industry Standards:

(1) ANSI/NEMA MG-1 - 1978 (Rev. 1982) "Motors and Generators"

(2) Motor Data Sheets (Appendix A)

(3) GNB Technologies fax dated October 22, 1997 providing battery float current value. (Appendix D)

(4) K.J Nelson (NYPA) – C. Reichert (Exide) telecom dated 2-3-1992. "Battery Charger Efficiencies". (Appendix D)

(5) Letter from Worthington Corporation to UE&C confirming emergency diesel ratings, dated December 24, 1968 (Appendix C)

5.0 AFFECTED SYSTEMS/COMPONENTS/DOCUMENTS

480V Buses 2A, 3A, 5A and 6A
Station Service Transformers 2, 3, 5 and 6
Emergency Diesel Generators 31, 32 and 33

6.0 LOAD DATA/CALCULATIONS

AUTO SI MCCs LOADS

MCC 36A LOAD SUMMARY (BUS 5A-EDG 33)

Load	kW	kVA	hp	Comments
31 Electrical Tunnel Exhaust Fan (EL. 34')	6.2	---	7.5	Lower Tunnel Fan; Auto Restart on High Temp; 1FB; 9321-LL-31263 sht 6
31 CCR Air Conditioner	12.4	---	15.0	2-7.5hp Compressors; Auto Restart; 6FB; 9321-LL-31263 sht 9.
31 CCR A/C Fan	4.2	---	5.0	Auto Restart when Damper "D1" opens; 6FB; 9321-LL-31263 sht 11.
31 CCR A/C Filter Booster Fan	1.25	---	1.5	Auto Start when Damper "F1" opens; 6FD; 9321-LL-31263 sht 15
33 Electrical Tunnel, Exhaust Fan (EL. 46')	6.2	---	7.5	Upper Tunnel Fan; Auto Restart on High Temp; 7FB; 9321-LL-31263, sht 6
SW Strainer 31, 33 & 35	---	---	---	0.5 hp (0.9kW) per strainer. Operates 5 minutes every 2hours when its SW pump is running. (Due to the load value and frequency operation, the load generated is transient similar to MOV operation.)

6.0 LOAD DATA/CALCULATIONS (Continued)

AUTO SI MCCs LOADS (Continued)

MCC 36A LOAD SUMMARY (BUS 5A-EDG 33) (Continued)

Load	kW	kVA	hp	Comments
Plant Vent Rad Monitor R-27	---	2.5	---	Auto Restart 5 kVA Transformer (Feeder); 8FKL Load: 2.5 kVA kW = 2.5 x 1.0 = 2.5
Distribution Panel POH	---	5.76	---	Auto Restart 25 kVA Transformer 4-15 Amp Ckts. Used – Assumed 80% Breaker Rating 9321-LL-30412 Sht. 165 Load: 5.76kVA kW = 5.76 x 1.0 = 5.76
CCW Booster Pump 31	4.2		5.0	Auto Starts on SI; 5RK;(9321-05-3307 sht 58) 500B971 sht 51
Rad. Monitors A/C Panel (PAB EL. 55')	7.5		---	Auto Restart 1 Exist + 1 New Temp A/C Unit (Ref. Temp Mod. No. 90-26110-12); 8 FKR
Boric Acid Heat Tracing (Normal Feed)	14.8		---	Auto Restart (Feeder); 6RF; 9321-LL-30412 Sht. 152, Sht. 153, Sht. 154 & Sht. 155 Total Load = 14.8kW

6.0 LOAD DATA/CALCULATIONS (Continued)

AUTO SI MCCs LOADS (Continued)

MCC 36A LOAD SUMMARY (BUS 5A-EDG 33)(Continued)

Load	kW	kVA	hp	Comments
CCW Booster Pump 32	4.2	---	5.0	Auto Start on SI; 7RB; (9321-05-3307 R58) 500B971 sht 85.
31 Boric Acid Transfer Pump (BAST)	12.4	---	Fast-15	Manual restart required; 7RH Drawing No. 500B971 Sheet 53, Dual Speed
Control Building Exhaust Fan 33	---	9.8	10.0	Auto Start on High Temp; 9RF, 9321-LL-31293 Sht. 4 Load: $\frac{(10hp)(.746)}{(.85pf)(.90eff)} = 9.8kVA$ kW = 9.8 x .85 = 8.33

TOTALS: For Offsite Power Available

$$kVA = (2.5 + 5.76 + 9.8)\ kVA + \frac{(30.3 + 26.5 + 16.6)kW}{.85*}$$

$$= 104.4$$

$$Amp = \frac{104.4\ kVA}{\sqrt{3} \times .4366\ kV} = 138.4$$

For Loss of Offsite Power (EDG)

89.9kW

(*Assumed pf of MCC 36A Loads)

6.0 LOAD DATA/CALCULATIONS (Continued)

AUTO SI MCCs LOADS(Continued)

MCC 36B LOAD SUMMARY (BUS 6A-EDG 32)

Load	kW	kVA	hp	Comments
32 Electrical Tunnel Exhaust Fan (EL. 34')	6.2	---	7.5	Lower Tunnel Fan Auto Restart on High Temp; 1FB; 9321-LL-31263 sht 3
32 CCR Air Conditioner	12.4	---	15.0	2-7.5hp Compressors; Auto Restart; 6FB; 9321-LL-31263 sht 10.
32 CCR A/C Fan	4.2	---	5.0	Auto Restart when Damper "D2" opens; 6FB; 9321-LL-31263, sht 13
32 CCR A/C Filter Booster Fan	1.25	---	1.5	Auto Starts when Damper "F2" opens; 6FD; 9321-LL-31263, sht 15A
SW Strainers 32, 34 & 36	---	---	---	0.5 hp (0.9kW) per strainer. Operates 5 minutes every 2hours when its SW pump is running. (Due to the load value and frequency operation, the load generated is transient similar to MOV operation.)

6.0 LOAD DATA/CALCULATIONS (Continued)

AUTO SI MCCs LOADS (Continued)

MCC 36B LOAD SUMMARY (BUS 6A-EDG 32) (Continued)

Load	kW	kVA	hp	Comments
34 Electrical Tunnel Exhaust Fan (EL. 46')	6.2	---	7.5	Upper Tunnel Fan; Auto Restart on High Temp; 7FB; 9321-LL-31263, sht. 7
CCW Booster Pump 33	4.2	---	5.0	Starts on SI; 5RK; (9321-05-03307 R58) 500B971 sht 51.
CCW Booster Pump 34	4.2	---	5.0	Starts on SI; 7RB; (9321-05-03307 R58) 500B971 sht 85.
H2 Recombiner 32	*75	---	---	Optional Manual Load No Auto Start (Ref. Mod. 91-03-098HR, IP3-ECCF-004, Rev 0. Sht. 16 of 40)

* H2 Recombiner 32 is energized during the manual recovery stage. (See Section 8)

6.0 LOAD DATA/CALCULATIONS (Continued)

AUTO SI MCCs LOADS (Continued)

MCC 36B LOAD SUMMARY (BUS 6A-EDG 32) (Continued)

Load	kW	kVA	hp	Comments
PA System	---	9.0	---	Auto Restart 9kVA power supply; (Feeder); 6RBL Load: 9kVA kW = 9 x 1 = 9.0
D/G Building Lighting Lighting Panel 323	---	21.26	---	Auto Restart 30 kVA transformer approximately 20.2kW load; 9321-LL-30412 Sht. 35; Feeder; 6RBR kVA = 20.2/0.95 = 21.26
32 Boric Acid Transfer (BAST)	12.4	---	Fast-15	Manual Restart Required; 7RH; Drawing No. 500B971 Sht. 53

TOTALS: For Offsite Power Available

$$kVA = (9 + 21.26)kVA + \frac{(24.1 + 14.6 + 12.4)kW}{.85*}$$

$$= 90.3$$

$$Amps = \frac{90.3\ kVA}{\sqrt{3} \times .4383\ kV} = 119.2$$

For Loss of Offsite Power (EDG)

80.25 kW

(*Assumed pf of MCC 36B Loads)

6.0 LOAD DATA/CALCULATIONS (Continued)

AUTO SI MCCs LOADS (Continued)

MCC 36C LOAD SUMMARY (BUS 2A-EDG 31)

Load	kW	kVA	hp	Comments
Battery Charger 33***	---	9.7	---	(Feeder 1BL) Continuous load (DC AMP) =59.64 at Equalize (DC) Voltage = 139.8V (Section 4, Ref. 3.5) The battery is under normal equilibrium conditions at the time of loss of offsite power. Battery Charger 33 is automatically reset/energized. Therefore the battery will see only a momentary (less than 1 minute) loss of charging current and subsequent discharge. Upon reenergization of the MCC, the charger will supply the DC load current plus battery float charge current. The battery float current under these conditions is 0.25 AMP (Section 4, Ref. 5.3). Charger DC Amps =59.64+0.25 =59.89 kW Load(480)=$\frac{59.89 \times (139.8 \text{ VDC})}{(.91^{**})}$ =9.2 kW kVA Load(480) =9.2/(.95*)=9.7kVA

*** Battery Charger 35 can be used in lieu of BC33 with no change to loading on EDG 31 (Ref. IP3-ECCF-728).

*power factor 0.95 assumed
**eff. = .91 per Section 4, Ref. 5.4

6.0 LOAD DATA/CALCULATIONS (Continued)

AUTO SI MCCs LOADS (Continued)

MCC 36C LOAD SUMMARY (BUS 2A-EDG 31) (Continued)

Load	kW	kVA	hp	Comments
H_2 Recombiner 31	*75	---	---	Optional Manual Load - No Auto Start (MOD No. 91-03-098HR, IP3-ECCF-004, Rev. 0, sht. 16 of 40) - 3M
PBX Phone System	---	15	---	Load as per Drawing No. 9321-F 30063; 1FR Load: 15kVA kW = 15 x 1.0 = 15
Instrument Buses 34 and 34A	---	7.5	---	7.5kVA SOLA XFMR Backup to Load as per Drawing No. 9321-F-39893; (Feeder); 2BR. Instrument Buses on MCC 32 are reset as per SOP-EL-15. For conservatism, this load is considered on both MCCs. Load: 5.3kVA (actual load)
31 EDG Cell Exhaust Fans 314 & 315	16.6		20.0	Autostart High Temp. Runs Periodically above 95° F; 1M and 4M
31 EDG Crankcase Exhaust Fan (XMFR)	---	1.0	---	Load as per Drawing No. 9321-F-30063; (Feeder); 1BR/1D Load: 1kVA kW = 1 x 1.0 = 1.0

* H2 Recombiner 31is energized during the manual recovery stage. (See section 8)

6.0 LOAD DATA/CALCULATIONS (Continued)

AUTO SI MCCs LOADS (Continued)

MCC 36C LOAD SUMMARY (BUS 2A-EDG 31) (Continued)

Load	kW	kVA	hp	Comments
Rod Position Indicating System	---	5.0	---	Load as per Drawing No. 9321-F-30063; (Feeder); 2BL Load: 5.0kVA kW = 5 x 1.0 = 5
31 EDG Fuel Oil Transfer Pump	---	2.9	3.0	Load as per Drawing No. 9321-F-30063; (Feeder); 1FL Load = $\frac{(3.0\ hp)(.746)}{(.85*)(.90*)}$ = 2.9 kVA kW = kVA x pf = (2.9) (.85) = 2.5
Control Building Exhaust Fan 34	---	9.8	10.0	Load: $\frac{(10\ hp)\ (.746)}{(.85*)\ (.90*)}$ = 9.8 kVA kW = 9.8 x .85 = 8.33

6.0 LOAD DATA/CALCULATIONS (Continued)

AUTO SI MCCs LOADS (Continued)

MCC 36C LOAD SUMMARY (BUS 2A-EDG 31) (Continued)

Load	kW	kVA	hp	Comments
Control Building Lighting (Panels 320 and 39)	---	33.8	---	Load; (32.12kW) per 9321-30412 Sht. 7 and Sht. 10. Load: 32.12 kW kVA = kW / pf = 32.12 kW / .95** = 33.8 kVA

TOTALS:

For Offsite Power Available

$$kVA = (84.7)\ kVA + \frac{(16.6)\ kW}{.85*} = 104.2$$

$$Amp = \frac{104.2\ kVA}{\sqrt{3} \times 0.444\ kV} = 135.5$$

For Loss of Offsite Power (EDG)

94.23 kW

(*Assumed pf = .85, eff = .90; ** Assumed pf = 0.95 for lighting loads)

6.0 LOAD DATA/CALCULATIONS (Continued)

AUTO SI MCCs LOADS (Continued)

MCC 36D LOAD SUMMARY (BUS 6A-EDG32)

Load	kW	kVA	hp	Comments
32 EDG Cell Exhaust Fans 316 & 317	16.6	---	20	Auto Start on High Temp. Runs periodically above 95° F
32 EDG crank case Exhaust Fan (XMFR)	---	1.0	---	Load as per Drawing No. 9321-F-30063 sht. 2 Load: 1kVA kW = 1 x 1.0 = 1.0
32 EDG Fuel Oil Transfer Pump	---	2.9	3.0	Load as per Drawing No. 9321-F-30063, sht. 2 Load = (3.0 hp)(.746) / (.85*)(.90*) = 2.9 kVA kW = kVA x pf = (2.9) (.85) = 2.5
480 – 208/120 VAC 15 kVA Transformer	---	---	---	Load only actuated when CO2 system is actuated, 1.2kVA Actual Load (Ref. MMP 97-03-400FP)

TOTALS: For Offsite Power Available

$$kVA = (2.9 + 1.0)\ kVA + \frac{(16.6)\ kW}{.85\ *} = 23.43$$

$$Amps = \frac{23.43\ kVA}{\sqrt{3} \times 0.4383\ kV} = 30.9$$

For Loss of Offsite Power (EDG)

20.1 kW

(*Assumed pf = .85, eff = .90)

6.0 LOAD DATA/CALCULATIONS (Continued)

AUTO SI MCCs LOADS (Continued)

MCC 36E LOAD SUMMARY (BUS 5A-EDG33)

Load	kW	kVA	hp	Comments
33 EDG Cell Exhaust Fans 318 & 319	16.6	---	20.0	Auto Start on High Temp. Runs periodically above 95° F
33 EDG crank case Exhaust Fan (XMFR)	---	1.0	---	Load as per Drawing No. 9321-F-30063 sht. 2 Load: 1kVA kW = 1 x 1.0 = 1.0
33 EDG Fuel Oil Transfer Pump	---	2.9	---	Load as per Drawing No. 9321-F-30063, sht. 2 Load = $\frac{(3.0\ hp)(.746)}{(.85*)(.90*)}$ = 2.9 kVA kW = kVA x pf = (2.9) (.85) = 2.5

TOTALS:

For Offsite Power Available

$$kVA = (2.9 + 1.0)\ kVA + \frac{(16.6)\ kW}{.85*} = 23.43$$

$$Amps = \frac{23.43\ kVA}{\sqrt{3} \times 0.4366\ kV} = 31.1$$

For Loss of Offsite Power (EDG)

20.1 kW

(*Assumed pf = .85, eff = .90)

6.0 LOAD DATA/CALCULATIONS (Continued)

SOP-EL-15 MCC RESET LOADS

MCC 32 (BUS 3A-EDG 31)

* BATTERY CHARGER 34; 7BR :

Battery charger 34 is not powered from an Auto SI MCC. The charger is not automatically reset and requires a manual reset per SOP-EL-15.
The time required to reset MCC 32 is estimated to be within 15 minutes.
After the 15 min discharge duration the battery voltage change is considered negligible and the continuous load current on the charger would remain constant.

According to calculation IP3-CALC-EL-00187 Rev.1 (Section 4, Ref. 3.6)
Battery in normal continuous load:

Voltage in Float Mode	= 132.0 V (Section 4, Ref. 3.6)
Efficiency	= 0.91 (Section 4, Ref. 5.4)
Power Factor	= 0.95 (Conservative Assumption)
Power Panel 34 Continuous Load Current @ 125V	= 77.8 A (Section 4, Ref. 3.6)
Power Panel 34 Continuous Load Current @ 132.0V	$= 77.8\ A \times \frac{132.0\ V}{125.0\ V} = 82.2\ A$
DC Load (kW)	$= \frac{82.2\ A \times 132.0\ V}{1000} = 10.9\ kW$
AC Load (kW)	$= \frac{10.9\ kW}{0.91} = 12.0\ kW$
	$kVA = \frac{12.0\ kW}{0.95} = 12.6$
AC Load (Amps)	$= \frac{12.6\ kVA \times 1000}{1.73 \times 437.9} = 16.6\ A$

* Battery Charger 35 can be used in lieu of BC 34 with a reduction in loading on EDG-31, (Ref. IP3-ECCF-728).

6.0 LOAD DATA/CALCULATIONS (Continued)

SOP-EL-15 MCC RESET LOADS

MCC 32 (BUS 3A-EDG 31) (Continued)

MAIN GEN. AIR SIDE SEAL OIL PUMP; 2D :

Load = 50 hp, pf = .85, eff = .90; per Section 4, Ref. 4.3, and Ref. 3.9 attached Load List

$$kVA = \frac{50\ hp \times .746}{(.85\ pf \times .90\ eff)} = 48.8$$

kW = (48.8 kVA)(.85 pf)
= 41.5

$$Amps = \frac{41.5\ kW}{1.73 \times 0.4379\ kV \times 0.85}$$
= 64.4

MAIN BOILER FEED PUMP, MAIN OIL PUMP 31; 7M :

Load = 57.3 kVA, pf = .85; per Section 4, Ref. 3.9 attached Load List

kW = (57.3 kVA)(.85 pf)
= 48.7

$$Amps = \frac{48.7\ kW}{1.73 \times 0.4379\ kV \times 0.85}$$
= 75.6

6.0 LOAD DATA/CALCULATIONS (Continued)

SOP-EL-15 MCC RESET LOADS (Continued)

MCC 33 (BUS 2A-EDG 31)

MAIN BOILER FEED PUMP, MAIN OIL PUMP 32; 7M :

Load = 57.3 kVA, pf = .85; per Section 4, Ref. 3.9 attached Load List

kW = (57.3 kVA) (.85 pf)
= 48.7

$$\text{Amps} = \frac{48.7 \text{ kW}}{\sqrt{3} \times 0.437 \text{ kV} \times 0.85}$$
= 75.6

MCC 34 (BUS 2A-EDG 31)

INSTRUMENT AIR COMPRESSOR 32; 1G :

Load = 52.4 kVA, pf = .85; per Section 4, Ref. 3.9 attached Load List

kW = (52.4 kVA) (.85 pf)
= 44.5

$$\text{Amps} = \frac{44.5 \text{ kW}}{1.73 \times 0.4416 \text{ kV} \times 0.85}$$

= 68.5

6.0 LOAD DATA/CALCULATIONS (Continued)

SOP-EL-15 MCC RESET LOADS (Continued)

MCC 34 (BUS 2A-EDG 31)(Continued)

INSTRUMENT CLOSED COOLING PUMP 32; 3M :

Load = 2.4 kVA, pf = .85; per Section 4, Ref. 3.9 attached Load List

kW = (2.4 kVA) (.85 pf) = 2.0

$$\text{Amps} = \frac{2\ \text{kW}}{1.73 \times 0.4416\ \text{kV} \times 0.85} = 3.1$$

EDG AIR COMPRESSOR 31; 6DL:

Load = 5 hp, pf = .85, eff = .90; per Section 4, Ref. 4.3 and Ref. 3.9

$$\text{kVA} = \frac{5\ \text{hp} \times .746}{.85\ \text{pf} \times .90\ \text{eff}} = 4.88$$

kW = (4.88 kVA) (.85 pf) = 4.15

$$\text{AMPs} = \frac{4.15\ \text{kW}}{(\sqrt{3})(.4416\ \text{kV})(.85\ \text{pf})} = 6.38$$

EDG EXHAUST HOOD BLOWER 31; 6DL:

Load = ¾ hp, pf = .85, eff = .90; per Section 4, Ref. 4.3 and 3.9

$$\text{kVA} = \frac{.75\ \text{hp} \times .746}{.85\ \text{pf} \times .90\ \text{eff}} = .73$$

kW = (.73 kVA) (.85 pf) = .62

$$\text{AMPs} = \frac{.62\ \text{kW}}{(\sqrt{3})\ (.4416\ \text{kV})\ (.85\ \text{pf})} = .95$$

6.0 LOAD DATA/CALCULATIONS (Continued)

SOP-EL-15 MCC RESET LOADS (Continued)

MCC 35 (BUS 3A-EDG 31)

MAIN TURBINE BEARING OIL PUMP; 4M :

Load = 75 hp, pf = .85 eff = .90; per Section 4, Ref. 4.3 and Ref. 3.9 attached Load List

$$kVA = \frac{75\ hp \times .746}{.85\ pf \times .90\ eff} = 73.1$$

kW = (73.1 kVA) (.85 pf)

= 62.1

$$Amps = \frac{62.1\ kW}{\sqrt{3} \times 0.439\ kV \times 0.85}$$

= 96.0

6.0 LOAD DATA/CALCULATIONS (Continued)

SOP-EL-15 MCC RESET LOADS (Continued)

MCC 37 (BUS 6A-EDG32)

* BATTERY CHARGER 32: 1FL

Battery charger 32 is not powered from an Auto SI MCC. The charger is not automatically reset and requires a manual reset per SOP-EL-15.
The time required to reset MCC 37 is estimated to be within 15 minutes.
After the 15 min discharge duration the battery voltage change is considered negligible and the continuous load current on the charger would remain constant.

According to calculation IP3-CALC-EL-00185 Rev.2 (Section 4, Ref. 3.3)
Battery in normal continuous load:

Voltage in Float Mode	= 130.5 V (Section 4, Ref. 3.3)
Efficiency	= 0.92 (Section 4, Ref. 5.4)
Power Factor	= 0.95 (Conservative Assumption)
Power Panel 32 Continuous Load Current @ 125V	= 129.4 A (Section 4, Ref. 3.3)
Power Panel 32 Continuous Load Current @ 130.5V	$= 129.4\ A \times \frac{130.5\ V}{125.0\ V} = 135.1\ A$
DC Load (kW)	$= \frac{135.1\ A \times 130.5\ V}{1000} = 18.0\ kW$
AC Load (kW)	$= \frac{18.0\ kW}{0.92} = 20.0\ kW$
	$kVA = \frac{20.0\ kW}{0.95} = 21.1\ kVA$
AC Load (Amps)	$= \frac{21.1\ kVA \times 1000}{1.73 \times 441.8} = 27.6\ A$

* Battery Charger 35 can be used in lieu of BC 32 with no affect on EDG 32 loading (Ref. IP3-ECCF-728).

6.0 LOAD DATA/CALCULATIONS (Continued)

SOP-EL-15 MCC RESET LOADS (Continued)

MCC 37 (BUS 6A-EDG 32)(Continued)

EDG AIR COMPRESSOR 32; 7FMR:

Load = 5 hp, pf = .85, eff = .90; per Section 4, Ref. 4.3 and Ref. 3.9

$$kVA = \frac{5 \text{ hp} \times .746}{.85 \text{ pf} \times .90 \text{ eff}} = 4.88$$

$$kW = (4.88 \text{ kVA})(.85 \text{ pf}) = 4.15$$

$$AMPs = \frac{4.15 \text{ kW}}{(\sqrt{3})(.4418 \text{ kV})(.85 \text{ pf})} = 6.38$$

EDG EXHAUST HOOD BLOWER 32; 7FMR:

Load = ¾ hp, pf = .85, eff = .90; per Section 4, Ref. 4.3 and 3.9

$$kVA = \frac{.75 \text{ hp} \times .746}{.85 \text{ pf} \times .90 \text{ eff}} = .73$$

$$kW = (.73 \text{ kVA})(.85 \text{ pf}) = .62$$

$$AMPs = \frac{.62 \text{ kW}}{(\sqrt{3})(.4418 \text{ kV})(.85 \text{ pf})} = .95$$

6.0 LOAD DATA/CALCULATIONS (Continued)

SOP-EL-15 MCC RESET LOADS (Continued)

MCC 39 (BUS 5A-EDG 33)

IA COMPRESSOR 31; 3M :

Load = 60 hp, pf = .85, eff = .90; per Section 4, Ref. 4.4 and Ref. 3.9 attached Load List

kVA $= \frac{60 \text{ hp} \times .746}{.85 \text{ pf} \times .90 \text{ eff}} = 58.5$

kW = (58.5 KVA) (.85 pf)

= 49.7

Amps $= \frac{49.7 \text{ kW}}{1.73 \times 0.4434 \text{ kV} \times 0.85}$

= 76.2

IA CLOSED COOLING PUMP 31; 4K :

Load = 2.4 kVA, pf = .85, eff = .90; per Section 4, Ref. 3.9 attached Load List

kW = (2.4 kVA) (.85 pf)

= 2.0

Amps $= \frac{2 \text{ kW}}{1.73 \times 0.4434 \text{ kV} \times 0.85}$

= 3.1

6.0 LOAD DATA/CALCULATIONS (Continued)

SOP-EL-15 MCC RESET LOADS (Continued)

MCC 39 (BUS 5A-EDG33)(Continued)

EDG AIR COMPRESSOR 33

Load = 5 hp, pf = .85, eff = .90; per Section 4, Ref. 4.3 and Ref. 3.9

$$kVA = \frac{5\text{ hp} \times .746}{.85\text{ pf} \times .90\text{ eff}} = 4.88$$

$$kW = (4.88\text{ kVA})(.85\text{ pf}) = 4.15$$

$$AMPs = \frac{4.15\text{ kW}}{(\sqrt{3})(.4434\text{ kV})(.85\text{ pf})} = 6.36$$

EDG EXHAUST HOOD BLOWER 33

Load = ¾ hp, pf = .85, eff = .90; per Section 4, Ref. 4.3 and 3.9

$$kVA = \frac{.75\text{ hp} \times .746}{.85\text{ pf} \times .90\text{ eff}} = .73$$

$$kW = (.73\text{ kVA})(.85\text{ pf}) = .62$$

$$AMPs = \frac{.62\text{ kW}}{(\sqrt{3})(.4434\text{ kV})(.85\text{ pf})} = .95$$

6.0 LOAD DATA/CALCULATIONS (Continued)

SOP-EL-15 MCC RESET LOADS (Continued)

MCC 39 (BUS 5A-EDG 33) (Continued)

* BATTERY CHARGER 31; 5F:

Battery charger 31 is not powered from an Auto SI MCC. The charger is not automatically reset and requires a manual reset per SOP-EL-15.
The time required to reset MCC 39 is estimated to be within 15 minutes.
After the 15 min discharge duration the battery voltage change is considered negligible and the continuous load current on the charger would remain constant.

According to calculation IP3-CALC-EL-00184 Rev.2 (Section 4, Ref. 3.4)
Battery in normal continuous load:

Voltage in Float Mode	= 130.5 V (Section 4, Ref. 3.4)
Efficiency	= 0.92 (Section 4, Ref. 5.4)
Power Factor	= 0.95 (Conservative Assumption)
Power Panel 31 Continuous Load Current @ 125V	= 195.2 A (Section 4, Ref. 3.4)
Power Panel 31 Continuous Load Current @ 130.5V	$= 195.2\ A \times \frac{130.5\ V}{125.0\ V} = 203.8\ A$
DC Load (kW)	$= \frac{203.8\ A \times 130.5\ V}{1000} = 27.0\ kW$
AC Load (kW)	$= \frac{27.0\ kW}{0.92} = 29.3\ kW$
	$kVA = \frac{29.3\ kW}{0.95} = 30.8$
AC Load (Amps)	$= \frac{30.8\ kVA \times 1000}{1.73 \times 443.4} = 40.2\ A$

* Battery Charger 35 can be used in lieu of BC 31 with no affect on EDG 33 loading (Ref. IP3-ECCF-728).

6.0 LOAD DATA/CALCULATIONS (Continued)

STATION AUX. TRANS. AUXILIARIES (EMERG.); 2BR:

Load = 22.4 kVA, pf = .95; per Section 4, Ref. 3.9 attached Load List

kW = (22.4 kVA) (.95 pf) = 21.3

$$\text{Amps} = \frac{21.3 \text{ kW}}{1.73 \times 0.4434 \text{ kV} \times 0.95} = 29.2$$

SUMMARY OF SOP-EL-15 MCC RESET LOADS
WITH OFFSITE POWER AVAILABLE
(Per Attachment 2 of SOP-EL-15)

		Amps
BUS 2A		
MCC 33	MBFP Main Oil Pump 32	75.6
MCC 34	32 Instrument Air Compressor	68.5
	32 Instrument Air Closed Cooling Pump	3.1
	31 EDG Air Compressor	6.4
	31 EDG Exhaust Hood Blower	1.0*
BUS 3A		
MCC 32	Main Generator Air Side Seal Oil Pump	64.4
	MBFP Main Oil Pump 31	75.6
	34 Battery Charger	16.6
MCC 35	Main Turbine Bearing Oil Pump	96.0

* Not required during DBA but must be energized per design in order to reset required air compressor load.

6.0 LOAD DATA/CALCULATIONS (Continued)

SUMMARY OF SOP-EL-15 MCC RESET LOADS
WITH LOSS OF OFFSITE POWER
(Per Attachment 1 of SOP-EL-15)

			kW
BUS 2A			
	MCC 34	EDG Air Compressor 31	4.15
		EDG Exhaust Hood Blower 31	.62
		Instrument Air Compressor 32	44.5
		Instrument Closed Cooling Pump 32	2.0
BUS 3A			
	MCC 32	Battery Charger 34	12.0
BUS 5A			
	MCC 39	Battery Charger 31	29.3
		EDG Air Compressor 33	4.15
		EDG Exhaust Hood Blower 33	.62*
		Instrument Air Compressor	49.7
		Instrument Air Closed Cooling Pump 31	2.0
BUS 6A			
	MCC 37	Battery Charger 32	20.0
		EDG Air Compressor 32	4.15
		EDG Exhaust Hood Blower 32	.62*

* Not required during DBA but must be reset per design in order to reset required air compressor load.

6.0 LOAD DATA/CALCULATIONS (Continued)

SPECIFIC PROCEDURAL ACTUATED MCC LOADS

BUS 2A (EDG 31) – MCC 34

MAIN TURBINE TURNING GEAR; 1M :

Load = 50 hp, pf = .85 eff = .90; per Section 4, Ref. 4.3 and 3.9

$$kVA = \frac{50 \text{ hp} \times .746}{.85 \text{ pf} \times .90 \text{ eff}} = 48.8$$

kW = (48.8) (.85 pf)

= 41.5

$$\text{Amps} = \frac{41.5 \text{ kW}}{\sqrt{3} \times 0.4416 \text{ kV} \times 0.85}$$

= 63.8

BUS 3A (EDG 31) - MCC 35

MAIN TURBINE TURNING GEAR OIL PUMP; 5M :

Load = 75 hp, pf = .85 eff = .90; per Section 4, Ref. 4.3 and attached Load List

$$kVA = \frac{75 \text{ hp} \times .746}{.85 \text{ pf} \times .90 \text{ eff}} = 73.1$$

kW = (73.1 kVA) (.85 pf) = 62.1

$$\text{Amps} = \frac{62.1 \text{ kW}}{\sqrt{3} \times .85 \times 0.439 \text{ kV}} = 96.0$$

6.0 LOAD DATA/CALCULATIONS (Continued)

SPECIFIC PROCEDURAL ACTUATED MCC LOADS

BUS 5A (EDG 33) - MCC 38

CRDM FANS 31 TO 34; 2D, 2F, 2H, 2K :

Load (per Fan) = 23.6 kVA, pf = .85; per Section 4, Ref. 3.9 attached Load List

kW = (23.6 kVA) (.85 pf) = 20.1

$$\text{Amps} = \frac{20.1 \text{ kW}}{1.73 \times 0.85 \times 0.4373 \text{ kV}} = 31.3$$

BUS 5A (EDG 33) - MCC 39

SPENT FUEL POOL COOLING PUMP 32; 7FM :

Load = 100 hp, 82.5 kVA, pf = .85; per Section 4, Ref. 3.9 attached Load List

kW = (82.5 kVA) (.85 pf) = 70.1

$$\text{Amps} = \frac{70.1\text{kW}}{1.73 \times .85 \times 0.4418\text{kV}} = 107.9$$

BUS 6A (EDG 32) - MCC 37

BAST (BORIC ACID STORAGE TANK) HEATERS 31 AND 32; 5RM, 3RD :

Load (per Tank) = 15 kW, pf = 1.0 (15 kVA); per Section 4, Ref. 3.9 attached Load List

KW = (17.6 kVA) (.85 pf) = 15.0

$$\text{Amps} = \frac{15 \text{ kW}}{1.73 \times 0.4418 \text{ kV}} = 19.6$$

6.0 LOAD DATA/CALCULATIONS (Continued)

SPECIFIC PROCEDURAL ACTUATED MCC LOADS (Continued)

BUS 6A (EDG 32) - MCC 37 (Continued)

PRIMARY WATER MAKEUP PUMPS 31 AND 32; 5RK, 6RK :

Load (per Pump) = 25 hp, pf = .85, eff = .90; per Section 4, Ref. 4.4 and Ref. 3.9 attached Load List

$$kVA = \frac{25\ HP \times .746}{.85\ pf \times .90\ eff} = 24.4$$

kW = (24.4 kVA) (.85 pf) = 20.7

$$Amps = \frac{20.7kW}{1.73 \times .85 \times 0.4418\ kV} = 31.9$$

SPENT FUEL POOL COOLING PUMP 31; 4FM :

Load = 100 hp, 82.5 kVA, pf = .85; per Section 4, Ref. 3.9 attached Load List

kW = (82.5 kVA) (.85 pf) = 70.1

$$Amps = \frac{70.1kW}{1.73 \times .85 \times 0.4418kV} = 107.9$$

HOT PIPING PENETRATION BLOWERS 31 thru 34; 7FD,7FF, 7FH, 7FK :

Load (Blower 31&32) = 17.6 kVA, pf = .85; per Section 4, Ref. 3.9 attached Load List

kW = (17.6 kVA) (.85 pf) = 15.0

$$Amps = \frac{15\ kW}{1.73 \times .85 \times 0.4418\ kV} = 23.1$$

6.0 LOAD DATA/CALCULATIONS (Continued)

SPECIFIC PROCEDURAL ACTUATED MCC LOADS (Continued)

HOT PIPING PENETRATION BLOWERS 31 thru 34; 7FD, 7FF, 7FH, 7FK : (Continued)

Load (Blower 33) = 13.3 kVA, pf = .85; per Section 4, Ref. 3.9 attached Load List

kW = (13.3 kVA) (.85 pf) = 11.3

$$\text{Amps} = \frac{11.3 \text{ kW}}{1.73 \times .85 \times 0.4418 \text{ kV}} = 17.4$$

Load (Blower 34) = 18.1 kVA, pf = .85; per Section 4, Ref. 3.9 attached Load List

kW = (18.1 kVA) (.85 pf) = 15.4

$$\text{Amps} = \frac{15.4 \text{ kW}}{1.73 \times .85 \times 0.4418 \text{ kV}} = 23.7$$

6.0 LOAD DATA/CALCULATIONS (Continued)

PRESSURIZER HEATERS

PRESSURIZER HEATERS GROUP 31 - BUS 3A:

Load (Full Bank) = 555 kW (kVA) (per Section 4, Ref. 3.9)

$$\text{Load (per ckt)} = \frac{555 \text{ kW (kVA)}}{8 \text{ ckts}} = 69.4 \text{ kW (kVA)/ckt}$$

Load in Amperes (Amps):

$$\text{Amps (at 444V)} = \frac{(555 \text{ kVA} \times 1000)(444\text{V})}{(1.73 \times 480\text{V})(480\text{V})}$$

$$= 618.2$$

$$\text{Amps (per ckt)} = \frac{618.2 \text{ Amps (Full Bank)}}{8 \text{ ckts}} = 77.3 \text{ Amps/ckt}$$

PRESSURIZER HEATERS GROUP 32 - BUS 2A:

Load (Full Bank) = 485 kW (kVA) (per Section 4, Ref. 3.9)

$$\text{Load (per ckt)} = \frac{485 \text{ kW (kVA)}}{7 \text{ ckts}} = 69.3 \text{ kW (kVA)/ckt}$$

Load in Amperes (Amps):

$$\text{Amps (at 444V)} = \frac{(485 \text{ kVA} \times 1000)(444\text{V})}{(1.73 \times 480\text{V})(480\text{V})}$$

$$= 540.3$$

$$\text{Amps (per ckt)} = \frac{540.3 \text{ Amps (Full Bank)}}{7 \text{ ckts}} = 77.2 \text{ Amps/ckt}$$

6.0 LOAD DATA/CALCULATIONS (Continued)

PRESSURIZER HEATERS (Continued)

PRESSURIZER HEATERS GROUP 33 - BUS 5A:

Load (Full Bank) = 485 kW (kVA) (per Section 4, Ref. 3.9)

$$\text{Load (per ckt)} = \frac{485 \text{ kW (kVA)}}{7 \text{ ckts}} = 69.3 \text{ kW (kVA)/ckt}$$

Load in Amperes (Amps):

$$\text{Amps (at 444V)} = \frac{(485 \text{ kVA} \times 1000)\ (444\text{V})}{(1.73 \times 480\text{V})\ (480\text{V})}$$

$$= 540.3$$

$$\text{Amps (per ckt)} = \frac{540.3 \text{ Amps (Full Bank)}}{7 \text{ ckts}} = 77.2 \text{ Amps/ckt}$$

PRESSURIZER HEATERS CONTROL GROUP - BUS 6A:

Load = 277 kW (kVA) (per Section 4, Ref. 3.9)

Load in Amperes (Amps):

$$\text{Amps (at 444V)} = \frac{(277 \text{ kVA} \times 1000)\ (444\text{V})}{(1.73 \times 480\text{V})\ (480\text{V})}$$

$$= 308.6$$

6.0 LOAD DATA/CALCULATIONS (Continued)

TOTAL LIGHTING AND MCC RESET

BUS 2A:

LOAD	kVA*	KW**	AMPERAGE***
MCC-34	244.1	219.7	319.1
TRAILER LOAD CENTER (Note1)	0.0	0.0	0.0
MCC-31	292.0	262.8	382.3
MCC-210 BACKUP SUPPLY	0.0	0.0	0.0
MCC-33	315.6	284.0	417.0
480V LTG BUS 32 NORMAL SUPPLY	203.5	183.2	271.8
(254.4 x 0.8; Note 2)	1055.2 kVA*	949.7 kW	1390.2 Amps
Diversity Factor	0.61*	0.61*	0.61*
	643.7 kVA	579.3 kW	848.0 Amps

*** Amperage at Degraded Grid Voltage:

Voltage at MCC 34: $444 - (415.1 - 412.7) = 441.6V$

MCC 34 Amps = $\frac{244.1}{\sqrt{3} \times .4416} = 319.1A$

Voltage at MCC 31: $444 - (415.1 - 412.1) = 441.0V$

MCC 31 Amps = $\frac{292.0}{\sqrt{3} \times .441} = 382.3A$

Voltage at MCC 33: $444 - (415.1 - 408.1) = 437.0V$

MCC 33 Amps = $\frac{315.6}{\sqrt{3} \times .437} = 417.0A$

Voltage at 480V Ltg. Bus 32: $444 - (415.1 - 403.3) = 432.2V$

Ltg. Bus 32 Amps = $\frac{203.5}{\sqrt{3} \times .4322} = 271.8A$

** A Power Factor of 0.9 is assumed for MCC and lighting loads.
* kVA and Diversity Factor are from IP3-CALC-ED-00201, (Section 4, Ref. 3.9)

Calculation No. IP3-CALC-ED-00207 Revision 8

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Subject : 480V Bus 2A, 3A, 5A, and 6A and EDG's 31, 32 and 33 Accident Loading

6.0 LOAD DATA/CALCULATIONS (Continued)

TOTAL LIGHTING AND MCC RESET

BUS 3A:	kVA*	kW**	AMPERAGE***
MCC-35	375.4	337.9	493.7
LTG TRANSFORMER 32 (225/2 x 0.8 Note 2 & 3)	90.0	0.0	117.8
480V LTG BUS 33 NORMAL (65.7 x 0.8 Note 2)	52.6	47.3	68.8
MCC-32 (355.4 – 18.4) (Note 4)	337.0	303.3	444.3
	855.0kVA*	769.5kW	1124.6 Amps
Diversity Factor	0.42*	0.42*	0.42*
	359.1 kVA	323.2 kW	472.3 Amps
Battery Charger 34 (Note 4)	12.6 kVA	12.0 kW	16.6 Amps
TOTAL	371.7 kVA	335.2 kW	488.9 Amps

*** Amperage at Degraded Grid Voltage:

Voltage at MCC 35: 444.0 – (409.9 – 403.9) = 439.0V

MCC 35 Amps = $\frac{374}{\sqrt{3} \times 439}$ = 493.7A

Voltage at Ltg. Transfer 32: 444.0 – (408.9 – 406.1) = 441.2V

Ltg. Transfer 32 Amps = $\frac{90}{\sqrt{3} \times .4412}$ = 117.8A

Voltage at 480V Ltg. Bus 33: 444 – (415.1– 408.1) = 437.0

Ltg. Bus 33 Amps = $\frac{52.6}{\sqrt{3} \times 0.4411}$ = 68.8A

Voltage at MCC 32: 444.0 – (408.9 – 402.8) = 437.9V

MCC 32 Amps = $\frac{337.0}{\sqrt{3} \times 437.9}$ = 444.3A

** A Power Factor of 0.9 is assumed for MCC and lighting loads.

* kVA and Diversity Factor are from IP3-CALC-ED-00201, (Section 4, Ref. 3.9)

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Subject: 480V Bus 2A, 3A, 5A, and 6A and EDG's 31, 32 and 33 Accident Loading

6.0 LOAD DATA/CALCULATIONS (Continued)

TOTAL LIGHTING AND MCC RESET (Continued)

BUS 5A:

LOAD	kVA*	kW**	AMPERAGE***
MCC-38	132.4	119.2	174.8
120/208V LTG BUS 33 (225\2 x 0.8 Note 1 and 2)	90.0	81.0	117.6
480V LTG BUS 33 (EMERG)	0.0	0.0	0.0
MCC-39 (689.3 - 105.6)(Note 4)	583.7	525.3	763.0
MCC-311	0.0	0.0	0.0
	806.1 kVA*	725.5 kW	1055.4 Amps
Diversity Factor	0.54*	0.54*	0.54*
	435.3 kVA	391.8 kW	569.9 Amps
Battery Charger 31 (Note 4)	30.8 kVA	29.3 kW	40.2 Amps
TOTAL	466.1 kVA	421.1 kW	610.1 Amps

*** Amperage at Degraded Grid Voltage:

Voltage at MCC 38: $444 - (401.8 - 395.1) = 437.3V$

MCC 38 Amps $= \frac{132.4}{\sqrt{3} \times .4373} = 174.8A$

Voltage at Ltg. Bus 33: $444 - (401.8 - 399.5) = 444 - 2.3 = 441.7$

* Ltg. Bus 33 Amps $= \frac{90}{\sqrt{3} \times .4417} = 117.6A$

Voltage at MCC 39: $444 - (401.8 - 401.2) = 443.4V$

MCC 39 Amps $= \frac{583.7}{\sqrt{3} \times .4417} = 763.0A$

** A Power Factor of 0.9 is assumed for MCC and lighting loads.
* kVA and Diversity Factor are from IP3-CALC-ED-00201, (Section 4, Ref. 3.9)

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Subject: 480V Bus 2A, 3A, 5A, and 6A and EDG's 31, 32 and 33 Accident Loading

6.0 LOAD DATA/CALCULATIONS (Continued)

TOTAL LIGHTING AND MCC RESET (Continued)

BUS 6A:

LOAD	kVA*	kW**	AMPERAGE***
480V LTG BUS 32 (EMERG SUPPLY)	0.0	0.0	0.0
MCC-37 (1345.2 - 105.6) (Note 4)	1239.6	1115.6	1619.9
	1239.6 kVA*	1115.6 kW	1619.9 Amps
Diversity Factor	0.1*	0.1*	0.1*
	124.0 kVA	111.6 kW	162.0 Amps
Battery Charger 32 (Note 4)	21.1 kVA	20.0 kW	27.6 Amps
TOTAL	145.1 kVA	131.6 kW	189.6 Amps

***AMPs at Degraded Grid Voltage:

Voltage at MCC 37: $444 - (3995.5 - 393.3) = 441.8V$

MCC 37 Amps $= \frac{1239.6}{\sqrt{3} \times 0.4418} = 1619.9A$

* kVA and Diversity Factor are from IP3-CALC-ED-00201, Rev. 2 (Section 4, Ref. 3.9).
** A Power Factor of 0.9 is assumed for MCC and lighting loads.

Notes:

1. Trailer Load Center is not reset during the accident recovery.
2. A demand factor of 0.8 is used to calculate the lighting kVA. (Lighting panels and transformers are sized at a minimum of 125% of load).
3. Lighting Transformer 32 can feed both lighting buses 32 and 33.
4. For conservatism Batteries are assumed separately from the MCC load. No diversity factor is considered. They are added separately to the overall loading.

6.0 LOAD DATA/CALCULATIONS (Continued)

MOTOR BRAKE HORSEPOWER

EQUIPMENT	bhp per motor	pf	eff	LOAD in kVA	LOAD in kW
CONTAINMENT RECIRCULATION FANS (FCU) Total of five (5) fans					
a) When all 5 fans are running ***	159.0	.699*	.920*	184.6	129.0
b) When 4 fans are running ***	159.0	.699*	.920*	184.6	129.0
c) When 3 fans are running ***	159.0	.699*	.920*	184.6	129.0
COMPONENT COOLING WATER PUMPS (CCWP) Total of three (3) pumps					
a) When all 3 pumps are running	212.0	.890*	.936*	189.8	169.0
b) When 2 pumps are running	248.0	.891	.934	222.3	198.1
c) When 1 pump is running	275.0	.891	.934	246.5	219.6
SAFETY INJECTION PUMPS (SI) Total of three (3) pumps Pumps 31, 32 & 33	414.0	.910	.944	359.5	327.2
SERVICE WATER PUMPS (NESWP or ESWP) Total of three (3) pumps					
a) Switchover Mode 1 pump running on non-essential header	350.0	.875	.930	320.9	280.8
b) Injection Mode 2 pumps running on essential header	350.0	.875	.930	320.9	280.8

6.0 LOAD DATA/CALCULATIONS (Continued)

MOTOR BRAKE HORSEPOWER (Continued)

EQUIPMENT	bhp per motor	pf	eff	LOAD in kVA	LOAD in kW
RESIDUAL HEAT REMOVAL PUMPS (RHR) Total of two (2) pumps					
a) When both pumps are running	365.0	.904*	.945*	318.8	288.1
b) When 1 pump is running	400.0	.906	.944	348.9	316.1
c) Mini Flow (Ref. 1)	--	.906	--	200	182
Note that a) and b) above are based on two RHR heat exchangers in service. With two pumps running and only one heat exchanger in service, flow is limited by heat exchanger flow and bhp will be lower. Higher bhp is used for conservatism.					
CONTAINMENT SPRAY PUMPS (CS) Total of two (2) pumps					
a) CS Pump 31 ***	385.0	.893*	.935*	344.1	307.3
b) CS Pump 32 ***	400.0	.895	.934	357.0	319.5
AUXILIARY FEED WATER PUMPS (AFWP) Total of two (2) motor driven pumps					
a) AFW Pumps 31	480.0	.870	.945	435.5	378.9
b) AFW Pumps 33	480.0	.890	.953	422.2	375.7
PAB FANS 31 & 32 (Ref. 3.11) Each fan	137.9	.850**	.90**	134.5	114.3

6.0 LOAD DATA/CALCULATIONS (Continued)

MOTOR BRAKE HORSEPOWER (Continued)

EQUIPMENT	bhp per motor	pf	eff	LOAD in kVA	LOAD in kW
CHARGING PUMPS	175	.894	.931	156.8	140.2
CONTAINMENT RECIRCULATION PUMPS (CRP)					
a) Large Break LOCA (Cold Legs & Recirculation Spray, with 2 HX in service)	388.1	.874	.937	353.5	309.0
b) Large Break LOCA (Post Recirculation Spray & Hot Leg Recirculation, with 1 HX in service)	259.5	.850*	.939*	242.5	206.2
c) Small Break LOCA (High Head SI & Recirculation Spray, with 1 HX in service)	384.7	.874	.937	350.4	306.3
d) Small Break LOCA (High Head SI, Post Recirculation Spray, with 1 HX in service)	257.5	.850*	.939*	240.7	204.6

bhp - Calculated brake horsepower from IP-CALC-04-00809, Rev.2 (Ref. Section 4, 3.2)

pf - Power Factor of Motor from MFR. Data Sheets, unless otherwise noted.

eff - Efficiency of Motor from MFR. Data Sheets, unless otherwise noted.

kVA - (bhp x .746)/(pf x eff)

* - Extrapolated from motor data sheets (Appendix A.12)

** - Assumed value(s)

*** - BHP values based on input from Design Engineering Mechanical see Appendix H-1

7.0 EFFECT OF FREQUENCY VARIATION ON EDG LOADING

The allowable operating range of the EDGs is ± 0.5% (59.7Hz to 60.3 Hz) of rated frequency (Reference SOP-EL-1, "Emergency Generator Operation"). The effect of frequency variation for the operating ranges of 59.7Hz and 60.3Hz were modeled on the EPRI Electromagnetic Transient Program (EMTP) Version 2.0 by Raytheon Engineers and Constructors. AFWP 33 was chosen as an example for a typical motor response. The analysis shows that at the increased frequency of 60.3Hz from 60Hz, the motor output power increased by 4kW and at a frequency of 59.7Hz decreased by 4KW (see Appendix B output graphs). The 4KW represents a 1.06% variation in real power (kW) for the motor (4kW * 100% / 375.5 kW = 1.06%). To demonstrate the impact on EDG loading if the units were to operate at the extreme ranges indicated in SOP-EL-1, worst case peak and steady state loading are analyzed. EDG 32 experiences the largest peak loading (1895.6 kW) during a Large Break LOCA with loss of EDG 31 and the worst case steady state loading (1674.7 kW) occurs on EDG 33 during a Large Break LOCA with loss of EDG 32 (Bus 6A). These two cases are bounding for all scenarios.

FIRST CASE - PEAK LOADING

The individual loads which result in 1895.6 kW on EDG 32 are as follows:

AFWP 33	375.7 kW
CSP 32	319.5 kW
ESWP 36	280.8 kW
FCU 35	129.0 kW
MCC 36B	80.3 kW
MCC 36D	20.1 kW
MCC 37 (MCC Reset Bus 6A)	24.8 kW
RHR PUMP 32	316.1 kW
SI PUMP 33	327.2 kW
	1873.5 kW
Cable Losses (Ref. Appendix E)	22.1 kW
	1895.6 kW

Of the loads identified above the following are static loads:

MCC 36B

PA System	9.0 kW
D/G Bldg. Ltg	20.2 kW
Cable Losses	22.1 kW
	51.3 kW

1895.6 kW – 51.3 kW = 1844.3 kW

1844.3 kW is the motor inductive loading in real power that will be affected by the frequency variation.

7.0 EFFECT OF FREQUENCY VARIATION ON LOADING (Continued)

Increase in load due to increased frequency is

1844.3 x 1.06%* = 19.55 kW

Total load on EDG 32 is

1844.3 + 19.55 + 51.3 = 1915.15 kW

* 1.06% variation

SECOND CASE - STEADY STATE

The individual loads which result in 1673.1 kW on EDG 33 are as follows:

RECIRC PUMP 31	309.0 kW
SI PUMP 31	327.2 kW
FCU 31	129.0 kW
FCU 33	129.0 kW
MCC 36A	89.9 kW
MCC 36E	20.1 kW
MCCs Reset Bus 2A/3A	85.8 kW
ESWP 34	280.8 kW
NESWP 31	280.8 kW
	1651.6 kW
Cable Losses (Ref. Appendix E)	23.1 kW
	1674.7 kW

Of the loads identified above the following are static loads:

MCC 36A

Plant Vent Rad Monitor (R-27)	5.00 kW
Distribution Panel POH	5.76 kW
Boric Acid Heat Tracing	14.80 kW
Cable Losses	23.1 kW
	48.66 kW

1674.7 kW – 48.66 kW = 1626.04 kW

1626.04 kW is the motor inductive loading in real power that will be affected by the frequency variation.

7.0 EFFECT OF FREQUENCY VARIATION ON LOADING (Continued)

Increase in load due to increased frequency is

1626.04 x 1.06% = 17.2 kW

Total load on EDG 33 is

1626.04 + 17.2 + 48.66 = 1691.9 kW

The above calculations show that:

1. In the first case the maximum peak load is 1915.15 kW. This load is below the 1950kW 2 hr/2000 hr rating of the EDG.

2. In the second case the maximum is 1691.9 kW and this load is below the 1750kW continuous rating of the EDG.

I&C engineering have been trending the EDG performance (via IC-PC-I-E-31, 32 & 33.) from 1987 to the present. During this time period the EDGs frequency deviation has never been greater than 0.2% of the actual frequency (the model uses 0.5%).

Electrical Engineering had EDG performance testing and evaluation done during the SI Black-out test of R08 and R09 outages and in both cases no degradation in performance had occurred (see attached memo in Appendix B). The frequency response of this testing concurs with I&C trending data.

8.0 POWER FACTOR CALCULATION FOR WORST CASE KVA LOADING ON EDGs

This section is for the power factor calculation for the worst case kVA loading on each EDG.

For EDG 31:
The worst case peak loading occurs during a Large Break LOCA with Bus 5A not available.

The individual loads which result in 1830.8 kW or 2137.8 kVA on EDG 31 are as follows:

	kW	kVA	
AFWP 31	378.9	435.5	
CHARGING PUMP 32	140.2	156.8	
ESWP 35	280.8	320.9	
FCU 32	129.0	184.6	
FCU 34	129.0	184.6	
MCC 36C	94.3	104.2	
MCC 32 (MCC Reset Bus 2A/3A	12.0	12.6	from 12.0/0.95 = 12.6
MCC 34 (MCC Reset Bus 2A/3A)	51.3	60.3	from 51.3/0.85 = 60.3
RHR PUMP 31	288.1	318.8	
SI PUMP 32	327.2	359.5	
	1830.8 kW	2137.8 kVA	
Cable Losses (Ref. Appendix E-3)	19.6 kW		
	1850.4 kW		

Of the loads identified above the following are static loads:

MCC 36C

PBX System	15.0 kW
Ctrl Bldg. Ltg	33.8 kW
Rod Pos. Indic System	5.0 kW
Cable Losses	19.6 kW
	73.4 kW

1850.4 kW – 73.4 kW = 1777 kW

1777 kW is the motor inductive loading in real power that will be affected by the frequency variation.

Increase in load due to increased frequency is 1777 x 1.06% = 18.8 kW

Total load on EDG 31 is 1850.4 + 18.8 = 1868.5 kW.

Similarly the frequency variation is calculated to be 22.1 kVA.

8.0 POWER FACTOR CALCULATION FOR WORST CASE KVA LOADING ON EDGs (Continued)

The majority of the feeder cables to the loads listed above are 1/C-500MCM, with a reactance of X = 0.0509 Ω/1000ft and a resistance at 75C of R = 0.0299 Ω/1000ft .
This yields a power factor of p.f. = 0.51.

For the purpose of determining the cable losses in kVA, a conservative power factor value of 0.50 is assumed. Therefore for the loads on EDG 31, the cable losses are 19.6 kW / 0.50 = 39.2 kVA.

The total kVA on EDG 31 is 2137.8 + 22.1 (frequency variation) + 39.2 = 2199.1 kVA

The calculated power factor is: p.f. = Total kW / Total kVA = 1868.5 / 2199.1 = 0.85.

For EDG 32:

From Section 7.0 of this calculation the worst case peak loading occurs during a Large Break LOCA with Buses 2A/3A not available.

The total loading in kW is 1915.15 kW, including 22.1 kW for cable losses (Appendix E-1) and 19.55 kW for frequency
variation.

Using section 6.0 the total kVA loading is summed for the individual loads on EDG 32 as follows:

AFWP 33	422.2 kVA	
CSP 32	357.0 kVA	
ESWP 36	320.9 kVA	
FCU 35	184.6 kVA	
MCC 36B	90.3 kVA	
MCC 36D	23.5 kVA	
MCC 37 (MCC Reset Bus 6A)	29.2 kVA	from 24.8 kW / 0.85 = 29.2 kVA
RHR PUMP 32	348.9 kVA	
SI PUMP 33	359.5 kVA	
	2136.1 kVA	

Frequency variation is calculated in the same methodology used in Section 7.0. The total inductive loads are: 2136.1 kVA – 29.5 kVA (from MCC 36B) = 2106.6 kVA

The frequency variation is: 2106.6 * 1.06% = 22.3 kVA.

8.0 POWER FACTOR CALCULATION FOR WORST CASE KVA LOADING ON EDGs (Continued)

The majority of the feeder cables to the loads listed above are 1/C-500MCM, with a reactance of X = 0.0509 Ω/1000ft and a resistance at 75C of R = 0.0299 Ω/1000ft . This yields a power factor of p.f. = 0.51.

For the purpose of determining the cable losses in kVA, a conservative power factor value of 0.50 is assumed. Therefore for the loads on EDG 32, the cable losses are 22.1 kW / 0.50 = 44.2 kVA.

Therefore the total kVA loading is: 2136.1 + 44.2 + 22.3 = 2202.6 kVA.

The calculated power factor is: p.f. = Total kW / Total kVA = 1915.15 / 2202.6 = 0.87.

For EDG 33:

From Section 7.0 of this calculation the worst case peak loading occurs during a Large Break LOCA with Buses 6A not available. (For this case the worst peak load is also the worst case steady state load for EDG 33.)

The total loading in kW is 1691.9 kW, including 23.1 kW for cable losses (Appendix E-2) and 17.2 kW for frequency variation.

Using section 6.0 the total kVA loading is summed for the individual loads on EDG 33 as follows:

RECIRC PUMP 31	353.5 kVA	
SI PUMP 31	359.5 kVA	
FCU 31	184.6 kVA	
FCU 33	184.6 kVA	
MCC 36A	104.4 kVA	
MCC 36E	23.4 kVA	
MCCs Reset Bus 2A/3A	100.9 kVA	from 85.8 kW/0.85 = 100.9 kVA
ESWP 34	320.9 kVA	
NESWP 31	320.9 kVA	
	1952.7 kVA	

Frequency variation is calculated in the same methodology used in Section 7.0. The total inductive loads are: 1952.7 kVA – 25.56 kVA (from MCC 36A) = 1927.14 kVA

The frequency variation is: 1927.14 * 1.06% = 20.4 kVA and the cable losses are 23.1 kW / 0.5 = 46.2 kVA.

8.0 POWER FACTOR CALCULATION FOR WORST CASE KVA LOADING ON EDGs (Continued)

The majority of the feeder cables to the loads listed above are 1/C-350MCM with a reactance of X= 0.0527 Ω/1000ft and a resistance at 75C of R = 0.0413 Ω/1000ft. This yields a power factor of 0.58.

For the purpose of determining the cable losses in kVA, a conservative power factor value of 0.55 is assumed. Therefore for the loads on EDG 33, the cable losses are 23.1 kW / 0.55 = 42 kVA.

Therefore the total kVA loading is: 1952.7 + 42 + 20.4 = 2015.1 kVA.

The calculated power factor is: p.f. = Total kW / Total kVA = 1691.9 / 2015.1 = 0.84.

Calculation No. IP3-CALC-ED-00207 Revision 8

Project: Electrical Load Study Page 60 of 69

Subject : 480V Bus 2A, 3A, 5A, and 6A and EDG's 31, 32 and 33 Accident Loading

9.0 INDEX OF LOADING CALCULATIONS FOR EACH ACCIDENT SCENARIO

9.0 INDEX OF LOADING CALCULATIONS FOR EACH ACCIDENT SCENARIO (Continued)

9.0 INDEX OF LOADING CALCULATIONS FOR EACH ACCIDENT SCENARIO (Continued)

9.0 INDEX OF LOADING CALCULATIONS FOR EACH ACCIDENT SCENARIO (Continued)

9.0 INDEX OF LOADING CALCULATIONS FOR EACH ACCIDENT SCENARIO (Continued)

9.0 INDEX OF LOADING CALCULATIONS FOR EACH ACCIDENT SCENARIO (Continued)

9.0 INDEX OF LOADING CALCULATIONS FOR EACH ACCIDENT SCENARIO (Continued)

9.0 INDEX OF LOADING CALCULATIONS FOR EACH ACCIDENT SCENARIO (Continued)

10.0 APPENDIX A

11 .0 APPENDIX B - EFFECT OF FREQUENCY VARIATION ON LOADING

12 .0 APPENDIX C - LETTER FROM WORTHINGTON CORPORATION

13 .0 APPENDIX D

Appendix D.1 GNB Technologies fax dated October 22,1997

Appendix D.2 K.J.Nelson - C. Reichert telecon dated February 3,1992

14.0 APPENDIX E

Appendix E-1 Worst Case Peak Load (Large Break LOCA) – EDG 32 (Bus 6A) – Cable Losses.

Appendix E-2 Worst Case Steady State Load (Large Break LOCA) – EDG 33 (Bus 5A) – Cable losses.

Appendix E-3 Worst Case kVA Load for EDG 31 (Bus 2A/3A) – Cable losses.

15.0 APPENDIX F

Appendix F-1 Motor Operated Valve list for MCCs 36A and 36B

16.0 APPENDIX G

Appendix G-1 Comparison of 1991 Degraded Grid Voltage Study (case 31) to 1997 revised study.

17.0 APPENDIX H

Appendix H-1 BHP Input from Design Engineering Mechanical for Safety Related Pumps/Motors.

18.0 ATTACHMENT 1

Basis for deletion of Steam Generator Tube Rupture with Phase B Isolation (PH B)

DESIGN VERIFICATION COVER PAGE

☐ ANO-1	☐ ANO-2	☐ IP-2	☒ IP-3	☐ JAF	☐ PLP
☐ PNPS	☐ VY	☐ GGNS	☐ RBS	☐ W3	☐ NP

Document No. IP3-CALC-ED-00207	Revision No. 2	Page 1 of 3
Title: 480V Buses 2A, 3A, 5A and 6A and EDG's 31, 32 and 33 Accident Loading		

☒ Quality Related ☐ Augmented Quality Related

DV Method: ☒ Design Review ☐ Alternate Calculation ☐ Qualification Testing

VERIFICATION REQUIRED	DISCIPLINE	VERIFICATION COMPLETE AND COMMENTS RESOLVED (DV print, sign, and date)
☒	Electrical	F. A. Bloise 8/27/09
☐	Mechanical	
☐	Instrument and Control	
☐	Civil/Structural	
☐	Nuclear	
☐		
☐		

Originator: Andromahe Zografos 8/27/09
Print/Sign/Date After Comments Have Been Resolved

IDENTIFICATION:	DISCIPLINE:
Document Title: 480V Buses 2A, 3A, 5A and 6A and EDG's 31, 32 and 33 Accident Loading	☐ Civil/Structural ☒ Electrical ☐ I & C ☐ Mechanical ☐ Nuclear ☐ Other
Doc. No.: IP3-CALC-ED-00207 Rev. 2 QA Cat. SR	
Verifier: Frank A. Bloise (Print) [signature] (Sign) 8/27/09 (Date)	
Manager authorization for supervisor performing Verification. X N/A ____ (Print) ____ (Sign) ____ (Date)	

METHOD OF VERIFICATION:

Design Review ☒ Alternate Calculations ☐ Qualification Test ☐

The following basic questions are addressed as applicable, during the performance of any design verification. [ANSI N45.2.11 – 1974] [NP] [QAPD, Part II, Section 3][NQA-1-1994, Part II, BR 3, Supplement 3s-1].

NOTE The reviewer can use the "Comments/Continuation sheet" at the end for entering any comment/resolution along with the appropriate question number. Additional items with new question numbers can also be entered.

1. Design Inputs – Were the inputs correctly selected and incorporated into the design?

   (Design inputs include design bases, plant operational conditions, performance requirements, regulatory requirements and commitments, codes, standards, field data, etc. All information used as design inputs should have been reviewed and approved by the responsible design organization, as applicable.

   All inputs need to be retrievable or excerpts of documents used should be attached.

   See site specific design input procedures for guidance in identifying inputs.)

   Yes ☒ No ☐ N/A ☐

2. Assumptions – Are assumptions necessary to perform the design activity adequately described and reasonable? Where necessary, are assumptions identified for subsequent re-verification when the detailed activities are completed? *Are the latest applicable revisions of design documents utilized?*

   Yes ☒ No ☐ N/A ☐

3. Quality Assurance – Are the appropriate quality and quality assurance requirements specified?

   Yes ☒ No ☐ N/A ☐

4. Codes, Standards and Regulatory Requirements – Are the applicable codes, standards and regulatory requirements, including issue and addenda properly identified and are their requirements for design met?
Yes ☒ No ☐ N/A ☐

5. Construction and Operating Experience – Have applicable construction and operating experience been considered?
Yes ☐ No ☐ N/A ☒

6. Interfaces – Have the design interface requirements been satisfied and documented?
Yes ☒ No ☐ N/A ☐

7. Methods – Was an appropriate design or analytical (for calculations) method used?
Yes ☒ No ☐ N/A ☐

8. Design Outputs – Is the output reasonable compared to the inputs?
Yes ☒ No ☐ N/A ☐

9. Parts, Equipment and Processes – Are the specified parts, equipment, and processes suitable for the required application?
Yes ☐ No ☐ N/A ☒

10. Materials Compatibility – Are the specified materials compatible with each other and the design environmental conditions to which the material will be exposed?
Yes ☐ No ☐ N/A ☒

11. Maintenance requirements – Have adequate maintenance features and requirements been specified?
Yes ☐ No ☐ N/A ☒

12. Accessibility for Maintenance – Are accessibility and other design provisions adequate for performance of needed maintenance and repair?
Yes ☐ No ☐ N/A ☒

13. Accessibility for In-service Inspection – Has adequate accessibility been provided to perform the in-service inspection expected to be required during the plant life?
Yes ☐ No ☐ N/A ☒

14. Radiation Exposure – Has the design properly considered radiation exposure to the public and plant personnel?
Yes ☐ No ☐ N/A ☒

15. Acceptance Criteria – Are the acceptance criteria incorporated in the design documents sufficient to allow verification that design requirements have been satisfactorily accomplished?
Yes ☒ No ☐ N/A ☐

16. Test Requirements – Have adequate pre-operational and subsequent periodic test requirements been appropriately specified?
Yes ☐ No ☐ N/A ☒

17. Handling, Storage, Cleaning and Shipping – Are adequate handling, storage, cleaning and shipping requirements specified?
Yes ☐ No ☐ N/A ☒

18. Identification Requirements – Are adequate identification requirements specified?
Yes ☐ No ☐ N/A ☒

19. Records and Documentation – Are requirements for record preparation, review, approval, retention, etc., adequately specified? Are all documents prepared in a clear legible manner suitable for microfilming and/or other documentation storage method? Have all impacted documents been identified for update as necessary?
Yes ☒ No ☐ N/A ☐

20. Software Quality Assurance- ENN sites: For a calculation that utilized software applications (e.g., GOTHIC, SYMCORD), was it properly verified and validated in accordance with EN- IT-104 or previous site SQA Program?
ENS sites: This is an EN-IT-104 task. However, per ENS-DC-126, for exempt software, was it verified in the calculation?
Yes ☐ No ☐ N/A ☒

21. *Has adverse impact on peripheral components and systems, outside the boundary of the document being verified, been considered?*
Yes ☒ No ☐ N/A ☐

DESIGN VERIFICATION COVER PAGE

☐ ANO-1 ☐ PNPS	☐ ANO-2 ☐ VY	☐ IP-2 ☐ GGNS	☒ IP-3 ☐ RBS	☐ JAF ☐ W3	☐ PLP ☐ NP

Document No. EC - 16788	Revision No. 0	Page 1 of _____
Title: BHP Input From Design Mechanical – Appendix H		

☒ Quality Related ☐ Augmented Quality Related

DV Method: ☒ Design Review ☐ Alternate Calculation ☐ Qualification Testing

VERIFICATION REQUIRED	DISCIPLINE	VERIFICATION COMPLETE AND COMMENTS RESOLVED (DV print, sign, and date)
☐	Electrical	
☒	Mechanical	Louis F. Liberatori, Jr. 8/25/09
☐	Instrument and Control	
☐	Civil/Structural	
☐	Nuclear	
☐		
☐		

Originator: J. Bubniak/A. Zografos 8/25/09
Print/Sign/Date After Comments Have Been Resolved

IDENTIFICATION:	DISCIPLINE:
Document Title: BHP Input From Design Mechanical – Appendix H	☐Civil/Structural ☐Electrical ☐I & C ☒Mechanical ☐Nuclear ☐Other
Doc. No.: EC - 16788 Rev. 0 QA Cat. SR	
Verifier: Louis F. Liberatori, Jr. (Print) (Sign) 8/28/09 (Date)	
Manager authorization for supervisor performing Verification. ☒ N/A N/A (Print) ____ (Sign) ____ (Date)	

METHOD OF VERIFICATION:
Design Review ☒ Alternate Calculations ☐ Qualification Test ☐

The following basic questions are addressed as applicable, during the performance of any design verification. These questions are based on the requirements of ANSI N45.2.11 – 1974.

NOTE The reviewer can use the "Comments/Continuation sheet" at the end for entering any comment/resolution along with the appropriate question number. Additional items with new question numbers can also be entered.

1. Design Inputs – Were the inputs correctly selected and incorporated into the design?
(Design inputs include design bases, plant operational conditions, performance requirements, regulatory requirements and commitments, codes, standards, field data, etc. All information used as design inputs should have been reviewed and approved by the responsible design organization, as applicable.
All inputs need to be retrievable or excerpts of documents used should be attached.
See site specific design input procedures for guidance in identifying inputs.)
Yes ☒ No ☐ N/A ☐

See attached Comment Sheet.

2. Assumptions – Are assumptions necessary to perform the design activity adequately described and reasonable? Where necessary, are assumptions identified for subsequent re-verification when the detailed activities are completed? *Are the latest applicable revisions of design documents utilized?*
Yes ☒ No ☐ N/A ☐

See attached Comment Sheet.

3. Quality Assurance – Are the appropriate quality and quality assurance requirements specified?
Yes ☒ No ☐ N/A ☐

4. Codes, Standards and Regulatory Requirements – Are the applicable codes, standards and regulatory requirements, including issue and addenda properly identified and are their requirements for design met?
Yes ☐ No ☐ N/A ☒

5. Construction and Operating Experience – Have applicable construction and operating experience been considered?
Yes ☐ No ☐ N/A ☒

6. Interfaces – Have the design interface requirements been satisfied and documented?
Yes ☒ No ☐ N/A ☐

See attached Comment Sheet.

7. Methods – Was an appropriate design or analytical (for calculations) method used?
Yes ☒ No ☐ N/A ☐

8. Design Outputs – Is the output reasonable compared to the inputs?
Yes ☒ No ☐ N/A ☐

9. Parts, Equipment and Processes – Are the specified parts, equipment, and processes suitable for the required application?
Yes ☐ No ☐ N/A ☒

10. Materials Compatibility – Are the specified materials compatible with each other and the design environmental conditions to which the material will be exposed?
Yes ☐ No ☐ N/A ☒

11. Maintenance requirements – Have adequate maintenance features and requirements been specified?
Yes ☐ No ☐ N/A ☒

12. Accessibility for Maintenance – Are accessibility and other design provisions adequate for performance of needed maintenance and repair?
Yes ☐ No ☐ N/A ☒

13. Accessibility for In-service Inspection – Has adequate accessibility been provided to perform the in-service inspection expected to be required during the plant life?
Yes ☐ No ☐ N/A ☒

14. Radiation Exposure – Has the design properly considered radiation exposure to the public and plant personnel?
Yes ☐ No ☐ N/A ☒

15. Acceptance Criteria – Are the acceptance criteria incorporated in the design documents sufficient to allow verification that design requirements have been satisfactorily accomplished?
Yes ☐ No ☐ N/A ☒

16. Test Requirements – Have adequate pre-operational and subsequent periodic test requirements been appropriately specified?
Yes ☐ No ☐ N/A ☒

17. Handling, Storage, Cleaning and Shipping – Are adequate handling, storage, cleaning and shipping requirements specified?
Yes ☐ No ☐ N/A ☒

18. Identification Requirements – Are adequate identification requirements specified?
Yes ☐ No ☐ N/A ☒

19. Records and Documentation – Are requirements for record preparation, review, approval, retention, etc., adequately specified? Are all documents prepared in a clear legible manner suitable for microfilming and/or other documentation storage method? Have all impacted documents been identified for update as necessary?
Yes ☒ No ☐ N/A ☐

20. Software Quality Assurance- ENN sites: For a calculation that utilized software applications (e.g., GOTHIC, SYMCORD), was it properly verified and validated in accordance with EN- IT-104 or previous site SQA Program?
ENS sites: This is an EN-IT-104 task. However, per ENS-DC-126, for exempt software, was it verified in the calculation?
Yes ☐ No ☐ N/A ☒

21. *Has adverse impact on peripheral components and systems, outside the boundary of the document being verified, been considered?*
Yes ☐ No ☐ N/A ☒

Question #	Comments	Resolution	Initial/Date
1.	Pg. 1 of 5 (Containment Recirculation Pump Input): The four cases listed are for one (1) RHR HX cases only. This is stated to be based on the GSI-191 calc IP-CALC-07-00054, Rev 2 (West. CN-SEE-05-107, Rev. 2). This calc is not formally active at this point (pending issuance of EC-2812) and the EOP changes to implement the one RHR HX restrictions are not yet issued. The BHPs are for the flows taken from a combination of that above calc and the IP-CALC-04-0809, Rev. 2 Calc. Current plant operation could have one or two HXs available.	It is agreed that the GSI-191 related calcs are still formally in "pending" status. It is also acknowledged that the EOPs as currently written still permit 2 RHR Ht Exchanger operation. However, it has been confirmed that the flow rates for applicable pumps determined in SEE-05-107 R2 bound the max flow rates from previous analyses. Thus from an analytical perspective, the flow rates used are conservative for BHp determination (and moreover, they will be correct going forward). The BHp values for the two RHR Ht Exch cases have been included in the EDG Loading Input Clarification.	J.P.B. 8/25/09 8/25/09
2.	Pg. 1 of 5 (Containment Recirculation Pump Input): The HHSI recirc flow for LBLOCA is listed as 1500 gpm and the HHSI recirc case for SBLOCA is listed as 1420 gpm. What are the bases of these numbers and why different?	Based on SEE-03-59 R 0 Table 2, the maximum runout flow of two HHSI Pumps is approximately 1330 gpm for a LBLOCA. When this is added to the nominal 170 gpm IR Pump recirc miniflow, the 1500 gpm flow rate is obtained that is used in the 809 calc. For a SBLOCA, where some RCS backpressure exists, verbal input from Westinghouse recommended that a 2 pump maximum flow rate of 1250 gpm would be reasonably conservative. When the 170 gpm for the IR Pump miniflow is added, the 1420 gpm value in the 809 calc is obtained.	J.P.B. 8/25/09 8/25/09
3.	Pg 3 and 4 of 5 (High Head Safety Injection Pump Input): The BHPs for each pump are identified as being different based on the differences in the individual pump curves. The curves and the different values are derived from the IP-CALC-04-0809, Rev. 2 calculation. The curves used were the original plant pump curves. Based on the information contained in Calculation CN-SEE-03-59, Rev. 0, the current IP3 SI pumps all have different curves. Therefore, the BHPs derived from the original curves need to be assessed against the information contained in the current pump curves.	The performance data and curves, where available, for the actually installed HHSI Pumps were compared to the curves used in IP-CALC-04-00809 R2. It was found that within the readability of all the curves, the curves contained in the calc would be deemed acceptable for use in determining BHp. In other words, the performance of the installed HHSI Pumps 31, 32, and 33 are not sufficiently different from the performance of the Pumps analyzed in the BHp calculation to alter the BHp results obtained. The discrepancy in curve usage in the calculation will be addressed as a separate issue.	J.P.B. 8/25/09 8/25/09
4.	Pg. 4 of 5 (High Head Safety Injection Pump Input): The BHPs provided for the Hot Leg Recirc cases are derived from IP-CALC-04-0809, Rev. 2. The value of 540.3 gpm seems to be based on Westinghouse references noted, but the 540 value seems to be based on a minimum SI pump performance case rather than maximum SI pump performance.	IP-CALC-04-00809 R2 may have cited an unconservative flow rate for the HL Recirc case. However, in the revised EDG Loading Input Clarification writeup, it has been decided to recommend to Electrical Engineering that they employ the conservative BHp value of 414 Hp (basically related to HHSI Pump injection phase runout flow at 60° F) for all LOCA scenarios. For HL Recirc, the fluid temperature would be higher (ie, lower fluid density), so even with a potentially slightly higher flow rate associated with boost operation, the HHSIP BHp would be no higher than 414 BHp.	J.P.B. 8/25/09 8/25/09

5.	Pg. 4 and 5 of 5 (Containment Recirculation Fan (Fan Cooler Unit) Input: The 155 BHP value for a 5 FCU case is not based on a "cold" service water temperature run from the referenced calculation CN-CRA-08-11, but rather judgment and comparison to the 3 FCU cases run in that calc. In addition, reference to a superseded calc IP3-CALC-ED-00293, Rev. 1, is made since it contained an earlier run for 5 FCUs, but at "hot" service water conditions. We shouldn't be using superseded calculations for references. The CN-CRA-08-11 calc is based on "cold" service water and only calculates a BHP for 3 FCU cases (ie: 159BHP). In addition, since there are no like cases to compare, it is not clear whether "hot" or "cold" service water yields higher BHPs for the FCUs. So it's not clear whether either of the 159 BHP or the 155 BHP values are limiting values.	Based on the comment, Westinghouse was contacted to discuss calc CN-CRA-08-11. This discussion and the subsequent assessment of available information pertaining to FCU BHp determination methodology concluded that 159 Hp is a bounding BHp value. The number of FCUs operating affects the per FCU air/steam flow rate and also the post-accident VC atmospheric conditions. The temperature of the Service Water being delivered to the FCUs also slightly affects the per FCU flow rate, but more significantly affects the VC conditions (temperature and pressure). A qualitative evaluation of the combination of these effects, with input from the SPU Project reconciled IP2 EDG Loading Study, has led Westinghouse and IPEC engineering to conclude that the 159 Hp value is limiting. Thus, in the revised EDG Loading Input Clarification writeup, it has been decided to recommend to Electrical Engineering that they use 159 Hp input for 3, 4, and 5 FCUs operating.	J.R.B. 8/25/09 8/28/09

Legend (Typical for all reports)

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 5

E0 - ACCIDENT NOT IDENTIFIED
RCS PRESS>275, PHASE B

This is a computer generated number. It is not related to the technical portion of the software.

LOAD LIST TRACKING NUMBER : 508

Report Print Date : April 16,1997
Report Print Time : 2:01 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 3018.3 Bus 2A/3A = 3189.1 Bus 6A = 3505.5 (A)

3200 Amp Overload Summary

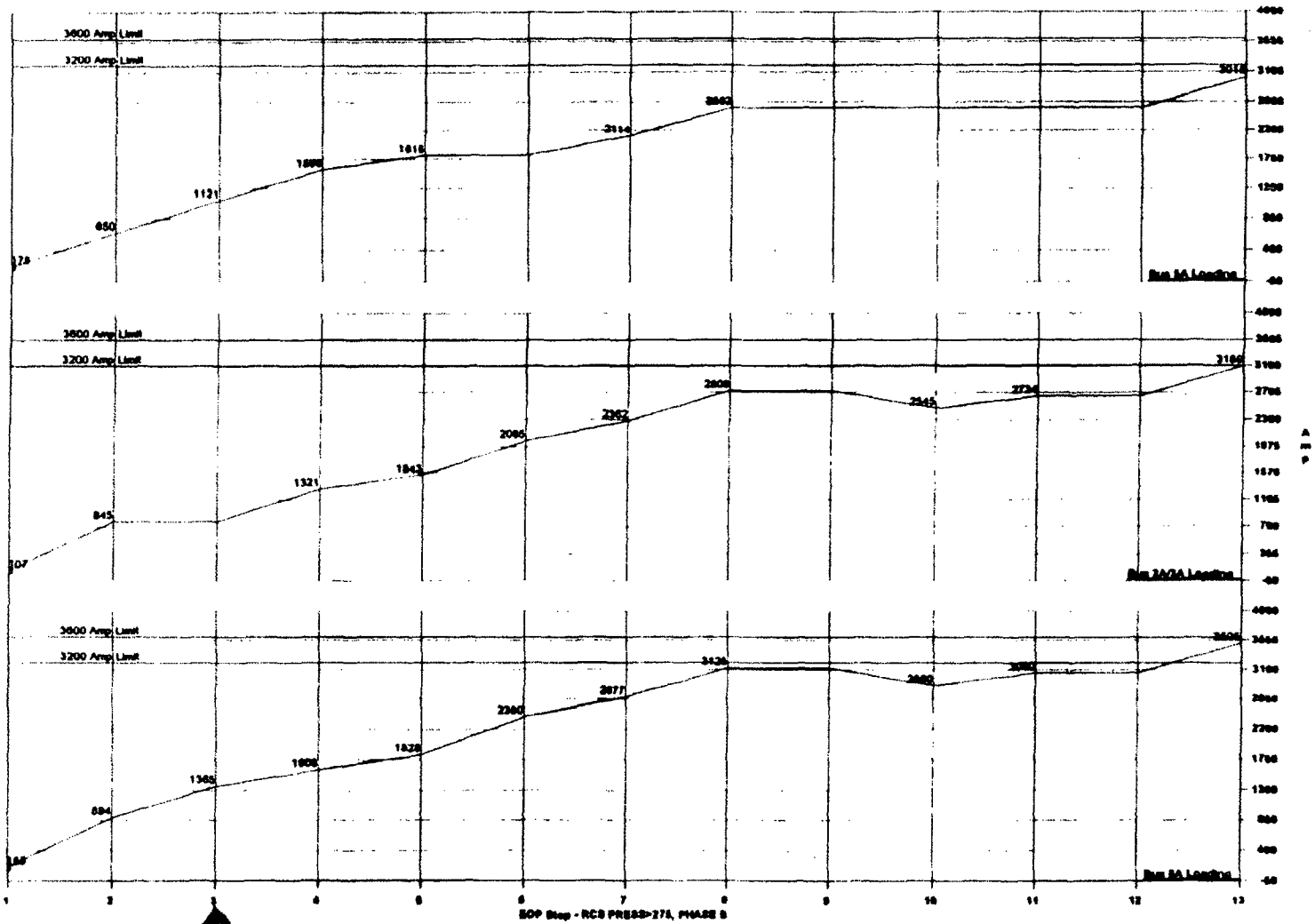
Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A exceeds the 3200 Amp rating at EOP steps : 13

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

This is not the actual EOP Step number. It only represents a sequential number of the loading for this scenario. To relate this number with a particular EOP, see the example on page 3 of this Appendix.

E0 - ACCIDENT NOT IDENTIFIED



This is a sequential number not the particular EOP step. To relate this number with a particular EOP, see the example on page 3 of Appendix A.1.

E0 - ACCIDENT NOT IDENTIFIED - RCS PRESS>275, PHASE B

Report Date : April 16,1997 Time : 2:01 PM [1]

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
			-98 -100				
- 11 -	---	RO-1-20	PAB FANs 31, 32 (Only 1 Fan Required)	Manual	0.0	189.3	189.3
					2562.4	2734.1	3049.6
			+69 +70				
- 12 -	E-0-26	---	CHARGING PUMPs 31,32,33 (Only 1 Pump Required)	Manual	0.0	0.0	0.0
					2562.4	2734.1	3049.6
			(No Loads Started or Tripped at this step)				
- 13 -	---	RO-1-23	NESWP 31,32,33 (Only 1 Pump Required)	Manual	455.9	455.0	455.9
					3018.3	3189.1	3505.5 Over 3200
			+66 +67 +68				

This is a typical EOP step.

Status of load; started, tripped or not running.

Sub-Total

+ Means load is started
- Means load is stopped.

Actual EOP step

Sequential numbering of loading

These numbers identify the loads being started or tripped in this step. See Master Load List (Appendix A.10) for a listing of these numbers, their description, Amp and kW values.

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

MASTER LOAD LIST
LOADS ON ALL BUSES

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : September 14,2009
Report Print Time : 1:42 PM

MASTER LOAD LIST

Report Date : September 14,2009 Time : 1:42 PM [55]

Load Name	Bus Connected To	W-out LOOP: All Buses Available (Amps)	W-out LOOP: Loss Of First Bus (Amps)	W-out LOOP: Loss Of Second Bus (Amps)	With LOOP: All Buses Available (kW)	With LOOP: Loss Of First Bus (kW)	With LOOP: Loss Of Second Bus (kW)	Terminal Voltage \ Load Reference
1:AFWP 31	3A	575.4	575.4	575.4	378.9	378.9	378.9	437.1V @ Motor
2:AFWP 33	6A	562.9	562.9	562.9	375.7	375.7	375.7	433.0 V @ Motor
3:BUS 2A/3A MCC RESETS	2A/3A	407.2	407.2	407.2	0.0	0.0	0.0	441.6V @ MCC
4:CCWP 31	5A	250.5	293.4	293.4	169.0	198.1	198.1	437.4V @ Motor
5:CCWP 31 (2 RUNNING OR 3 RUN AND 1 STOPPED)	5A	293.4	293.4	293.4	198.1	198.1	198.1	437.4V @ Motor
6:CCWP 31 (ONE RUNNING)	5A	325.4	325.4	325.4	219.6	219.6	219.6	437.4V @ Motor
7:CCWP 32	2A	251.3	294.4	294.4	169.0	198.1	198.1	436.0V @ Motor
8:CCWP 32 (2 RUNNING OR 3 RUN AND 1 STOPPED)	2A	294.4	294.4	294.4	198.1	198.1	198.1	436.0V @ Motor
9:CCWP 32 (ONE RUNNING)	2A	326.4	326.4	326.4	219.6	219.6	219.6	436.0V @ Motor
10:CCWP 33	6A	251.2	294.2	294.2	169.0	198.1	198.1	436.3V @ Motor
11:CCWP 33 (2 RUNNING OR 3 RUN AND 1 STOPPED)	6A	294.2	294.2	294.2	198.1	198.1	198.1	436.3V @ Motor
12:CCWP 33 (ONE RUNNING)	6A	326.2	326.2	326.2	219.6	219.6	219.6	436.3V @ Motor
13:CHARGING PUMP 31	5A	208.5	208.5	208.5	140.2	140.2	140.2	432.0V @ Motor
14:CHARGING PUMP 32	3A	208.9	208.9	208.9	140.2	140.2	140.2	431.1V @ Motor
15:CHARGING PUMP 33	6A	209.6	209.6	209.6	140.2	140.2	140.2	429.6V @ Motor
16:CRP 31 (LBLOCA COLD LEG & RECIRC SPRAY)	5A	472.5	472.5	472.5	309.0	309.0	309.0	432.0 V @ Motor
17:CRP 31 (LBLOCA POST RECIRC SPRAY)	5A	324.2	324.2	324.2	206.2	206.2	206.2	432.0 V @ Motor
18:CRP 31 (SBLOCA HIGH HEAD SI & RECIRC SPRAY	5A	468.3	468.3	468.3	306.3	306.3	306.3	432.0 V @ Motor
19:CRP 31 (SBLOCA HIGH HEAD SI, POST RECIRC S	5A	321.7	321.7	321.7	204.6	204.6	204.6	432.0 V @ Motor
20:CRP 32 (LBLOCA COLD LEGS & RECIRC SPRAY)	6A	472.5	472.5	472.5	309.0	309.0	309.0	432.0 V @ Motor
21:CRP 32 (LBLOCA HOT LEG, POST RECIRC SPRAY)	6A	324.2	324.2	324.2	206.2	206.2	206.2	432.0 V @ Motor
22:CRP 32 (SBLOCA HIGH HEAD SI, POST RECIRC S	6A	321.7	321.7	321.7	204.6	204.6	204.6	432.0 V @ Motor
23:CRP 32 (SBLOCA HIGH HEAD SI, RECIRC SPRAY)	6A	468.3	468.3	468.3	306.3	306.3	306.3	432.0 V @ Motor
24:CSP 31	5A	453.6	453.6	453.6	307.3	307.3	307.3	437.9V @ Motor
25:CSP 32	6A	471.1	471.1	471.1	319.5	319.5	319.5	437.5V @ Motor
26:ESWP 34	5A	429.8	429.8	429.8	280.8	280.8	280.8	431.0V @ Motor
27:ESWP 35	3A	429.0	429.0	429.0	280.8	280.8	280.8	431.8V @ Motor
28:ESWP 36	6A	429.8	429.8	429.8	280.8	280.8	280.8	431.0V @ Motor
29:FCU 31	5A	245.2	245.2	245.2	129.0	129.0	129.0	434.6V @ Motor
30:FCU 31 (5 RUNNING AND 1 STOPPED)	5A	245.2	245.2	245.2	129.0	129.0	129.0	434.6V @ Motor
31:FCU 32	2A	247.2	247.2	247.2	129.0	129.0	129.0	431.1V @ Motor
32:FCU 32 (5 RUNNING AND 1 STOPPED)	2A	247.2	247.2	247.2	129.0	129.0	129.0	431.1V @ Motor
33:FCU 33	5A	246.7	246.7	246.7	129.0	129.0	129.0	432.0V @ Motor
34:FCU 33 (5 RUNNING AND 1 STOPPED)	5A	246.7	246.7	246.7	129.0	129.0	129.0	432.0V @ Motor
35:FCU 34	3A	246.0	246.0	246.0	129.0	129.0	129.0	433.2V @ Motor
36:FCU 34 (5 RUNNING AND 1 STOPPED)	3A	246.0	246.0	246.0	129.0	129.0	129.0	433.2V @ Motor
37:FCU 35	6A	248.0	248.0	248.0	129.0	129.0	129.0	429.6V @ Motor
38:FCU 35 (5 RUNNING AND 1 STOPPED)	6A	248.0	248.0	248.0	129.0	129.0	129.0	429.6V @ Motor
39:MCC 32 : BATTERY CHARGER 34	3A	16.6	16.6	16.6	12.0	12.0	12.0	437.9V @ MCC
40:MCC 32 : MAIN GEN SEAL OIL PUMP	3A	64.4	64.4	64.4	41.5	41.5	41.5	437.9V @ MCC
41:MCC 32 : MBFP MAIN OIL PUMP 31	3A	75.6	75.6	75.6	48.7	48.7	48.7	437.9V @ MCC
42:MCC 33 : MBFP MAIN OIL PUMP 32	2A	75.6	75.6	75.6	48.7	48.7	48.7	437.0V @ MCC
43:MCC 34 : EDG AIR COMPRESSOR 31	2A	6.6	6.6	6.6	4.1	4.1	4.1	441.6V @ MCC
44:MCC 34 : EDG EXHAUST HOOD BLOWER 31	2A	1.0	1.0	1.0	0.6	0.6	0.6	441.6V @ MCC

MASTER LOAD LIST

Report Date : September 14,2009 Time : 1:42 PM [55]

Load Name	Bus Connected To	<——— All Buses Available (Amps)	W-out LOOP Loss Of First Bus (Amps)	———> Loss Of Second Bus (Amps)	<——— All Buses Available (kW)	With LOOP Loss Of First Bus (kW)	———> Loss Of Second Bus (kW)	Terminal Voltage \ Load Reference
45:MCC 34 : IA CLOSED COOLING PUMP 32	2A	3.1	3.1	3.1	2.0	2.0	2.0	441.6V @ MCC
46:MCC 34 : IA COMPRESSOR 32	2A	68.5	68.5	68.5	44.5	44.5	44.5	441.6V @ MCC
47:MCC 34 : MAIN TURBINE TURNING GEAR	2A	63.8	63.8	63.8	41.5	41.5	41.5	441.6V @ MCC
48:MCC 35 : MAIN TURBINE BEARING OIL PUMP	3A	96.0	96.0	96.0	62.1	62.1	62.1	439.0V @ MCC
49:MCC 35 : TURBINE TURNING GEAR OIL PUMP	3A	96.0	96.0	96.0	62.1	62.1	62.1	439.0V @ MCC
50:MCC 36A : AUTO	5A	138.4	138.4	138.4	89.9	89.9	89.9	436.6V @ MCC
51:MCC 36A : ELECTRICAL TUNNEL EXHAUST FAN 31	5A	9.6	9.6	9.6	6.2	6.2	6.2	436.6V @ MCC
52:MCC 36A : ELECTRICAL TUNNEL EXHAUST FAN 33	5A	9.6	9.6	9.6	6.2	6.2	6.2	436.6V @ MCC
53:MCC 36B : AUTO	6A	119.2	119.2	119.2	80.3	80.3	80.3	438.3V @ MCC
54:MCC 36B : ELECTRICAL TUNNEL EXHAUST FAN 32	6A	9.6	9.6	9.6	6.2	6.2	6.2	438.3V @ MCC
55:MCC 36B : ELECTRICAL TUNNEL EXHAUST FAN 34	6A	9.6	9.6	9.6	6.2	6.2	6.2	438.3V @ MCC
56:MCC 36B : H2 RECOMBINER 32	6A	115.3	115.3	115.3	75.0	75.0	75.0	438.3V @ MCC
57:MCC 36C : AUTO	2A	135.5	135.5	135.5	94.3	94.3	94.3	444.0V @ MCC
58:MCC 36C : H2 RECOMBINER 31	2A	115.3	115.3	115.3	75.0	75.0	75.0	444.0V @ MCC
59:MCC 36D : AUTO	6A	30.9	30.9	30.9	20.1	20.1	20.1	438.3V @ MCC
60:MCC 36E : AUTO	5A	31.1	31.1	31.1	20.1	20.1	20.1	436.6V @ MCC
61:MCC 37 : BAST HEATER (TANK 31)	6A	19.6	19.6	19.6	15.0	15.0	15.0	441.8V @ MCC
62:MCC 37 : BAST HEATER (TANK 32)	6A	19.6	19.6	19.6	15.0	15.0	15.0	441.8V @ MCC
63:MCC 37 : BATTERY CHARGER 32	6A	27.6	27.6	27.6	20.0	20.0	20.0	441.8V @ MCC
64:MCC 37 : EDG AIR COMPRESSOR 32	6A	6.6	6.6	6.6	4.1	4.1	4.1	441.8V @ MCC
65:MCC 37 : EDG EXHAUST HOOD BLOWER 32	6A	1.0	1.0	1.0	0.6	0.6	0.6	441.8V @ MCC
66:MCC 37 : PENETRATION BLOWER (# 1)	6A	23.1	23.1	23.1	15.0	15.0	15.0	441.8V @ MCC
67:MCC 37 : PENETRATION BLOWER (# 2)	6A	23.1	23.1	23.1	15.0	15.0	15.0	441.8V @ MCC
68:MCC 37 : PW MU PUMP (31 OR 34)	6A	31.9	31.9	31.9	20.7	20.7	20.7	441.8V @ MCC
69:MCC 37 : SPENT FUEL POOL CLG PUMP 31	6A	107.9	107.9	107.9	70.1	70.1	70.1	441.8V @ MCC
70:MCC 38 : CRDM FAN 31	5A	31.3	31.3	31.3	20.1	20.1	20.1	437.3V @ MCC
71:MCC 38 : CRDM FAN 32	5A	31.3	31.3	31.3	20.1	20.1	20.1	437.3V @ MCC
72:MCC 38 : CRDM FAN 33	5A	31.3	31.3	31.3	20.1	20.1	20.1	437.3V @ MCC
73:MCC 38 : CRDM FAN 34	5A	31.3	31.3	31.3	20.1	20.1	20.1	437.3V @ MCC
74:MCC 39 : BATTERY CHARGER 31	5A	40.2	40.2	40.2	29.3	29.3	29.3	443.4V @ MCC
75:MCC 39 : EDG AIR COMPRESSOR 33	5A	6.6	6.6	6.6	4.1	4.1	4.1	443.4V @ MCC
76:MCC 39 : EDG EXHAUST HOOD BLOWER 33	5A	1.0	1.0	1.0	0.6	0.6	0.6	443.4V @ MCC
77:MCC 39 : IA CLOSED COOLING PUMP 31	5A	3.1	3.1	3.1	2.0	2.0	2.0	443.4V @ MCC
78:MCC 39 : IA COMPRESSOR 31	5A	76.2	76.2	76.2	49.7	49.7	49.7	443.4V @ MCC
79:MCC 39 : SAT AUX (E)	5A	29.2	29.2	29.2	21.3	21.3	21.3	443.4V @ MCC
80:MCC 39 : SPENT FUEL POOL CLG PUMP 32	5A	107.9	107.9	107.9	70.1	70.1	70.1	443.4V @ MCC
81:MCCS RESET (2A/3A) AS PER SOP-EL-15	2A/3A	95.6	95.6	95.6	63.3	63.3	63.3	441.6V @ MCC
82:MCCS RESET (5A) AS PER SOP-EL-15	5A	126.9	126.9	126.9	85.8	85.8	85.8	443.4V @ MCC
83:MCCS RESET (6A) AS PER SOP-EL-15	6A	35.0	35.0	35.0	24.8	24.8	24.8	441.8V @ MCC
84:NESWP 31	5A	429.8	429.8	429.8	280.8	280.8	280.8	431.0V @ Motor
85:NESWP 32	2A	429.0	429.0	429.0	280.8	280.8	280.8	431.8V @ Motor
86:NESWP 33	6A	429.8	429.8	429.8	280.8	280.8	280.8	431.0V @ Motor
87:PAB FAN 31	3A	177.0	177.0	177.0	114.3	114.3	114.3	438.7V @ Motor
88:PAB FAN 32	6A	177.0	177.0	177.0	114.3	114.3	114.3	438.7V @ Motor

MASTER LOAD LIST

Report Date : September 14,2009 Time : 1:42 PM (55)

Load Name	Bus Connected To	All Buses Available (Amps)	W-out LOOP Loss Of First Bus (Amps)	Loss Of Second Bus (Amps)	All Buses Available (kW)	With LOOP Loss Of First Bus (kW)	Loss Of Second Bus (kW)	Terminal Voltage \ Load Reference
89:PRESSURIZER HEATER 31	3A	618.2	618.2	618.2	555.0	555.0	555.0	444.0V @ Heater
90:PRESSURIZER HEATER 31 (1 CIRCUIT)	3A	77.3	77.3	77.3	69.4	69.4	69.4	444.0V @ Heater
91:PRESSURIZER HEATER 31 (2 CIRCUITS)	3A	154.6	154.6	154.6	138.8	138.8	138.8	444.0V @ Heater
92:PRESSURIZER HEATER 31 (3 CIRCUITS)	3A	231.9	231.9	231.9	208.2	208.2	208.2	444.0V @ Heater
93:PRESSURIZER HEATER 31 (4 CIRCUITS)	3A	309.2	309.2	309.2	277.6	277.6	277.6	444.0V @ Heater
94:PRESSURIZER HEATER 31 (5 CIRCUITS)	3A	386.5	386.5	386.5	347.0	347.0	347.0	444.0V @ Heater
95:PRESSURIZER HEATER 31 (6 CIRCUITS)	3A	463.8	463.8	463.8	416.4	416.4	416.4	444.0V @ Heater
96:PRESSURIZER HEATER 31 (7 CIRCUITS)	3A	541.1	541.1	541.1	485.8	485.8	485.8	444.0V @ Heater
97:PRESSURIZER HEATER 31 (8 CIRCUITS)	3A	618.2	618.2	618.2	555.0	555.0	555.0	444.0V @ Heater
98:PRESSURIZER HEATER 32	2A	540.3	540.3	540.3	485.0	485.0	485.0	444.0V @ Heater
99:PRESSURIZER HEATER 32 (1 CIRCUIT)	2A	77.2	77.2	77.2	69.3	69.3	69.3	444.0V @ Heater
100:PRESSURIZER HEATER 32 (2 CIRCUITS)	2A	154.4	154.4	154.4	138.6	138.6	138.6	444.0V @ Heater
101:PRESSURIZER HEATER 32 (3 CIRCUITS)	2A	231.6	231.6	231.6	207.9	207.9	207.9	444.0V @ Heater
102:PRESSURIZER HEATER 32 (4 CIRCUITS)	2A	308.8	308.8	308.8	277.2	277.2	277.2	444.0V @ Heater
103:PRESSURIZER HEATER 32 (5 CIRCUITS)	2A	386.5	386.5	386.5	346.5	346.5	346.5	444.0V @ Heater
104:PRESSURIZER HEATER 32 (6 CIRCUITS)	2A	463.2	463.2	463.2	415.8	415.8	415.8	444.0V @ Heater
105:PRESSURIZER HEATER 32 (7 CIRCUITS)	2A	540.3	540.3	540.3	485.0	485.0	485.0	444.0V @ Heater
106:PRESSURIZER HEATER 33	5A	540.3	540.3	540.3	485.0	485.0	485.0	444.0V @ Heater
107:PRESSURIZER HEATER 33 (1 CIRCUIT)	5A	77.2	77.2	77.2	69.3	69.3	69.3	444.0V @ Heater
108:PRESSURIZER HEATER 33 (2 CIRCUITS)	5A	154.4	154.4	154.4	138.6	138.6	138.6	444.0V @ Heater
109:PRESSURIZER HEATER 33 (3 CIRCUITS)	5A	231.6	231.6	231.6	207.9	207.9	207.9	444.0V @ Heater
110:PRESSURIZER HEATER 33 (4 CIRCUITS)	5A	308.8	308.8	308.8	277.2	277.2	277.2	444.0V @ Heater
111:PRESSURIZER HEATER 33 (5 CIRCUITS)	5A	386.0	386.0	386.0	346.5	346.5	346.5	444.0V @ Heater
112:PRESSURIZER HEATER 33 (6 CIRCUITS)	5A	463.2	463.2	463.2	415.8	415.8	415.8	444.0V @ Heater
113:PRESSURIZER HEATER 33 (7 CIRCUITS)	5A	540.3	540.3	540.3	485.0	485.0	485.0	444.0V @ Heater
114:PRESSURIZER HEATER CONTROL GROUP	6A	308.6	308.6	308.6	277.0	277.0	277.0	444.0V @ Heater
115:RHR PUMP 31 (FULL FLOW - 1 OF 2 RUNNING)	3A	459.4	459.4	459.4	316.1	316.1	316.1	438.5V @ Motor
116:RHR PUMP 31 (FULL FLOW)	3A	419.7	419.7	459.4	288.1	288.1	316.1	438.5V @ Motor
117:RHR PUMP 31 (MINI FLOW)	3A	264.5	264.5	264.5	182.0	182.0	182.0	438.5V @ Motor
118:RHR PUMP 32 (FULL FLOW - 1 OF 2 RUNNING)	6A	459.9	459.9	459.9	316.1	316.1	316.1	438.0V @ Motor
119:RHR PUMP 32 (FULL FLOW)	6A	420.2	459.9	420.2	288.1	316.1	288.1	438.0V @ Motor
120:RHR PUMP 32 (MINI FLOW)	6A	264.8	264.8	264.8	182.0	182.0	182.0	438.0V @ Motor
121:SI PUMP 31	5A	472.4	472.4	472.4	327.2	327.2	327.2	439.4V @ Motor
122:SI PUMP 32	2A	472.4	472.4	472.4	327.2	327.2	327.2	438.6V @ Motor
123:SI PUMP 33	6A	473.7	473.7	473.7	327.2	327.2	327.2	438.2V @ Motor
124:TOTAL MCCS & LIGHTING RESET (2A)	2A	848.0	848.0	848.0	0.0	0.0	0.0	444.0V @ MCC
125:TOTAL MCCS & LIGHTING RESET (3A)	3A	507.6	507.6	507.6	0.0	0.0	0.0	444.0V @ MCC
126:TOTAL MCCS & LIGHTING RESET (5A)	5A	659.8	659.8	659.8	0.0	0.0	0.0	444.0V @ MCC
127:TOTAL MCCS & LIGHTING RESET (6A)	6A	252.2	252.2	252.2	0.0	0.0	0.0	444.0V @ MCC

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

MASTER LOAD LIST (6.9kV EQUIVALENT AMPS)
LOADS ON ALL BUSES

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : September 14,2009
Report Print Time : 1:42 PM

MASTER LOAD LIST (6.9kV EQUIVALENT AMPS)

Report Date : September 14,2009 Time : 1:42 PM (55)

Load Name	Bus Connected To	480V All Buses Available (Amps)	480V Loss Of First Bus (Amps)	480V Loss Of Second Bus (Amps)	6.9kV Eqvt All Buses Available (Amps)	6.9kV Eqvt Loss Of First Bus (Amps)	6.9kV Eqvt Loss Of Second Bus (Amps)	Terminal Voltage \ Load Reference
1:AFWP 31	3A	575.4	575.4	575.4	40.8	40.8	40.8	437.1V @ Motor
2:AFWP 33	6A	562.9	562.9	562.9	39.9	39.9	39.9	433.0 V @ Motor
3:BUS 2A/3A MCC RESETS	2A/3A	407.2	407.2	407.2	28.9	28.9	28.9	441.6V @ MCC
4:CCWP 31	5A	250.5	293.4	293.4	17.8	20.8	20.8	437.4V @ Motor
5:CCWP 31 (2 RUNNING OR 3 RUN AND 1 STOPPED)	5A	293.4	293.4	293.4	20.8	20.8	20.8	437.4V @ Motor
6:CCWP 31 (ONE RUNNING)	5A	325.4	325.4	325.4	23.1	23.1	23.1	437.4V @ Motor
7:CCWP 32	2A	251.3	294.4	294.4	17.8	20.9	20.9	436.0V @ Motor
8:CCWP 32 (2 RUNNING OR 3 RUN AND 1 STOPPED)	2A	294.4	294.4	294.4	20.9	20.9	20.9	436.0V @ Motor
9:CCWP 32 (ONE RUNNING)	2A	326.4	326.4	326.4	23.2	23.2	23.2	436.0V @ Motor
10:CCWP 33	6A	251.2	294.2	294.2	17.8	20.9	20.9	436.3V @ Motor
11:CCWP 33 (2 RUNNING OR 3 RUN AND 1 STOPPED)	6A	294.2	294.2	294.2	20.9	20.9	20.9	436.3V @ Motor
12:CCWP 33 (ONE RUNNING)	6A	326.2	326.2	326.2	23.1	23.1	23.1	436.3V @ Motor
13:CHARGING PUMP 31	5A	208.5	208.5	208.5	14.8	14.8	14.8	432.0V @ Motor
14:CHARGING PUMP 32	3A	208.9	208.9	208.9	14.8	14.8	14.8	431.1V @ Motor
15:CHARGING PUMP 33	6A	209.6	209.6	209.6	14.9	14.9	14.9	429.6V @ Motor
16:CRP 31 (LBLOCA COLD LEG & RECIRC SPRAY)	5A	472.5	472.5	472.5	33.5	33.5	33.5	432.0 V @ Motor
17:CRP 31 (LBLOCA POST RECIRC SPRAY)	5A	324.2	324.2	324.2	23.0	23.0	23.0	432.0 V @ Motor
18:CRP 31 (SBLOCA HIGH HEAD SI & RECIRC SPRAY	5A	468.3	468.3	468.3	33.2	33.2	33.2	432.0 V @ Motor
19:CRP 31 (SBLOCA HIGH HEAD SI, POST RECIRC S	5A	321.7	321.7	321.7	22.8	22.8	22.8	432.0 V @ Motor
20:CRP 32 (LBLOCA COLD LEGS & RECIRC SPRAY)	6A	472.5	472.5	472.5	33.5	33.5	33.5	432.0 V @ Motor
21:CRP 32 (LBLOCA HOT LEG, POST RECIRC SPRAY)	6A	324.2	324.2	324.2	23.0	23.0	23.0	432.0 V @ Motor
22:CRP 32 (SBLOCA HIGH HEAD SI, POST RECIRC S	6A	321.7	321.7	321.7	22.8	22.8	22.8	432.0 V @ Motor
23:CRP 32 (SBLOCA HIGH HEAD SI, RECIRC SPRAY)	6A	468.3	468.3	468.3	33.2	33.2	33.2	432.0 V @ Motor
24:CSP 31	5A	453.6	453.6	453.6	32.2	32.2	32.2	437.9V @ Motor
25:CSP 32	6A	471.1	471.1	471.1	33.4	33.4	33.4	437.5V @ Motor
26:ESWP 34	5A	429.8	429.8	429.8	30.5	30.5	30.5	431.0V @ Motor
27:ESWP 35	3A	429.0	429.0	429.0	30.4	30.4	30.4	431.8V @ Motor
28:ESWP 36	6A	429.8	429.8	429.8	30.5	30.5	30.5	431.0V @ Motor
29:FCU 31	5A	245.2	245.2	245.2	17.4	17.4	17.4	434.6V @ Motor
30:FCU 31 (6 RUNNING AND 1 STOPPED)	5A	245.2	245.2	245.2	17.4	17.4	17.4	434.6V @ Motor
31:FCU 32	2A	247.2	247.2	247.2	17.5	17.5	17.5	431.1V @ Motor
32:FCU 32 (5 RUNNING AND 1 STOPPED)	2A	247.2	247.2	247.2	17.5	17.5	17.5	431.1V @ Motor
33:FCU 33	5A	246.7	246.7	246.7	17.5	17.5	17.5	432.0V @ Motor
34:FCU 33 (5 RUNNING AND 1 STOPPED)	5A	246.7	246.7	246.7	17.5	17.5	17.5	432.0V @ Motor
35:FCU 34	3A	246.0	246.0	246.0	17.5	17.5	17.5	433.2V @ Motor
36:FCU 34 (5 RUNNING AND 1 STOPPED)	3A	246.0	246.0	246.0	17.5	17.5	17.5	433.2V @ Motor
37:FCU 35	6A	248.0	248.0	248.0	17.6	17.6	17.6	429.6V @ Motor
38:FCU 35 (5 RUNNING AND 1 STOPPED)	6A	248.0	248.0	248.0	17.6	17.6	17.6	429.6V @ Motor
39:MCC 32 : BATTERY CHARGER 34	3A	16.6	16.6	16.6	1.2	1.2	1.2	437.9V @ MCC
40:MCC 32 : MAIN GEN SEAL OIL PUMP	3A	64.4	64.4	64.4	4.6	4.6	4.6	437.9V @ MCC
41:MCC 32 : MBFP MAIN OIL PUMP 31	3A	75.6	75.6	75.6	5.4	5.4	5.4	437.9V @ MCC
42:MCC 33 : MBFP MAIN OIL PUMP 32	2A	75.6	75.6	75.6	5.4	5.4	5.4	437.0V @ MCC
43:MCC 34 : EDG AIR COMMPRESSOR 31	2A	6.6	6.6	6.6	0.5	0.5	0.5	441.6V @ MCC
44:MCC 34 : EDG EXHAUST HOOD BLOWER 31	2A	1.0	1.0	1.0	0.1	0.1	0.1	441.6V @ MCC

MASTER LOAD LIST (6.9kV EQUIVALENT AMPS)

Report Date : September 14,2009 Time : 1:42 PM [55]

Load Name	Bus Connected To	480V All Buses Available (Amps)	480V Loss Of First Bus (Amps)	480V Loss Of Second Bus (Amps)	6.9kV Eqvt All Buses Available (Amps)	6.9kV Eqvt Loss Of First Bus (Amps)	6.9kV Eqvt Loss Of Second Bus (Amps)	Terminal Voltage \ Load Reference
45:MCC 34 : IA CLOSED COOLING PUMP 32	2A	3.1	3.1	3.1	0.2	0.2	0.2	441.6V @ MCC
46:MCC 34 : IA COMPRESSOR 32	2A	68.5	68.5	68.5	4.9	4.9	4.9	441.6V @ MCC
47:MCC 34 : MAIN TURBINE TURNING GEAR	3A	63.8	63.8	63.8	4.5	4.5	4.5	441.6V @ MCC
48:MCC 35 : MAIN TURBINE BEARING OIL PUMP	3A	96.0	96.0	96.0	6.8	6.8	6.8	439.0V @ MCC
49:MCC 35 : TURBINE TURNING GEAR OIL PUMP	3A	96.0	96.0	96.0	6.8	6.8	6.8	439.0V @ MCC
50:MCC 36A : AUTO	5A	138.4	138.4	138.4	9.8	9.8	9.8	436.6V @ MCC
51:MCC 36A : ELECTRICAL TUNNEL EXHAUST FAN 31	5A	9.6	9.6	9.6	0.7	0.7	0.7	436.6V @ MCC
52:MCC 36A : ELECTRICAL TUNNEL EXHAUST FAN 33	5A	9.6	9.6	9.6	0.7	0.7	0.7	436.6V @ MCC
53:MCC 36B : AUTO	6A	119.2	119.2	119.2	8.5	8.5	8.5	438.3V @ MCC
54:MCC 36B : ELECTRICAL TUNNEL EXHAUST FAN 32	6A	9.6	9.6	9.6	0.7	0.7	0.7	438.3V @ MCC
55:MCC 36B : ELECTRICAL TUNNEL EXHAUST FAN 34	6A	9.6	9.6	9.6	0.7	0.7	0.7	438.3V @ MCC
56:MCC 36B : H2 RECOMBINER 32	6A	115.3	115.3	115.3	8.2	8.2	8.2	438.3V @ MCC
57:MCC 36C : AUTO	2A	135.5	135.5	135.5	9.6	9.6	9.6	444.0V @ MCC
58:MCC 36C : H2 RECOMBINER 31	2A	115.3	115.3	115.3	8.2	8.2	8.2	444.0V @ MCC
59:MCC 36D : AUTO	6A	30.9	30.9	30.9	2.2	2.2	2.2	438.3V @ MCC
60:MCC 36E : AUTO	5A	31.1	31.1	31.1	2.2	2.2	2.2	436.6V @ MCC
61:MCC 37 : BAST HEATER (TANK 31)	6A	19.6	19.6	19.6	1.4	1.4	1.4	441.8V @ MCC
62:MCC 37 : BAST HEATER (TANK 32)	6A	19.6	19.6	19.6	1.4	1.4	1.4	441.8V @ MCC
63:MCC 37 : BATTERY CHARGER 32	6A	27.6	27.6	27.6	2.0	2.0	2.0	441.8V @ MCC
64:MCC 37 : EDG AIR COMPRESSOR 32	6A	6.6	6.6	6.6	0.5	0.5	0.5	441.8V @ MCC
65:MCC 37 : EDG EXHAUST HOOD BLOWER 32	6A	1.0	1.0	1.0	0.1	0.1	0.1	441.8V @ MCC
66:MCC 37 : PENETRATION BLOWER (# 1)	6A	23.1	23.1	23.1	1.6	1.6	1.6	441.8V @ MCC
67:MCC 37 : PENETRATION BLOWER (# 2)	6A	23.1	23.1	23.1	1.6	1.6	1.6	441.8V @ MCC
68:MCC 37 : PW MU PUMP (31 OR 34)	6A	31.9	31.9	31.9	2.3	2.3	2.3	441.8V @ MCC
69:MCC 37 : SPENT FUEL POOL CLG PUMP 31	6A	107.9	107.9	107.9	7.7	7.7	7.7	441.8V @ MCC
70:MCC 38 : CRDM FAN 31	5A	31.3	31.3	31.3	2.2	2.2	2.2	437.3V @ MCC
71:MCC 38 : CRDM FAN 32	5A	31.3	31.3	31.3	2.2	2.2	2.2	437.3V @ MCC
72:MCC 38 : CRDM FAN 33	5A	31.3	31.3	31.3	2.2	2.2	2.2	437.3V @ MCC
73:MCC 38 : CRDM FAN 34	5A	31.3	31.3	31.3	2.2	2.2	2.2	437.3V @ MCC
74:MCC 39 : BATTERY CHARGER 31	5A	40.2	40.2	40.2	2.9	2.9	2.9	443.4V @ MCC
75:MCC 39 : EDG AIR COMPRESSOR 33	5A	6.6	6.6	6.6	0.5	0.5	0.5	443.4V @ MCC
76:MCC 39 : EDG EXHAUST HOOD BLOWER 33	5A	1.0	1.0	1.0	0.1	0.1	0.1	443.4V @ MCC
77:MCC 39 : IA CLOSED COOLING PUMP 31	5A	3.1	3.1	3.1	0.2	0.2	0.2	443.4V @ MCC
78:MCC 39 : IA COMPRESSOR 31	5A	76.2	76.2	76.2	5.4	5.4	5.4	443.4V @ MCC
79:MCC 39 : SAT AUX (E)	5A	29.2	29.2	29.2	2.1	2.1	2.1	443.4V @ MCC
80:MCC 39 : SPENT FUEL POOL CLG PUMP 32	5A	107.9	107.9	107.9	7.7	7.7	7.7	443.4V @ MCC
81:MCCS RESET (2A/3A) AS PER SOP-EL-15	2A/3A	95.6	95.6	95.6	6.8	6.8	6.8	441.6V @ MCC
82:MCCS RESET (5A) AS PER SOP-EL-15	5A	126.9	126.9	126.9	9.0	9.0	9.0	443.4V @ MCC
83:MCCS RESET (6A) AS PER SOP-EL-15	6A	35.0	35.0	35.0	2.5	2.5	2.5	441.8V @ MCC
84:NESWP 31	5A	429.8	429.8	429.8	30.5	30.5	30.5	431.0V @ Motor
85:NESWP 32	2A	429.0	429.0	429.0	30.4	30.4	30.4	431.8V @ Motor
86:NESWP 33	6A	429.8	429.8	429.8	30.5	30.5	30.5	431.0V @ Motor
87:PAB FAN 31	3A	177.0	177.0	177.0	12.6	12.6	12.6	438.7V @ Motor
88:PAB FAN 32	6A	177.0	177.0	177.0	12.6	12.6	12.6	438.7V @ Motor

MASTER LOAD LIST (6.9kV EQUIVALENT AMPS)

Report Date : September 14,2009 Time : 1:42 PM [55]

Load Name	Bus Connected To	480V All Buses Available (Amps)	480V Loss Of First Bus (Amps)	480V Loss Of Second Bus (Amps)	6.9kV Eqvt All Buses Available (Amps)	6.9kV Eqvt Loss Of First Bus (Amps)	6.9kV Eqvt Loss Of Second Bus (Amps)	Terminal Voltage \ Load Reference
89:PRESSURIZER HEATER 31	3A	618.2	618.2	618.2	43.9	43.9	43.9	444.0V @ Heater
90:PRESSURIZER HEATER 31 (1 CIRCUIT)	3A	77.3	77.3	77.3	5.5	5.5	5.5	444.0V @ Heater
91:PRESSURIZER HEATER 31 (2 CIRCUITS)	3A	154.6	154.6	154.6	11.0	11.0	11.0	444.0V @ Heater
92:PRESSURIZER HEATER 31 (3 CIRCUITS)	3A	231.9	231.9	231.9	16.5	16.5	16.5	444.0V @ Heater
93:PRESSURIZER HEATER 31 (4 CIRCUITS)	3A	309.2	309.2	309.2	21.9	21.9	21.9	444.0V @ Heater
94:PRESSURIZER HEATER 31 (5 CIRCUITS)	3A	386.5	386.5	386.5	27.4	27.4	27.4	444.0V @ Heater
95:PRESSURIZER HEATER 31 (6 CIRCUITS)	3A	463.8	463.8	463.8	32.9	32.9	32.9	444.0V @ Heater
96:PRESSURIZER HEATER 31 (7 CIRCUITS)	3A	541.1	541.1	541.1	38.4	38.4	38.4	444.0V @ Heater
97:PRESSURIZER HEATER 31 (8 CIRCUITS)	3A	618.2	618.2	618.2	43.9	43.9	43.9	444.0V @ Heater
98:PRESSURIZER HEATER 32	2A	540.3	540.3	540.3	38.3	38.3	38.3	444.0V @ Heater
99:PRESSURIZER HEATER 32 (1 CIRCUIT)	2A	77.2	77.2	77.2	5.5	5.5	5.5	444.0V @ Heater
100:PRESSURIZER HEATER 32 (2 CIRCUITS)	2A	154.4	154.4	154.4	11.0	11.0	11.0	444.0V @ Heater
101:PRESSURIZER HEATER 32 (3 CIRCUITS)	2A	231.6	231.6	231.6	16.4	16.4	16.4	444.0V @ Heater
102:PRESSURIZER HEATER 32 (4 CIRCUITS)	2A	308.8	308.8	308.8	21.9	21.9	21.9	444.0V @ Heater
103:PRESSURIZER HEATER 32 (5 CIRCUITS)	2A	386.5	386.5	386.5	27.4	27.4	27.4	444.0V @ Heater
104:PRESSURIZER HEATER 32 (6 CIRCUITS)	2A	463.2	463.2	463.2	32.9	32.9	32.9	444.0V @ Heater
105:PRESSURIZER HEATER 32 (7 CIRCUITS)	2A	540.3	540.3	540.3	38.3	38.3	38.3	444.0V @ Heater
106:PRESSURIZER HEATER 33	5A	540.3	540.3	540.3	38.3	38.3	38.3	444.0V @ Heater
107:PRESSURIZER HEATER 33 (1 CIRCUIT)	5A	77.2	77.2	77.2	5.5	5.5	5.5	444.0V @ Heater
108:PRESSURIZER HEATER 33 (2 CIRCUITS)	5A	154.4	154.4	154.4	11.0	11.0	11.0	444.0V @ Heater
109:PRESSURIZER HEATER 33 (3 CIRCUITS)	5A	231.6	231.6	231.6	16.4	16.4	16.4	444.0V @ Heater
110:PRESSURIZER HEATER 33 (4 CIRCUITS)	5A	308.8	308.8	308.8	21.9	21.9	21.9	444.0V @ Heater
111:PRESSURIZER HEATER 33 (5 CIRCUITS)	5A	386.0	386.0	386.0	27.4	27.4	27.4	444.0V @ Heater
112:PRESSURIZER HEATER 33 (6 CIRCUITS)	5A	463.2	463.2	463.2	32.9	32.9	32.9	444.0V @ Heater
113:PRESSURIZER HEATER 33 (7 CIRCUITS)	5A	540.3	540.3	540.3	38.3	38.3	38.3	444.0V @ Heater
114:PRESSURIZER HEATER CONTROL GROUP	6A	308.6	308.6	308.6	21.9	21.9	21.9	444.0V @ Heater
115:RHR PUMP 31 (FULL FLOW - 1 OF 2 RUNNING)	3A	459.4	459.4	459.4	32.6	32.6	32.6	438.5V @ Motor
116:RHR PUMP 31 (FULL FLOW)	3A	419.7	419.7	459.4	29.8	29.8	32.6	438.5V @ Motor
117:RHR PUMP 31 (MINI FLOW)	3A	264.5	264.5	264.5	18.8	18.8	18.8	438.5V @ Motor
118:RHR PUMP 32 (FULL FLOW - 1 OF 2 RUNNING)	6A	459.9	459.9	459.9	32.6	32.6	32.6	438.0V @ Motor
119:RHR PUMP 32 (FULL FLOW)	6A	420.2	459.9	420.2	29.8	32.6	29.8	438.0V @ Motor
120:RHR PUMP 32 (MINI FLOW)	6A	264.8	264.8	264.8	18.8	18.8	18.8	438.0V @ Motor
121:SI PUMP 31	5A	472.4	472.4	472.4	33.5	33.5	33.5	439.4V @ Motor
122:SI PUMP 32	2A	472.4	472.4	472.4	33.5	33.5	33.5	438.6V @ Motor
123:SI PUMP 33	6A	473.7	473.7	473.7	33.6	33.6	33.6	438.2V @ Motor
124:TOTAL MCCS & LIGHTING RESET (2A)	2A	848.0	848.0	848.0	60.2	60.2	60.2	444.0V @ MCC
125:TOTAL MCCS & LIGHTING RESET (3A)	3A	507.6	507.6	507.6	36.0	36.0	36.0	444.0V @ MCC
126:TOTAL MCCS & LIGHTING RESET (5A)	5A	659.8	659.8	659.8	46.8	46.8	46.8	444.0V @ MCC
127:TOTAL MCCS & LIGHTING RESET (6A)	6A	252.2	252.2	252.2	17.9	17.9	17.9	444.0V @ MCC

LOADING SUMMARY DURING AND END OF ACCIDENT SCENARIOS

* Note: The values below do not incorporate cable losses and load increase due to frequency variation

Number	Accident Scenario	Single Failure	Peak Loading During Accident Scenario						Loading at End of Accident Scenario					
			Bus 5A (Amps)	EDG 33 (kW)	Bus 2A/3A (Amps)	EDG 31 (kW)	Bus 6A (Amps)	EDG 32 (kW)	Bus 5A (Amps)	EDG 33 (kW)	Bus 2A/3A (Amps)	EDG 31 (kW)	Bus 6A (Amps)	EDG 32 (kW)
	Large Break LOCA													
1	Offsite Power Available	Total MCC and Lighting Reset- All buses Available	2928	-	1975/2387	-	3259	-	2696	-	1975/1360		2393	-
2	Offsite Power Available	All Buses Available - Bus 2A and 3A Tied	3136	-	3184	-	3259	-	2696	-	2252	-	2613	-
3	Offsite Power Available	Bus 6A Not Available - Bus 2A and 3A Tied	3419	-	3267	-	-	-	3126	-	3017	-	-	-
4	Offsite Power Available	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	**3436**	-	3312	-	-	-	2757	-	2748	-
5	Offsite Power Available	Bus 2A and/or 3A Not Available	3179	-	-	-	3342	-	2653	-	-	-	3043	-
6	Loss of Offsite Power	All Buses Available - Bus 2A and 3A Tied	-	1509	-	1691	-	1846	-	1371	-	1217	-	1559
7	Loss of Offsite Power	Bus 6A Not Available - Bus 2A and 3A Tied	-	1652	-	1719	-	-	-	1652	-	1474	-	-
8	Loss of Offsite Power	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	-	1831	-	1846	-	-	-	1460	-	1466
9	Loss of Offsite Power	Bus 2A and/or 3A Not Available	-	1509	-	-	-	**1874**	-	1343	-	-	-	1580
	Small Break LOCA													
1	Offsite Power Available	Total MCC and Lighting Reset- All buses	2542	-	2490/2585	-	2633	-	1751	-	2018/2174		1937	-
2	Offsite Power Available	All Buses Available - Bus 2A and 3A Tied	2683	-	3029	-	2677	-	2683	-	2104	-	2144	-
3	Offsite Power Available	Bus 6A Not Available - Bus 2A and 3A Tied	2914	-	3072	-	-	-	2683	-	3035	-	-	-
4	Offsite Power Available	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	3072	-	3037	-	-	-	2576	-	3037	-
5	Offsite Power Available	Bus 2A and/or 3A Not Available	2725	-	-	-	2897	-	2683	-	-	-	2574	-
6	Loss of Offsite Power	All Buses Available - Bus 2A and 3A Tied	-	1410	-	1585	-	1433	-	1211	-	1398	-	1422
7	Loss of Offsite Power	Bus 6A Not Available - Bus 2A and 3A Tied	-	1480	-	1828	-		-	1445	-	1547	-	-
8	Loss of Offsite Power	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	-	1617	-	1643	-	-	-	1617	-	1632
9	Loss of Offsite Power	Bus 2A and/or 3A Not Available	-	1375	-	-	-	1773	-	1375	-	-	-	1492

LOADING SUMMARY DURING AND END OF ACCIDENT SCENARIOS

* Note: The values below do not incorporate cable losses and load increase due to frequency variation

Number	Accident Scenario	Single Failure	Peak Loading During Accident Scenario						Loading at End of Accident Scenario					
			Bus 5A (Amps)	EDG 33 (kW)	Bus 2A/3A (Amps)	EDG 31 (kW)	Bus 6A (Amps)	EDG 32 (kW)	Bus 5A (Amps)	EDG 33 (kW)	Bus 2A/3A (Amps)	EDG 31 (kW)	Bus 6A (Amps)	EDG 32 (kW)
	Small Break LOCA (PH B)													
1	Offsite Power Available	Total MCC and Lighting Reset- All buses Available	2928	-	2018/2231	-	3104	-	2545	-	2018/1360	-	2170	-
2	Offsite Power Available	All Buses Available - Bus 2A and 3A Tied	3136	-	3029	-	3104	-	2692	-	2252	-	2493	-
3	Offsite Power Available	Bus 6A Not Available - Bus 2A and 3A Tied	3415	-	3236	-	-	-	2692	-	2902	-	-	-
4	Offsite Power Available	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	3281	-	3312	-	-	-	2757	-	2629	-
5	Offsite Power Available	Bus 2A and/or 3A Not Available	3179	-	-	-	3147	-	2653	-	-	-	2525	-
6	Loss of Offsite Power	All Buses Available - Bus 2A and 3A Tied	-	1509	-	1565	-	1739	-	1368	-	1217	-	1481
7	Loss of Offsite Power	Bus 6A Not Available - Bus 2A and 3A Tied	-	1649	-	1585	-	-	-	1649	-	1399	-	-
8	Loss of Offsite Power	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	-	1725	-	1739	-	-	-	1460	-	1388
9	Loss of Offsite Power	Bus 2A and/or 3A Not Available	-	1509	-	-	-	1739	-	1343	-	-	-	1502
	Steam Break (PH B)													
1	Offsite Power Available	Total MCC and Lighting Reset- All buses Available	2928	-	2129/2231	-	3104	-	2181	-	2129/1715	-	2367	-
2	Offsite Power Available	All Buses Available - Bus 2A and 3A Tied	3136	-	3029	-	3104	-	2253	-	2533	-	2423	-
3	Offsite Power Available	Bus 6A Not Available - Bus 2A and 3A Tied	3179	-	3072	-	-	-	2914	-	3005	-	-	-
4	Offsite Power Available	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	3281	-	3147	-	-	-	3036	-	2853	-
5	Offsite Power Available	Bus 2A and/or 3A Not Available	3179	-	-	-	3147	-	2683	-	-	-	2853	-
6	Loss of Offsite Power	All Buses Available - Bus 2A and 3A Tied	-	1509	-	1585	-	1739	-	1163	-	1231	-	1222
7	Loss of Offsite Power	Bus 6A Not Available - Bus 2A and 3A Tied	-	1509	-	1585	-	-	-	1444	-	1512	-	-
8	Loss of Offsite Power	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	-	1725	-	1739	-	-	-	1538	-	1613
9	Loss of Offsite Power	Bus 2A and/or 3A Not Available	-	1509	-	-	-	1739	-	1444	-	-	-	1336

LOADING SUMMARY DURING AND END OF ACCIDENT SCENARIOS

* Note: The values below do not incorporate cable losses and load increase due to frequency variation

Number	Accident Scenario	Single Failure	Peak Loading During Accident Scenario						Loading at End of Accident Scenario					
			Bus 5A (Amps)	EDG 33 (kW)	Bus 2A/3A (Amps)	EDG 31 (kW)	Bus 6A (Amps)	EDG 32 (kW)	Bus 5A (Amps)	EDG 33 (kW)	Bus 2A/3A (Amps)	EDG 31 (kW)	Bus 6A (Amps)	EDG 32 (kW)
	Steam Break													
1	Offsite Power Available	Total MCC and Lighting Reset- All buses Available	2474	-	2129/2231	-	2633	-	2181	-	2129/1715	-	2367	-
2	Offsite Power Available	All Buses Available - Bus 2A and 3A Tied	2682	-	3029	-	2633	-	2253	-	2533	-	2423	-
3	Offsite Power Available	Bus 6A Not Available - Bus 2A and 3A Tied	2914	-	3072	-	-	-	2914	-	3005	-	-	-
4	Offsite Power Available	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	3072	-	3062	-	-	-	2828	-	3062	-
5	Offsite Power Available	Bus 2A and/or 3A Not Available	2725	-	-	-	2853	-	2683	-	-	-	2853	-
6	Loss of Offsite Power	All Buses Available - Bus 2A and 3A Tied	-	1202	-	1585	-	1420	-	1163	-	1231	-	1222
7	Loss of Offsite Power	Bus 6A Not Available - Bus 2A and 3A Tied	-	1444	-	1585	-	-	-	1444	-	1512	-	-
8	Loss of Offsite Power	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	-	1585	-	1639	-	-	-	1512	-	1639
9	Loss of Offsite Power	Bus 2A and/or 3A Not Available	-	1444	-	-	-	1420	-	1444	-	-	-	1336
	Inadvertent SI (PH B)													
1	Offsite Power Available	Total MCC and Lighting Reset- All buses Available	2928	-	2129/2231	-	3104	-	2181	-	2129/1715	-	2367	-
2	Offsite Power Available	All Buses Available - Bus 2A and 3A Tied	3136	-	3029	-	3104	-	2253	-	2533	-	2423	-
3	Offsite Power Available	Bus 6A Not Available - Bus 2A and 3A Tied	3179	-	3072	-	-	-	2914	-	3005	-	-	-
4	Offsite Power Available	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	3281	-	3147	-	-	-	3036	-	2853	-
5	Offsite Power Available	Bus 2A and/or 3A Not Available	3179	-	-	-	3147	-	2683	-	-	-	2853	-
6	Loss of Offsite Power	All Buses Available - Bus 2A and 3A Tied	-	1509	-	1585	-	1739	-	1163	-	1231	-	1222
7	Loss of Offsite Power	Bus 6A Not Available - Bus 2A and 3A Tied	-	1509	-	1585	-	-	-	1444	-	1512	-	-
8	Loss of Offsite Power	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	-	1725	-	1739	-	-	-	1538	-	1613
9	Loss of Offsite Power	Bus 2A and/or 3A Not Available	-	1509	-	-	-	1739	-	1444	-	-	-	1336

LOADING SUMMARY DURING AND END OF ACCIDENT SCENARIOS

* Note: The values below do not incorporate cable losses and load increase due to frequency variation

Number	Accident Scenario	Single Failure	Peak Loading During Accident Scenario						Loading at End of Accident Scenario					
			Bus 5A (Amps)	EDG 33 (kW)	Bus 2A/3A (Amps)	EDG 31 (kW)	Bus 6A (Amps)	EDG 32 (kW)	Bus 5A (Amps)	EDG 33 (kW)	Bus 2A/3A (Amps)	EDG 31 (kW)	Bus 6A (Amps)	EDG 32 (kW)
	Inadvertent SI													
1	Offsite Power Available	Total MCC and Lighting Reset- All buses Available	2474	-	2129/2231	-	2633	-	2181	-	2129/1715		2367	-
2	Offsite Power Available	All Buses Available - Bus 2A and 3A Tied	2682	-	3029	-	2633	-	2253	-	2533	-	2423	-
3	Offsite Power Available	Bus 6A Not Available - Bus 2A and 3A Tied	2914	-	3072	-	-	-	2914	-	3005	-	-	-
4	Offsite Power Available	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	3072	-	2885	-	-	-	3005	-	2885	-
5	Offsite Power Available	Bus 2A and/or 3A Not Available	2725	-	-	-	2853	-	2683	-	-	-	2853	-
6	Loss of Offsite Power	All Buses Available - Bus 2A and 3A Tied	-	1202	-	1585	-	1420	-	1163	-	1231	-	1222
7	Loss of Offsite Power	Bus 6A Not Available - Bus 2A and 3A Tied	-	1444	-	1585	-	-	-	1444	-	1512	-	-
8	Loss of Offsite Power	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	-	1585	-	1639	-	-	-	1512	-	1639
9	Loss of Offsite Power	Bus 2A and/or 3A Not Available	-	1444	-	-	-	1420	-	1444	-	-	-	1336
	Steam Generator Tube Rupture													
1	Offsite Power Available	Total MCC and Lighting Reset- All buses Available	2474	-	2515/2231	-	2633	-	2044	-	2264/1997	-	1937	-
2	Offsite Power Available	All Buses Available - Bus 2A and 3A Tied	2682	-	3029	-	2633	-	2191	-	2606	-	2367	-
3	Offsite Power Available	Bus 6A Not Available - Bus 2A and 3A Tied	2914	-	3267	-	-	-	2914	-	3035	-	-	-
4	Offsite Power Available	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	3072	-	2885	-	-	-	3050	-	2754	-
5	Offsite Power Available	Bus 2A and/or 3A Not Available	2725	-	-	-	3004	-	2485	-	-	-	3004	-
6	Loss of Offsite Power	All Buses Available - Bus 2A and 3A Tied	-	1562	-	1585	-	1540	-	1562	-	1266	-	1540
7	Loss of Offsite Power	Bus 6A Not Available - Bus 2A and 3A Tied	-	1583	-	1585	-	-	-	1583	-	1547	-	-
8	Loss of Offsite Power	Bus 5A Not Available - Bus 2A and 3A Tied	-	-	-	1825	-	1632	-	-	-	1446	-	1632
9	Loss of Offsite Power	Bus 2A and/or 3A Not Available	-	1583	-	-	-	1492	-	1583	-	-	-	1492

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

LARGE BREAK LOCA - RCS PRESSURE < 325
ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:54 PM

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2695.9 Bus 2A = 1974.8 Bus 3A = 1359.6 Bus 6A = 2302.8 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A exceeds the 3200 Amp rating at EOP steps : 11, 12, 13

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

LARGE BREAK LOCA - RCS PRESSURE < 325 - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25,2009 Time : 3:54 PM [48]

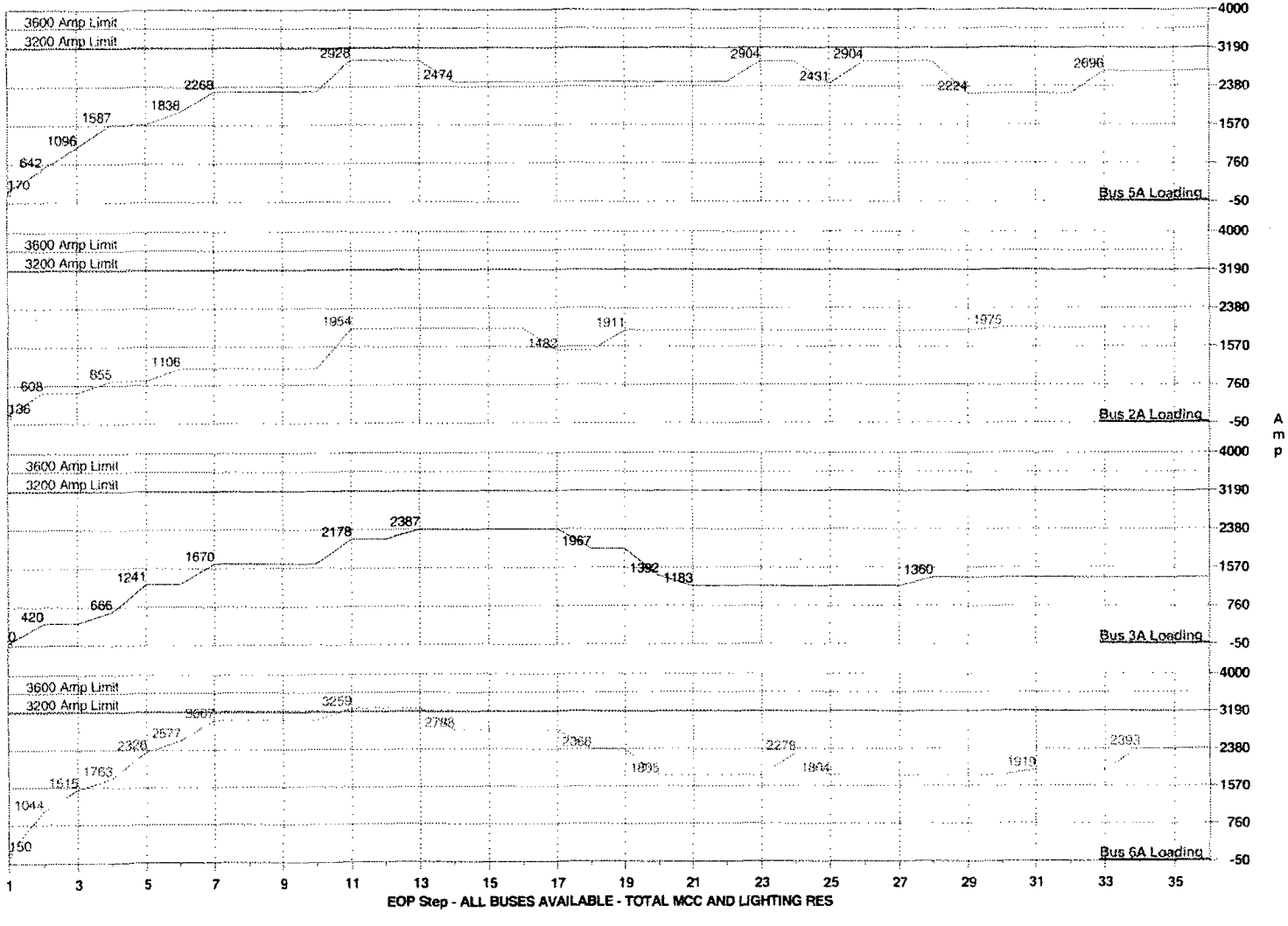
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCCs 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	0.0	150.1
					169.5	135.5	0.0	150.1
			+57 +58 +59 +60					
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	472.4	419.7	893.9
			RHR pumps 31 and 32					
			(RO verifies that pumps are running.)		641.9	607.9	419.7	1044.0
			+116 +119 +121 +122 +123					
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	453.6	0.0	0.0	471.1
			(E-0-9 verifies that pumps are running.)		1095.5	607.9	419.7	1515.1
			+24 +25					
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	491.9	247.2	246.0	248.0
			(RO verifies that fans are running.)		1587.4	855.1	665.7	1763.1
			+29 +31 +33 +35 +37					
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	0.0	575.4	562.9
			(RO verifies that pumps are running.)		1587.4	855.1	1241.1	2326.0
			+1 +2					
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.5	251.3	0.0	251.2
			(RO verifies that pumps are running.)		1837.9	1106.4	1241.1	2577.2
			+4 +7 +10					
- 7 -	---	RO-1-8	ESWPs (34, 35, and 36)	Auto	429.8	0.0	429.0	429.8
			(RO verifies that pumps are running.)		2267.7	1106.4	1670.1	3007.0
			+26 +27 +28					
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	0.0	0.0	0.0	0.0
			(RCS pressure is < 325 psig.)		2267.7	1106.4	1670.1	3007.0
			(No Loads Started or Tripped at this step)					
- 9 -	< 17 >	---		Manual	0.0	0.0	0.0	0.0
			*** LARGE BREAK LOCA EVENT IDENTIFIED ***					
			*** EXIT TO E-1 ***		2267.7	1106.4	1670.1	3007.0
			(No Loads Started or Tripped at this step)					

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-1-4	---	Reset SI	Manual	0.0	0.0	0.0	0.0
		.	(Steps 2 through 12 of RO-1 are completed.)		2267.7	1106.4	1670.1	3007.0
			(No Loads Started or Tripped at this step)					
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15.	Manual	659.8	848.0	507.6	252.2
			(Total MCC and Lighting reset.)		2927.5	1954.4	2177.7	3259.2 Over 3200
			+126 +124 +125 +137					
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment.	Manual	0.0	0.0	0.0	0.0
			(Load accounted for in MCC reset.)		2927.5	1954.4	2177.7	3259.2 Over 3200
			(No Loads Started or Tripped at this step)					
- 13 -	E-1-11	---	Start one Charging pump.	Manual	0.0	0.0	208.9	0.0
			(Charging pump 32 started on lightest loaded Bus.)		2927.5	1954.4	2386.6	3259.2 Over 3200
			+14					
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 psig.	Manual	-453.6	0.0	0.0	-471.1
			(5 FCUs are running, CSPs stopped.)		2473.9	1954.4	2386.6	2788.1
			-24 -25					
- 15 -	E-1-14	---	Stop RHR pumps if pressure is > 325 psig and pressure is stable or increasing.	Manual	0.0	0.0	0.0	0.0
			(Pressure < 325 psig)		2473.9	1954.4	2386.6	2788.1
			(No Loads Started or Tripped at this step)					
- 16 -	< 13 >	---		Manual	0.0	0.0	0.0	0.0
			*** TRANSFER TO COLD LEG RECIRC. *** _____*** EXIT TO ES-1.3 ***		2473.9	1954.4	2386.6	2788.1
			(No Loads Started or Tripped at this step)					
- 17 -	ES-1.3-5	---	CHECK SI Recirc SW 1 Function Complete Light - LIT. (YES)	Manual	0.0	-472.4	0.0	0.0
			(SI pump 32 - Auto stopped. CSPs stopped at E-1-13.)		2473.9	1482.0	2386.6	2788.1
			-122					
- 18 -	ES-1.3-6	---	CHECK SI Recirc SW 3 Function Complete Light - LIT. (YES)	Manual	0.0	0.0	-419.7	-420.2
			(RHR pumps 31 and 32 - Auto stopped.)		2473.9	1482.0	1966.9	2367.9
			-116 -119					

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 32 started on lightest loaded Bus.) +85	Manual	0.0 2473.9	429.0 1911.0	0.0 1966.9	0.0 2367.9
- 20 -	ES-1.3-7	---	STOP Motor Driven Auxiliary Feed Pumps: (RCS pressure is less than SG pressures.) b. PLACE both Motor Driven AFWPs in TPO. (AFWPs 31 and 33 stopped.) -1 -2	Manual	0.0 2473.9	0.0 1911.0	-575.4 1391.5	-562.9 1805.0
- 21 -	ES-1.3-8	---	INITIATE Performance of ATTACHMENT 1. Stop Any Running Charging Pumps. Place ALL PRZR HTRs to OFF. (Charging pump 32 stopped. No PRZR HTRs are on.) -14	Manual	0.0 2473.9	0.0 1911.0	-208.9 1182.6	0.0 1805.0
- 22 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (No CSPs are running.) (No Loads Started or Tripped at this step)	Manual	0.0 2473.9	0.0 1911.0	0.0 1182.6	0.0 1805.0
- 23 -	ES-1.1-9	---	ALIGN SI Recirc SW 2 as follows: b. PLACE SI Recirc SW 2 to ON (NESWP 31- Auto started. CCWP 33 is running.) +84	Manual	429.8 2903.7	0.0 1911.0	0.0 1182.6	0.0 1805.0
- 24 -	ES-1.3-10	---	ALIGN SI Recirc SW 4 Lo Head as follows: c. Manually START 32 Recirc Pump. (CRP 32 started.) +20	Manual	0.0 2903.7	0.0 1911.0	0.0 1182.6	472.5 2277.5
- 25 -	ES-1.3-14	---	ALIGN SI Recirc SW 6 Lo Head as follows: (SI SW 6 Lo Head function Light is LIT. All running SI pumps [31 and 33] auto stopped.) -121 -123	Manual	-472.4 2431.3	0.0 1911.0	0.0 1182.6	-473.7 1803.8
- 26 -	ES-1.3-15	---	ALIGN SI Recirc SW 7 as follows: b. PLACE SI Recirc SW 7 to ON. (NESWP 32 and CCWP 32 are running. CRP 31 Auto started.) +16	Manual	472.5 2903.8	0.0 1911.0	0.0 1182.6	0.0 1803.8
- 27 -	ES-1.3-24	---	Reset MCCs. (MCCs are already reset.) (No Loads Started or Tripped at this step)	Manual	0.0 2903.8	0.0 1911.0	0.0 1182.6	0.0 1803.8

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.3-35	---	CHECK PAB Exhaust Fan Status: (No PAB fan is running.) a. START one PAB Exhaust Fan. (PAB fan 31 started on lightest loaded Bus.) +87	Manual	0.0 2903.8	0.0 1911.0	177.0 1359.6	0.0 1803.8
- 29 -	ES-1.3-38	---	Shutdown Unnecessary Plant Equipment: a. CHECK CCWPs. IF 3 are running then stop one. b. CHECK ESWPs. IF 3 are running then stop one. (CCWP 31, ESWP 34 stopped on heaviest loaded Bus.) -4 -2¢	Manual	-680.3 2223.5	0.0 1911.0	0.0 1359.6	0.0 1803.8
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning gear. (Gear started) +47	Manual	0.0 2223.5	63.8 1974.8	0.0 1359.6	0.0 1803.8
- 31 -	ES-1.3-36	---	CHECK Containment Hydrogen Concentration: (Hydrogen concentration great than 0.5% by volume. Recombiner 32 started on lightest loaded Bus.) +56	Manual	0.0 2223.5	0.0 1974.8	0.0 1359.6	115.3 1919.1
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >> (No Loads Started or Tripped at this step)	Manual	0.0 2223.5	0.0 1974.8	0.0 1359.6	0.0 1919.1
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pumps 31. (SI pumps 31 started.) +121	Manual	472.4 2695.9	0.0 1974.8	0.0 1359.6	0.0 1919.1
- 34 -	ES-1.4-8	---	Start SI pump 33. (SI pump 33 started.) +123	Manual	0.0 2695.9	0.0 1974.8	0.0 1359.6	473.7 2392.8
- 35 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 *** (No Loads Started or Tripped at this step)	Manual	0.0 2695.9	0.0 1974.8	0.0 1359.6	0.0 2392.8
- 36 -	ES-1.3-37	---	Evaluate long term plant status. (No Loads Started or Tripped at this step)	Manual	0.0 2695.9	0.0 1974.8	0.0 1359.6	0.0 2392.8

LARGE BREAK LOCA - RCS PRESSURE < 325



Large Break LOCA
Total MCC and Lighting Reset
Offsite Power Available
Operating Loads at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
CCWP 33	2A
CCWP 32	2A
CRP 31	5A
CRP 32	6A
ESWP 35	3A
ESWP 36	6A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36C: H2 RECOMBINER 32	6A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 32	2A
PAB FAN 31	3A
SI PUMP 31	5A
SI PUMP 33	6A
TOTAL MCC & LIGHTING RESET (2A)	
TOTAL MCC & LIGHTING RESET (3A)	
TOTAL MCC & LIGHTING RESET (5A)	
TOTAL MCC & LIGHTING RESET (6A)	

NEW YORK POWER AUTHORITY
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ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

LARGE BREAK LOCA - RCS PRESSURE < 325

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:51 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2695.9 Bus 2A/3A = 2252.1 Bus 6A = 2612.8 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A exceeds the 3200 Amp rating at EOP steps : 11, 12, 13

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

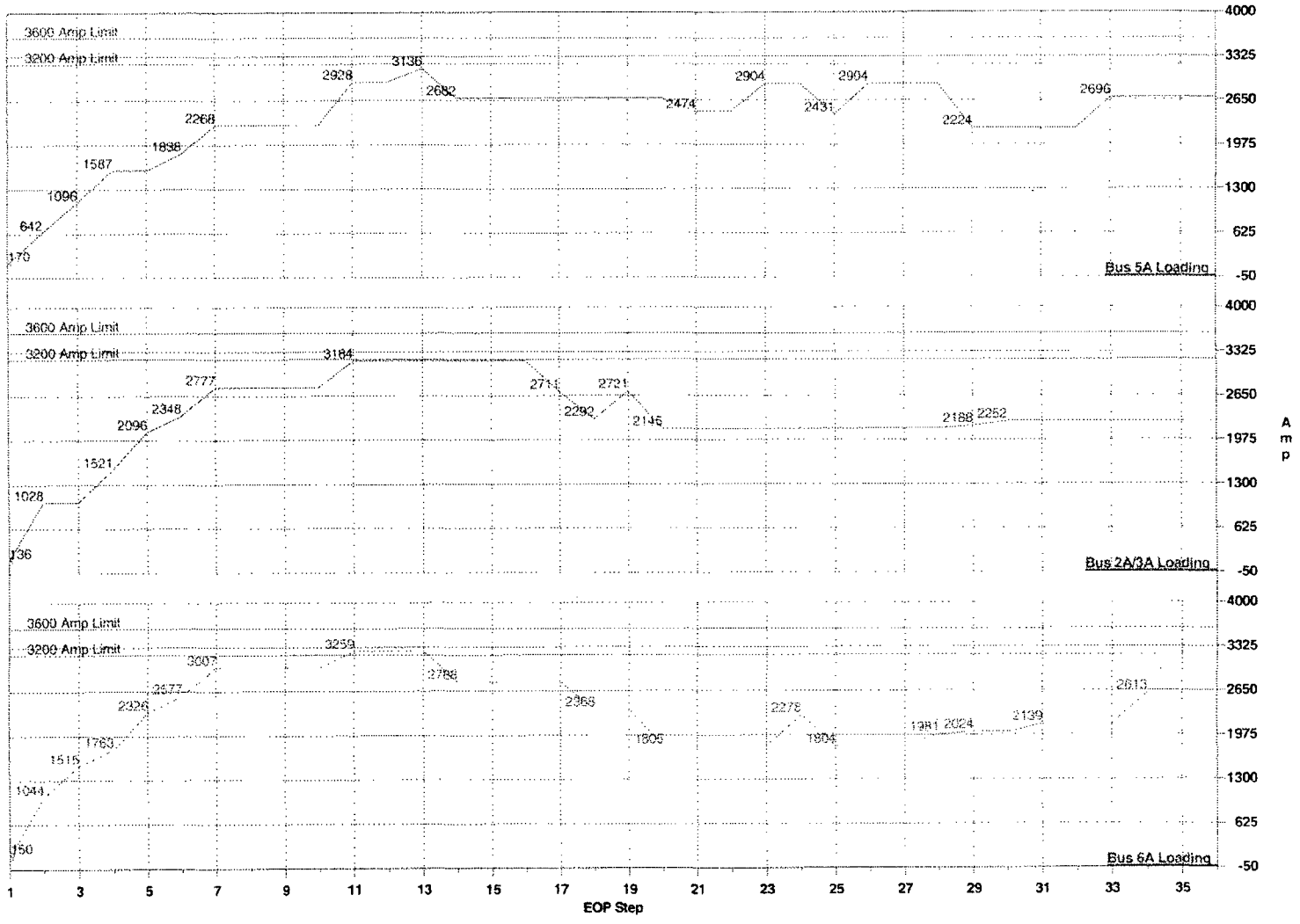
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCCs 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	150.1
					169.5	135.5	150.1
			+57 +50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	892.1	893.9
			RHR pumps 31 and 32				
			(RO verifies that pumps are running.)		641.9	1027.6	1044.0
			+116 +119 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	453.6	0.0	471.1
			(E-0-9 verifies that pumps are running.)		1095.5	1027.6	1515.1
			+24 +25				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	491.9	493.2	248.0
			(RO verifies that fans are running.)		1587.4	1520.8	1763.1
			+29 +31 +33 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	575.4	562.9
			(RO verifies that pumps are running.)		1587.4	2096.2	2326.0
			+1 +2				
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.5	251.3	251.2
			(RO verifies that pumps are running.)		1837.9	2347.5	2577.2
			+4 +7 +10				
- 7 -	---	RO-1-8	ESWPs (34, 35, and 36)	Auto	429.8	429.0	429.8
			(RO verifies that pumps are running.)		2267.7	2776.5	3007.0
			+26 +27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	0.0	0.0	0.0
			is > than 325 psig and CCW is available.				
			(RCS pressure is < 325 psig.)		2267.7	2776.5	3007.0
			(No Loads Started or Tripped at this step)				
- 9 -	< 17 >	---		Manual	0.0	0.0	0.0
			*** LARGE BREAK LOCA EVENT IDENTIFIED ***				
			*** EXIT TO E-1 ***		2267.7	2776.5	3007.0
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-1-4	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2267.7	0.0 2776.5	0.0 3007.0
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset for MCCs powered from Buses 5A and 6A.)	Manual	659.8 2927.5	407.2 3183.7	252.2 3259.2 Over 3200
			+126 +137 +3				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 2927.5	0.0 3183.7	0.0 3259.2 Over 3200
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start one CHARGING pump. (Charging pump 31 started on lightest loaded Bus.)	Manual	208.5 3136.0	0.0 3183.7	0.0 3259.2 Over 3200
			+13				
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 psig (5 FCUs are running. CSPs stopped.)	Manual	-453.6 2682.4	0.0 3183.7	-471.1 2788.1
			-24 -25				
- 15 -	E-1-14	---	Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (Pressure < 325 psig)	Manual	0.0 2682.4	0.0 3183.7	0.0 2788.1
			(No Loads Started or Tripped at this step)				
- 16 -	< 19 >	---	*** TRANSFER TO COLD LEG RECIRC. *** _____*** EXIT TO ES-1.3 ***_____	Manual	0.0 2682.4	0.0 3183.7	0.0 2788.1
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.3-5	---	Stop SI pump 32, if three are running. (SI pump 32 stopped.) Stop CSP 32 if two running. (CSPs not running.)	Manual	0.0 2682.4	-472.4 2711.3	0.0 2788.1
			-122				
- 18 -	ES-1.3-6	---	CHECK SI Recirc SW 3 Function Complete Light - Lit. (YES) (RHR pumps 31 and 32 - Auto stopped.)	Manual	0.0 2682.4	-419.7 2291.6	-420.2 2367.9
			-116 -119				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 32 started on lightest loaded Bus.)	Manual	0.0 2682.4	429.0 2720.6	0.0 2367.9
			+85				
- 20 -	ES-1.3-7	---	STOP Motor Driven Auxiliary Feed Pumps: (AFWPs stopped.)	Manual	0.0 2682.4	-575.4 2145.2	-562.9 1805.0
			-1 -2				
- 21 -	ES-1.3-8	---	INITIATE Performance of ATTACHMENT 1. STOP Any Running Charging Pumps. PLACE All PRZR HTRs to OFF. (Charging pump 31 stopped. No PRZR HTRs are on.)	Manual	-208.5 2473.9	0.0 2145.2	0.0 1805.0
			-13				
- 22 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.29 of NSE, One CSP run time is less than 30 minutes. (No CSPs are running.)	Manual	0.0 2473.9	0.0 2145.2	0.0 1805.0
			(No Loads Started or Tripped at this step)				
- 23 -	ES-1.3-9	---	ALIGN SI Recirc SW 2 (NESWP 31 auto started, CCWP 33 is running.)	Manual	429.8 2903.7	0.0 2145.2	0.0 1805.0
			+84				
- 24 -	ES-1.3-10	---	Align SI Recirc SW 4. (CRP 32 started.)	Manual	0.0 2903.7	0.0 2145.2	472.5 2277.5
			+20				
- 25 -	ES-1.3-14	---	Align SI Recirc SW 6. (All running SI pumps [31 and 33] auto stopped.)	Manual	-472.4 2431.3	0.0 2145.2	-473.7 1803.8
			-121 -123				
- 26 -	ES-1.3-15	---	Align SI Recirc SW 7. (NESWP 32 and CCWP 32 are running. CRP 31 auto started.)	Manual	472.5 2903.8	0.0 2145.2	0.0 1803.8
			+16				
- 27 -	ES-1.3-24	---	Reset MCCs. (MCCs are already reset.)	Manual	0.0 2903.8	0.0 2145.2	0.0 1803.8
			(No Loads Started or Tripped at this step)				

Step Number	SMO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.3-25	---	Start one PAB fan. (PAB fan 32 started on lightest loaded Bus.)	Manual	0.0 2903.6	0.0 2145.2	177.0 1980.8
			+88				
- 29 -	ES-1.3-28	---	Shutdown unnecessary Plant Equipment. a. CHECK CCWPs. IF 3 are running then stop one b. CHECK ESWPs. IF 3 are running then stop one. (CCWP 31, ESWP 34 stopped on heaviest loaded Bus.) +8 +11 -4 -7 -10 -26	Manual	-680.3 2223.5	43.1 2188.3	43.0 2023.8
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. (Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 2223.5	63.8 2252.1	0.0 2023.8
- 31 -	ES-1.3-45	---	Start one H2 Recombiner. (Recombiner 32 started on lightest loaded Bus.)	Manual	0.0 2223.5	0.0 2252.1	115.3 2139.1
			+56				
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >>	Manual	0.0 2223.5	0.0 2252.1	0.0 2139.1
			(No Loads Started or Tripped at this step)				
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (SI pump 31 started.)	Manual	472.4 2695.9	0.0 2252.1	0.0 2139.1
			+121				
- 34 -	ES-1.4-8	---	Start SI pump 33. (SI pump 33 started.)	Manual	0.0 2695.9	0.0 2252.1	473.7 2612.8
			+123				
- 35 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 ***	Manual	0.0 2695.9	0.0 2252.1	0.0 2612.8
			(No Loads Started or Tripped at this step)				
- 36 -	ES-1.3-37	---	Evaluate long term plant status.	Manual	0.0 2695.9	0.0 2252.1	0.0 2612.8
			(No Loads Started or Tripped at this step)				

LARGE BREAK LOCA - RCS PRESSURE < 325



Large Break LOCA
Buses 2A/3A Tied Together, All Buses Available
Offsite Power Available
Operating Loads at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
CCWP 32	2A
CCWP 33	6A
CRP 31	5A
CRP 32	6A
ESWP 35	3A
ESWP 36	6A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36C: H2 RECOMBINER 31	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 32	2A
PAB FAN 32	6A
SI PUMP 31	5A
SI PUMP 33	6A
TOTAL MCCS & LIGHTING RESET BUS 5A	
TOTAL MCCS & LIGHTING RESET BUS 6A	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

LARGE BREAK LOCA - RCS PRESSURE < 325

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:51 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 3125.7 Bus 2A/3A = 3016.8 Bus 6A = * N/A * (A)

3200 Amp Overload Summary

Bus 5A exceeds the 3200 Amp rating at EOP steps : 24
Bus 2A/3A exceeds the 3200 Amp rating at EOP steps : 11, 12, 13, 14, 15, 16, 17, 19
Bus 6A Not Available

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A Not Available

Step Number	SRO Step	PO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCCs 36A, 36C and 36E	Auto	169.5	135.5	* N/A *
					169.5	135.5	* N/A *
			+57 +50 +60				
- 2 -	---	RO-1-2	SI Pumps 31 and 32	Auto	472.4	931.8	* N/A *
			RHR Pump 31				
			(RO verifies that pumps are running.)		641.9	1067.3	* N/A *
			+116 +121 +122				
- 3 -	E-0-9	---	CSP 31	Auto	453.6	0.0	* N/A *
			(E-0-9 verifies that pump is running.)				
					1095.5	1067.3	* N/A *
			+24				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34	Auto	491.9	493.2	* N/A *
			(RO verifies that fans are running.)				
					1587.4	1560.5	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWP 31	Auto	0.0	575.4	* N/A *
			(RO verifies that pump is running.)				
					1587.4	2135.9	* N/A *
			+1				
- 6 -	---	RO-1-7	CCWPs 31 and 32	Auto	293.4	294.4	* N/A *
			(RO verifies that pumps are running.)				
					1880.8	2430.3	* N/A *
			+4 +7				
- 7 -	---	RO-1-8	ESWPs (34 and 35)	Auto	429.8	438.0	* N/A *
			(RO verifies that pumps are running.)				
					2310.6	2869.3	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	0.0	0.0	* N/A *
			is > than 325 psig and CCW is available.				
			(RCS pressure is < 325 psig.)		2310.6	2869.3	* N/A *
			(No Loads Started or Tripped at this step)				
- 9 -	< 17 >	---		Manual	0.0	0.0	* N/A *
			*** LARGE BREAK LOCA EVENT IDENTIFIED ***				
			*** EXIT TO E-1 ***		2310.6	2869.3	* N/A *
			(No Loads Started or Tripped at this step)				

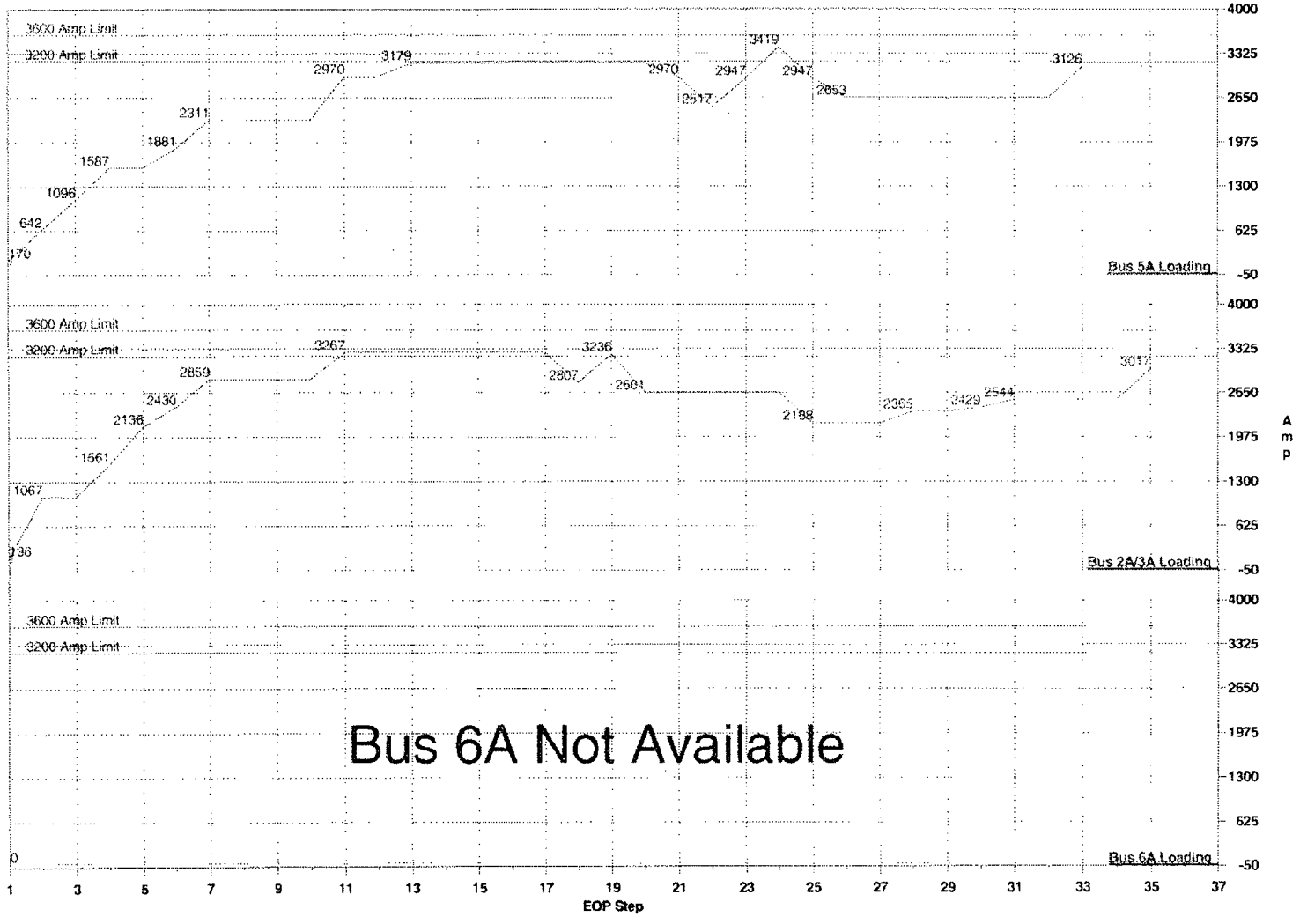
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-1-4	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2310.6	0.0 2859.3	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Full MCC and lighting reset on Bus 5A.)	Manual	659.8 2970.4	407.2 3266.5 Over 3200	* N/A * * N/A *
			+126 +3				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 2970.4	0.0 3266.5 Over 3200	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start one CHARGING pump. (Charging pump 31 started on lightest loaded Bus.)	Manual	208.5 3178.9	0.0 3266.5 Over 3200	* N/A * * N/A *
			+13				
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 psig. (4 FCUs are running and pressure > 16 psig. CSPs remain running.)	Manual	0.0 3178.9	0.0 3266.5 Over 3200	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 15 -	E-1-14	---	Stop RHR pump if pressure is > 325 and pressure is stable or increasing. (Pressure < 325 psig.)	Manual	0.0 3178.9	0.0 3266.5 Over 3200	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 16 -	< 19 >	---	*** TRANSFER TO COLD LEG RECIRC. *** _____*** EXIT TO ES-1.3 ***_____	Manual	0.0 3178.9	0.0 3266.5 Over 3200	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.3-5	---	Stop SI pump 32, if three are running. (Three SI pumps are not running, no pump stopped.) If CSP 31 or 32 is running then stop one. (Only CSP 31 running.)	Manual	0.0 3178.9	0.0 3266.5 Over 3200	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.3-6	---	CHECK SI Recirc SW 3 Function Complete Light - Lit. (YES) (RHR pumps [only 31 is running] - Auto stopped.)	Manual	0.0 3178.9	-459.4 2807.1	* N/A * * N/A *
			-116				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 32 stared on lightest loaded Bus.)	Manual	0.0 3178.9	429.0 3236.1 Over 3200	* N/A * * N/A *
- 20 -	ES-1.3-7	---	+85 STOP Motor Driven Auxiliary Feed Pumps. (AFWPs [only 31 is running] stopped.)	Manual	0.0 3178.9	-575.4 2660.7	* N/A * * N/A *
- 21 -	ES-1.3-8	---	-1 INITIATE Performance of ATTACHMENT 1. (Stop Any Running Charging Pumps. Place ALL PRZR HTRs to OFF. (Charging pump 31 stopped. No PRZR HTRs are on.)	Manual	-208.5 2970.4	0.0 2660.7	* N/A * * N/A *
- 22 -	NSE 99-3-075	NSE 99-3-075	-13 AS PER SECTION 4.2.29 of NSE. One CSP run time is less than 30 minutes. (CSP 31 stopped.)	Manual	-453.6 2516.8	0.0 2660.7	* N/A * * N/A *
- 23 -	ES-1.3-9	---	-24 ALIGN SI Recirc SW 2 (NESWP 31 auto started, CCWP 32 is running.)	Manual	429.8 2946.6	0.0 2660.7	* N/A * * N/A *
- 24 -	ES-1.3-10	---	+84 Align SI Recirc SW 4 (Bus 6A unavailable to start CRP 32. CRP 31 started.)	Manual	472.5 3419.1 Over 3200	0.0 2660.7	* N/A * * N/A *
- 25 -	ES-1.3-14	---	+16 ALIGN SI Recirc SW 6 (All running SI pumps auto stopped.)	Manual	-472.4 2946.7	-472.4 2188.3	* N/A * * N/A *
- 26 -	ES-1.3-15	---	-121 -122 Can not ALIGN SI Recirc SW 7. Bus 6A is not available. (CCWP 31 stopped.)	Manual	-293.4 2653.3	0.0 2188.3	* N/A * * N/A *
- 27 -	ES-1.3-24	---	-4 Reset MCCs. (MCCs are already reset.)	Manual	0.0 2653.3	0.0 2188.3	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SFO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.3-25	---	Start one PAB fan. (PAB fan 31 started.)	Manual	0.0 2653.3	177.0 2365.3	* N/A * * N/A *
			+87				
- 29 -	ES-1.3-28	---	Shutdown unnecessary equipment. a. CHECK CCWPs. IF 3 are running then stop one. b. CHECK ESWPs. IF 3 are running then stop one. (One CCWP and two ESWPs are running.) (No Loads Started or Tripped at this step)	Manual	0.0 2653.3	0.0 2365.3	* N/A * * N/A *
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.)	Manual	0.0 2653.3	63.8 2429.1	* N/A * * N/A *
			+47				
- 31 -	ES-1.3-35	---	Start one H2 Recombiner. (Recombiner 31 started)	Manual	0.0 2653.3	115.3 2544.4	* N/A * * N/A *
			+58				
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >> (No Loads Started or Tripped at this step)	Manual	0.0 2653.3	0.0 2544.4	* N/A * * N/A *
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (SI pump 31 started.)	Manual	472.4 3125.7	0.0 2544.4	* N/A * * N/A *
			+121				
- 34 -	ES-1.4-8	---	Start SI pump 33. (Bus 6A unavailable to start SI pump 33.) (No Loads Started or Tripped at this step)	Manual	0.0 3125.7	0.0 2544.4	* N/A * * N/A *
- 35 -	ES-1.4-9	---	Start SI pump 32 (SI pump 32 started.)	Manual	0.0 3125.7	472.4 3016.8	* N/A * * N/A *
			+122				
- 36 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 *** (No Loads Started or Tripped at this step)	Manual	0.0 3125.7	0.0 3016.8	* N/A * * N/A *

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 37 -	ES-1.3-37	---	Evaluate long term plant status.	Manual	0.0	0.0	* N/A *
					3125.7	3016.8	* N/A *
			(No Loads Started or Tripped at this step)				

LARGE BREAK LOCA - RCS PRESSURE < 325



Large Break LOCA
Buses 2A/3A Tied Together, Bus 6A Not Available
Offsite Power Available
Operating Loads at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
CCWP 32	2A
CRP 31	5A
ESWP 34	5A
ESWP 35	3A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36C: AUTO	2A
MCC 36C: H2 RECOMBINER 31	2A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 32	2A
PAB FAN 31	3A
SI PUMP 31	5A
SI PUMP 32	2A
TOTAL MCCS & LIGHTING RESET BUS 5A	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

LARGE BREAK LOCA - RCS PRESSURE < 325

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:51 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 2756.5 Bus 6A = 2748.4 (A)

3200 Amp Overload Summary

Bus 5A Not Available
Bus 2A/3A exceeds the 3200 Amp rating at EOP steps : 11, 12, 13, 14, 15, 16, 17
Bus 6A exceeds the 3200 Amp rating at EOP steps : 11, 12, 13, 14, 15, 16, 17, 19

3600 Amp Overload Summary

Bus 5A Not Available
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCCs 36B, 36C and 36D	Auto	* N/A *	135.5	150.1
					* N/A *	135.5	150.1
			+57 +53 +59				
- 2 -	---	RO-1-2	SI Pumps 32 and 33 RHR Pumps 31 and 32 (RO verifies that pumps are running.)	Auto	* N/A *	892.1	893.9
					* N/A *	1027.6	1044.0
			+116 +119 +122 +123				
- 3 -	E-0-9	---	CSP 32 (E-0-9 verifies that pump is running.)	Auto	* N/A *	0.0	471.1
					* N/A *	1027.6	1515.1
			+29				
- 4 -	---	RO-1-3	FCUs 32, 34 and 35 (RO verifies that fans are running.)	Auto	* N/A *	493.2	248.0
					* N/A *	1520.8	1763.1
			+31 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33 (RO verifies that pumps are running.)	Auto	* N/A *	575.4	562.9
					* N/A *	2096.2	2326.0
			+1 +2				
- 6 -	---	RO-1-7	CCWPs 32 and 33 (RO verifies that pumps are running.)	Auto	* N/A *	294.4	294.2
					* N/A *	2390.6	2620.2
			+8 +11				
- 7 -	---	RO-1-8	ESWPs (35 and 36) (RO verifies that pumps are started.)	Auto	* N/A *	429.0	429.8
					* N/A *	2819.6	3050.0
			+27 +28				
- 8 -	E-0-11	--	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available. (RCS pressure is < 325 psig.)	Manual	* N/A *	0.0	0.0
					* N/A *	2819.6	3050.0
			(No Loads Started or Tripped at this step)				
- 9 -	< 17 >	---	*** LARGE BREAK LOCA EVENT IDENTIFIED *** *** EXIT TO E-1 ***	Manual	* N/A *	0.0	0.0
					* N/A *	2819.6	3050.0
			(No Loads Started or Tripped at this step)				

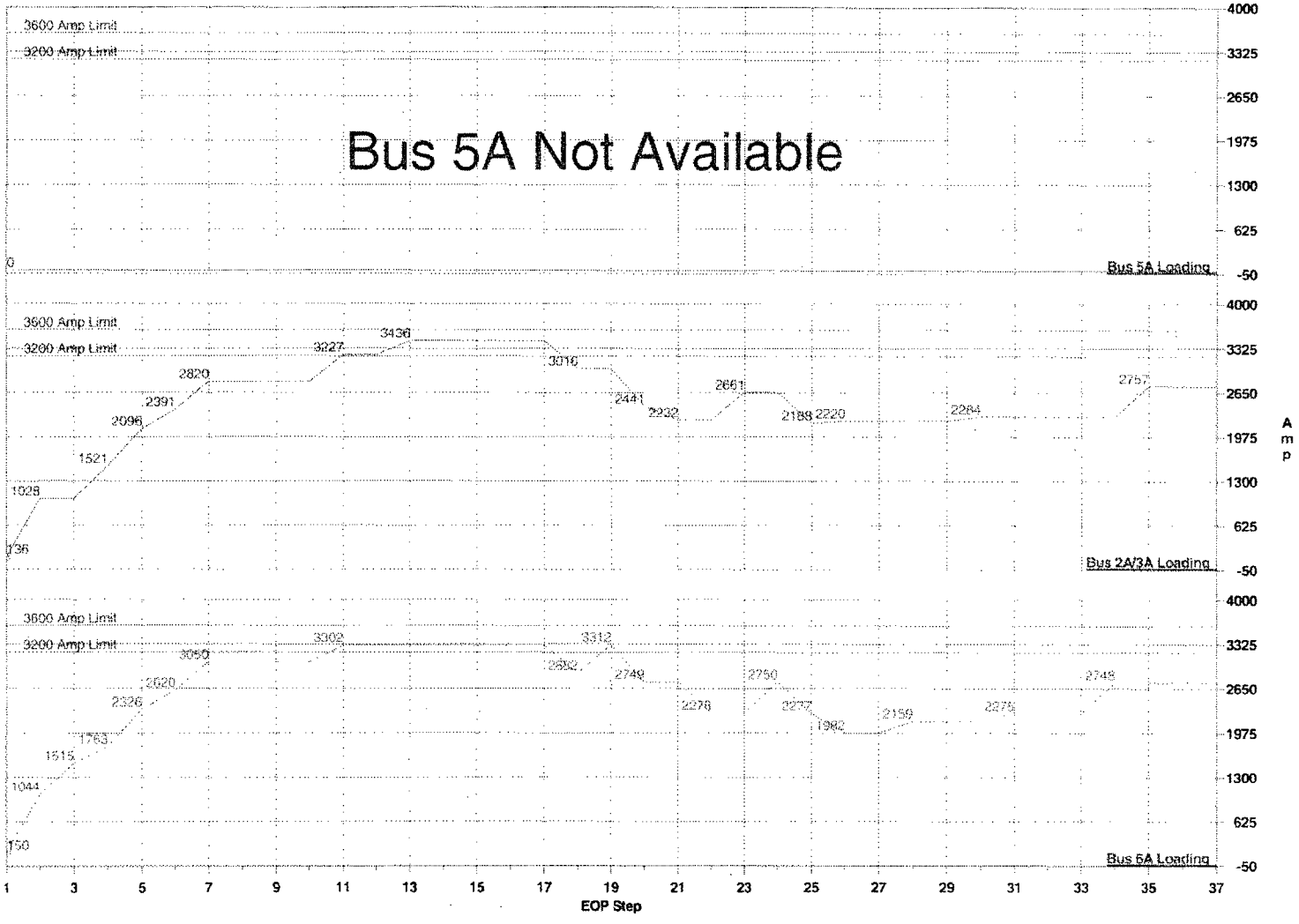
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	F-1-4	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	* N/A * * N/A *	0.0 2819.6	0.0 3050.0
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15 (Full MCC and lighting reset on Bus 6A)	Manual	* N/A * * N/A *	407.2 3226.8 Over 3200	252.2 3302.2 Over 3200
- 12 -	E-1-8	---	+127 +3 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	* N/A * * N/A *	0.0 3226.8 Over 3200	0.0 3302.2 Over 3200
- 13 -	E-1-11	---	(No Loads Started or Tripped at this step) Start one CHARGING pump. (Charging pump 32 started on lightest loaded Bus.)	Manual	* N/A * * N/A *	208.9 3435.7 Over 3200	0.0 3302.2 Over 3200
- 14 -	E-1-12	---	+14 Stop CSPs if 5 FCUs are running or Containment pressure psig < 16. (3 FCUs are running and psig > 16. CSPs remain running.)	Manual	* N/A * * N/A *	0.0 3435.7 Over 3200	0.0 3302.2 Over 3200
- 15 -	E-1-14	---	(No Loads Started or Tripped at this step) Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (Pressure < 325 psig.)	Manual	* N/A * * N/A *	0.0 3435.7 Over 3200	0.0 3302.2 Over 3200
- 16 -	< 19 >	---	(No Loads Started or Tripped at this step) *** TRANSFER TO COLD LEG RECIRC. *** _____*** EXIT TO ES-1.3 ***_____	Manual	* N/A * * N/A *	0.0 3435.7 Over 3200	0.0 3302.2 Over 3200
- 17 -	ES-1.3-5	---	(No Loads Started or Tripped at this step) Stop SI pump 32, if three are running. (Three SI pump are not running, no pump stopped.) If both CSPs are running then stop one. (Only CSP 32 is running.)	Manual	* N/A * * N/A *	0.0 3435.7 Over 3200	0.0 3302.2 Over 3200
- 18 -	ES-1.3-6	---	(No Loads Started or Tripped at this step) CHECK SI Recirc SW 3 Function Complete Light - Lit (YES) (RHR pumps - Auto stopped.)	Manual	* N/A * * N/A *	-419.7 3016.0	-420.2 2882.0
			-116 -119				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RO-3-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 33 started on lightest loaded Bus.)	Manual	* N/A * * N/A *	0.0 3016.0	429.8 3311.8 Over 3200
			+86				
- 20 -	ES-1.3-7	---	Stop Motor Driven Auxiliary Feed pumps. (AFWPs stopped.)	Manual	* N/A * * N/A *	-575.4 2440.6	-562.9 2748.9
			-1 -2				
- 21 -	ES-1.3-8	---	INITIATE Performance of Attachment 1. STOP Any Running Charging Pumps. PLACE All PRZR HTRs to OFF. (Charging pump 32 stopped. No PRZR HTRs are on.)	Manual	* N/A * * N/A *	-208.9 2231.7	0.0 2748.9
			-14				
- 22 -	NSE 99-1-075	NSE 99-3-075	AS PER SECTION 4.2.29 of NSE, One CSP run time is less than 30 minutes. (CSP 32 stopped.)	Manual	* N/A * * N/A *	0.0 2231.7	-471.1 2277.8
			-25				
- 23 -	ES-1.3-9	---	ALIGN SI Recirc SW 2. (NESWP 32 auto started, CCWP 32 is running.)	Manual	* N/A * * N/A *	429.0 2660.7	0.0 2277.8
			+85				
- 24 -	ES-1.3-10	---	ALIGN SI Recirc SW 4 (CRP 32 started.)	Manual	* N/A * * N/A *	0.0 2660.7	472.5 2750.3
			+20				
- 25 -	ES-1.3-14	---	ALIGN SI Recirc SW 6 (All running SI pumps auto stopped.)	Manual	* N/A * * N/A *	-472.4 2188.3	-473.7 2276.6
			-122 -123				
- 26 -	ES-1.3-15	---	Can not ALIGN SI Recirc SW 7. Bus 5A is not available.CCWP 33 stopped.)	Manual	* N/A * * N/A *	32.0 2220.3	-294.2 1982.4
			+9 -8 -11				
- 27 -	ES-1.3-24	---	Reset MCCs. (MCCs are already reset.)	Manual	* N/A * * N/A *	0.0 2220.3	0.0 1982.4
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.3-25	---	Start one PAB fan. (PAB fan 32 started on lightest loaded Bus.)	Manual	* N/A *	0.0	177.0
					* N/A *	2220.3	2159.4
			+88				
- 29 -	ES-1.3-28	---	Shutdown unnecessary equipment. a. CHECK CCWPs. If 3 are running then stop one. b. CHECK ESWPs. If 3 are running then stop one. (One CCWP and two ESWPs are running.) (No Loads Started or Tripped at this step)	Manual	* N/A *	0.0	0.0
					* N/A *	2220.3	2159.4
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.)	Manual	* N/A *	63.8	0.0
					* N/A *	2284.1	2159.4
			+47				
- 31 -	ES-1.3-35	---	Start a H2 Recombiner. (Recombiner 32 started on lightest loaded Bus.)	Manual	* N/A *	0.0	115.3
					* N/A *	2284.1	2274.7
			+56				
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >>	Manual	* N/A *	0.0	0.0
					* N/A *	2284.1	2274.7
			(No Loads Started or Tripped at this step)				
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (Bus 5A unavailable to started SI pump 31.)	Manual	* N/A *	0.0	0.0
					* N/A *	2284.1	2274.7
			(No Loads Started or Tripped at this step)				
- 34 -	ES-1.4-8	---	Start SI pump 33 (SI pump 33 started.)	Manual	* N/A *	0.0	473.7
					* N/A *	2284.1	2746.4
			+123				
- 35 -	ES-1.4-9	---	Start SI pump 32 if both pumps 31and 33 are not running. (SI pump 32 started.)	Manual	* N/A *	472.4	0.0
					* N/A *	2756.5	2748.4
			+123				
- 36 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 ***	Manual	* N/A *	0.0	0.0
					* N/A *	2756.5	2748.4
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 37 -	ES-1.3-37	----	Evaluate long term plant status.	Manual	* N/A *	0.0	0.0
					* N/A *	2756.5	2748.4
			(No Loads Started or Tripped at this step)				

LARGE BREAK LOCA - RCS PRESSURE < 325



Large Break LOCA
Buses 2A/3A Tied Together, Bus 5A Not Available
Offsite Power Available
Operating Loads at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
CCWP 32	2A
CRP 32	6A
ESWP 35	3A
ESWP 36	6A
FCU 32	2A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36B: AUTO	6A
MCC 36B: H2 RECOMBINER 32	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 37: BATTERY CHARGER 32	6A
NESWP 32	2A
NESWP 33	6A
PAB FAN 32	6A
SI PUMP 32	2A
SI PUMP 33	6A
MCCS RESET (2A/3A) AS PER SOP-EL-15	
TOTAL MCCS & LIGHTING RESET BUS 6A	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

LARGE BREAK LOCA - RCS PRESSURE < 325

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:51 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2653.2 Bus 2A/3A = * N/A * Bus 6A = 3042.6 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A exceeds the 3200 Amp rating at EOP steps : 11, 12, 13, 14, 15, 16

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A is below the 3600 Amp rating

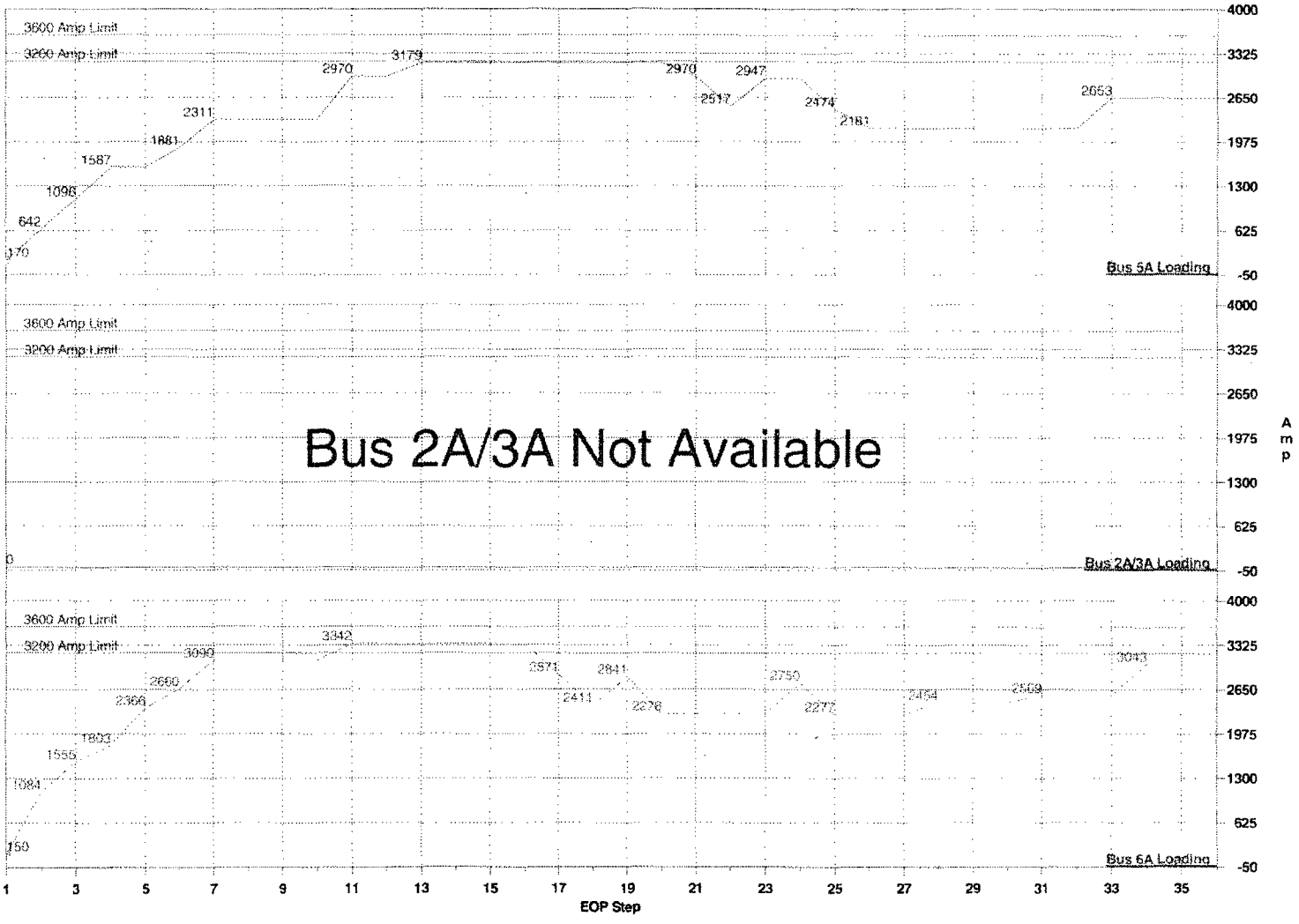
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCCs 36A, 36B, 36D and 36E	Auto	169.5	* N/A *	150.1
					169.5	* N/A *	150.1
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI Pumps 31 and 33	Auto	472.4	* N/A *	933.6
			RHR Pump 32				
			(RO verifies that pumps are running.)		641.9	* N/A *	1083.7
			+119 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	453.6	* N/A *	471.1
			(E-0-9 verifies that pumps are running.)				
					1095.5	* N/A *	1554.8
			+24 +25				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	491.9	* N/A *	248.0
			(RO verifies that fans are running.)				
					1587.4	* N/A *	1802.8
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWPs 33	Auto	0.0	* N/A *	562.9
			(RO verifies that pump is running.)				
					1587.4	* N/A *	2365.7
			+2				
- 6 -	---	RO-1-7	CCWPs 31 and 33	Auto	293.4	* N/A *	294.2
			(RO verifies that pumps are running.)				
					1880.8	* N/A *	2659.9
			+5 +11				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	429.8	* N/A *	429.8
			(RO verifies that pumps are running.)				
					2310.6	* N/A *	3089.7
			+26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	0.0	* N/A *	0.0
			is > than 325 psig and CCW is available.				
			(RCS pressure is < 325 psig.)		2310.6	* N/A *	3089.7
			(No Loads Started or Tripped at this step)				
- 9 -	< 17 >	---		Manual	0.0	* N/A *	0.0
			*** LARGE BREAK LOCA EVENT IDENTIFIED ***				
			*** EXIT TO E-1 ***		2310.6	* N/A *	3089.7
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-1-4	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2310.6	* N/A * * N/A *	0.0 3089.7
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Full MCC and lighting reset.)	Manual	659.8 2970.4	* N/A * * N/A *	252.2 3341.9 Over 3200
			+126 +127				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containmenet. (Load accounted for in MCC reset.)	Manual	0.0 2970.4	* N/A * * N/A *	0.0 3341.9 Over 3200
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start one CHARGING pump. (Charging pump 31 started on lightest loaded Bus.)	Manual	208.5 3178.9	* N/A * * N/A *	0.0 3341.9 Over 3200
			+13				
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 psig. (3 FCUs are running and psig > 16. CSPs remain running.)	Manual	0.0 3178.9	* N/A * * N/A *	0.0 3341.9 Over 3200
			(No Loads Started or Tripped at this step)				
- 15 -	E-1-14	---	Stop RHR pump if pressure is > 325 and pressure is stable or increasing. (Pressure < 325 psig.)	Manual	0.0 3178.9	* N/A * * N/A *	0.0 3341.9 Over 3200
			(No Loads Started or Tripped at this step)				
- 16 -	< 19 >	---	*** TRANSFER TO COLD LEG RECIRC. *** *** EXIT TO ES-1.3 ***	Manual	0.0 3178.9	* N/A * * N/A *	0.0 3341.9 Over 3200
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.3-5	---	Stop SI pump 32, if three are running. (Three SI pump are not running, no pump stopped.) If CSP 31 or 32 is running then stop one. (CSP 32 stopped on heaviest loaded Bus.) -25	Manual	0.0 3178.9	* N/A * * N/A *	-471.1 2870.8
- 18 -	ES-1.3-6	---	CHECK SI Recirc SW 3 Function Complete Light - Lit. (YES) (RHR pumps [only 32 is running] - Auto stopped.) -119	Manual	0.0 3178.9	* N/A * * N/A *	-459.9 2410.9

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 33 started on lightest loaded Bus.)	Manual	0.0 3178.9	* N/A * * N/A *	429.8 2840.7
- 20 -	ES-1.3-7	---	+86 STOP Motor Driven Auxiliary Feed Pumps: (AFWPs (only 33 is running) stopped.)	Manual	0.0 3178.9	* N/A * * N/A *	-562.9 2277.8
- 21 -	ES-1.3-8	---	-2 INITIATE Performance of ATTACHMENT 1. STOP Any Running Charging Pumps. PLACE All PRZR HTRs to OFF. (Charging pump 31 stopped. No PRZR HTRs are on.)	Manual	-208.5 2970.4	* N/A * * N/A *	0.0 2277.8
- 22 -	NSE 99-3-075	NSE 99-3-075	-13 AS PER SECTION 4.2.29 of NSE, One CSP run time is less than 30 mintues. (CSP 31 stopped.)	Manual	-453.6 2516.8	* N/A * * N/A *	0.0 2277.8
- 23 -	ES-1.3-9	---	-24 ALIGN SI Recirc SW 2 (NESWP 31 auto started, CCWP 33 is running.)	Manual	429.8 2946.6	* N/A * * N/A *	0.0 2277.8
- 24 -	ES-1.3-10	---	+84 Align SI Recirc SW 4 (CRP 32 started.)	Manual	0.0 2946.6	* N/A * * N/A *	472.5 2750.3
- 25 -	ES-1.3-14	---	+20 ALIGN SI Recirc SW 6. (All running SI pumps auto stopped.)	Manual	-472.4 2474.2	* N/A * * N/A *	-473.7 2276.6
- 26 -	ES-1.3-15	---	-121 -123 Can not ALIGN SI Recirc SW 7. Bus 2A/3A is not available. (CCWP 31 stopped.)	Manual	-293.4 2180.8	* N/A * * N/A *	0.0 2276.6
- 27 -	ES-1.3-24	---	-5 Reset MCCs (MCCs are already reset.)	Manual	0.0 2180.8	* N/A * * N/A *	0.0 2276.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.3-25	---	Start one PAB fan. (PAB fan 32 started.)	Manual	0.0 2180.8	* N/A * * N/A *	177.0 2453.6
			+88				
- 29 -	ES-1.3-28	---	Shutdown unnecessary Plant Equipment. a. CHECK CCWPs. If 3 are running then stop one. b. CHECK ESWPs. If 3 are running then stop one. (Only one CCWP and two ESWPs are running.) (No Loads Started or Tripped at this step)	Manual	0.0 2180.8	* N/A * * N/A *	0.0 2453.6
- 30 -	---	RO-1-37c	START AC and STOP DC OIL Pumps IF 480V Buses are powered from Offsite and tie-braekers are open. Start Turbine Turning Gear. (Bus 2A/3A unavailble to start Gear) (No Loads Started or Tripped at this step)	Manual	0.0 2180.8	* N/A * * N/A *	0.0 2453.6
- 31 -	ES-1.3-35	---	Start a H2 Recombiner. (Recombiner 32 started.)	Manual	0.0 2180.8	* N/A * * N/A *	115.3 2568.9
			+56				
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >> (No Loads Started or Tripped at this step)	Manual	0.0 2180.8	* N/A * * N/A *	0.0 2568.9
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (SI pump 31 started.)	Manual	472.4 2653.2	* N/A * * N/A *	0.0 2568.9
			+121				
- 34 -	ES-1.4-8	---	Start SI pump 33. (SI pump 33 started.)	Manual	0.0 2653.2	* N/A * * N/A *	473.7 3042.6
			+123				
- 35 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 ***	Manual	0.0 2653.2	* N/A * * N/A *	0.0 3042.6
			(No Loads Started or Tripped at this step)				
- 36 -	ES-1.3-37	---	Evaluate long term plant status. (No Loads Started or Tripped at this step)	Manual	0.0 2653.2	* N/A * * N/A *	0.0 3042.6

LARGE BREAK LOCA - RCS PRESSURE < 325



Large Break LOCA
Buses 2A/3A Tied Together, Buses 2A and/or 3A Not Available
Offsite Power Available
Operating Loads at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
CCWP 33	6A
CRP 32	6A
ESWP 34	5A
ESWP 36	6A
FCU 31	5A
FCU 33	5A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36B: H2 RECOMBINER 32	6A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 33	6A
PAB FAN 32	6A
SI PUMP 31	5A
SI PUMP 33	6A
TOTAL MCCS & LIGHTING RESET BUS 5A	
TOTAL MCCS & LIGHTING RESET BUS 6A	

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IP3-CALC-ED-00207 REV 8

LARGE BREAK LOCA - RCS PRESSURE < 325

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:55 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1370.8 Bus 2A/3A = 1216.8 Bus 6A = 1558.6 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Emergency Diesel Generator 32 on Bus 6A exceeds the 1750 kW rating at EOP steps : 7, 8, 9, 10, 11, 12, 13

1950 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

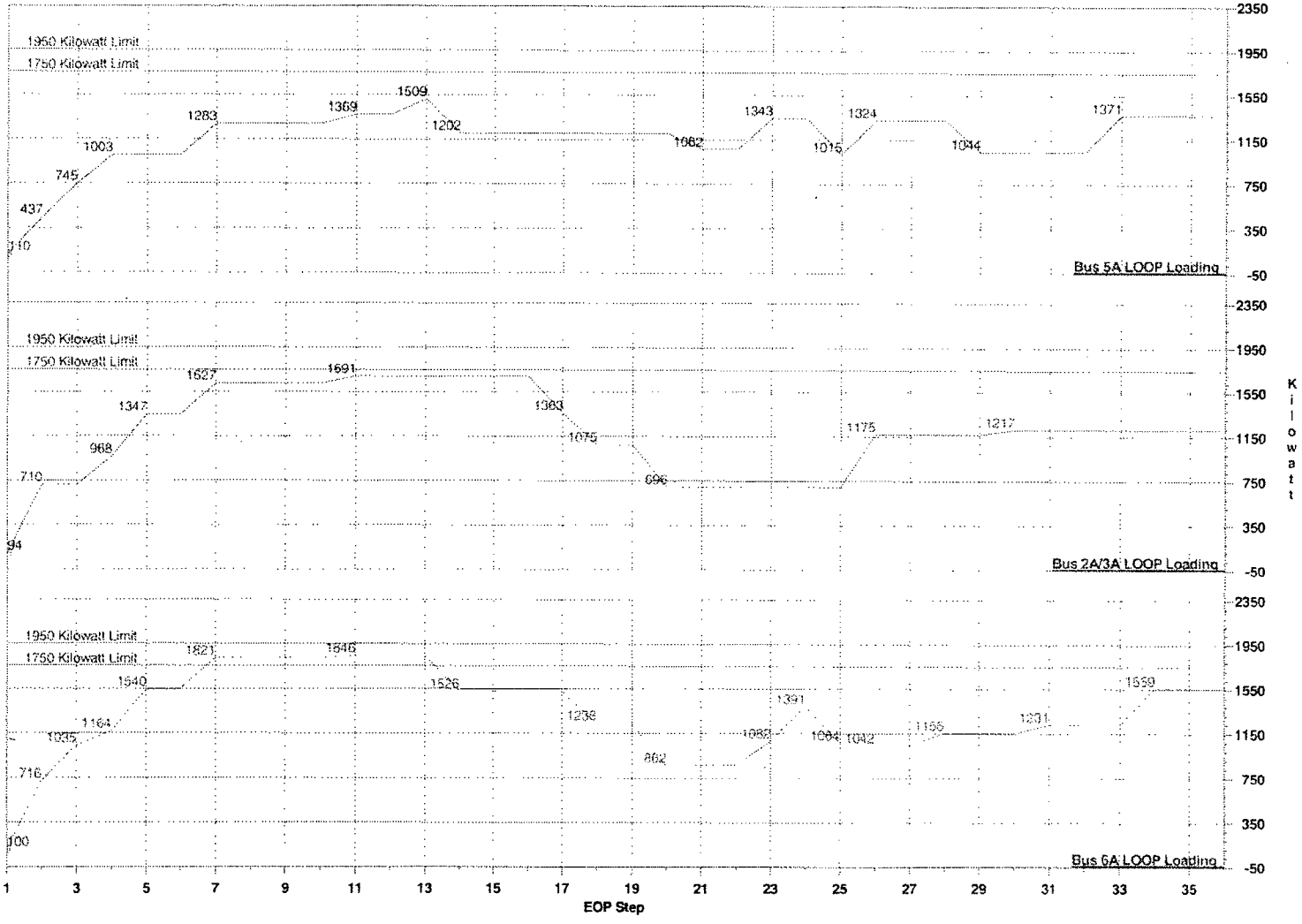
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCCs 36A, 36B, 36C, 36D and 36E	Auto	110.0	94.3	100.4
					110.0	94.3	100.4
			+57 +50 +53 +59 +60				
- 2 -	---	RO-1-2	SI Pumps 31, 32 and 33 RHR Pumps 31 and 32 (RO verifies that pumps are running.)	Auto	327.2	615.3	615.3
					437.2	709.6	715.7
			+116 +119 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32 (E-0-9 verifies that pumps are running.)	Auto	307.3	0.0	319.5
					744.5	709.6	1035.2
			+24 +25				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35 (RO verifies that fans are running.)	Auto	258.0	258.0	129.0
					1002.5	967.6	1164.2
			+29 +31 +33 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33 (RO verifies that pumps are running.)	Auto	0.0	378.9	375.7
					1002.5	1346.5	1539.9
			+1 +2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP. (All Buses are powered from EDGs.)	Manual	0.0	0.0	0.0
					1002.5	1346.5	1539.9
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34, 35, and 36) (RO verifies that pumps are running.)	Auto	280.8	280.8	280.8
					1283.3	1627.3	1820.7 Over 1750
			+26 +27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available. (RCS pressure is < 325 psig.)	Manual	0.0	0.0	0.0
					1283.3	1627.3	1820.7 Over 1750
			(No Loads Started or Tripped at this step)				
- 9 -	< 17 >	---		Manual	0.0	0.0	0.0
			*** LARGE BREAK LOCA EVENT IDENTIFIED *** *** EXIT TO E-1 ***		1283.3	1627.3	1820.7 Over 1750
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-1-4	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1283.3	0.0 1627.3	0.0 1820.7 Over 1750
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15.	Manual	85.8 1369.1	63.3 1690.6	24.8 1845.5 Over 1750
			-82 -81 -83				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1369.1	0.0 1690.6	0.0 1845.5 Over 1750
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start one CHARGING pump. (Charging pump 31 started on lightest loaded Bus.)	Manual	140.2 1509.3	0.0 1690.6	0.0 1845.5 Over 1750
			-13				
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 psig. (5 FCUs are running, CSPs stopped.)	Manual	-307.3 1202.0	0.0 1690.6	-319.5 1526.0
			-24 -25				
- 15 -	E-1-14	---	Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (Pressure < 325 psig.)	Manual	0.0 1202.0	0.0 1690.6	0.0 1526.0
			(No Loads Started or Tripped at this step)				
- 16 -	< 19 >	---	*** TRANSFER TO COLD LEG RECIRC. *** *** EXIT TO ES-1.3 ***	Manual	0.0 1202.0	0.0 1690.6	0.0 1526.0
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.3-5	---	CHECK SI Recirc SW 1 Function Complete Light - LIT. (YES) (Three SI pumps running, SI pump 32 stopped.) Stop CSP 32 if two running. (CSPs not running.)	Manual	0.0 1202.0	-327.2 1363.4	0.0 1526.0
			-122				
- 18 -	ES-1.3-6	---	CHECK SI Recirc SW 3 Function Complete Light - LIT. (YES) (RHR pumps - Auto stopped.)	Manual	0.0 1202.0	-288.1 1075.3	-288.1 1237.9
			-116 -119				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (All Buses are powered from EDGs.)	Manual	0.0 1202.0	0.0 1075.3	0.0 1237.9
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.3-7	---	STOP Motor Driven Auxiliary Feed Pumps: (RCS pressure is less than SG pressures.) b. PLACE both Motor Driven AFWPs in TPO. (AFWPs stopped.) -1 -2	Manual	0.0 1202.0	-378.9 696.4	-375.7 862.2
- 21 -	ES-1.3-8	---	INITIATE Performance of ATTACHMENT 1. STOP Any Running Charging Pumps. PLACE All PRZR HTRs to OFF (Charging pump 31 stopped. No PRZR HTRs are on.) -13	Manual	-140.2 1061.8	0.0 696.4	0.0 862.2
- 22 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (No CSPs are running.)	Manual	0.0 1061.8	0.0 696.4	0.0 862.2
			(No Loads Started or Tripped at this step)				
- 23 -	ES-1.3-9	---	ALIGN SI Recirc SW 2 as follows: b. PLACE SI Recirc SW 2 to ON. (NESWP 31 and CCWP 33 Auto started.) +84 +12	Manual	280.8 1342.6	0.0 696.4	219.6 1081.8
- 24 -	ES-1.3-10	---	ALIGN SI Recirc SW 4 Lo Head as follows: b. Manually START 32 Recirc Pump. (CRP 32 started.) +20	Manual	0.0 1342.6	0.0 696.4	309.0 1390.8
- 25 -	ES-1.3-14	---	ALIGN SI Recirc SW 6 Lo Head as follows: (SI SW 6 Lo Head function Light is LIT. All running SI pumps [31 and 33] auto stopped.) -121 -123	Manual	-327.2 1015.4	0.0 696.4	-327.2 1063.6
- 26 -	ES-1.3-15	---	ALIGN SI Recirc SW 7 as follows: b. PLACE SI Recirc SW 7 to ON. (NESWP 32, CCWP 32 and CRP 31 Auto started.) +85 +8 +11 +16 -12	Manual	309.0 1324.4	478.9 1175.3	-21.5 1042.1
- 27 -	ES-1.3-24	---	Reset MCCs. (MCCs are already reset.)	Manual	0.0 1324.4	0.0 1175.3	0.0 1042.1
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 28 -	ES-1.3-25	---	CHECK PAB Exhaust Fan Status: (No PAB fan is running) a. START one PAB Exhaust Fan. (PAB fan 32 started on lightest loaded Bus.) +68	Manual	0.0 1324.4	0.0 1175.3	114.3 1156.4
- 29 -	ES-1.3-28	---	Shutdown Unnecessary Plant Equipment: a. Check CCWPs. if 3 are running then stop one b. Check ESWPs. if 3 are running then stop one (ESWP 34 stopped on heaviest loaded Bus.) -26	Manual	-280.8 1043.6	0.0 1175.3	0.0 1156.4
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powererd from Offsite Power. (All Buses are powered from EDGs.) Start Turning Gear. (Turning Gear started.) +47	Manual	0.0 1043.6	41.5 1216.8	0.0 1156.4
- 31 -	ES-1.3-35	---	CHECK Containment Hydrogen Concentration: (Hydrogen concentration > than 0.5% by volume. Recombiner 32 started on lightest loaded Bus.) +56	Manual	0.0 1043.6	0.0 1216.8	75.0 1231.4
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >> (No Loads Started or Tripped at this step)	Manual	0.0 1043.6	0.0 1216.8	0.0 1231.4
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (SI pump 31 started.) +121	Manual	327.2 1370.8	0.0 1216.8	0.0 1231.4
- 34 -	ES-1.4-8	---	Start SI pump 33. (SI pump 33 started.) +123	Manual	0.0 1370.8	0.0 1216.8	327.2 1558.6
- 35 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 *** (No Loads Started or Tripped at this step)	Manual	0.0 1370.8	0.0 1216.8	0.0 1558.6
- 36 -	ES-1.3-37	---	Evaluate long term plant status. (No Loads Started or Tripped at this step)	Manual	0.0 1370.8	0.0 1216.8	0.0 1558.6

LARGE BREAK LOCA - RCS PRESSURE < 325



Large Break LOCA
Buses 2A/3A Tied Together, All buses Available
Loss of Offsite Power
Operating Loads at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
CCWP 32	EDG 31
CCWP 33	EDG 32
CRP 31	EDG 33
CRP 32	EDG 32
ESWP 35	EDG 31
ESWP 36	EDG 32
FCU 31	EDG 33
FCU 32	EDG 31
FCU 33	EDG 33
FCU 34	EDG 31
FCU 35	EDG 32
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36A: AUTO	EDG 33
MCC 36B: AUTO	EDG 32
MCC 36B: H2 RECOMBINER 32	EDG 32
MCC 36C: AUTO	EDG 31
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 33
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 31	EDG 33
NESWP 32	EDG 31
PAB FAN 32	EDG 32
SI PUMP 31	EDG 33
SI PUMP 33	EDG 32

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

LARGE BREAK LOCA - RCS PRESSURE < 325

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:51 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1651.6 Bus 2A/3A = 1474.0 Bus 6A = * N/A * (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Bus 6A Not Available

1950 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Bus 6A Not Available

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCCs 36A, 36C and 36E	Auto	110.0	94.3	* N/A *
					110.0	94.3	* N/A *
			+57 +50 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 32	Auto	327.2	643.3	* N/A *
			RHR pump 31				
			(RO verifies that pumps are running.)		437.2	737.6	* N/A *
			+116 +121 +122				
- 3 -	E-0-9	---	CSP 31	Auto	307.3	0.0	* N/A *
			(E-0-9 verifies that pump is running.)		744.5	737.6	* N/A *
			+24				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34	Auto	258.0	258.0	* N/A *
			(RO verifies that fans are running.)		1002.5	995.6	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWP 31	Auto	0.0	378.9	* N/A *
			(RO verifies that pump is running.)		1002.5	1374.5	* N/A *
			+1				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Auto	0.0	0.0	* N/A *
			(All Buses are powered from EDGs.)		1002.5	1374.5	* N/A *
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 35)	Auto	280.8	280.8	* N/A *
			(RO verifies that pumps are running.)		1283.3	1655.3	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	0.0	0.0	* N/A *
			(RCS pressure is < 325 psig.)		1283.3	1655.3	* N/A *
			(No Loads Started or Tripped at this step)				
- 9 -	< 17 >	---		Manual	0.0	0.0	* N/A *
			*** LARGE BREAK LOCA EVENT IDENTIFIED ***				
			_____*** EXIT TO E-1 ***_____		1283.3	1655.3	* N/A *
			(No Loads Started or Tripped at this step)				

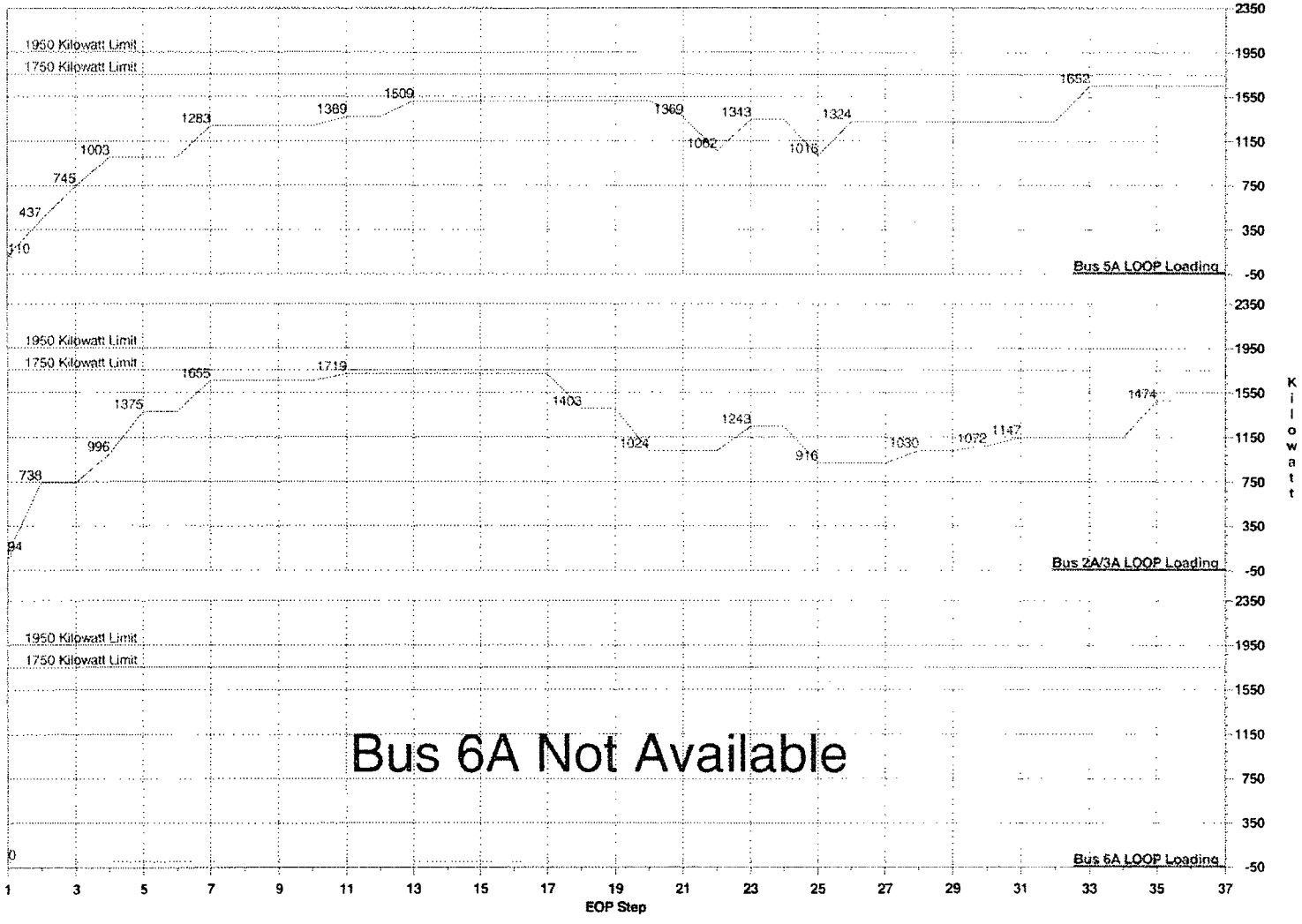
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-1-4	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1283.3	0.0 1655.3	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15.	Manual	85.8 1369.1	63.3 1718.6	* N/A * * N/A *
			+82 +81				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1369.1	0.0 1718.6	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start one Charging pump. (Charging pump 31 started on lightest loaded Bus.)	Manual	140.2 1509.3	0.0 1718.6	* N/A * * N/A *
			+13				
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 psig. (4 FCUs are running and psig > 16. CSPs remain running.)	Manual	0.0 1509.3	0.0 1718.6	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 15 -	E-1-14	---	Stop RHR pump if pressure is > 325 and pressure is stable or increasing. (Pressure < 325 psig.)	Manual	0.0 1509.3	0.0 1718.6	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 16 -	< 19 >	---	*** TRANSFER TO COLD LEG RECIRC. *** _____*** EXIT TO ES-1.3 ***_____	Manual	0.0 1509.3	0.0 1718.6	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.3-5	---	CHECK SI Recirc SW 1 Function Complete Light - LIT. (YES) (Only two SI pumps running, none stopped.) If two CSPs are running then stop one. (1 running)	Manual	0.0 1509.3	0.0 1718.6	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.3-6	---	CHECK SI Recirc SW 3 Function Complete Light - LIT (YES) (RHR pumps - Auto stopped.)	Manual	0.0 1509.3	-316.1 1402.5	* N/A * * N/A *
			-116				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (All Buses are powered from EDGs.)	Manual	0.0 1509.3	0.0 1402.5	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.3-7	---	STOP Motor Driven Auxiliary Feed Pumps. (AFWPs [only 31 is running] stopped.)	Manual	0.0 1509.3	-378.9 1023.6	* N/A * * N/A *
			-1				
- 21 -	ES-1.3-8	---	INITIATE Performance of ATTACHMENT 1. STOP Any Running Charging Pumps. PLACE All PRZR HTRs to OFF. (Charging pump 31 stopped. No PRZR HTRs are on.)	Manual	-140.2 1369.1	0.0 1023.6	* N/A * * N/A *
			-13				
- 22 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE. One CSP run time is less than 30 minutes. (CSP 31 stopped.)	Manual	-307.3 1061.8	0.0 1023.6	* N/A * * N/A *
			-24				
- 23 -	ES-1.3-9	---	ALIGN SI Recirc SW 2 (NESWP 31 and CCWP 32 auto started.)	Manual	280.8 1342.6	219.6 1243.2	* N/A * * N/A *
			+84 +9				
- 24 -	ES-1.3-10	---	ALIGN SI Recirc SW 4 (Bus 6A unavailable to start CRP 32.)	Manual	0.0 1342.6	0.0 1243.2	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 25 -	ES-1.3-14	---	ALIGN SI Recirc SW 6 (All running SI pumps auto stopped.)	Manual	-327.2 1015.4	-327.2 916.0	* N/A * * N/A *
			-121 -122				
- 26 -	ES-1.3-15	---	Can not ALIGN SI Recirc SW 7. Bus 6A is not available . (Only available CRP [31] started.)	Manual	309.0 1324.4	0.0 916.0	* N/A * * N/A *
			+16				
- 27 -	ES-1.3-24	---	Reset MCCs. (MCCs are already reset.)	Manual	0.0 1324.4	0.0 916.0	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 6A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 28 -	ES-1.3-35	---	Start one PAB fan. (PAB fan 31 started.) (PAB fan 31 started.)	Manual	0.0 1324.4	114.3 1030.3	* N/A * * N/A *
			+57				
- 29 -	ES-1.3-28	---	Shutdown unnecessary equipment. a. Check CCWPs. If 3 are running then stop one. b. Check ESWPs. If 3 are running then stop one. (One CCWP and two ESWPs are running.) (No Loads Started or Tripped at this step)	Manual	0.0 1324.4	0.0 1030.3	* N/A * * N/A *
- 30 -	---	RO-1-37c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite Power. (All Buses are powered from EDGs.) Start Turb Turning Gear. (Gear started).	Manual	0.0 1324.4	41.5 1071.8	* N/A * * N/A *
			+47				
- 31 -	ES-1.3-36	---	CHECK Containment Hydrogen Concentration: Hydrogen concentration > than 0.5% by volume. (Recombiner 31 started.)	Manual	0.0 1324.4	75.0 1146.8	* N/A * * N/A *
			+58				
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >>	Manual	0.0 1324.4	0.0 1146.8	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (SI pump 31 started.)	Manual	327.2 1651.6	0.0 1146.8	* N/A * * N/A *
			+121				
- 34 -	ES-1.4-8	---	Start SI pump 33. (Bus 6A unavailable to start SI pump 33.)	Manual	0.0 1651.6	0.0 1146.8	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 35 -	ES-1.4-9	---	Start SI pump 32. (SI pump 32 started.)	Manual	0.0 1651.6	327.2 1474.0	* N/A * * N/A *
			+122				
- 36 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 ***	Manual	0.0 1651.6	0.0 1474.0	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 37 -	ES-1.3-37	---	Evaluate long term plant status.	Manual	0.0	0.0	* N/A *
					1651.6	1474.0	* N/A *
			(No Loads Started or Tripped at this step)				

LARGE BREAK LOCA - RCS PRESSURE < 325



Large Break LOCA
Buses 2A/3A Tied Together, Bus 6A Not Available
Loss of Offsite Power
Operating Loads at the End of Scenario

	EQUIPMENT RUNNING	POWER FROM EDG
1	CCWP 32	EDG 31
2	CRP 31	EDG 33
3	ESWP 34	EDG 33
4	ESWP 35	EDG 31
5	FCU 31	EDG 33
6	FCU 32	EDG 31
7	FCU 33	EDG 33
8	FCU 34	EDG 31
14	MCC 34: TURBINE TURNING GEAR	EDG 31
15	MCC 36C: AUTO	EDG 31
16	MCC 36C: H2 RECOMBINER 31	EDG 31
17	MCC 36E: AUTO	EDG 33
19	MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
20	MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
21	NESWP 31	EDG 33
22	PAB FAN 31	EDG 31
23	SI PUMP 31	EDG 33
24	SI PUMP 32	EDG 31
25	MCC 36A: AUTO	EDG 33

NEW YORK POWER AUTHORITY
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ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

LARGE BREAK LOCA - RCS PRESSURE < 325

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:51 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 1460.2 Bus 6A = 1465.8 (KW)

1750 kW Overload Summary

Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A exceeds the 1750 kW rating at EOP steps : 13, 14, 15, 16, 17
Emergency Diesel Generator 32 on Bus 6A exceeds the 1750 kW rating at EOP steps : 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 1

1950 kW Overload Summary

Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCCs 36B, 36C and 36D	Auto	* N/A *	94.3	100.4
					* N/A *	94.3	100.4
			+57 +53 +59				
- 2 -	---	RO-1-2	SI pumps 32 and 33 RHR pumps 31 and 32 (RO verifies that pumps are running.)	Auto	* N/A *	615.3	615.3
					* N/A *	709.6	715.7
			+116 +119 +122 +123				
- 3 -	E-0-9	---	CSP 32 (E-0-9 verifies that pump is running.)	Auto	* N/A *	0.0	319.5
					* N/A *	709.6	1035.2
			+25				
- 4 -	---	RO-1-3	FCUs 32, 34 and 35 (RO verifies that fans are running.)	Auto	* N/A *	258.0	129.0
					* N/A *	967.6	1164.2
			+31 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 32 (RO verifies that pumps are running.)	Auto	* N/A *	378.9	375.7
					* N/A *	1346.5	1539.9
			+1 +2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP. (All Buses are powered from EDGs.)	Auto	* N/A *	0.0	0.0
					* N/A *	1346.5	1539.9
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (35 and 36) (RO verifies that pumps are running.)	Auto	* N/A *	280.8	280.8
					* N/A *	1627.3	1820.7 Over 1750
			+27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available. (RCS pressure is < 325 psig.)	Manual	* N/A *	0.0	0.0
					* N/A *	1627.3	1820.7 Over 1750
			(No Loads Started or Tripped at this step)				
- 9 -	< 17 >	---		Manual	* N/A *	0.0	0.0
			*** LARGE BREAK LOCA EVENT IDENTIFIED *** *** EXIT TO E-1 ***		* N/A *	1627.3	1820.7 Over 1750
			(No Loads Started or Tripped at this step)				

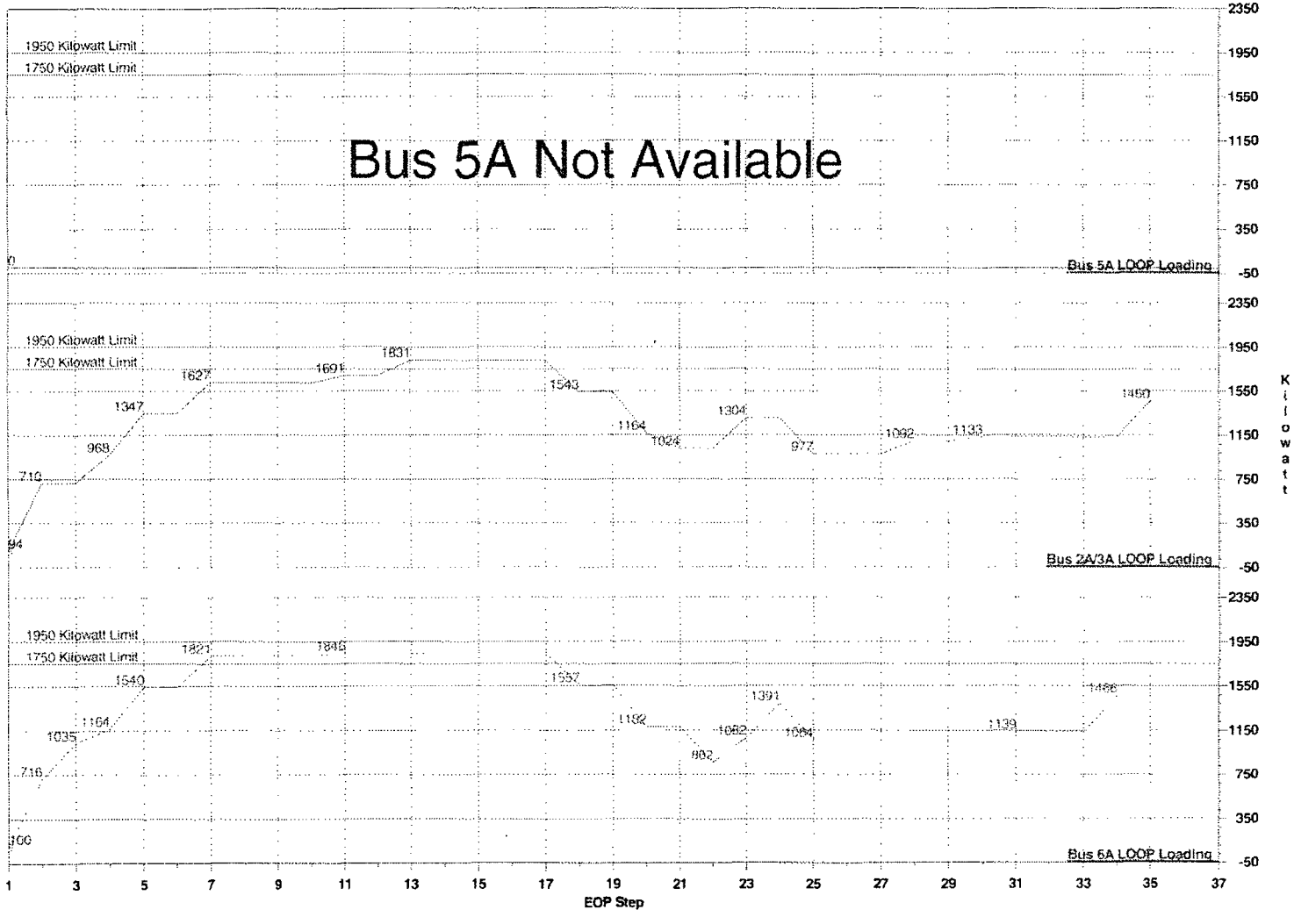
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-1-4	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	* N/A *	0.0	0.0
					* N/A *	1827.3	1820.7 Over 1750
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15.	Manual	* N/A *	63.3	24.8
					* N/A *	1890.6	1845.5 Over 1750
			+81 +83				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment . (Load accounted for in MCC reset.)	Manual	* N/A *	0.0	0.0
					* N/A *	1890.6	1845.5 Over 1750
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start one Charging pump. (Charging pump 32 started on lightest loaded Bus.)	Manual	* N/A *	140.2	0.0
					* N/A *	1830.8 Over 1750	1845.5 Over 1750
			+14				
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 psig. (3 FCUs are running and psig > 16. CSPs remain running.)	Manual	* N/A *	0.0	0.0
					* N/A *	1830.8 Over 1750	1845.5 Over 1750
			(No Loads Started or Tripped at this step)				
- 15 -	E-1-14	---	Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (Pressure < 325 psig.)	Manual	* N/A *	0.0	0.0
					* N/A *	1830.8 Over 1750	1845.5 Over 1750
			(No Loads Started or Tripped at this step)				
- 16 -	< 19 >	---		Manual	* N/A *	0.0	0.0
			*** TRANSFER TO COLD LEG RECIRC. *** _____*** EXIT TO ES-1.3 ***_____		* N/A *	1830.8 Over 1750	1845.5 Over 1750
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.3-5	---	CHECK SI Recirc SW 1 Function Complete Light - LIT. (YES)	Manual	* N/A *	0.0	0.0
			(Only two SI pumps running, noe stopped.) If two CSPs are running then stop one. (1 running)		* N/A *	1830.8 Over 1750	1845.5 Over 1750
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.3-6	---	CHECK SI Recirc SW 3 Function Complete Light - LIT. (YES)	Manual	* N/A *	-288.1	-288.1
			(RHR pumps - Auto stopped.)		* N/A *	1542.7	1557.4
			-116 -119				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (All Buses are powered from EDGs.)	Manual	* N/A * * N/A *	0.0 1542.7	0.0 1557.4
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.3-7	---	Stop Motor Driven Auxiliary Feed Pumps. (AFWPs stopped.)	Manual	* N/A * * N/A *	-378.9 1163.8	-375.7 1181.7
			-1 -2				
- 21 -	ES-1.3-8	---	INITIATE Performance of ATTACHMENT 1. STOP Any Running Charging Pumps. PLACE All PRZR HTRs to OFF. (Charging pump 32 stopped. No PRZR HTRs are on.)	Manual	* N/A * * N/A *	-140.2 1023.6	0.0 1181.7
			-14				
- 22 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE, One CSP run time is less than 30 minutes. (CSP 32 stopped.)	Manual	* N/A * * N/A *	0.0 1023.6	-319.5 862.2
			-25				
- 23 -	ES-1.3-9	---	ALIGN SI Recirc SW 2 (NESWP 32 and CCWP 33 auto started.)	Manual	* N/A * * N/A *	280.8 1304.4	219.6 1081.8
			+85 +12				
- 24 -	ES-1.3-10	---	ALIGN SI Recirc SW 4 (CRP 32 started.)	Manual	* N/A * * N/A *	0.0 1304.4	309.0 1390.8
			+20				
- 25 -	ES-1.3-14	---	Align SI Recirc SW 6 (All running SI pumps auto stopped.)	Manual	* N/A * * N/A *	-327.2 977.2	-327.2 1063.6
			-122 -123				
- 26 -	ES-1.3-15	---	Can not ALIGN SI Recirc SW 7. (Bus 5A not available to start second CRP.)	Manual	* N/A * * N/A *	0.0 977.2	0.0 1063.6
			(No Loads Started or Tripped at this step)				
- 27 -	ES-1.3-24	---	Reset MCCs. (MCCs are already reset.)	Manual	* N/A * * N/A *	0.0 977.2	0.0 1063.6
			(No Loads Started or Tripped at this step)				

Step Number	SBO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 28 -	ES-1.3-25	---	Start a PAB fan. (PAB fan 31 started lightest loaded Bus.)	Manual	* N/A *	114.3	0.0
					* N/A *	1091.5	1063.6
			+87				
- 29 -	ES-1.3-26	---	Shutdown unnecessary equipment. a. CHECK CCWPs. If 3 are running then stop one. b. CHECK ESWPs. If 3 are running then stop one. (One CCWP and two ESWPs are running.) (No Loads Started or Tripped at this step)	Manual	* N/A *	0.0	0.0
					* N/A *	1091.5	1063.6
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite Power. (All Buses are powered from EDGs.) Start Turb Turning Gear. (Gear started.)	Manual	* N/A *	41.5	0.0
					* N/A *	1133.0	1063.6
			+47				
- 31 -	ES-1.3-35	---	CHECK Containment Hydrogen Concentration: (Hydrogen concentration > than 0.5% by volume. Recombiner 32 started on lightest loaded Bus.)	Manual	* N/A *	0.0	75.0
					* N/A *	1133.0	1138.6
			+56				
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >>	Manual	* N/A *	0.0	0.0
					* N/A *	1133.0	1138.6
			(No Loads Started or Tripped at this step)				
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (Bus 5A unavailable to start SI pump 31.)	Manual	* N/A *	0.0	0.0
					* N/A *	1133.0	1138.6
			(No Loads Started or Tripped at this step)				
- 34 -	ES-1.4-8	---	Start SI pump 33. (SI pump 33 started.)	Manual	* N/A *	0.0	327.2
					* N/A *	1133.0	1465.8
			+123				
- 35 -	ES-1.4-9	---	Start SI pump 32. (SI pump 32 started.)	Manual	* N/A *	327.2	0.0
					* N/A *	1460.2	1465.8
			+122				
- 36 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 ***	Manual	* N/A *	0.0	0.0
					* N/A *	1460.2	1465.8
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 37 -	ES-1.3-37	---	Evaluate long term plant status.	Manual	* N/A *	0.0	0.0
					* N/A *	1460.2	1465.8
			(No Loads Started or Tripped at this step)				

LARGE BREAK LOCA - RCS PRESSURE < 325



Large Break LOCA
Buses 2A/3A Tied Together, Bus 5A Not Available
Loss of Offsite Power
Operating Loads at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
CCWP 33	EDG 32
CRP 32	EDG 32
ESWP 35	EDG 31
ESWP 36	EDG 32
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36B: AUTO	EDG 31
MCC 36B: H2 RECOMBINER 32	EDG 32
MCC 36C: AUTO	EDG 32
MCC 36D: AUTO	EDG 31
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 32
MCCS RESET (6A) AS PER SOP-EL-15	EDG 31
NESWP 32	EDG 32
PAB FAN 31	EDG 31
SI PUMP 32	EDG 31
SI PUMP 33	EDG 31

NEW YORK POWER AUTHORITY
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ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
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LARGE BREAK LOCA - RCS PRESSURE < 325

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:51 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1342.6 Bus 2A/3A = * N/A * Bus 6A = 1580.1 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A exceeds the 1750 kW rating at EOP steps : 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

1950 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

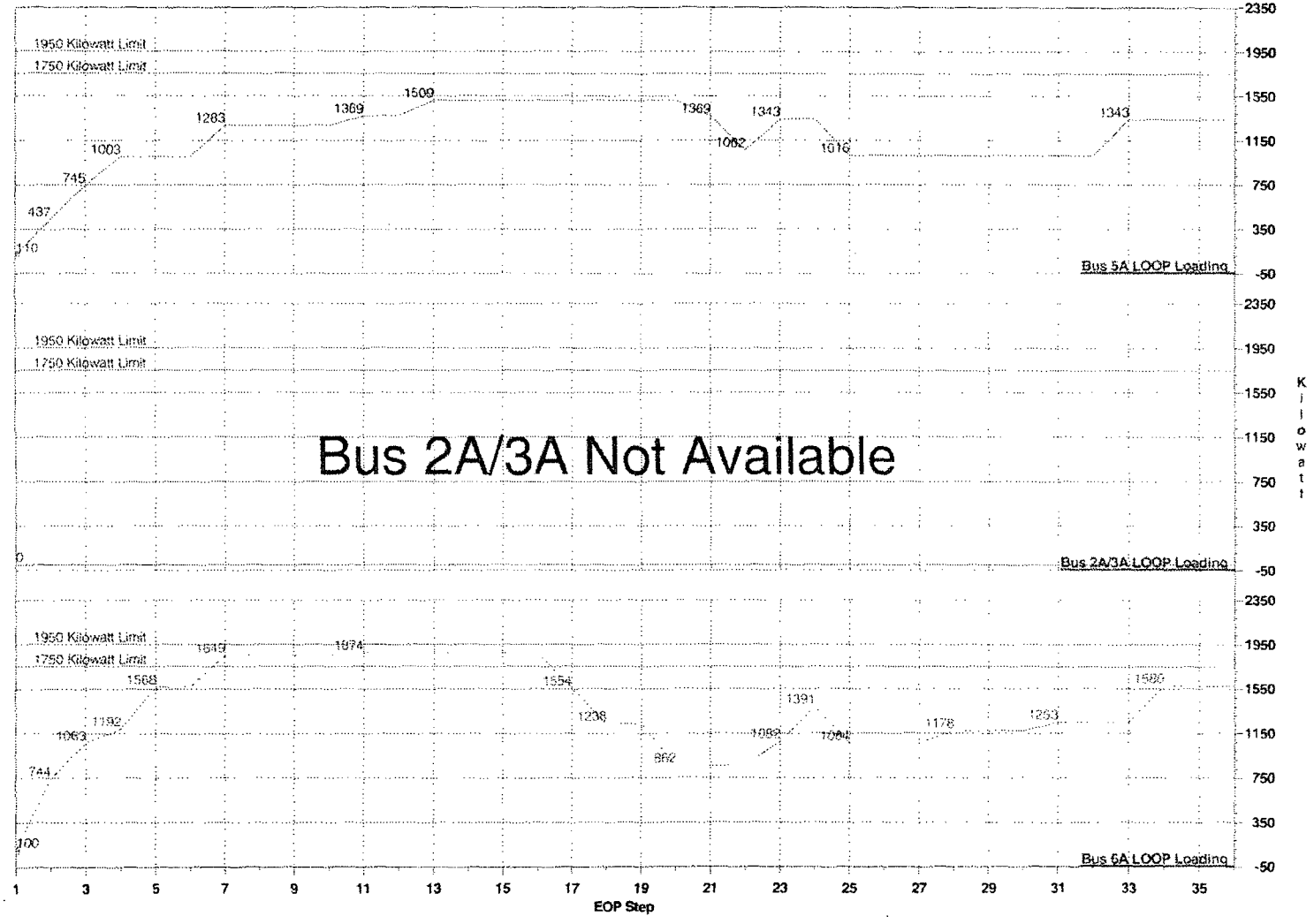
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCCs 36A, 36B, 36D and 36E	Auto	110.0	* N/A *	100.4
					110.0	* N/A *	100.4
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI Pumps 31 and 33	Auto	327.2	* N/A *	643.3
			RHR Pump 32				
			(RO verifies that pumps are running.)		437.2	* N/A *	743.7
			+119 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	307.3	* N/A *	319.5
			(E-0-9 verifies that pumps are running.)		744.5	* N/A *	1063.2
			+24 +25				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	258.0	* N/A *	129.0
			(RO verifies that fans are running.)		1002.5	* N/A *	1192.2
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWP 33	Auto	0.0	* N/A *	375.7
			(RO verifies that pump is running.)		1002.5	* N/A *	1567.9
			+2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Auto	0.0	* N/A *	0.0
			(All Buses are powered from EDGs.)		1002.5	* N/A *	1567.9
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	280.8	* N/A *	280.8
			(RO-1-8 verifies that pumps are running.)		1283.3	* N/A *	1848.7 Over 1750
			+26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	0.0	* N/A *	0.0
			(RCS pressure is < 325 psig.)		1283.3	* N/A *	1848.7 Over 1750
			(No Loads Started or Tripped at this step)				
- 9 -	< 17 >	---		Manual	0.0	* N/A *	0.0
			*** LARGE BREAK LOCA EVENT IDENTIFIED ***				
			_____*** EXIT TO E-1 ***_____		1283.3	* N/A *	1848.7 Over 1750
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-1-4	---	Reset SI (Steps 2 through 12 of RO-1are completed.)	Manual	0.0 1283.3	* N/A * * N/A *	0.0 1848.7 Over 1750
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (MCCs reset.)	Manual	85.8 1369.1	* N/A * * N/A *	24.8 1873.5 Over 1750
			+62 +83				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1369.1	* N/A * * N/A *	0.0 1873.5 Over 1750
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start one Charging pump. (Charging pump 31 started on lightest loaded Bus.)	Manual	140.2 1509.3	* N/A * * N/A *	0.0 1873.5 Over 1750
			+13				
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 psig. (3 FCUs are running and psig > 16 CSPs remain running.)	Manual	0.0 1509.3	* N/A * * N/A *	0.0 1873.5 Over 1750
			(No Loads Started or Tripped at this step)				
- 15 -	E-1-14	---	Stop RHR pump if pressure is > 325 and pressure is stable or increasing. (Pressure < 325 psig.)	Manual	0.0 1509.3	* N/A * * N/A *	0.0 1873.5 Over 1750
			(No Loads Started or Tripped at this step)				
- 16 -	< 19 >	---	*** TRANSFER TO COLD LEG RECIRC. *** _____*** EXIT TO ES-1.3 ***_____	Manual	0.0 1509.3	* N/A * * N/A *	0.0 1873.5 Over 1750
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.3-5	---	CHECK SI Recirc SW 1 Function Complete light - LIT. (YES) (Only two SI pumps running, none stopped.) If two CSPs running;stop CSP 32. (CSP 32 stopped) -25	Manual	0.0 1509.3	* N/A * * N/A *	-319.5 1554.0
- 18 -	ES-1.3-6	---	CHECK SI Recirc SW 3 Function Complete Light - LIT. (YES) (RHR pumps [only 32 is running] - Auto stopped.) -119	Manual	0.0 1509.3	* N/A * * N/A *	-316.1 1237.9

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (All Buses are powered from EDGs.)	Manual	0.0 1509.3	* N/A * * N/A *	0.0 1237.9
- 20 -	ES-1.3-7	---	(No Loads Started or Tripped at this step) STOP Motor Driven Auxiliary Feed Pumps (AFWPs (only 33 is running) stopped.)	Manual	0.0 1509.3	* N/A * * N/A *	-375.7 862.2
- 21 -	ES-1.3-8	---	-2 INITIATE Performance of ATTACHMENT 1. STOP Any Running Charging Pumps. PLACE All PRZR HTRs to OFF. (Charging pump 31 stopped. No PRZR HTRs are on.)	Manual	-140.2 1369.1	* N/A * * N/A *	0.0 862.2
- 22 -	NSE 99-3-075	NSE 99-3-075	-13 AS PER SECTION 4.2.20 of NSE, One CSP run time is less than 30 minutes. (CSP 31 stopped.)	Manual	-307.3 1061.8	* N/A * * N/A *	0.0 862.2
- 23 -	ES-1.3-9	---	-24 ALIGN SI Recirc SW 2 (NESWP 31 and CCWP 33 auto started.)	Manual	280.8 1342.6	* N/A * * N/A *	219.6 1081.8
- 24 -	ES-1.3-10	---	+84 +12 ALIGN SI Recirc SW 4 (CRP 32 started.)	Manual	0.0 1342.6	* N/A * * N/A *	309.0 1390.8
- 25 -	ES-1.3-14	---	+20 ALIGN SI Recirc SW 6 (ALL running SI pumps auto stopped.)	Manual	-327.2 1015.4	* N/A * * N/A *	-327.2 1063.6
- 26 -	ES-1.3-15	---	-121 -123 Can not ALIGN SI Recirc SW 7. Bus 2A/3A is not available.	Manual	0.0 1015.4	* N/A * * N/A *	0.0 1063.6
- 27 -	ES-1.3-24	---	(No Loads Started or Tripped at this step) Reset MCCs. (MCCs are already reset.)	Manual	0.0 1015.4	* N/A * * N/A *	0.0 1063.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 28 -	ES-1.3-25	---	Start a PAB fan. (PAB Fan 32 started.)	Manual	0.0 1015.4	* N/A * * N/A *	114.3 1177.9
			+88				
- 29 -	ES-1.3-28	---	Shutdown unnecessary equipment. a. Check CCWPs. If 3 are running then stop one. b. Check ESWPs. If 3 are running then stop one. (One CCWP and two ESWPs are running.) (No Loads Started or Tripped at this step)	Manual	0.0 1015.4	* N/A * * N/A *	0.0 1177.9
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite Power. (All Buses are powered from EDGs) Start Turning Gear. (Bus 2A/3A unavailable.) (No Loads Started or Tripped at this step)	Manual	0.0 1015.4	* N/A * * N/A *	0.0 1177.9
- 31 -	ES-1.3-35	---	Start a H2 Recombiner. (Recombiner 32 started)	Manual	0.0 1015.4	* N/A * * N/A *	75.0 1252.9
			+56				
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >> (No Loads Started or Tripped at this step)	Manual	0.0 1015.4	* N/A * * N/A *	0.0 1252.9
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (SI pump 31 started.)	Manual	327.2 1342.6	* N/A * * N/A *	0.0 1252.9
			+121				
- 34 -	ES-1.4-8	---	Start SI pump 33. (SI pump 33 started.)	Manual	0.0 1342.6	* N/A * * N/A *	327.2 1580.1
			+123				
- 35 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 *** (No Loads Started or Tripped at this step)	Manual	0.0 1342.6	* N/A * * N/A *	0.0 1580.1
- 36 -	ES-1.3-37	---	Evaluate long term plant status. (No Loads Started or Tripped at this step)	Manual	0.0 1342.6	* N/A * * N/A *	0.0 1580.1

LARGE BREAK LOCA - RCS PRESSURE < 325



Large Break LOCA
Buses 2A/3A Tied Together, Bus 2A and/or 3A Not Available
Loss of Offsite Power
Operating Loads at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
CCWP 33	
CRP 32	EDG 32
ESWP 34	EDG 32
ESWP 36	EDG 33
FCU 31	EDG 32
FCU 33	EDG 33
FCU 35	EDG 33
MCC 36A: AUTO	EDG 31
MCC 36B: AUTO	EDG 33
MCC 36B: H2 RECOMBINER 32	EDG 32
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 32
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 33
NESWP 31	EDG 32
PAB FAN 32	EDG 33
SI PUMP 31	EDG 32
SI PUMP 33	EDG 33

NEW YORK POWER AUTHORITY
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ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA
ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2003
Report Print Time : 3:51 PM

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 1751.0 Bus 2A = 2017.9 Bus 3A = 2174.3 Bus 6A = 1937.2 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

SMALL BREAK LOCA - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25,2009 Time : 3:51 PM [8]

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	0.0	150.1
					169.5	135.5	0.0	150.1
			+57 +60 +53 +59 +60					
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	472.4	264.5	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)					
			(RO verifies that pumps are running.)		641.9	607.9	264.5	888.6
			+117 +120 +121 +122 +123					
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not running.)	Manual	0.0	0.0	0.0	0.0
			(E-0-9 verifies that spray is not required.)					
					641.9	607.9	264.5	888.6
			(No Loads Started or Tripped at this step)					
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	491.9	247.2	246.0	248.0
			(RO verifies that fans are running.)					
					1133.8	855.1	510.5	1136.6
			+29 +31 +33 +35 +37					
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	0.0	575.4	562.9
			(RO verifies that pumps are running.)					
					1133.8	855.1	1085.9	1699.5
			+1 +2					
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.5	251.3	0.0	251.2
			(RO verifies that pumps are running.)					
					1384.3	1106.4	1085.9	1950.7
			+4 +7 +10					
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	429.8	0.0	429.0	429.8
			(RO verifies that pumps are running.)					
					1814.1	1106.4	1514.9	2380.5
			+26 +27 +28					
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	0.0	0.0	208.9	0.0
			is > than 325 psig and CCW is available.					
			(CHARGING pump 32 started on lightest		1814.1	1106.4	1723.8	2380.5
			loaded Bus.)					
			+14					
- 9 -	< 17 >	---		Manual	0.0	0.0	0.0	0.0
			*** SMALL BREAK LOCA EVENT IDENTIFIED ***					
			EXIT TO E-1		1814.1	1106.4	1723.8	2380.5
			(No Loads Started or Tripped at this step)					

SMALL BREAK LOCA - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25,2009 Time : 3:51 PM [8]

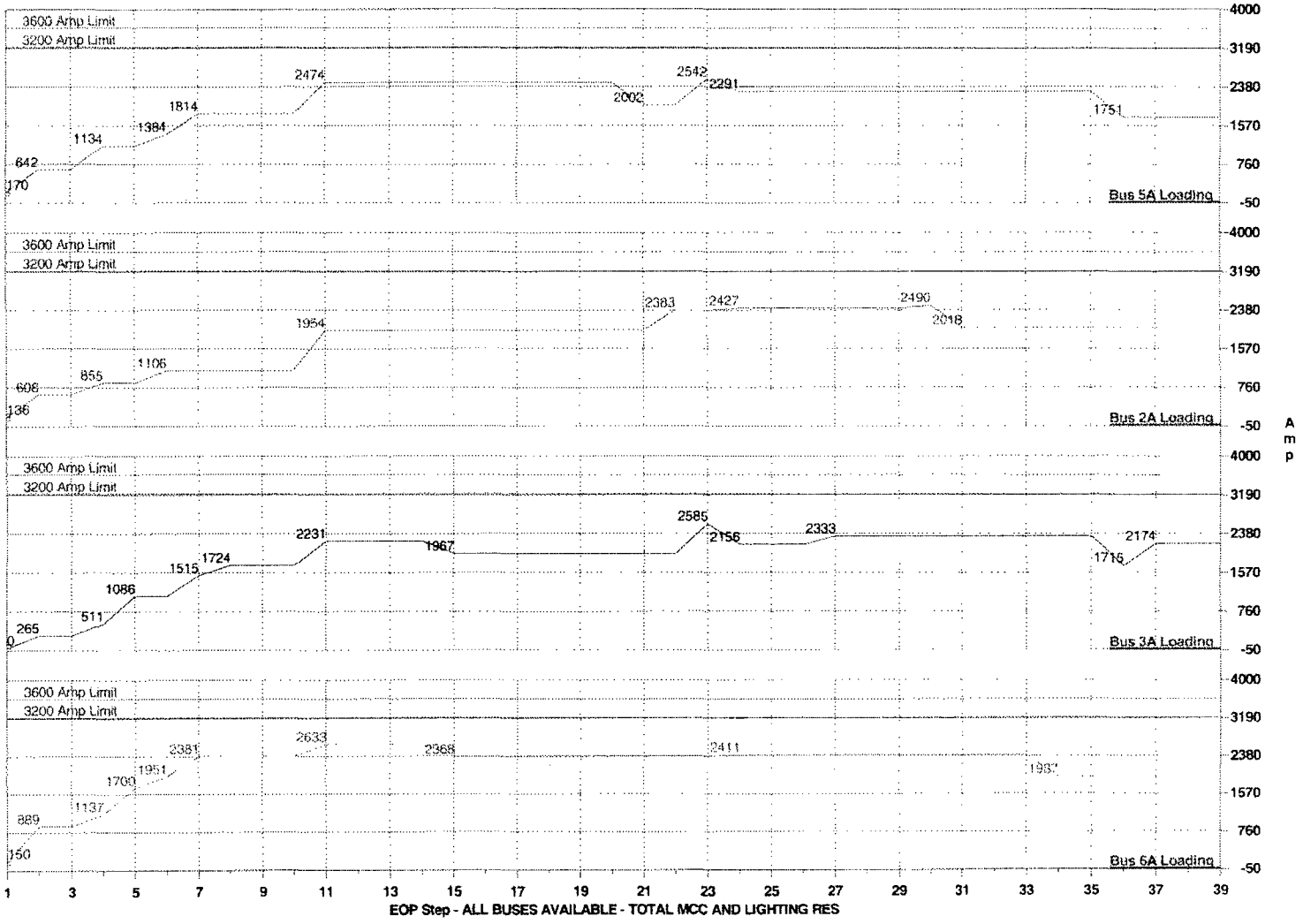
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-1-4	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1814.1	0.0 1106.4	0.0 1723.8	0.0 2380.5
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	659.8 2473.9	848.0 1954.4	507.6 2231.4	252.2 2632.7
- 12 -	E-1-8	---	+126 +124 +125 +127 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 2473.9	0.0 1954.4	0.0 2231.4	0.0 2632.7
- 13 -	E-1-11	---	(No Loads Started or Tripped at this step) Start one CHARGING pump. (CHARGING pump 32 is running.)	Manual	0.0 2473.9	0.0 1954.4	0.0 2231.4	0.0 2632.7
- 14 -	E-1-13	---	(No Loads Started or Tripped at this step) Check if CSPs can be stopped. (Spray not actuated. No pumps are running.)	Manual	0.0 2473.9	0.0 1954.4	0.0 2231.4	0.0 2632.7
- 15 -	E-1-14	---	(No Loads Started or Tripped at this step) Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (All pumps stopped.)	Manual	0.0 2473.9	0.0 1954.4	-264.5 1966.9	-264.8 2367.9
- 16 -	< 18 >	---	-117 -120 *** EXIT TO ES-1-2 ***	Manual	0.0 2473.9	0.0 1954.4	0.0 1966.9	0.0 2367.9
- 17 -	ES-1.2-1	---	(No Loads Started or Tripped at this step) Reset MCCs (MCCs are already reset.)	Manual	0.0 2473.9	0.0 1954.4	0.0 1966.9	0.0 2367.9
- 18 -	ES-1.2-2	---	(No Loads Started or Tripped at this step) Stop RHR pumps if RCS pressure > 325. (RHR pumps are already stopped.)	Manual	0.0 2473.9	0.0 1954.4	0.0 1966.9	0.0 2367.9
			(No Loads Started or Tripped at this step)					

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.2-7	---	Stop Pressurizer Heaters. (Load never started.)	Manual	0.0	0.0	0.0	0.0
					2473.9	1954.4	1966.9	2367.9
			(No Loads Started or Tripped at this step)					
- 20 -	< 11 >	---		Manual	0.0	0.0	0.0	0.0
			*** FIRST PASS THROUGH PROCEDURE LOOP ***					
					2473.9	1954.4	1966.9	2367.9
			(No Loads Started or Tripped at this step)					
- 21 -	ES-1.2-13	---	Stop one SI pump.	Manual	-472.4	0.0	0.0	0.0
			(SI pump 31 stopped from heaviest loaded Bus.					
			CHARGING pump 32 is running.)		2001.5	1954.4	1966.9	2367.9
			-121					
- 22 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus	Manual	0.0	429.0	0.0	0.0
			to start at least one NESWP.					
			(NESWP 32 started on lightest loaded Bus.)		2001.5	2383.4	1966.9	2367.9
			+85					
- 23 -	ES-1.2-16	---	Energize at least one Pressurizer Heater Group	Manual	540.3	0.0	618.2	0.0
			as per SOP-EL-15.					
			(Energized Pressurizer Heater Group 31 and 33					
			on lightest loaded Buses.)		2541.8	2383.4	2585.1	2367.9
			+89 +106					
- 24 -	ES-1.2-23	---	Stop 1 of 3 CCWPs. Stop 1 of 3 ESWPs and	Manual	-250.5	43.1	-429.0	43.0
			Shutdown Motor-Driven AFWPs if desired.					
			(First CCWP 31 and then ESWP 35 stopped on					
			heaviest loaded Bus. AFWPs remain running.)		2291.3	2426.5	2156.1	2410.9
			+8 +11 -4 -7 -10 -27					
- 25 -	ES-1.2-26	---	DETERMINE If RHR System Can Be Place In Service.	Manual	0.0	0.0	0.0	0.0
			a. RCS hot leg temperatures are > 350 Deg.					
			a. RCS pressure > 400 psig		2291.3	2426.5	2156.1	2410.9
			(RHR not started.)					
			(No Loads Started or Tripped at this step)					
- 26 -	ES-1.2-27	---	Check Containment Hydrogen concentration.	Manual	0.0	0.0	0.0	0.0
			(Less than 0.5% by vol.)					
					2291.3	2426.5	2156.1	2410.9
			(No Loads Started or Tripped at this step)					
- 27 -	ES-1.2-28A	---	Check if PAB fans are running. No	Manual	0.0	0.0	177.0	0.0
			(PAB Fan 31 started on lightest loaded Bus.)					
					2291.3	2426.5	2333.1	2410.9
			-87					

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.2-28c	---	Start: BAST Htrs, Hot Pent Blower, PMMU, SFP pump and Elec Tunnel Fans. (All loads accounted for in total MCC resets.)	Manual	0.0	0.0	0.0	0.0
					2291.3	2426.5	2333.1	2410.9
			(No Loads Started or Tripped at this step)					
- 29 -	< 29 >	---	*** RETURN TO ES-1.2-2 AND LOOP THROUGH PROCEDURE UNTIL RCS TEMP. IS < 200 DEG. ***	Manual	0.0	0.0	0.0	0.0
					2291.3	2426.5	2333.1	2410.9
			(No Loads Started or Tripped at this step)					
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps If 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0	63.8	0.0	0.0
					2291.3	2490.3	2333.1	2410.9
- 31 -	ES-1.2-13	---	Stop second SI pump. (SI pump 32 stopped from heaviest loaded Bus.)	Manual	0.0	-472.4	0.0	0.0
					2291.3	2017.9	2333.1	2410.9
			-122					
- 32 -	ES-1.2-33	---	Reduce load on 480V Buses by Shutting down unnecessary equipment.	Manual	0.0	0.0	0.0	0.0
					2291.3	2017.9	2333.1	2410.9
			(No Loads Started or Tripped at this step)					
- 33 -	< 29 >	---	*** RETURN TO ES-1.2-2 ***	Manual	0.0	0.0	0.0	0.0
					2291.3	2017.9	2333.1	2410.9
			(No Loads Started or Tripped at this step)					
- 34 -	ES-1.2-13	---	Stop last SI pump. (Pump 33 stopped.)	Manual	0.0	0.0	0.0	-473.7
					2291.3	2017.9	2333.1	1937.2
			-123					
- 35 -	< 29 >	---	*** RETURN TO ES-1.2-2 ***	Manual	0.0	0.0	0.0	0.0
					2291.3	2017.9	2333.1	1937.2
			(No Loads Started or Tripped at this step)					
- 36 -	ES-1.2-7	---	Shutdown Pressurizer Heaters. (Heaters - deenergized.)	Manual	-540.3	0.0	-618.2	0.0
					1751.0	2017.9	1714.9	1937.2
			-89 -106					

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 37 -	ES-1.2-26	---	DETERMINE If RHR System Can Be Placed in Service. (RHR 32 started on lightest loaded Bus.)	Manual	0.0	0.0	489.4	0.0
					1751.0	2017.9	2174.3	1937.2
			-115					
- 38 -	ES-1.2-27	---	Start one H2 Recombiner if necessary.	Manual	0.0	0.0	0.0	0.0
					1751.0	2017.9	2174.3	1937.2
			(No Loads Started or Tripped at this step)					
- 39 -	ES-1.2-30	---	Evaluate long term plant status.	Manual	0.0	0.0	0.0	0.0
					1751.0	2017.9	2174.3	1937.2
			(No Loads Started or Tripped at this step)					

SMALL BREAK LOCA



Small Break LOCA
Total MCC and Lighting Reset
Offsite Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 32	2A
CCWP 33	6A
CHARGING PUMP 32	3A
ESWP 34	5A
ESWP 36	6A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 32	2A
PAB FAN 31	3A
RHR PUMP 31	3A
TOTAL MCC & LIGHTING RESET (2A)	
TOTAL MCC & LIGHTING RESET (3A)	
TOTAL MCC & LIGHTING RESET (5A)	
TOTAL MCC & LIGHTING RESET (6A)	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:51 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2682.7 Bus 2A/3A = 2104.1 Bus 6A = 2144.3 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	150.1
					169.5	135.5	150.1
			+57 +50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	736.9	738.5
			RHR Pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	872.4	888.6
			+117 +120 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not running.)	Auto	0.0	0.0	0.0
			(E-0-9 verifies that spray is not required.)				
					641.9	872.4	888.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	491.9	493.2	248.0
			(RO verifies that fans are running.)				
					1133.8	1365.6	1136.6
			+29 +31 +33 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	575.4	562.9
			(RO verifies that pumps are running.)				
					1133.8	1941.0	1699.5
			+1 +2				
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.5	251.3	251.2
			(RO verifies that pumps are running.)				
					1384.3	2192.3	1950.7
			+4 +7 +10				
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	429.8	429.0	429.8
			(RO verifies that pumps are running.)				
					1814.1	2621.3	2380.5
			+26 +27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	0.0	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		2022.6	2621.3	2380.5
			loaded Bus.)				
			+13				
- 9 -	< 17 >	---		Manual	0.0	0.0	0.0
			*** SMALL BREAK LOCA EVENT IDENTIFIED ***				
			***EXIT TO E-1 ***		2022.6	2621.3	2380.5
			(No Loads Started or Tripped at this step)				

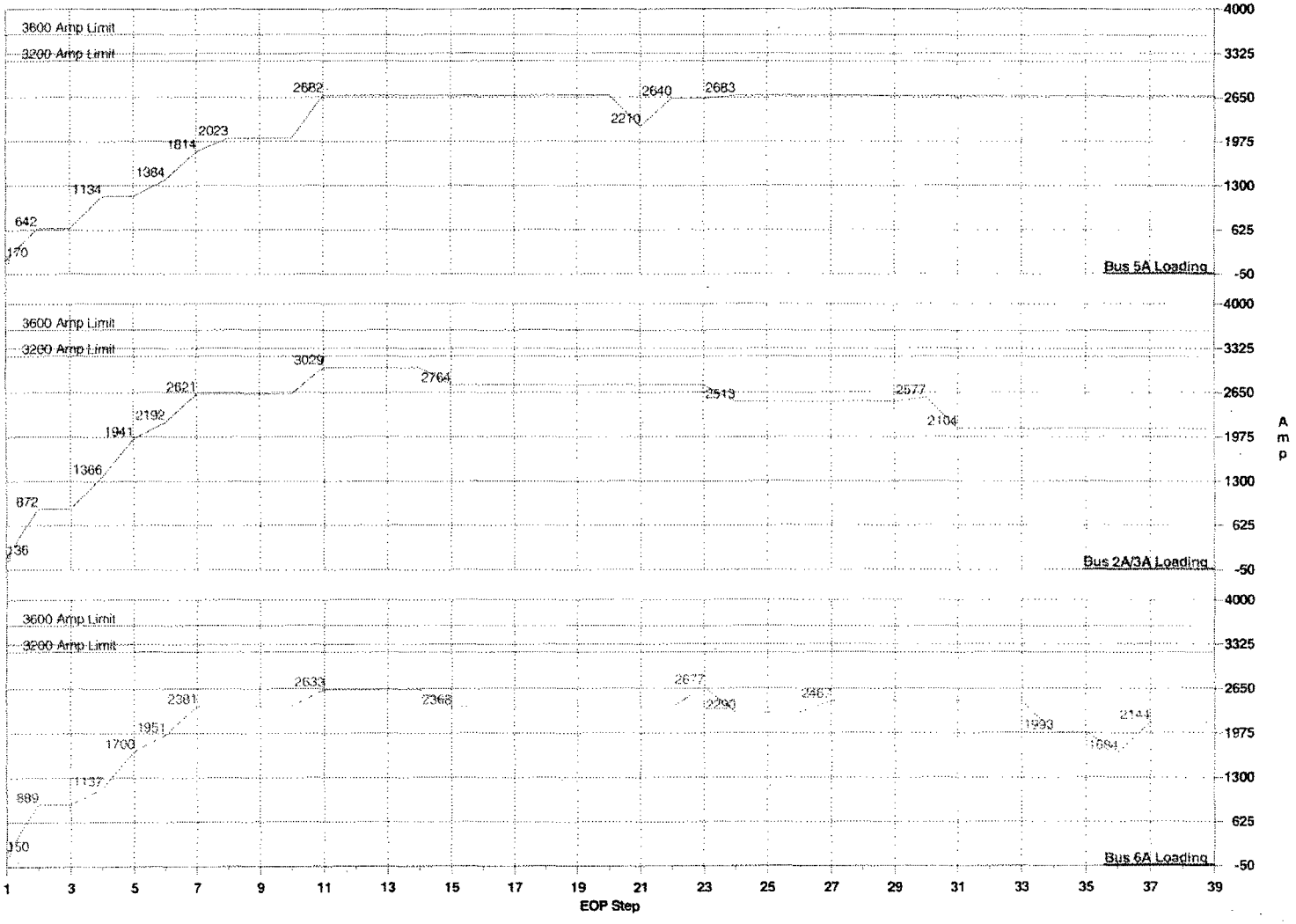
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-1-4	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2022.6	0.0 2621.3	0.0 2380.5
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	659.8 2682.4	407.2 3028.5	252.2 2632.7
- 12 -	E-1-8	---	+126 +127 +3 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 2682.4	0.0 3028.5	0.0 2632.7
- 13 -	E-1-11	---	(No Loads Started or Tripped at this step) Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2682.4	0.0 3028.5	0.0 2632.7
- 14 -	E-1-13	---	(No Loads Started or Tripped at this step) Check if CSPs can be stopped. (Spray not actuated. No pumps are running.)	Manual	0.0 2682.4	0.0 3028.5	0.0 2632.7
- 15 -	E-1-14	---	(No Loads Started or Tripped at this step) Stop RHR pumps if pressure is > 325. and pressure is stable or increasing. (All pumps stopped.)	Manual	0.0 2682.4	-264.5 2764.0	-264.8 2367.9
- 16 -	< 18 >	---	-117 -120 *** EXIT TO ES-1-2 ***	Manual	0.0 2682.4	0.0 2764.0	0.0 2367.9
- 17 -	ES-1.2-1	---	(No Loads Started or Tripped at this step) Reset MCCs. (MCCs are already reset.)	Manual	0.0 2682.4	0.0 2764.0	0.0 2367.9
- 18 -	ES-1.2-2	---	(No Loads Started or Tripped at this step) Stop RHR pumps if pressure is > 325. (RHR pumps are already stopped.)	Manual	0.0 2682.4	0.0 2764.0	0.0 2367.9
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.2-7	---	Stop Pressurizer Heaters. (Load never started.)	Manual	0.0	0.0	0.0
					2682.4	2764.0	2367.9
			(No Loads Started or Tripped at this step)				
- 20 -	< 11 >	---		Manual	0.0	0.0	0.0
			*** FIRST PASS THROUGH PROCEDURE LOOP ***		2682.4	2764.0	2367.9
			(No Loads Started or Tripped at this step)				
- 21 -	ES-1.2-13	---	Stop one SI pump.	Manual	-472.4	0.0	0.0
			(SI pump 31 stopped from heaviest loaded Bus.)		2210.0	2764.0	2367.9
			(CHARGING pump 31 is running.)				
			-121				
- 22 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP.	Manual	429.8	0.0	0.0
			(NESWP 31 started on lightest loaded Bus.)		2639.8	2764.0	2367.9
			+84				
- 23 -	ES-1.2-16	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15.	Manual	0.0	0.0	308.6
			(Energized Prssurizer Heater Control Group on lightest loaded Bus.)		2639.8	2764.0	2676.5
			+114				
- 24 -	ES-1.2-23	---	Stop 1 of 3 CCWPs. Stop 1 of 3 ESWPs and Shutdown Motor-Driven AFWPs if desired.	Manual	42.9	-251.3	-386.8
			(First CCWP 32 and then ESWP 36 stopped from heaviest loaded Bus. AFWPs remain running.)		2682.7	2512.7	2289.7
			+5 +11 -4 -7 -10 -28				
- 25 -	ES-1.2-26	---	DETERMINE If RHR System Can Be Place In Service.	Manual	0.0	0.0	0.0
			a. RCS hot leg temperature are > 350 Deg.		2682.7	2512.7	2289.7
			a. RCS pressure > 400 psig.				
			(RHR not started.)				
			(No Loads Started or Tripped at this step)				
- 26 -	ES-1.2-27	---	Check Containment Hydrogen concentration.	Manual	0.0	0.0	0.0
			(Less than 0.5% by vol.)		2682.7	2512.7	2289.7
			(No Loads Started or Tripped at this step)				
- 27 -	ES-1.2-28a	---	Check if PAB fans are running. No	Manual	0.0	0.0	177.0
			(PAB Fan 32 started on lightest loaded Bus.)		2682.7	2512.7	2466.7
			+88				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.2-28c	---	Start: BAST Htrs, Hot Pent Blower, PWMU, SFP pump and Elec Tunnel Fans. (All loads accounted for in MCC resets.)	Manual	0.0	0.0	0.0
					2682.7	2512.7	2466.7
			(No Loads Started or Tripped at this step)				
- 29 -	< 29 >	---		Manual	0.0	0.0	0.0
			*** RETURN TO ES-1.2-2 AND LOOP THROUGH PROCEDURE UNTIL RCS TEMP. IS < 200 DEG. ***		2682.7	2512.7	2466.7
			(No Loads Started or Tripped at this step)				
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0	63.8	0.0
					2682.7	2576.5	2466.7
- 31 -	ES-1.2-13	---	Stop second SI pump. (SI pump 32 stopped from heaviest loaded Bus.)	Manual	0.0	-472.4	0.0
					2682.7	2104.1	2466.7
			-122				
- 32 -	ES-1.2-23	---	Reduce load ao 480V Buses by shutting down unnecessary equipment.	Manual	0.0	0.0	0.0
					2682.7	2104.1	2466.7
			(No Loads Started or Tripped at this step)				
- 33 -	< 29 >	---		Manual	0.0	0.0	0.0
			*** RETURN TO ES-1.2-2 ***		2682.7	2104.1	2466.7
			(No Loads Started or Tripped at this step)				
- 34 -	ES-1.2-13	---	Stop last SI pump (Pump 33 stopped.)	Manual	0.0	0.0	-473.7
					2682.7	2104.1	1993.0
			-123				
- 35 -	< 29 >	---		Manual	0.0	0.0	0.0
			*** RETURN TO ES-1.2-2 ***		2682.7	2104.1	1993.0
			(No Loads Started or Tripped at this step)				
- 36 -	ES-1.2-7	---	Shutdown Pressurizer Heaters. (Heaters - deenergized.)	Manual	0.0	0.0	-308.6
					2682.7	2104.1	1684.4
			-114				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 37 -	ES-1.2-26	---	DETERMINE If RHR Sysyem Can Be Placed In Service. (RHR 32 started on lightest loaded Bus.)	Manual	0.0	0.0	459.9
					2682.7	2104.1	2144.3
			+118				
- 38 -	ES-1.2-27	---	Start one H2 Recombiner if necessary.	Manual	0.0	0.0	0.0
					2682.7	2104.1	2144.3
			(No Loads Started or Tripped at this step)				
- 39 -	ES-1.2-30	---	Evaluare long term plant status.	Manual	0.0	0.0	0.0
					2682.7	2104.1	2144.3
			(No Loads Started or Tripped at this step)				

SMALL BREAK LOCA



Small Break LOCA
Buses 2A/3A Tied Together, All Buses Available
Offsite Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 31	5A
CCWP 33	6A
CHARGING PUMP 31	5A
ESWP 34	5A
ESWP 35	3A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 33	6A
PAB FAN 32	6A
RHR PUMP 32	6A
TOTAL MCCS & LIGHTING RESET BUS 5A	
TOTAL MCCS & LIGHTING RESET BUS 6A	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:51 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2682.7 Bus 2A/3A = 3034.9 Bus 6A = * N/A * (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A Not Available

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A Not Available

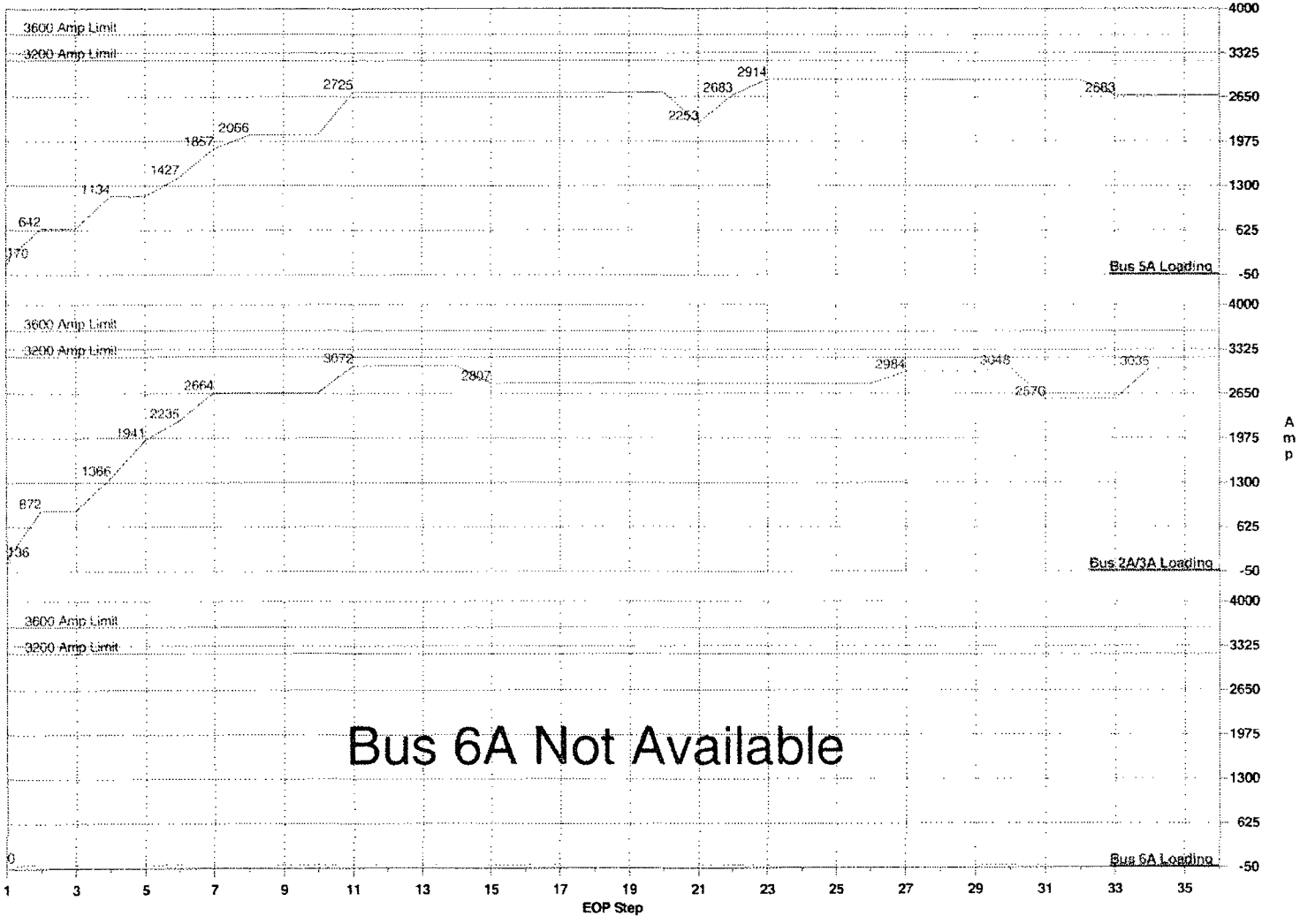
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36C and 36E	Auto	169.5	135.5	* N/A *
					169.5	135.5	* N/A *
			+57 +50 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 32	Auto	472.4	736.9	* N/A *
			RHR pump 31 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	872.4	* N/A *
			+117 +121 +122				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not running.)	Auto	0.0	0.0	* N/A *
			(E-0-9 verifies that spray is not required.)				
					641.9	872.4	* N/A *
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34	Auto	491.9	493.2	* N/A *
			(RO verifies that fans are running.)				
					1133.8	1365.6	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	APWP 31	Auto	0.0	575.4	* N/A *
			(RO verifies that pumps are running.)				
					1133.8	1941.0	* N/A *
			+1				
- 6 -	---	RO-1-7	CCWPs 31 and 32	Auto	293.4	294.4	* N/A *
			(RO verifies that pumps are running.)				
					1427.2	2235.4	* N/A *
			+4 +7				
- 7 -	---	RO-1-8	ESWPs (34 and 35)	Auto	429.8	429.0	* N/A *
			(RO verifies that pumps are running.)				
					1857.0	2664.4	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	0.0	* N/A *
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		2065.5	2664.4	* N/A *
			loaded Bus.)				
			+13				
- 9 -	< 17 >	---		Manual	0.0	0.0	* N/A *
			*** SMALL BREAK LOCA EVENT IDENTIFIED ***				
			***EXIT TO E-1 ***		2065.5	2664.4	* N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-1-4	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2065.5	0.0 2664.4	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	659.8 2725.3	407.2 3071.6	* N/A * * N/A *
			+126 +3				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 2725.3	0.0 3071.6	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start one CHARGING pump. (Charging pump 31 is running.)	Manual	0.0 2725.3	0.0 3071.6	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-13	---	Check if CSPs can be stopped. (Spray not actuated. No pumps are running.)	Manual	0.0 2725.3	0.0 3071.6	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 15 -	E-1-14	---	Stop RHR pump if pressure is > 325 and pressure is stable or increasing. (Only pump 31 running - stopped.)	Manual	0.0 2725.3	-264.5 2807.1	* N/A * * N/A *
			-117				
- 16 -	< 10 >	---	*** EXIT TO ES-1-2 ***	Manual	0.0 2725.3	0.0 2807.1	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.2-1	---	Reset MCCs. (MCCs are already reset.)	Manual	0.0 2725.3	0.0 2807.1	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.2-2	---	Stop RHR pump if pressure is > 325. (RHR pump already stopped.)	Manual	0.0 2725.3	0.0 2807.1	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 3A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.2-7	---	Stop Pressurizer Heaters. (Load never started.)	Manual	0.0	0.0	* N/A *
					2725.3	2807.1	* N/A *
			(No Loads Started or Tripped at this step)				
- 20 -	< 11 >	---		Manual	0.0	0.0	* N/A *
			*** FIRST PASS THROUGH PROCEDURE LOOP ***		2725.3	2807.1	* N/A *
			(No Loads Started or Tripped at this step)				
- 21 -	ES-1.2-13	---	Stop one SI pump.	Manual	-472.4	0.0	* N/A *
			(SI pump 31 stopped from heaviest loaded Bus.				
			CHARGING pump 31 is running.)		2252.9	2807.1	* N/A *
			-121				
- 22 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP.	Manual	429.8	0.0	* N/A *
			(NESWP 31 started on lightest loaded Bus.)		2682.7	2807.1	* N/A *
			+84				
- 23 -	ES-1.2-16	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15.	Manual	231.6	0.0	* N/A *
			(Energized Pressurizer Heater 33.)		2914.3	2807.1	* N/A *
			+109				
- 24 -	ES-1.2-23	---	Stop 1 of 3 CCWPs. (CCWPs 31 and 32 are running.)	Manual	0.0	0.0	* N/A *
			Stop 1 of 3 ESWPs. (ESWPs 34 and 35 are running.)				
			Shutdown Motor-Driven AFWPs if desired.		2914.3	2807.1	* N/A *
			(Bus 6A not available. AFWP 31 remains running.)				
			(No Loads Started or Tripped at this step)				
- 25 -	ES-1.2-26	---	DETERMINE If RHR System Can Be Place In Service.	Manual	0.0	0.0	* N/A *
			a. RCS hot leg temperature are > 350 Deg.				
			a. RCS pressure > 400 psig		2914.3	2807.1	* N/A *
			(RHR not started.)				
			(No Loads Started or Tripped at this step)				
- 26 -	ES-1.2-27	---	Check Containment Hydrogen concentration.	Manual	0.0	0.0	* N/A *
			(Less than 0.5% by vol.)		2914.3	2807.1	* N/A *
			(No Loads Started or Tripped at this step)				
- 27 -	ES-1.2-28a	---	Check if PAB fans are running.	Manual	0.0	177.0	* N/A *
			(PAB Fan 31 started.)		2914.3	2984.1	* N/A *
			+87				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.3-28c	---	Start: BAST Htrs, Hot Pent Blower, PVMU, SFP pump. (Bus 6A unavailable to start loads)	Manual	0.0	0.0	* N/A *
			Start Elec Tunnel Fans. (Fans are running.)		2914.3	2984.1	* N/A *
			(No Loads Started or Tripped at this step)				
- 29 -	< 29 >	---	*** RETURN TO ES-1.2-2 AND LOOP THROUGH PROCEDURE UNTIL RCS TEMP. IS < 200 DEG. ***	Manual	0.0	0.0	* N/A *
					2914.3	2984.1	* N/A *
			(No Loads Started or Tripped at this step)				
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps If 480V Buses are powered from Offsite and tie-breakers are open.	Manual	0.0	63.8	* N/A *
			Start Turb Turning Gear. (Gear started.)		2914.3	3047.9	* N/A *
			+47				
- 31 -	ES-1.2-13	---	Stop last SI pump. (Pump 32 stopped.)	Manual	0.0	-472.4	* N/A *
					2914.3	2575.5	* N/A *
			-122				
- 32 -	< 29 >	---	*** RETURN TO ES-1.2-2 ***	Manual	0.0	0.0	* N/A *
					2914.3	2575.5	* N/A *
			(No Loads Started or Tripped at this step)				
- 33 -	ES-1.2-7	---	Shutdown Pressurizer Heaters (Heaters - deenergized.)	Manual	-231.6	0.0	* N/A *
					2682.7	2575.5	* N/A *
			-109				
- 34 -	ES-1.2-26	---	DETERMINE If RHR System Can Be Placed In Service. (RHR 31 started on only available Bus.)	Manual	0.0	459.4	* N/A *
					2682.7	3034.9	* N/A *
			+116				
- 35 -	ES-1.2-27	---	Start one H2 Recombiner if necessary.	Manual	0.0	0.0	* N/A *
					2682.7	3034.9	* N/A *
			(No Loads Started or Tripped at this step)				
- 36 -	ES-1.2-30	---	Evaluate long term plant status.	Manual	0.0	0.0	* N/A *
					2682.7	3034.9	* N/A *
			(No Loads Started or Tripped at this step)				

SMALL BREAK LOCA



Small Break LOCA
Buses 2A/3A Tied Together, Bus 6A Not Available
Offsite Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
CCWP 32	2A
CHARGING PUMP 31	5A
ESWP 34	5A
ESWP 35	3A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36C: AUTO	2A
MCC 36E: AUTO	5A
NESWP 31	5A
PAB FAN 31	3A
RHR PUMP 31	3A
MCCS RESET (2A/3A) AS PER SOP-EL-15	
TOTAL MCCS & LIGHTING RESET BUS 6A	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:51 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 2575.5 Bus 6A = 3036.5 (A)

3200 Amp Overload Summary

Bus 5A Not Available
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A Not Available
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

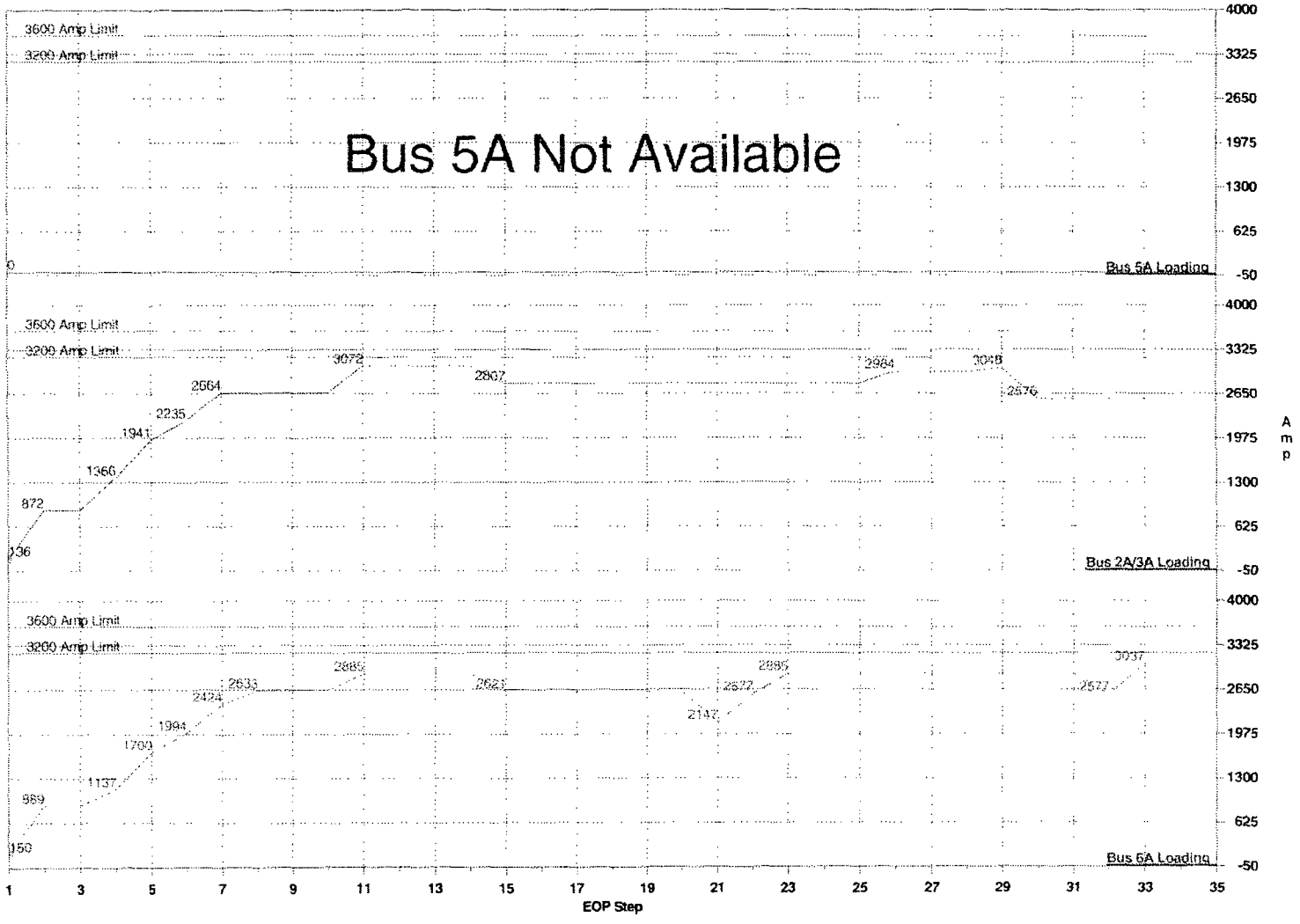
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36B, 36C and 36D	Auto	* N/A *	135.5	150.1
					* N/A *	135.5	150.1
			-57 +83 +59				
- 2 -	---	RO-1-2	SI Pumps 32 and 33	Auto	* N/A *	736.9	738.5
			RHR Pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		* N/A *	872.4	888.6
			+117 +120 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not running.)	Auto	* N/A *	0.0	0.0
			(E-0-9 verifies that spray is not required.)		* N/A *	872.4	888.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 32, 34 and 35	Auto	* N/A *	493.2	248.0
			(RO verifies that fans are running.)		* N/A *	1365.6	1136.6
			+31 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	* N/A *	575.4	562.9
			(RO verifies that pumps are running.)		* N/A *	1941.0	1699.5
			+1 +2				
- 6 -	---	RO-1-7	CCWPs 32 and 35	Auto	* N/A *	294.4	294.2
			(RO verifies that pumps are running.)		* N/A *	2235.4	1993.7
			+7 +10				
- 7 -	---	RO-1-8	ESWPs (35 and 36)	Auto	* N/A *	429.0	429.8
			(RO verifies that pumps are running.)		* N/A *	2664.4	2423.5
			+27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	* N/A *	0.0	209.6
			is > than 325 psig and CCW is available.				
			(CHARGING pump 33 started on lightest		* N/A *	2664.4	2633.1
			loaded Bus.)				
			+15				
- 9 -	< 17 >	---		Manual	* N/A *	0.0	0.0
			*** SMALL BREAK LOCA EVENT IDENTIFIED ***				
			*** EXIT TO E-1 ***		* N/A *	2664.4	2633.1
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-1-4	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	* N/A *	0.0	0.0
					* N/A *	2664.4	2633.1
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	* N/A *	407.2	252.2
					* N/A *	3071.6	2885.3
			+127 +3				
- 12 -	E-1-8	---	ESTABLISH Instrumment Air to Containment. (Load accounted for in MCC reset.)	Manual	* N/A *	0.0	0.0
					* N/A *	3071.6	2885.3
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start one CHARGING pump. (CHARGING pump 33 is running.)	Manual	* N/A *	0.0	0.0
					* N/A *	3071.6	2885.3
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-13	---	Check if CSPs can be stopped. (Spray not actuated. No pumps are running.)	Manual	* N/A *	0.0	0.0
					* N/A *	3071.6	2885.3
			(No Loads Started or Tripped at this step)				
- 15 -	E-1-14	---	Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (All pumps stopped.)	Manual	* N/A *	-264.5	-264.8
					* N/A *	2807.1	2620.5
			-117 -120				
- 16 -	< 18 >	---	*** EXIT TO ES-1-2 ***	Manual	* N/A *	0.0	0.0
					* N/A *	2807.1	2620.5
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.2-1	---	Reset MCCs. (MCC are already reset.)	Manual	* N/A *	0.0	0.0
					* N/A *	2807.1	2620.5
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.2-2	---	Stop RHR pumps if pressure is > 325. (RHR pumps are already stopped.)	Manual	* N/A *	0.0	0.0
					* N/A *	2807.1	2620.5
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	EO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/2A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.2-7	---	Stop Pressurizer Heaters. (Load never started.)	Manual	* N/A *	0.0	0.0
					* N/A *	2807.1	2620.5
			(No Loads Started or Tripped at this step)				
- 20 -	< 11 >	---		Manual	* N/A *	0.0	0.0
			*** FIRST PASS THROUGH PROCEDURE LOOP ***		* N/A *	2807.1	2620.5
			(No Loads Started or Tripped at this step)				
- 21 -	ES-1.2-13	---	Stop one SI pump.	Manual	* N/A *	0.0	-473.7
			(SI pump 33 stopped from heaviest loaded Bus.				
			CHARGING pump 33 is running.)		* N/A *	2807.1	2146.8
			-123				
- 22 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus	Manual	* N/A *	0.0	429.8
			to start at least one NESWP.				
			(NESWP 33 started on lightest loaded Bus.)		* N/A *	2807.1	2576.6
			+86				
- 23 -	ES-1.2-16	---	Energize at least one Pressurizer Heater Group.	Manual	* N/A *	0.0	308.6
			as per SOP-EL-15.				
			(Energized Pressurizer Heater Control Group.)		* N/A *	2807.1	2885.2
			+114				
- 24 -	ES-1.2-23	---	Stop 1 of 3 CCWPs. (CCWPs 32 and 33 are running.)	Manual	* N/A *	0.0	0.0
			Stop 1 of 3 ESWPs. (ESWPs 35 and 36 are running.)				
			Shutdown Motor-driven AFWPs if desired.		* N/A *	2807.1	2885.2
			(AFWPs remain running.)				
			(No Loads Started or Tripped at this step)				
- 25 -	ES-1.2-26	---	DETERMINE If RHR Sysyem Can Be Placed IN Service	Manual	* N/A *	0.0	0.0
			a. RCS hot leg temperature are > 350 Deg.				
			a. RCS pressure > 400 psig		* N/A *	2807.1	2885.2
			(RHR not started.)				
			(No Loads Started or Tripped at this step)				
- 26 -	ES-1.2-28a	---	Check if PAB fans are running.	Manual	* N/A *	177.0	0.0
			(PAB Fan 31 started on lightest loaded Bus.)		* N/A *	2984.1	2885.2
			+87				
- 27 -	ES-1.2-28c	---	Start: BAST Htrs, Hot Pent Blowers, PWMU,	Manual	* N/A *	0.0	0.0
			SFP pump and Elec Tunnel Fans. (All loads				
			accounted for in MCC resets.)		* N/A *	2984.1	2885.2
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	< 29 >	---		Manual	* N/A *	0.0	0.0
			*** RETURN TO ES-1.2-2 AND LOOP THROUGH PROCEDURE UNTIL RCS TEMP. IS < 200 DEG. ***		* N/A *	2984.1	2885.2
			(No Loads Started or Tripped at this step)				
- 29 -	---	RO-1-27c	START AC and STOP DC Oil Pumps If 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.)	Manual	* N/A *	63.8	0.0
			+47		* N/A *	3047.9	2885.2
- 30 -	ES-1.2-13	---	Stop last SI pump. (Pump 33 stopped.)	Manual	* N/A *	-472.4	0.0
					* N/A *	2575.5	2885.2
			-122				
- 31 -	< 29 >	---		Manual	* N/A *	0.0	0.0
			*** RETURN TO ES-1.2-2 ***		* N/A *	2575.5	2885.2
			(No Loads Started or Tripped at this step)				
- 32 -	ES-1.2-7	---	Shutdown Pressurizer Heaters (Heaters - deenergized.)	Manual	* N/A *	0.0	-308.6
					* N/A *	2575.5	2576.6
			-114				
- 33 -	ES-1.2-26	---	DETERMINE If RHR System Can Be Place In Service. (RHR 32 started on lightest loaded Bus.)	Manual	* N/A *	0.0	459.9
					* N/A *	2575.5	3036.5
			+110				
- 34 -	ES-1.2-27	---	Start one H2 Recombiner if necessary.	Manual	* N/A *	0.0	0.0
					* N/A *	2575.5	3036.5
			(No Loads Started or Tripped at this step)				
- 35 -	ES-1.2-30	---	Evaluate long term plant status.	Manual	* N/A *	0.0	0.0
					* N/A *	2575.5	3036.5
			(No Loads Started or Tripped at this step)				

SMALL BREAK LOCA



Small Break LOCA
Buses 2A/3A Tied Together, Bus 5A Not Available
Offsite Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 32	2A
CCWP 33	6A
CHARGING PUMP 33	6A
ESWP 35	3A
ESWP 36	6A
FCU 32	2A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
NESWP 33	6A
PAB FAN 31	3A
RHR PUMP 32	6A
MCCS RESET (2A/3A) AS PER SOP-EL-15	
TOTAL MCCS & LIGHTING RESET BUS 6A	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 26,2009
Report Print Time : 3:52 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2682.7 Bus 3A/3A = * N/A * Bus 6A = 2574.1 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A is below the 3600 Amp rating

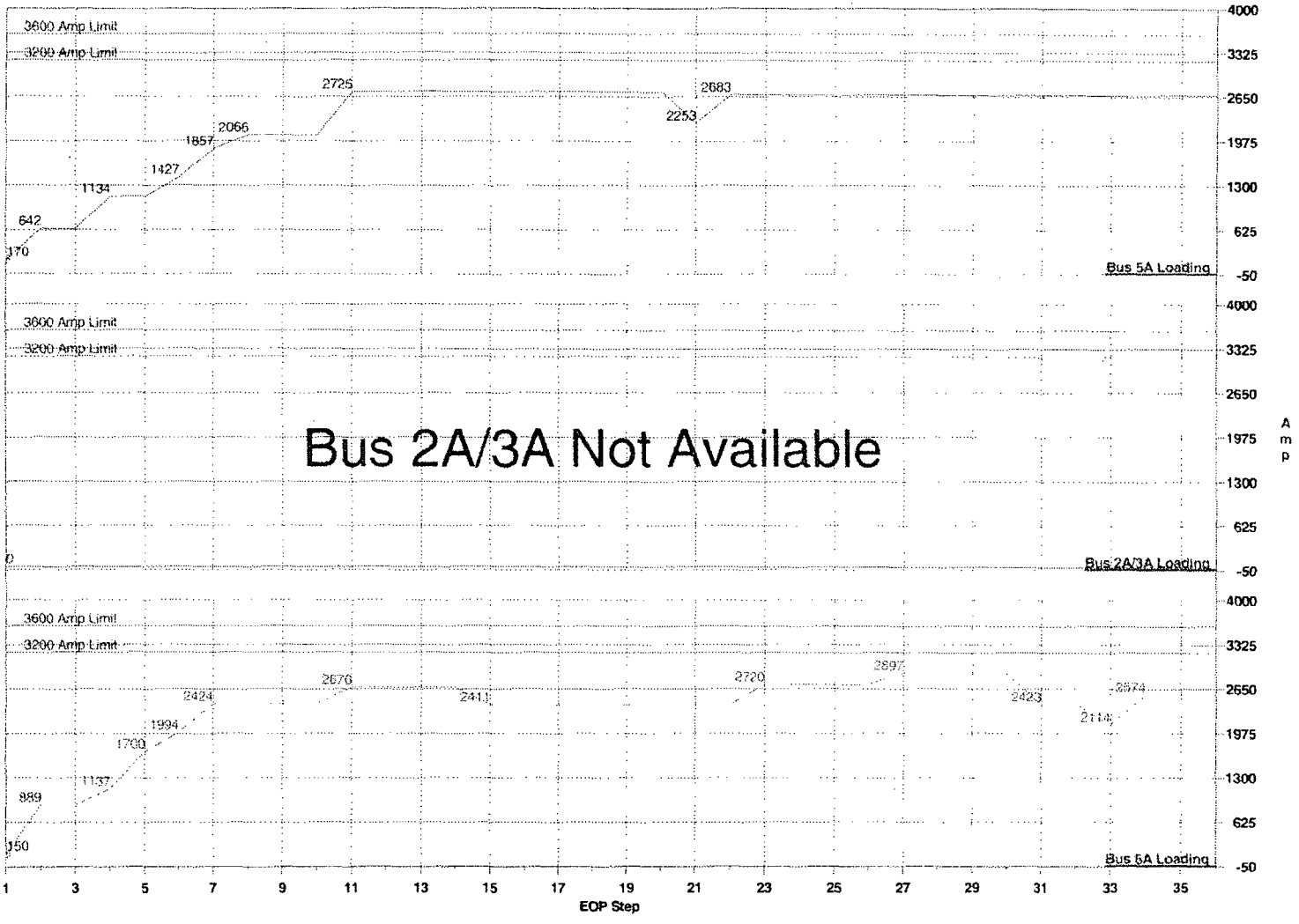
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36D and 36E	Auto	169.5	* N/A *	150.1
					169.5	* N/A *	150.1
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 33	Auto	472.4	* N/A *	738.5
			RHR Pumps 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	* N/A *	888.6
			+120 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not running.)	Auto	0.0	* N/A *	0.0
			(E-0-9 verifies that spray is not required.)				
					641.9	* N/A *	888.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	491.9	* N/A *	248.0
			(RO verifies that fans are running.)				
					1133.8	* N/A *	1136.6
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWP 33	Auto	0.0	* N/A *	562.9
			(RO verifies that pump is running.)				
					1133.8	* N/A *	1699.5
			+2				
- 6 -	---	RO-1-7	CCWPs 31 and 33	Auto	293.4	* N/A *	294.2
			(RO verifies that pumps are running.)				
					1427.2	* N/A *	1993.7
			+4 +10				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	429.8	* N/A *	429.8
			(RO verifies that pumps are running.)				
					1857.0	* N/A *	2423.5
			+26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	* N/A *	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		2065.5	* N/A *	2423.5
			loaded Bus.)				
			+13				
- 9 -	< 17 >	---		Manual	0.0	* N/A *	0.0
			*** SMALL BREAK LOCA EVENT IDENTIFIED ***				
			*** EXIT TO E-1 ***		2065.5	* N/A *	2423.5
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-1-4	---	Reset S1 (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2065.5	* N/A * * N/A *	0.0 2423.5
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15 (Total MCC and Lighting reset.)	Manual	659.8 2725.3	* N/A * * N/A *	252.2 2675.7
- 12 -	E-1-8	---	+126 +127 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 2725.3	* N/A * * N/A *	0.0 2675.7
- 13 -	E-1-11	---	(No Loads Started or Tripped at this step) Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2725.3	* N/A * * N/A *	0.0 2675.7
- 14 -	E-1-13	---	(No Loads Started or Tripped at this step) Check if CSPs can be stopped. (Spray not actuated. No pumps are running.)	Manual	0.0 2725.3	* N/A * * N/A *	0.0 2675.7
- 15 -	E-1-14	---	(No Loads Started or Tripped at this step) Stop RHR pump if pressure is > 325 and pressure is stable or increasing. (Only pump 32 running - stopped.)	Manual	0.0 2725.3	* N/A * * N/A *	-264.8 2410.9
- 16 -	< 18 >	---	-120 *** EXIT TO ES-1-2 ***	Manual	0.0 2725.3	* N/A * * N/A *	0.0 2410.9
- 17 -	ES-1.2-1	---	(No Loads Started or Tripped at this step) Reset MCCs. (MCCs are already reset.)	Manual	0.0 2725.3	* N/A * * N/A *	0.0 2410.9
- 18 -	ES-1.2-2	---	(No Loads Started or Tripped at this step) Stop RHR pump if pressure is > 325. (RHR pump is already stopped.)	Manual	0.0 2725.3	* N/A * * N/A *	0.0 2410.9
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.2-7	---	Stop Pressurizer Heaters. (Load never started.)	Manual	0.0	* N/A *	0.0
					2725.3	* N/A *	2410.9
			(No Loads Started or Tripped at this step)				
- 20 -	< 11 >	---		Manual	0.0	* N/A *	0.0
			*** FIRST PASS THROUGH PROCEDURE LOOP ***		2725.3	* N/A *	2410.9
			(No Loads Started or Tripped at this step)				
- 21 -	ES-1.2-13	---	Stop one SI pump.	Manual	-472.4	* N/A *	0.0
			(SI pump 31stopped from heaviest loaded Bus.		2252.9	* N/A *	2410.9
			CHARGING pump 31 is running.)				
			-121				
- 22 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus	Manual	429.8	* N/A *	0.0
			to start at least one NESWP.		2682.7	* N/A *	2410.9
			(NESWP 31 started on lightest loaded Bus.)				
			+84				
- 23 -	ES-1.2-16	---	Energize at least one Pressurizer Heater Group.	Manual	0.0	* N/A *	308.6
			as per SOP-EL-15.		2682.7	* N/A *	2719.5
			(Energized Pressurizer Heater Control Group.)				
			+114				
- 24 -	ES-1.2-23	---	Stop 1 of 3 CCWPs. (CCWPs 31 and 33 are running)	Manual	0.0	* N/A *	0.0
			Stop 1 of 3 ESWPs. (ESWPs 34 and 35 are running)		2682.7	* N/A *	2719.5
			Shutdown Motor-driven AFWPs if desired. (Bus2A/3A				
			not available. AFWP 33 remains running.)				
			(No Loads Started or Tripped at this step)				
- 25 -	ES-1.2-26	---	DETERMINE If RHR System Can Be Place In Service.	Manual	0.0	* N/A *	0.0
			a. RCS hot leg temperatures are > 350 Deg.		2682.7	* N/A *	2719.5
			a. RCS pressure > 400 psig				
			(RHR not started.)				
			(No Loads Started or Tripped at this step)				
- 26 -	ES-1.2-27	---	Check Containmenet Hydrogen concentration.	Manual	0.0	* N/A *	0.0
			(Less than 0.5% by vol.)		2682.7	* N/A *	2719.5
			(No Loads Started or Tripped at this step)				
- 27 -	ES-1.2-28a	---	Check if PAB fans are running. No	Manual	0.0	* N/A *	177.0
			(PAB Fan 32 started.)		2682.7	* N/A *	2896.5
			+88				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.2-28c	---	Start: BAST Htrs, Hot Pent Blowers, PWMU, SFP pump and Tunnel Fans. (All loads accounted for in MCC resets.)	Manual	0.0 2682.7	* N/A * * N/A *	0.0 2896.5
- 29 -	< 29 >	---	(No Loads Started or Tripped at this step) *** RETURN TO ES-1.2-2 AND LOOP THROUGH PROCEDURE UNTIL RCS TEMP. IS < 200 DEG. ***	Manual	0.0 2682.7	* N/A * * N/A *	0.0 2896.5
- 30 -	---	RO-1-27c	(No Loads Started or Tripped at this step) START AC and STOP DC Oil Pumps If 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Bus 2A/3A unavailable.)	Manual	0.0 2682.7	* N/A * * N/A *	0.0 2896.5
- 31 -	ES-1.2-13	---	(No Loads Started or Tripped at this step) Stop last SI pump. (SI pump 33 stopped.)	Manual	0.0 2682.7	* N/A * * N/A *	-473.7 2422.8
- 32 -	< 29 >	---	-123 *** RETURN TO ES-1.2-2 ***	Manual	0.0 2682.7	* N/A * * N/A *	0.0 2422.8
- 33 -	ES-1.2-7	---	(No Loads Started or Tripped at this step) Shutdown Pressurizer Heaters. (Heaters - deenergized.)	Manual	0.0 2682.7	* N/A * * N/A *	-308.6 2114.2
- 34 -	ES-1.2-26	---	-714 DETERMINE If RHR System Can Be Place In Service. (RHR 32 started on only available Bus.)	Manual	0.0 2682.7	* N/A * * N/A *	459.9 2574.1
- 35 -	ES-1.2-27	---	+118 Start one H2 Recombiner if necessary.	Manual	0.0 2682.7	* N/A * * N/A *	0.0 2574.1
- 36 -	ES-1.2-30	---	(No Loads Started or Tripped at this step) Evaluate long term plant status.	Manual	0.0 2682.7	* N/A * * N/A *	0.0 2574.1
			(No Loads Started or Tripped at this step)				

SMALL BREAK LOCA



Small Break LOCA
Buses 2A and / or 3A Not Available
Offsite Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 33	6A
CCWP 31	5A
CCWP 33	6A
CHARGING PUMP 31	5A
ESWP 34	5A
ESWP 36	6A
FCU 31	5A
FCU 33	5A
FCU 35	6A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
PAB FAN 32	6A
RHR PUMP 32	6A
TOTAL MCCS & LIGHTING RESET BUS 5A	
TOTAL MCCS & LIGHTING RESET BUS 6A	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:52 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1210.9 Bus 2A/3A = 1397.6 Bus 6A = 1421.8 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 3A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	110.0	94.3	100.4
					110.0	94.3	100.4
			+57 +50 +53 +59 +60				
- 2 -	---	RO-1-2	SI Pumps 31, 32 and 33	Auto	327.2	509.2	509.2
			RHR Pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		437.2	603.5	609.6
			+117 +120 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not running.)	Auto	0.0	0.0	0.0
			(E-0-9 verifies that spray is not required.)				
					437.2	603.5	609.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	258.0	258.0	129.0
			(RO verifies that fans are running.)				
					695.2	861.5	738.6
			+29 +31 +33 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	378.9	375.7
			(RO verifies that pumps are running.)				
					695.2	1240.4	1114.3
			+1 +2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus	Auto	0.0	0.0	0.0
			to start at least one CCWP				
			(All Buses are powered from EDGs.)		695.2	1240.4	1114.3
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	280.8	280.8	280.8
			(RO verifies that pumps are running.)				
					976.0	1521.2	1395.1
			+26 +27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	140.2	0.0	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest				
			loaded Bus.)		1116.2	1521.2	1395.1
			+13				
- 9 -	< 17 >	---		Manual	0.0	0.0	0.0
			*** SMALL BREAK LOCA EVENT IDENTIFIED ***				
			_____*** EXIT TO E-1 ***_____		1116.2	1521.2	1395.1
			(No Loads Started or Tripped at this step)				

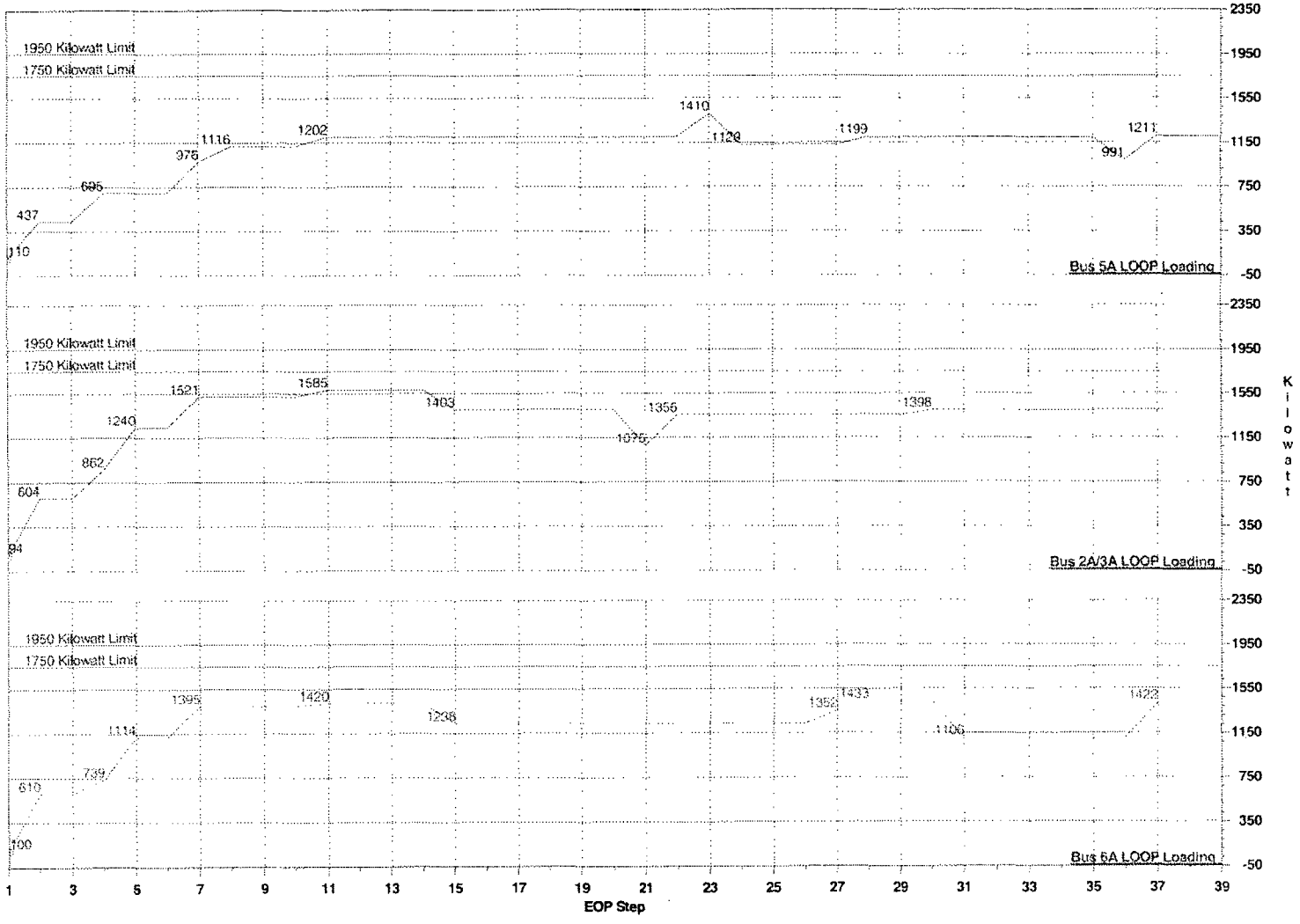
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-1-4	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1116.2	0.0 1521.2	0.0 1395.1
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (MCCs are reset.)	Manual	85.8 1202.0	63.3 1584.5	24.8 1419.9
- 12 -	E-1-8	---	+82 +81 +83 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1202.0	0.0 1584.5	0.0 1419.9
- 13 -	E-1-11	---	(No Loads Started or Tripped at this step) Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1202.0	0.0 1584.5	0.0 1419.9
- 14 -	E-1-13	---	(No Loads Started or Tripped at this step) Check if CSPs can be stopped. (Spray not actuated. No pumps are running.)	Manual	0.0 1202.0	0.0 1584.5	0.0 1419.9
- 15 -	E-1-14	---	(No Loads Started or Tripped at this step) Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (All pumps stopped.)	Manual	0.0 1202.0	-182.0 1402.5	-182.0 1237.9
- 16 -	< 16 >	---	-117 -120 *** EXIT TO ES-1-2 ***	Manual	0.0 1202.0	0.0 1402.5	0.0 1237.9
- 17 -	ES-1.2-1	---	(No Loads Started or Tripped at this step) Reset MCCs. (MCCs are already reset.)	Manual	0.0 1202.0	0.0 1402.5	0.0 1237.9
- 18 -	ES-1.2-2	---	(No Loads Started or Tripped at this step) Stop RHR pumps if pressure is > 325. (RHR pumps are already stopped.)	Manual	0.0 1202.0	0.0 1402.5	0.0 1237.9
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.3-7	---	Stop Pressurizer Heaters. (Load never started.)	Manual	0.0	0.0	0.0
					1202.0	1402.5	1237.9
			(No Loads Started or Tripped at this step)				
- 20 -	< 11 >	---		Manual	0.0	0.0	0.0
			*** FIRST PASS THROUGH PROCEDURE LOOP ***				
					1202.0	1402.5	1237.9
			(No Loads Started or Tripped at this step)				
- 21 -	ES-1.2-13	---	Stop one SI pump.	Manual	0.0	-327.2	0.0
			(SI pump 32 stopped from heaviest loaded Bus.				
			CHARGING pump 31 is running.)		1202.0	1075.3	1237.9
			-122				
- 22 -	---	RO-1-22	CHECK if Offsite power is available to a 480V Bus.	Manual	0.0	280.8	0.0
			to start at least one NESWP.				
			(NESWP 32 started on lightest loaded Bus.)		1202.0	1356.1	1237.9
			+85				
- 23 -	ES-1.2-16	---	Energize at least one Pressurizer Heater Group	Manual	207.9	0.0	0.0
			as per SOP-EL-15.				
			(Energized Pressurizer Heater Group 33				
			on lightest loaded Bus.)		1409.9	1356.1	1237.9
			+109				
- 24 -	ES-1.2-23	---	Stop 1 of 3 running ESWPs and CCWPs.	Manual	-280.8	0.0	0.0
			(ESWP 34 stopped from heaviest loaded Bus.)				
			Shutdown Motor-driven AFWPs if desired.		1129.1	1356.1	1237.9
			(AFWPs remain running.)				
			-26				
- 25 -	ES-1.2-26	---	Determine If RHR System Can Be Place In Service.	Manual	0.0	0.0	0.0
			a. RCS hot leg temperature are > 350 Deg.				
			a. RCS pressure > 400 psig		1129.1	1356.1	1237.9
			(RHR not started.)				
			(No Loads Started or Tripped at this step)				
- 26 -	ES-1.2-27	---	Check Containment Hydrogen concentration.	Manual	0.0	0.0	0.0
			(Less than 0.5% by vol.)				
					1129.1	1356.1	1237.9
			(No Loads Started or Tripped at this step)				
- 27 -	ES-1.2-30a	---	Check if PAB fans are running. No	Manual	0.0	0.0	114.3
			(PAB Fan 32 started on lightest loaded Bus.)				
					1129.1	1356.1	1352.2
			+88				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 28 -	ES-1.2-28c	---	Start: BAST Htrs, Hot Pent Blower, PWMU, SFP pump (All loads started MCC 37 and 39.). Start Elec Tunnel Fans. (Fans are running.)	Manual	70.1 1199.2	0.0 1356.1	80.7 1432.9
			+68 +61 +66 +67 +62 +80				
- 29 -	< 29 >	---	*** RETURN TO ES-1.2-2 AND LOOP THROUGH PROCEDURE UNTIL RCS TEMP. IS < 200 DEG. ***	Manual	0.0 1199.2	0.0 1356.1	0.0 1432.9
			(No Loads Started or Tripped at this step)				
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps If 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.)	Manual	0.0 1199.2	41.5 1397.6	0.0 1432.9
			+47				
- 31 -	ES-1.2-13	---	Stop second SI pump. (Pump 33 stopped from heaviest loaded Bus.)	Manual	0.0 1199.2	0.0 1397.6	-327.2 1105.7
			-123				
- 32 -	ES-1.2-23	---	Reduce load on 480V Buses by Shutting down unnecessary equipment.	Manual	0.0 1199.2	0.0 1397.6	0.0 1105.7
			(No Loads Started or Tripped at this step)				
- 33 -	< 29 >	---	*** RETURN TO ES-1.2-2 ***	Manual	0.0 1199.2	0.0 1397.6	0.0 1105.7
			(No Loads Started or Tripped at this step)				
- 34 -	ES-1.2-13	---	Stop last SI pump. (Pump 32 stopped.)	Manual	0.0 1199.2	0.0 1397.6	0.0 1105.7
			(No Loads Started or Tripped at this step)				
- 35 -	< 29 >	---	*** RETURN TO ES-1.2-2 ***	Manual	0.0 1199.2	0.0 1397.6	0.0 1105.7
			(No Loads Started or Tripped at this step)				
- 36 -	ES-1.2-7	---	Shutdown Pressurizer Heaters. (Heaters - deenergized.)	Manual	-207.9 991.3	0.0 1397.6	0.0 1105.7
			-109				

Step Number	SBO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 37 -	ES-1.2-26	---	DETERMINE If RHR System Can Be Placed In Service. (CCWP 31 and RHR 32 started on lightest loaded Buses.)	Manual	219.6	0.0	316.1
					1210.9	1397.6	1421.8
			+118 +6				
- 38 -	ES-1.2-27	---	Start one H2 Recombiner if necessary.	Manual	0.0	0.0	0.0
					1210.9	1397.6	1421.8
			(No Loads Started or Tripped at this step)				
- 39 -	FS-1.2-30	---	Evaluate long term plant status.	Manual	0.0	0.0	0.0
					1210.9	1397.6	1421.8
			(No Loads Started or Tripped at this step)				

SMALL BREAK LOCA



Small Break LOCA
Buses 2A/3A Tied Together, All Buses Available
Loss of off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
AFWP 33	EDG 32
CHARGING PUMP 31	EDG 33
ESWP 34	EDG 33
ESWP 36	EDG 32
FCU 31	EDG 33
FCU 32	EDG 31
FCU 33	EDG 33
FCU 34	EDG 31
FCU 35	EDG 32
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36A: AUTO	EDG 33
MCC 36B: AUTO	EDG 32
MCC 36C: AUTO	EDG 31
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 33
MCC 37: BAST HEATER (TANK #1)	EDG 32
MCC 37: BAST HEATER (TANK #2)	EDG 32
MCC 37: PENT. BLOWERS (#1)	EDG 32
MCC 37: PENT. BLOWERS (#2)	EDG 32
MCC 37: PW MU PUMP	EDG 32
MCC 37: SPENT FUEL COOLING PUMP 31	EDG 32
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 32	EDG 31
PAB FAN 32	EDG 32
RHR PUMP 32	EDG 32

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00307 REV 8

SMALL BREAK LOCA

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:52 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1445.3 Bus 2A/3A = 1547.2 Bus 6A = * N/A * (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A exceeds the 1750 kW rating at EOP steps : 34, 35
Bus 6A Not Available

1950 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Bus 6A Not Available

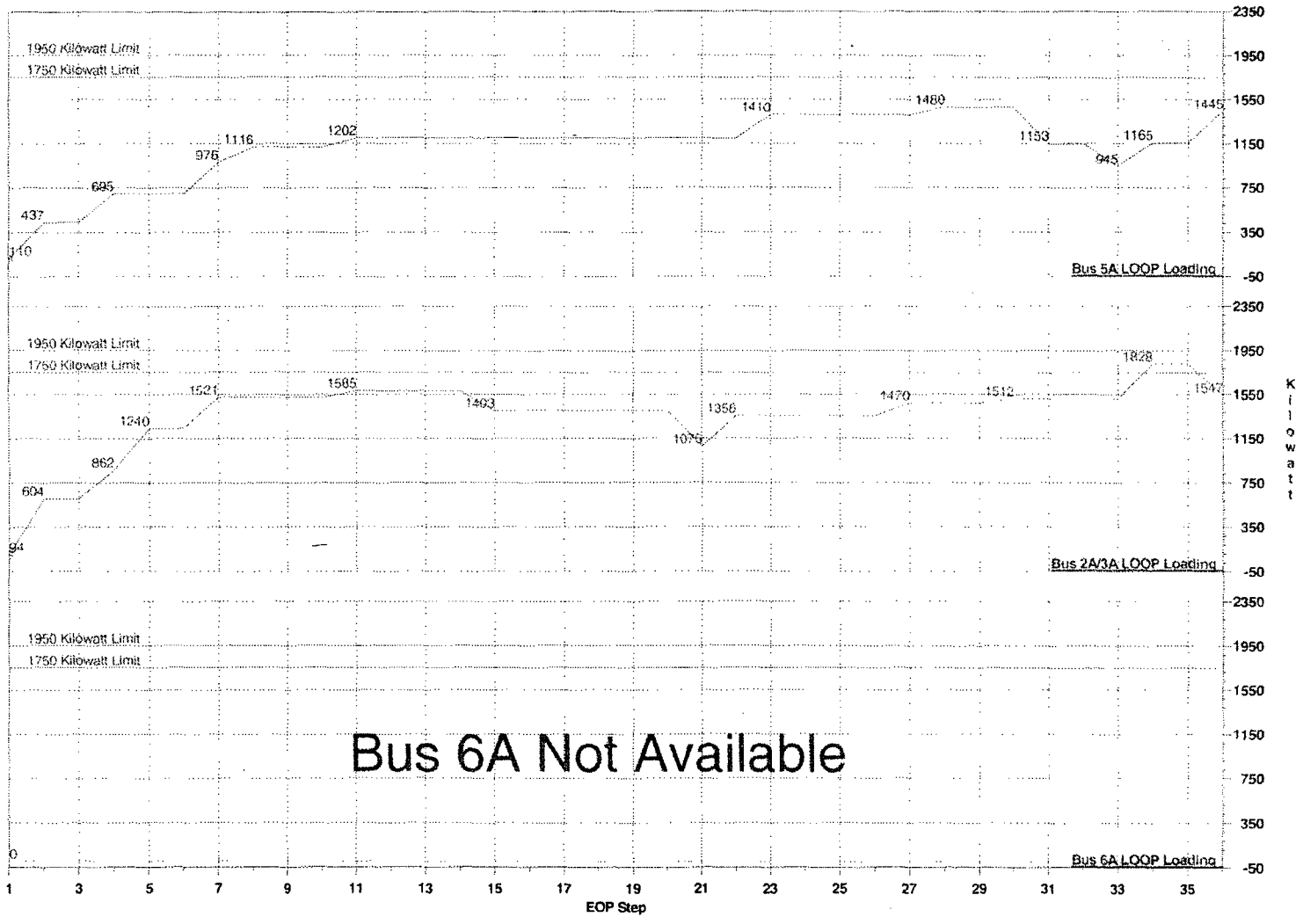
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36C and 36E	Auto	110.0	94.3	* N/A *
					110.0	94.3	* N/A *
			+57 +60 +60				
- 2 -	---	RO-1-2	SI Pumps 31 and 32	Auto	327.2	509.2	* N/A *
			RHR Pumps 31 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		437.2	603.5	* N/A *
			+117 +121 +122				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not running.)	Auto	0.0	0.0	* N/A *
			(E-0-9 verifies that spray is not required.)				
					437.2	603.5	* N/A *
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34	Auto	258.0	258.0	* N/A *
			(RO verifies that fans are running.)				
					695.2	861.5	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWP 31	Auto	0.0	378.9	* N/A *
			(RO verifies that pump is running.)				
					695.2	1240.4	* N/A *
			+1				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Auto	0.0	0.0	* N/A *
			(All Buses are powered from EDGs.)		695.2	1240.4	* N/A *
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 35)	Auto	280.8	280.8	* N/A *
			(RO verifies that pumps are running.)				
					976.0	1521.2	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	140.2	0.0	* N/A *
			(CHARGING pump 31 started on lightest loaded Bus.)		1116.2	1521.2	* N/A *
			+13				
- 9 -	< 17 >	---		Manual	0.0	0.0	* N/A *
			*** SMALL BREAK LOCA EVENT IDENTIFIED ***				
			*** EXIT TO E-1 ***		1116.2	1521.2	* N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-1-4	---	Reset SI. (Step 2 through 12 of RO-1 are completed.)	Manual	0.0 1116.2	0.0 1521.2	* N/A * * N/A *
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15 (MCCs are reset.)	Manual	85.8 1202.0	63.3 1584.5	* N/A * * N/A *
- 12 -	E-1- 8	---	+82 +81 ESTABLISH Instrumrnt Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1202.0	0.0 1584.5	* N/A * * N/A *
- 13 -	E-1-11	---	(No Loads Started or Tripped at this step) Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1202.0	0.0 1584.5	* N/A * * N/A *
- 14 -	E-1-13	---	(No Loads Started or Tripped at this step) Check if CSPs can be stopped. (Spray not actuated. No pumps are running.)	Manual	0.0 1202.0	0.0 1584.5	* N/A * * N/A *
- 15 -	E-1-14	---	(No Loads Started or Tripped at this step) Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (Only pump 31 running - stopped.)	Manual	0.0 1202.0	-182.0 1402.5	* N/A * * N/A *
- 16 -	< 18 >	---	-117 *** EXIT TO ES-1-2 ***	Manual	0.0 1202.0	0.0 1402.5	* N/A * * N/A *
- 17 -	ES-1.2-1	---	(No Loads Started or Tripped at this step) Reset MCCs. (MCCs are already reset.)	Manual	0.0 1202.0	0.0 1402.5	* N/A * * N/A *
- 18 -	ES-1.2-2	---	(No Loads Started or Tripped at this step) Stop RHR pumps if pressure is > 325. (RHR pumps are already stopped.)	Manual	0.0 1202.0	0.0 1402.5	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.2-7	---	Stop Pressurizer Heaters. (Load never started.)	Manual	0.0	0.0	* N/A *
					1202.0	1402.5	* N/A *
			(No Loads Started or Tripped at this step)				
- 20 -	< 11 >	---		Manual	0.0	0.0	* N/A *
			*** FIRST PASS THROUGH PROCEDURE LOOP ***		1202.0	1402.5	* N/A *
			(No Loads Started or Tripped at this step)				
- 21 -	ES-1.2-13	---	Stop one SI pump.	Manual	0.0	-327.2	* N/A *
			(SI pump 32 stopped from heaviest loaded Bus.		1202.0	1075.3	* N/A *
			CHARGING pump 31 is running.)				
			-122				
- 22 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus	Manual	0.0	280.8	* N/A *
			to start at least one NESWP.		1202.0	1356.1	* N/A *
			(NESWP 32 started on lightest loaded Bus.)				
			+85				
- 23 -	ES-1.2-16	---	Energize at least one Pressurizer Heater Group	Manual	207.9	0.0	* N/A *
			as per SOP-EL-15.		1409.9	1356.1	* N/A *
			(Energized Pressurizer Heater Group 33				
			on lightest loaded Bus.)				
			+109				
- 24 -	ES-1.2-23	---	Stop 1 of 3 running ESWPs and CCWPs.	Manual	0.0	0.0	* N/A *
			(Two ESWPs and two CCWPs are running.)		1409.9	1356.1	* N/A *
			Shutdown Motor-driven AFWPs if desired.				
			(Bus 6A not available. AFWP 31 remains running.)				
			(No Loads Started or Tripped at this step)				
- 25 -	ES-1.2-26	---	DETERMINE If RHR System Can Be Place In Service.	Manual	0.0	0.0	* N/A *
			a. RCS hot leg temperature are > 350 deg.		1409.9	1356.1	* N/A *
			a. Rcs pressure > 400 psig.				
			(RHR not started.)				
			(No Loads Started or Tripped at this step)				
- 26 -	ES-1.2-27	---	Check Containment Hydrogen concentration.	Manual	0.0	0.0	* N/A *
			(Less than 0.5% by vol.)		1409.9	1356.1	* N/A *
			(No Loads Started or Tripped at this step)				
- 27 -	ES-1.2-28a	---	Check if PAB fans are running. No	Manual	0.0	114.3	* N/A *
			(PAB Fan 31 started.)		1409.9	1470.4	* N/A *
			+87				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 6A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 28 -	ES-1.2-28c	---	Start: BAST Htrs, Hot Pent Blowers, PUMU. (Bus 6A unavailable). SFPP 32 started.	Manual	70.1	0.0	* N/A *
			Start Elec Tunnel Fans. (Fans are running.)		1480.0	1470.4	* N/A *
			+80				
- 29 -	< 29 >	---		Manual	0.0	0.0	* N/A *
			*** RETURN TO ES-1.2-2 AND LOOP THROUGH PROCEDURE UNTIL RCS TEMP. IS < 200 DEG. ***		1480.0	1470.4	* N/A *
			(No Loads Started or Tripped at this step)				
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps If 480V Buses are powered from Offsite and tie-breakers are open.	Manual	0.0	41.5	* N/A *
			Start Turb Turning Gear. (Gear started.)		1480.0	1511.9	* N/A *
			+47				
- 31 -	ES-1.2-13	---	Stop last SI pump. (Pump 31 stopped.)	Manual	-327.2	0.0	* N/A *
					1152.8	1511.9	* N/A *
			-121				
- 32 -	< 29 >	---		Manual	0.0	0.0	* N/A *
			*** RETURN TO ES-1.2-2 ***		1152.8	1511.9	* N/A *
			(No Loads Started or Tripped at this step)				
- 33 -	ES-1.2-7	---	Shutdown Pressurizer Heaters. (Heaters - deenergized.)	Manual	-207.9	0.0	* N/A *
					944.9	1511.9	* N/A *
			-109				
- 34 -	ES-1.2-26	---	DETERMINE If RHR System Can Be Placed In Service. (CCWP 31 started on lightest loaded Bus. RHR 31 started on only available Bus.)	Manual	219.6	316.1	* N/A *
					1164.5	1828.0 Over 1750	* N/A *
			+116 +6				
- 35 -	ES-1.2-27	---	Start one H2 Recombiner If necessary.	Manual	0.0	0.0	* N/A *
					1164.5	1828.0 Over 1750	* N/A *
			(No Loads Started or Tripped at this step)				
- 36 -	ES-1.2-30	---	Evaluate long term plant status. (For balancing of loads on EDGs. NESWP 32 is stopped and NESWP 31 started as per FOLDOUT page.)	Manual	280.8	-280.8	* N/A *
					1445.3	1547.2	* N/A *
			+84 -85				

SMALL BREAK LOCA



Small Break LOCA
Buses 2A/3A Tied Together, Bus 6A Not Available
Loss of off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
CCWP 31	EDG 33
CHARGING PUMP 31	EDG 33
ESWP 34	EDG 33
ESWP 35	EDG 31
FCU 31	EDG 33
FCU 32	EDG 31
FCU 33	EDG 33
FCU 34	EDG 31
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36A: AUTO	EDG 33
MCC 36C: AUTO	EDG 31
MCC 36E: AUTO	EDG 33
MCC 39: SPENT FUEL COOLING PUMP 31	EDG 32
MCC RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
NESWP 31	EDG 33
PAB FAN 31	EDG 31
RHR PUMP 31	EDG 31

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 0

SMALL BREAK LOCA

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:52 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 1617.2 Bus 6A = 1632.1 (kW)

1750 kW Overload Summary

Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

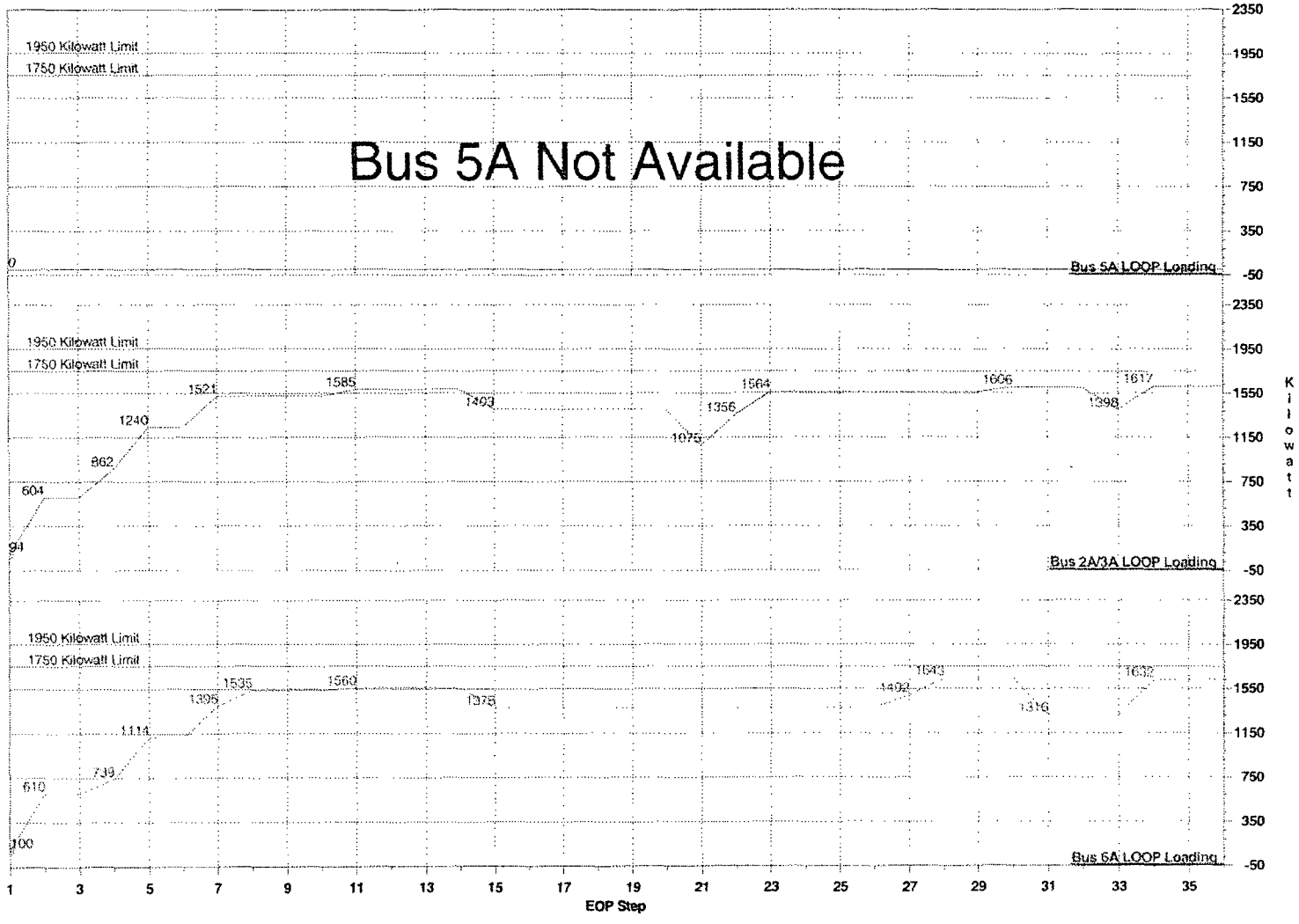
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36B, 36C and 36D	Auto	* N/A *	94.3	100.4
					* N/A *	94.3	100.4
			+57 +53 +59				
- 2 -	---	RO-1-2	SI pumps 32 and 33	Auto	* N/A *	509.2	509.2
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		* N/A *	603.5	609.6
			+117 +120 +122 +123				
- 3 -	E-0-9	---	CSP 32 (Spray not running.)	Auto	* N/A *	0.0	0.0
			(E-0-9 verifies that spray is not required.)				
					* N/A *	603.5	609.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 32, 34 and 35	Auto	* N/A *	258.0	129.0
			(RO verifies that fans are running.)				
					* N/A *	861.5	738.6
			+31 +35 +27				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	* N/A *	378.9	375.7
			(RO verifies that pumps are running.)				
					* N/A *	1240.4	1114.3
			+1 +2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Auto	* N/A *	0.0	0.0
			(All Buses are powered from EDGs.)		* N/A *	1240.4	1114.3
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (35 and 36)	Auto	* N/A *	280.8	280.8
			(RO verifies that pumps are running.)				
					* N/A *	1521.2	1395.1
			+27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	* N/A *	0.0	140.2
			(CHARGING pump 33 started on lightest loaded Bus.)		* N/A *	1521.2	1535.3
			+15				
- 9 -	< 17 >	---		Manual	* N/A *	0.0	0.0
			*** SMALL BREAK LOCA EVENT IDENTIFIED ***				
			*** EXIT TO E-1 ***		* N/A *	1521.2	1535.3
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-1-4	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	* N/A *	0.0	0.0
					* N/A *	1521.2	1535.3
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (MCCs are reset.)	Manual	* N/A *	63.3	24.8
					* N/A *	1584.5	1560.1
			+81 +82				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	* N/A *	0.0	0.0
					* N/A *	1584.5	1560.1
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start one CHARGING pump. (CHARGING pump 33 is running.)	Manual	* N/A *	0.0	0.0
					* N/A *	1584.5	1560.1
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-13	---	Check if CSPs can be stopped. (Spray not actuated. No pumps are running.)	Manual	* N/A *	0.0	0.0
					* N/A *	1584.5	1560.1
			(No Loads Started or Tripped at this step)				
- 15 -	E-1-14	---	Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (All pumps stopped.)	Manual	* N/A *	-182.0	-182.0
					* N/A *	1402.5	1378.1
			-117 -120				
- 16 -	< 18 >	---		Manual	* N/A *	0.0	0.0
			*** EXIT TO ES-1-2 ***		* N/A *	1402.5	1378.1
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.2-1	---	Reset MCCs. (MCCs are already reset.)	Manual	* N/A *	0.0	0.0
					* N/A *	1402.5	1378.1
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.2-2	---	Stop RHR pumps if pressure is > 325. (RHR pumps are already stopped.)	Manual	* N/A *	0.0	0.0
					* N/A *	1402.5	1378.1
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.2-7	---	Stop Pressurizer Heaters. (Load never started.)	Manual	* N/A *	0.0	0.0
					* N/A *	1402.5	1378.1
			(No Loads Started or Tripped at this step)				
- 20 -	< 11 >	---		Manual	* N/A *	0.0	0.0
			*** FIRST PASS THROUGH PROCEDURE LOOP ***		* N/A *	1402.5	1378.1
			(No Loads Started or Tripped at this step)				
- 21 -	ES-1.2-13	---	Stop one SI pump.	Manual	* N/A *	-327.2	0.0
			(SI pump 32 stopped from heaviest loaded Bus.				
			CHARGING pump 33 is running.)		* N/A *	1075.3	1378.1
			-122				
- 22 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus	Manual	* N/A *	280.8	0.0
			to start at least one NESWP.				
			(NESWP 32 started on lightest loaded Bus.)		* N/A *	1356.1	1378.1
			+85				
- 23 -	ES -1.2-16	---	Energize at least one Pressurizer Heater Group	Manual	* N/A *	207.9	0.0
			as per SOP-EL-15.				
			(Energized Pressurizer Heater Group 32				
			on lightest loaded Bus.)		* N/A *	1564.0	1378.1
			+101				
- 24 -	ES-1.2-23	---	Stop 1 of 3 ESWPs.	Manual	* N/A *	0.0	0.0
			(ESWPs 35 and 36 are running.)				
			Shutdown Motor-driven AFWPs if desired.		* N/A *	1564.0	1378.1
			(AFWPs remains running.)				
			(No Loads Started or Tripped at this step)				
- 25 -	ES-1.2-26	---	DETERMINE If RHR System Can Be Place In Service.	Manual	* N/A *	0.0	0.0
			a. RCS hot leg temperature are > 350 Deg.				
			a. RCS pressure > 400 psig.		* N/A *	1564.0	1378.1
			(RHR not started.)				
			(No Loads Started or Tripped at this step)				
- 26 -	ES-1.2-27	---	Check Containment Hydrogen concentration.	Manual	* N/A *	0.0	0.0
			(Less than 0.5% by vol.)				
					* N/A *	1564.0	1378.1
			(No Loads Started or Tripped at this step)				
- 27 -	ES-1.2-28a	---	Check if PAB fans are running. No	Manual	* N/A *	0.0	114.3
			(PAB Fan 32 started on lightest loaded Bus.)				
					* N/A *	1564.0	1492.4
			+88				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 28 -	ES-1.2-28c	---	Start: BAST Htrs, Hot Pent Blowers, PWMU, SFP pump (All loads started on MCC 37.). Start Elec Tunnel Fans. (Fans are running.)	Manual	* N/A *	0.0	150.8
					* N/A *	1564.0	1643.2
			+68 +61 +66 +67 +62 +69				
- 29 -	< 29 >	---	*** RETURN TO ES-1.2-2 AND LOOP THROUGH PROCEDURE UNTIL RCS TEMP. IS < 200 DEG. ***	Manual	* N/A *	0.0	0.0
					* N/A *	1564.0	1643.2
			(No Loads Started or Tripped at this step)				
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps If 480V Buses are powered from Offsite and tie-breakes are open. Start Turb Turning Gear. (Gear started.)	Manual	* N/A *	41.5	0.0
					* N/A *	1605.5	1643.2
			+47				
- 31 -	ES-1.3-13	---	Stop last SI pump. (Pump 33 stopped.)	Manual	* N/A *	0.0	-327.2
					* N/A *	1605.5	1316.0
			-123				
- 32 -	< 29 >	---	*** RETURN TO ES-1.2-2 ***	Manual	* N/A *	0.0	0.0
					* N/A *	1605.5	1316.0
			(No Loads Started or Tripped at this step)				
- 33 -	ES-1.2-7	---	Shutdown Pressurizer Heaters. (Heaters - deenergnized)	Manual	* N/A *	-207.9	0.0
					* N/A *	1397.6	1316.0
			-101				
- 34 -	ES-1.2-26	---	DETERMINE If RHR System Can Be Place In Service. (CCWP 32 and RHR 32 started on lightest loaded Buses.)	Manual	* N/A *	219.6	316.1
					* N/A *	1617.2	1632.1
			+118 +9				
- 35 -	ES-1.2-27	---	Start one H2 Recombiner if necessary.	Manual	* N/A *	0.0	0.0
					* N/A *	1617.2	1632.1
			(No Loads Started or Tripped at this step)				
- 36 -	ES-1.3-30	---	Evaluate long term plant status.	Manual	* N/A *	0.0	0.0
					* N/A *	1617.2	1632.1
			(No Loads Started or Tripped at this step)				

SMALL BREAK LOCA



Small Break LOCA
Buses 2A/3A Tied Together, Bus 5A Not Available
Loss of off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
AFWP 33	EDG 32
CHARGING PUMP 33	EDG 32
CCWP 32	EDG 31
ESWP 35	EDG 31
ESWP 36	EDG 32
FCU 32	EDG 31
FCU 34	EDG 31
FCU 35	EDG 32
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36B: AUTO	EDG 32
MCC 36C: AUTO	EDG 31
MCC 36D: AUTO	EDG 32
MCC 37: BAST HEATER (TANK #1)	EDG 32
MCC 37: BAST HEATER (TANK #2)	EDG 32
MCC 37: PENT. BLOWER (#1)	EDG 32
MCC 37: PENT. BLOWER (#2)	EDG 32
MCC 37: PW MU PUMP	EDG 32
MCC 37: SPENT FUEL COOLING PUMP 31	EDG 32
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 32	EDG 31
PAB FAN 32	EDG 32
RHR PUMP 32	EDG 32

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:52 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1375.2 Bus 2A/3A = * N/A * Bus 6A = 1491.9 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A exceeds the 1750 kW rating at EOP steps : 33, 34

1950 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

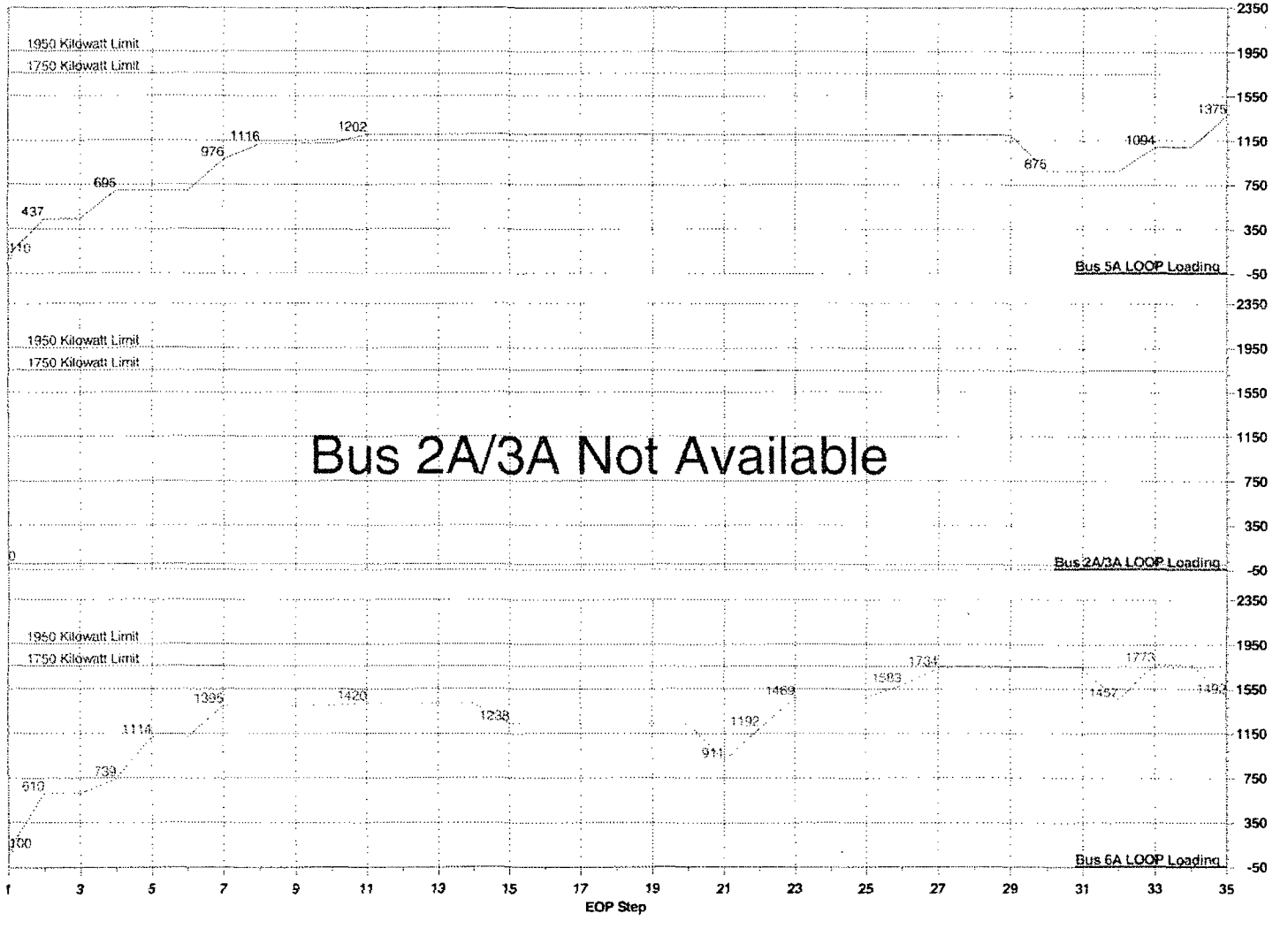
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36B, 36D and 36E	Auto	110.0	* N/A *	100.4
					110.0	* N/A *	100.4
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 33	Auto	327.2	* N/A *	509.2
			RHR pump 32 (mini flow, RCS press > 326)				
			(RO verifies that pumps are running.)		437.2	* N/A *	609.6
			+120 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not running.)	Manual	0.0	* N/A *	0.0
			(E-0-9 verifies that spray is not required.)				
					437.2	* N/A *	609.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	258.0	* N/A *	129.0
			(RO verifies that fans are running.)				
					695.2	* N/A *	738.6
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWP 33	Auto	0.0	* N/A *	375.7
			(RO verifies that pump is running.)				
					695.2	* N/A *	1114.3
			+2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Auto	0.0	* N/A *	0.0
			(All Buses are powered from EDGs.)		695.2	* N/A *	1114.3
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	280.8	* N/A *	280.8
			(RO verifies that pumps are running.)		976.0	* N/A *	1395.1
			+26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	140.2	* N/A *	0.0
			(CHARGING pump 31 started on lightest loaded Bus.)		1116.2	* N/A *	1395.1
			+13				
- 9 -	< 17 >	---	*** SMALL BREAK LOCA EVENT IDENTIFIED ***	Manual	0.0	* N/A *	0.0
			_____*** EXIT TO E-1 ***_____		1116.2	* N/A *	1395.1
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-1-4	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1116.2	* N/A * * N/A *	0.0 1395.1
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (MCCs are reset.)	Manual	85.8 1202.0	* N/A * * N/A *	24.8 1419.9
- 12 -	E-1-8	---	+82 +83 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1202.0	* N/A * * N/A *	0.0 1419.9
- 13 -	E-1-11	---	(No Loads Started or Tripped at this step) Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1202.0	* N/A * * N/A *	0.0 1419.9
- 14 -	E-1-13	---	(No Loads Started or Tripped at this step) Check if CSPs can be stopped. (Spray not actuated. No pumps are running.)	Manual	0.0 1202.0	* N/A * * N/A *	0.0 1419.9
- 15 -	E-1-14	---	(No Loads Started or Tripped at this step) Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (Only pump 32 running - stopped.)	Manual	0.0 1202.0	* N/A * * N/A *	-182.0 1237.9
- 16 -	< 18 >	---	-120 *** EXIT TO ES-1-2 ***	Manual	0.0 1202.0	* N/A * * N/A *	0.0 1237.9
- 17 -	ES-1.2-1	---	(No Loads Started or Tripped at this step) Reset MCCs. (MCCs are already reset.)	Manual	0.0 1202.0	* N/A * * N/A *	0.0 1237.9
- 18 -	ES-1.2-2	---	(No Loads Started or Tripped at this step) Stop RHR pumps if pressure is > 325. (RHR pumps are already stopped.)	Manual	0.0 1202.0	* N/A * * N/A *	0.0 1237.9
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.2-7	---	Stop Pressurizer Heaters. (Load never started.)	Manual	0.0	* N/A *	0.0
					1202.0	* N/A *	1237.9
			(No Loads Started or Tripped at this step)				
- 20 -	< 11 >	---		Manual	0.0	* N/A *	0.0
			*** FIRST PASS THROUGH PROCEDURE LOOP ***		1202.0	* N/A *	1237.9
			(No Loads Started or Tripped at this step)				
- 21 -	ES-1.2-13	---	Stop one SI pump.	Manual	0.0	* N/A *	-327.2
			(SI pump 33 stopped from heaviest loaded Bus.)		1202.0	* N/A *	910.7
			-123				
- 22 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus. to start at least one NESWP.	Manual	0.0	* N/A *	280.8
			(NESWP 33 started on lightest loaded Bus.)		1202.0	* N/A *	1191.5
			+86				
- 23 -	ES-1.2-16	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15.	Manual	0.0	* N/A *	277.0
			(Energized Pressurizer Heater Control Group energized on lightest loaded Bus.)		1202.0	* N/A *	1468.5
			+114				
- 24 -	ES-1.2-23	---	Stop 1 of 3 ESWPs. (ESWPs 34 and 35 are running.) Shutdown Motor-driven AFWPs if desired.	Manual	0.0	* N/A *	0.0
			(Bus 2A/3A not available. AFWP 33 remains running)		1202.0	* N/A *	1468.5
			(No Loads Started or Tripped at this step)				
- 25 -	ES-1.2-26	---	DETERMINE If RHR System Can Be Placed In Service. a. RCS hot leg temperature are > 350 Deg.	Manual	0.0	* N/A *	0.0
			a. RCS pressure > 400 psig. (RHR not started.)		1202.0	* N/A *	1468.5
			(No Loads Started or Tripped at this step)				
- 26 -	ES-1.2-28a	---	Check if PAB fans are running. No (PAB Fan 31 started.)	Manual	0.0	* N/A *	114.3
					1202.0	* N/A *	1582.8
			+88				
- 27 -	ES-1.2-28c	---	Start: BAST Htrs, Hot Pent Blowers, PWMU, SFP pump (All loads started on MCC 37.).	Manual	0.0	* N/A *	150.8
			Start Elec Tunnel Fans. Fans are running.		1202.0	* N/A *	1733.6
			+68 +61 +66 +67 +62 +69				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 28 -	< 29 >	---		Manual	0.0	* N/A *	0.0
			*** RETURN TO ES-1.2-2 AND LOOP THROUGH PROCEDURE UNTIL RCS TEMP. IS < 200 DEG. ***		1202.0	* N/A *	1733.6
			(No Loads Started or Tripped at this step)				
- 29 -	---	RO-1-27c	START AC and STOP DC Oil Pumps If 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning gear. (Bus 2A/3A unavailable.)	Manual	0.0	* N/A *	0.0
			(No Loads Started or Tripped at this step)		1202.0	* N/A *	1733.6
- 30 -	ES-1.2-13	---	Stop last SI pump. (Pump 31 stopped.)	Manual	-327.2	* N/A *	0.0
					874.8	* N/A *	1733.6
			-121				
- 31 -	< 29 >	---		Manual	0.0	* N/A *	0.0
			*** RETURN TO ES-1.2-2 ***		874.8	* N/A *	1733.6
			(No Loads Started or Tripped at this step)				
- 32 -	ES-1.2-7	---	Shutdown Pressurizer Heaters. (Heaters - deenergized.)	Manual	0.0	* N/A *	-277.0
					874.8	* N/A *	1456.6
			-114				
- 33 -	ES-1.2-26	---	DETERMINE If RHR System Can Be Placed In Service. (CCWP 31 started on lightest loaded Bus. RHR 32 started on only available Bus.)	Manual	219.6	* N/A *	316.1
					1094.4	* N/A *	1772.7 Over 1750
			+118 +6				
- 34 -	ES-1.2-27	---	Start one H2 Recombiner if necessary.	Manual	0.0	* N/A *	0.0
					1094.4	* N/A *	1772.7 Over 1750
			(No Loads Started or Tripped at this step)				
- 35 -	ES-1.2-30	---	Evaluate long term plant status. (For balancing of loads on EDGs, NESWP 33 is stopped and NESWP 31 started as per FOLDOUT page.)	Manual	280.8	* N/A *	-280.8
					1375.2	* N/A *	1491.9
			+84 -86				

SMALL BREAK LOCA



Small Break LOCA
Buses 2A and / or 3A Not Available
Loss of off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 33	EDG 32
CHARGING PUMP 31	EDG 33
CCWP 31	EDG 33
ESWP 34	EDG 33
ESWP 36	EDG 32
FCU 31	EDG 33
FCU 33	EDG 33
FCU 35	EDG 32
MCC 36A: AUTO	EDG 33
MCC 36B: AUTO	EDG 32
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 33
MCC 37: BAST HEATER (TANK #1)	EDG 32
MCC 37: BAST HEATER (TANK #2)	EDG 32
MCC 37: PENT. BLOWER (#1)	EDG 32
MCC 37: PENT. BLOWER (#2)	EDG 32
MCC 37: PW MU PUMP	EDG 32
MCC 37: SPENT FUEL COOLING PUMP 31	EDG 32
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 31	EDG 33
PAB FAN 32	EDG 32
RHR PUMP 32	EDG 32

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA (PH B)
ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:55 PM

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2545.1 Bus 2A = 2017.9 Bus 3A = 1359.6 Bus 6A = 2169.7 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

SMALL BREAK LOCA (PR B) - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25,2009 Time : 3:55 PM (49)

Step Number	SSO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCCs 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	0.0	150.1
					169.5	135.5	0.0	150.1
			+57 +58 +58 +59 +60					
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	472.4	264.5	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)					
			(RO verifies that pumps are running.)		641.9	607.9	264.5	988.6
			+117 +120 +121 +122 +123					
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	453.6	0.0	0.0	471.1
			(E-0-9 verifies that pumps are running.)		1095.5	607.9	264.5	1359.7
			+24 +25					
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	491.9	247.2	246.0	248.0
			(RO verifies that fans are running.)		1587.4	855.1	510.5	1607.7
			+29 +31 +33 +35 +37					
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	0.0	575.4	562.9
			(RO verifies that pumps are running.)		1587.4	855.1	1085.9	2170.6
			+1 +2					
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.6	251.3	0.0	251.2
			(RO verifies that pumps are running.)		1837.9	1106.4	1085.9	3421.8
			+4 +7 +10					
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	429.8	0.0	429.0	429.8
			(RO verifies that pumps are running.)		2267.7	1106.4	1514.9	2851.6
			+26 +27 +28					
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	0.0	0.0	208.9	0.0
			is > than 325 psig and CCW is available.					
			(CHARGING pump 32 started on lightest		2267.7	1106.4	1723.8	2851.6
			loaded Bus.)					
			+14					
- 9 -	< 17 >	---		Manual	0.0	0.0	0.0	0.0
			*** SMALL BREAK WITH SPRAY LOCA ***					
			__*** EVENT IDENTIFIED, EXIT TO E-1 ***__		2267.7	1106.4	1723.8	2851.6
			(No Loads Started or Tripped at this step)					

SMALL BREAK LOCA (PH B) - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25,2009 Time : 3:55 PM [49]

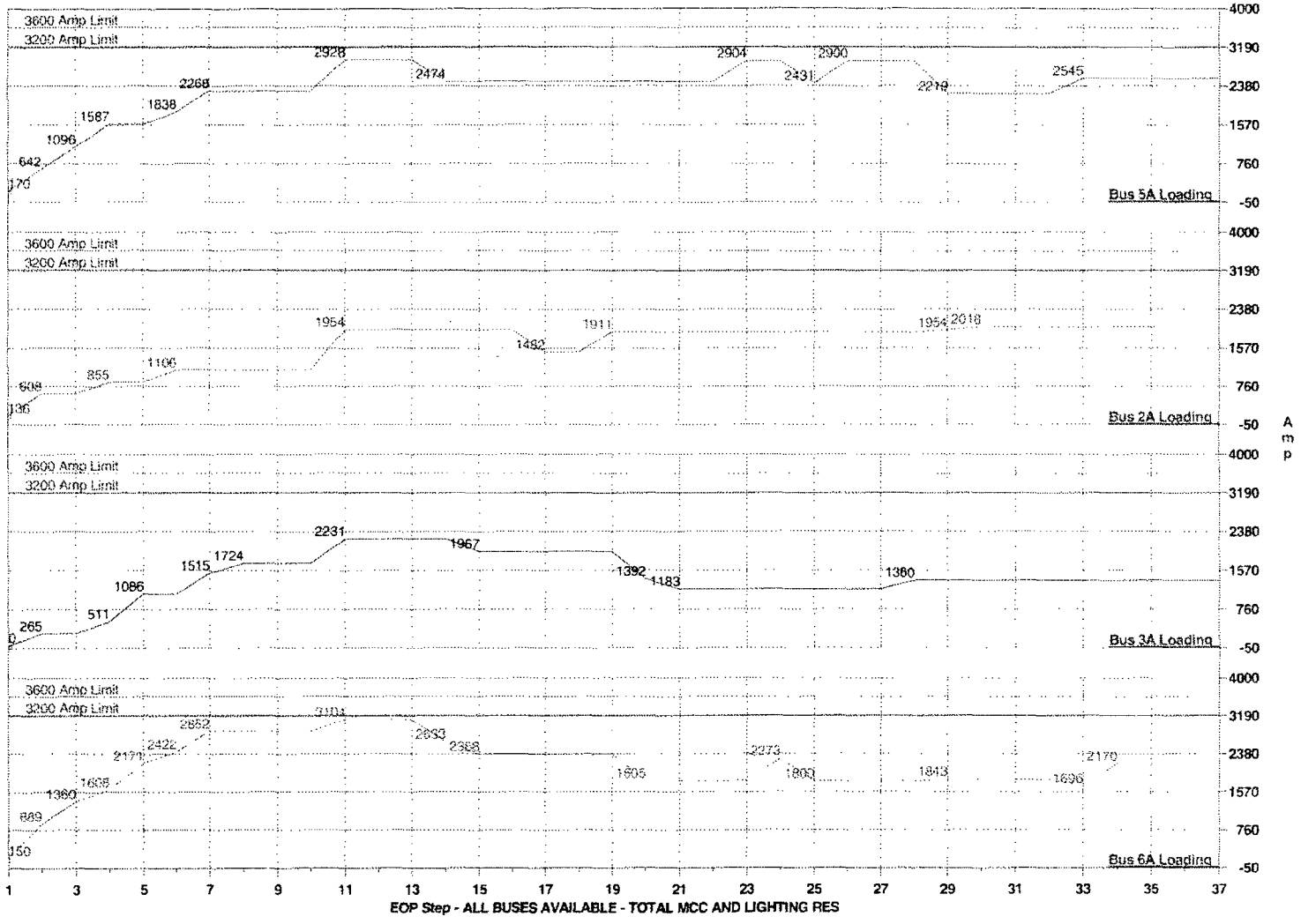
Step Number	SNO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-1-4	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2267.7	0.0 1106.4	0.0 1723.8	0.0 2851.6
			(No Loads Started or Tripped at this step)					
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15 (Total MCC and Lighting reset.)	Manual	659.8 2927.5	848.0 1954.4	507.6 2231.4	252.2 3103.8
			+126 +124 +125 +127					
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 2927.5	0.0 1954.4	0.0 2231.4	0.0 3103.8
			(No Loads Started or Tripped at this step)					
- 13 -	E-1-11	---	Start one CHARGING pump. (CHARGING pump 32 is running.)	Manual	0.0 2927.5	0.0 1954.4	0.0 2231.4	0.0 3103.8
			(No Loads Started or Tripped at this step)					
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 psig. (5 FCUs are running, CSPs stopped.)	Manual	-453.6 2473.9	0.0 1954.4	0.0 2231.4	-471.1 2632.7
			-24 -25					
- 15 -	E-1-14	---	Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (Pressre > 325 psig.)	Manual	0.0 2473.9	0.0 1954.4	-264.5 1966.9	-264.8 2367.9
			-117 -120					
- 16 -	< 19 >	---	 *** ENTER ES-1.3 *** TRANSFER TO COLD LEG RECIRCULATION	Manual	0.0 2473.9	0.0 1954.4	0.0 1966.9	0.0 2367.9
			(No Loads Started or Tripped at this step)					
- 17 -	ES-1.3-5	---	Stop SI pump 32, if three are running. (SI pump 32 stopped.) Stop CSP 32 if two running. (CSPs not running.)	Manual	0.0 2473.9	-472.4 1482.0	0.0 1966.9	0.0 2367.9
			-122					
- 18 -	ES-1.3-6	---	CHECK SI Recirc SW 3 Function Complete light -- LIT. (YES) (RHR pumps 31 and 32 - Auto stopped. Pumps already stopped in E-1.) (No Loads Started or Tripped at this step)	Manual	0.0 2473.9	0.0 1482.0	0.0 1966.9	0.0 2367.9

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 32 started on lightest loaded Bus.)	Manual	0.0 2473.9	429.0 1911.0	0.0 1966.9	0.0 2367.9
- 20 -	ES-1.3-7	---	+85 STOP Motor Driven Auxiliary Feed Pumps: a. RCS pressure is less than SG pressure. (APWPs - stopped.)	Manual	0.0 2473.9	0.0 1911.0	-575.4 1391.5	-562.9 1805.0
- 21 -	ES-1.3-8	---	-1 -2 INITIATE Performance of ATTACHMENT 1. Stop Any Running Charging Pumps. Place all PRZR HTRs to OFF. (Charging pump 32 stopped. No HTRs are on.)	Manual	0.0 2473.9	0.0 1911.0	-208.9 1182.6	0.0 1805.0
- 22 -	NSE 99-3-075	NSE 99-3-075	-14 As PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (No CSPs are running.)	Manual	0.0 2473.9	0.0 1911.0	0.0 1182.6	0.0 1805.0
- 23 -	ES-1.3-9	---	(No Loads Started or Tripped at this step) Align SI Recirc SW 2 as follows: b. PLACE SI Recirc SW 2 to ON (NESWP 31 Auto started. CCWP 33 is running.)	Manual	429.8 2903.7	0.0 1911.0	0.0 1182.6	0.0 1805.0
- 24 -	ES-1.3-10	---	+84 ALIGN SI Recirc SW 4 Lo Head as follows: b. Manually START 32 Recirc Pump. (CRP 32 started.)	Manual	0.0 2903.7	0.0 1911.0	0.0 1182.6	468.3 2273.3
- 25 -	ES-1.3-14	---	+23 ALIGN SI Recirc SW 6 Lo Head as follows: (SI SW 6 Lo Head function Light is LIT. All running SI pumps (31 and 33) auto stopped.)	Manual	-472.4 2431.3	0.0 1911.0	0.0 1182.6	-473.7 1799.6
- 26 -	ES-1.3-15	---	-121 -123 ALIGN SI Recirc SW 7 as follows: b. PLACE SI Recirc SW 7 to ON. (NESWP 32 and CCWP 32 are already running. CRP 31 auto started.)	Manual	468.3 2899.6	0.0 1911.0	0.0 1182.6	0.0 1799.6
- 27 -	ES-1.3-24	---	+18 Reset MCCs. (MCCs are already reset.)	Manual	0.0 2899.6	0.0 1911.0	0.0 1182.6	0.0 1799.6
			(No Loads Started or Tripped at this step)					

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.3-25	---	CHECK PAB Exhaust Fan Status: (PAB fan 31 started on ligtest loaded Bus.)	Manual	0.0 2899.6	0.0 1911.0	177.0 1359.6	0.0 1799.6
- 29 -	ES-1.3-28	---	+87 Shutdown Unnecessary Plant Equipment: a. Check CCWPs. If 3 are running then stop one. b.Check ESWPs. If 3 are running then stop one. (CCWP 31, ESWP 34 stopped on heaviest loaded Bus)	Manual	-680.3 2219.3	43.1 1954.1	0.0 1359.6	43.0 1842.6
- 30 -	---	RO-1-27c	+8 +11 -4 -7 -10 -26 START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open . Start Turb Turning Gear. (Gear started.)	Manual	0.0 2219.3	63.8 2017.9	0.0 1359.6	0.0 1842.6
- 31 -	ES-1.3-35	---	+47 CHECK Containment Hydrogen Concentration: (Hydrogen concentration less than 0.5% by Volume.)	Manual	0.0 2219.3	0.0 2017.9	0.0 1359.6	0.0 1842.6
- 32 -	ES-1.3-36	---	(No Loads Started or Tripped at this step) *** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >>	Manual	0.0 2219.3	0.0 2017.9	0.0 1359.6	0.0 1842.6
- 33 -	ES-1.4-7	---	(No Loads Started or Tripped at this step) *** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (SI pump 31 started.)	Manual	325.8 2545.1	0.0 2017.9	0.0 1359.6	-146.6 1696.0
- 34 -	ES-1.4-8	---	+121 +19 +22 -18 -23 Start SI pump 33. (SI pump 33 started.)	Manual	0.0 2545.1	0.0 2017.9	0.0 1359.6	473.7 2169.7
- 35 -	ES-1.4-11	---	+123 *** RETURN TO ES-1.3 Step 37 ***	Manual	0.0 2545.1	0.0 2017.9	0.0 1359.6	0.0 2169.7
- 36 -	ES-1.3-34	---	(No Loads Started or Tripped at this step) Determine if intact SGs should be depressurized to RCS pressure. (No Loads Started or Tripped at this step)	Manual	0.0 2545.1	0.0 2017.9	0.0 1359.6	0.0 2169.7

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 37 -	ES-1.3-37	---	Evaluate long term plant status.	Manual	0.0	0.0	0.0	0.0
					2545.1	2017.9	1359.6	2169.7
			(No Loads Started or Tripped at this step)					

SMALL BREAK LOCA (PH B)



Small Break LOCA (PH B)
Total MCC and Lighting Reset
Offsite Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
CCWP 32	2A
CCWP 33	6A
CRP 31	5A
CRP 32	6A
ESWP 35	3A
ESWP 36	6A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 32	2A
PAB FAN 31	3A
SI PUMP 31	5A
SI PUMP 33	6A
TOTAL MCC & LIGHTING RESET (2A)	
TOTAL MCC & LIGHTING RESET (3A)	
TOTAL MCC & LIGHTING RESET (5A)	
TOTAL MCC & LIGHTING RESET (6A)	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:54 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2691.7 Bus 2A/3A = 2252.1 Bus 6A = 2493.3 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCCs 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	150.1
					169.5	135.5	150.1
			+57 +50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	736.9	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	872.4	888.6
			+117 +120 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	453.6	0.0	471.1
			(E-0-9 verifies that pumps are running.)		1095.6	872.4	1359.7
			+24 +25				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	491.9	493.2	248.0
			(RO verifies that fans are running.)		1587.4	1365.6	1607.7
			+29 +31 +33 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	575.4	562.9
			(RO verifies that pumps are running.)		1587.4	1941.0	2170.6
			-1 +2				
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.5	251.3	251.2
			(RO verifies that pumps are running.)		1837.9	2192.3	2421.8
			+4 +7 +10				
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	429.8	429.0	429.8
			(RO verifies that pumps are running.)		2267.7	2621.3	2851.6
			+26 +27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	0.0	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		2476.2	2621.3	2851.6
			loaded Bus.)				
			+13				
- 9 -	< 17 >	---		Manual	0.0	0.0	0.0
			*** SMALL BREAK LOCA WITH SPRAY***				
			___*** EVENT IDENTIFIED, EXIT TO E-1 ***___		2476.2	2621.3	2851.6
			(No Loads Started or Tripped at this step)				

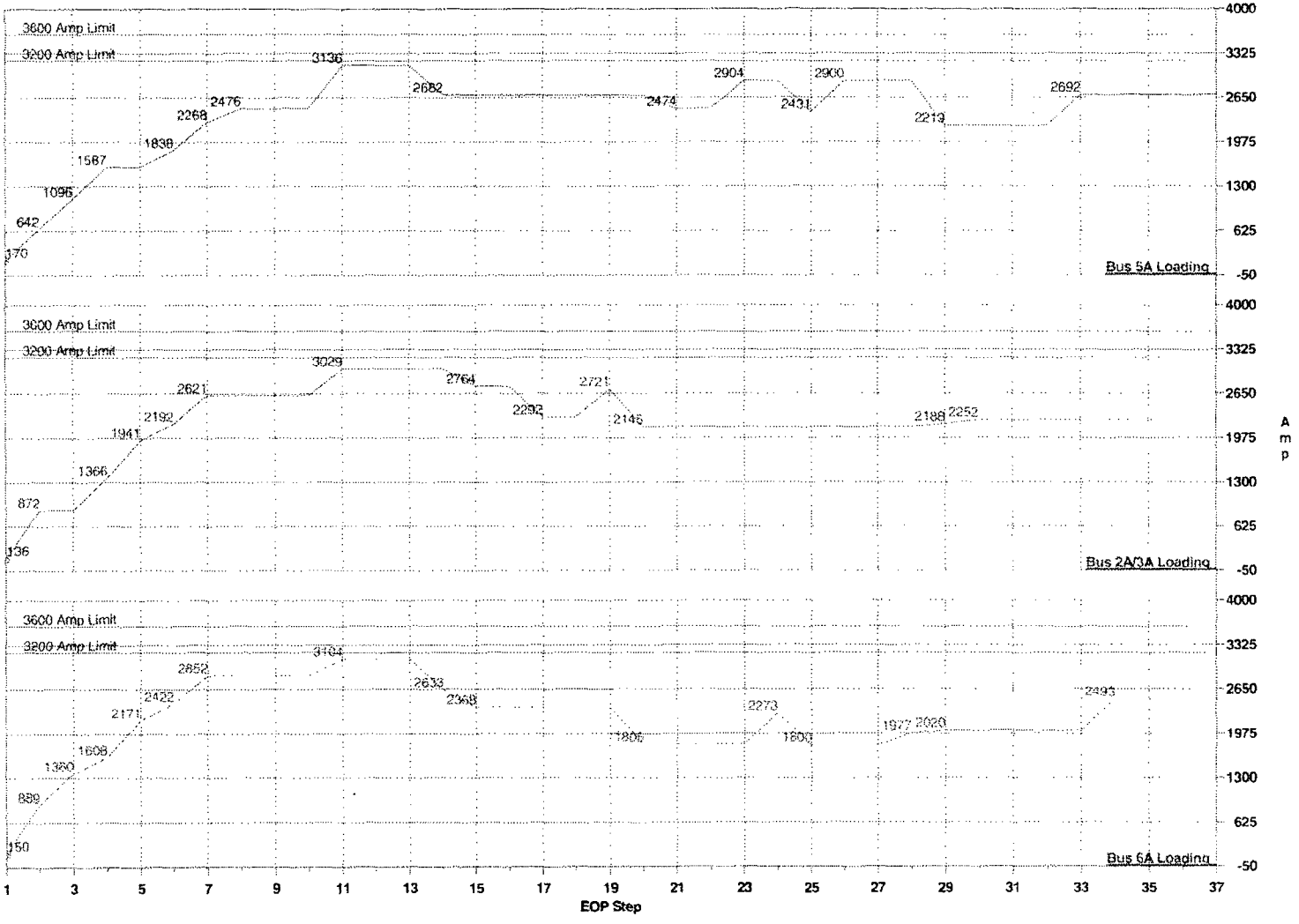
Step Number	SKO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-1-4	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2476.2	0.0 2621.3	0.0 2851.6
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset for MCCs powered from Buses 5A and 6A.)	Manual	659.8 3136.0	407.2 3028.5	252.2 3103.8
			-126 +127 +3				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 3136.0	0.0 3028.5	0.0 3103.8
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 3136.0	0.0 3028.5	0.0 3103.8
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or Containmenet pressure is < 16 psig. (5 FCU are running, CSPs stopped.)	Manual	-453.6 2682.4	0.0 3028.5	-471.1 2632.7
			-24 -25				
- 15 -	E-1-14	---	Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (Pressure > 325 psig.)	Manual	0.0 2682.4	-264.5 2764.0	-264.8 2367.9
			-117 -120				
- 16 -	< 19 >	---	*** ENTER ES-1.3 *** TRANSFER TO COLD LEG RECIRCULATION	Manual	0.0 2682.4	0.0 2764.0	0.0 2367.9
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.3-5	---	Stop SI pump 32, if threee are running. (SI pump 32 stopped.) Stop CSP 32 if two running. (CSPs not running.)	Manual	0.0 2682.4	-472.4 2291.6	0.0 2367.9
			-122				
- 18 -	ES-1.3-6	---	CHECK SI Recirc SW 3 Function Complet Light - LIT. (YES) (RHR pumps 31 and 32 - AUTO stopped. Pumps already stopped in E-1.) (No Loads Started or Tripped at this step)	Manual	0.0 2682.4	0.0 2291.6	0.0 2367.9

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 32 started on lightest loaded Bus.)	Manual	0.0 2682.4	429.6 2720.6	0.0 2367.9
			+85				
- 20 -	ES-1.3-7	---	STOP Motor Driven Auxiliary Feed Pumps: a. RCS pressure is less than SG pressure. (AFWPs - stopped.)	Manual	0.0 2682.4	-575.4 2145.2	-562.9 1805.0
			-1 -2				
- 21 -	ES-1.3-8	---	INITIATE Performance of ATTACHMENT 1. Stop any running Charging pumps and PRZR HTRs. (Only pump 31 is running - stopped.)	Manual	-208.5 2473.9	0.0 2145.2	0.0 1805.0
			-13				
- 22 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.29 of NSE, One CSP run time is less than 30 minutes. (No CSPs are running.)	Manual	0.0 2473.9	0.0 2145.2	0.0 1805.0
			(No Loads Started or Tripped at this step)				
- 23 -	ES-1.3-9	---	Align SI Recirc SW 2 . b. PLACE SI Recirc SW 2 to ON (NESWP 31 auto started. CCWP 33 is running.)	Manual	429.8 2903.7	0.0 2145.2	0.0 1805.0
			+84				
- 24 -	ES-1.3-10	---	ALIGN SI Recirc SW 4 Lo Head. b. Manually START 32 Recirc Pump. (CRP 32 started.)	Manual	0.0 2903.7	0.0 2145.2	468.3 2273.3
			+23				
- 25 -	ES-1.3-14	---	ALIGN SI Recirc SW 6 Lo Head. (SI SW 6 Lo Head function Light is LIT. All running SI pumps [31 and 33] auto stopped.)	Manual	-472.4 2431.3	0.0 2145.2	-473.7 1799.6
			-121 -123				
- 26 -	ES-1.3-15	---	ALIGN SI Recirc SW 7. b. PLACE SI Recirc SW 7 to ON. (NESWP 32 and CCWP 32 are running. CRP 31 auto started.)	Manual	468.3 2899.6	0.0 2145.2	0.0 1799.6
			+18				
- 27 -	ES-1.3-24	---	Reset MCCs. (MCCs are already reset.)	Manual	0.0 2899.6	0.0 2145.2	0.0 1799.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.3-25	---	Start one PAB fan. (PAB fan 32 started on lightest loaded Bus.)	Manual	0.0 2899.6	0.0 2145.2	177.0 1976.6
			+88				
- 29 -	ES-1.3-28	---	Shutdown unnecessary equipment. a. Check CCWPs. If 3 are running then stop one. b. Check ESWPs. If 3 are running then stop one. (CCWP 31, ESWP 34 stopped on heaviest loaded Bus.) +8 +11 -4 -7 -10 -26	Manual	-680.3 3219.3	43.1 2188.3	43.0 2019.6
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear Started.) +47	Manual	0.0 3219.3	63.8 2252.1	0.0 2019.6
- 31 -	ES-1.3-35	---	CHECK Containment Hydrogen Concentration: (Hydrogen concentration less than 0.5% by volume.)	Manual	0.0 3219.3	0.0 2252.1	0.0 2019.6
			(No Loads Started or Tripped at this step)				
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >>	Manual	0.0 3219.3	0.0 2252.1	0.0 2019.6
			(No Loads Started or Tripped at this step)				
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (SI pump 31 started.)	Manual	472.4 2691.7	0.0 2252.1	0.0 2019.6
			+121				
- 34 -	ES-1.4-8	---	Start SI pump 33. (SI pump 33 started.)	Manual	0.0 2691.7	0.0 2252.1	473.7 2493.3
			+123				
- 35 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 ***	Manual	0.0 2691.7	0.0 2252.1	0.0 2493.3
			(No Loads Started or Tripped at this step)				
- 36 -	ES-1.3-34	---	Determine if intact SGs should be depressurized to RCS pressure.	Manual	0.0 2691.7	0.0 2252.1	0.0 2493.3
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 37 -	ES-1.3-37	---	Evaluate long term plant status.	Manual	0.0	0.0	0.0
					2691.7	2252.1	2491.3
			(No Loads Started or Tripped at this step)				

SMALL BREAK LOCA (PH B)



Small Break LOCA (PH B)
Buses 2A/3A Tied Together, All Buses Available
Offsite Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
CCWP 32	2A
CCWP 33	6A
CRP 31	5A
CRP 32	6A
ESWP 35	3A
ESWP 36	6A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 32	2A
PAB FAN 32	6A
SI PUMP 31	5A
SI PUMP 33	6A
TOTAL MCCS & LIGHTING RESET BUS 5A	
TOTAL MCCS & LIGHTING RESET BUS 6A	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:52 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2691.7 Bus 2A/3A = 2901.5 Bus 6A = * N/A * (A)

3200 Amp Overload Summary

Bus 5A exceeds the 3200 Amp rating at EOP steps : 24
Bus 2A/3A exceeds the 3200 Amp rating at EOP steps : 19
Bus 6A Not Available

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A Not Available

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCCs 36A, 36C and 36E	Auto	169.5	135.5	* N/A *
					169.5	135.5	* N/A *
			+57 +58 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 32 RHR pump 31 (Pumps are in mini flow due to RCS pressure > 325.) (RO verifies that pumps are running.)	Auto	472.4	736.9	* N/A *
					641.9	872.4	* N/A *
			+117 +121 +122				
- 3 -	E-0-9	---	CSP 31 (E-0-9 verifies that pump is running.)	Auto	453.6	0.0	* N/A *
					1095.5	872.4	* N/A *
			+24				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34 (RO verifies that fans are running.)	Auto	491.9	493.2	* N/A *
					1587.4	1365.6	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWP 31 (RO verifies that pump is running.)	Auto	0.0	575.4	* N/A *
					1587.4	1941.0	* N/A *
			+1				
- 6 -	---	RO-1-7	CCWPs 31 and 32 (RO verifies that pumps are running.)	Auto	293.4	294.4	* N/A *
					1880.8	2235.4	* N/A *
			+4 +7				
- 7 -	---	RO-1-8	ESWPs (34 and 35) (RO verifies that pumps are running.)	Auto	429.8	429.0	* N/A *
					2310.6	2664.4	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available. (CHARGING pump 31 started on lightest loaded Bus.)	Manual	208.5	0.0	* N/A *
					2519.1	2664.4	* N/A *
			+13				
- 9 -	< 17 >	---	*** SMALL BREAK LOCA WITH SPRAY *** *** EVENT IDENTIFIED, EXIT TO E-1 ***	Manual	0.0	0.0	* N/A *
					2519.1	2664.4	* N/A *
			(No Loads Started or Tripped at this step)				

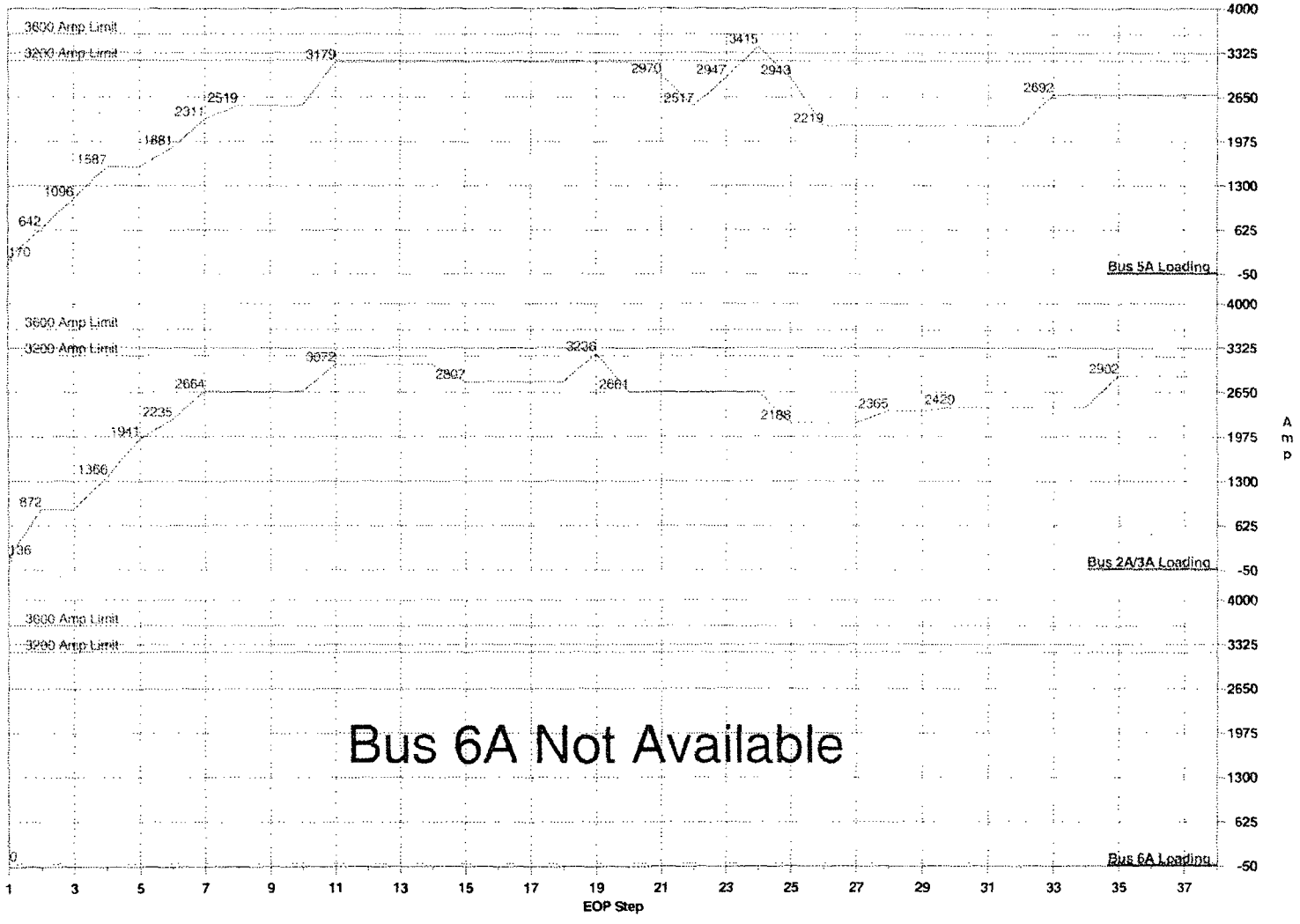
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-1-4	---	Reset S1. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2519.1	0.0 2664.4	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Full MCC and lighting reset on Bus 5A.)	Manual	659.8 3178.9	407.2 3071.6	* N/A * * N/A *
			+126 +3				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 3178.9	0.0 3071.6	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start CHARGING one pump. (CHARGING pump 31 is running.)	Manual	0.0 3178.9	0.0 3071.6	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 psig. (4 FCUs are running and psig >16. CSP [31] remains running.)	Manual	0.0 3178.9	0.0 3071.6	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 15 -	E-1-14	---	Stop RHR pump, if RCS pressure is > 325 and pressure is stable or increasing. (Pressure > 325 psig.)	Manual	0.0 3178.9	-264.5 2807.1	* N/A * * N/A *
			-117				
- 16 -	< 19 >	---	*** ENTER ES-1.3 *** TRANSFER TO COLD LEG RECIRCULATION	Manual	0.0 3178.9	0.0 2807.1	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.3-5	---	Stop SI pump 32, if three pumps are running. (Only two SI pumps are running.) If two CSPs are running then stop one. (Only CSP 31 is running.)	Manual	0.0 3178.9	0.0 2807.1	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.3-6	---	Check SI Recirc SW 3 Function complete Light - LIT (YES) (RHR pumps [only 31is running] - Auto stopped. Pump already stoppped in E-1.) (No Loads Started or Tripped at this step)	Manual	0.0 3178.9	0.0 2807.1	* N/A * * N/A *

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 32 started on lightest loaded Bus.)	Manual	0.0 3178.9	429.0 3236.1 Over 3200	* N/A * * N/A *
			+85				
- 20 -	ES-1.3-7	---	STOP Motor Driven Auxiliary Feed Pumps: a. RCS pressure is less than SG pressure. (AFWPs - stopped.)	Manual	0.0 3178.9	-575.4 2660.7	* N/A * * N/A *
			-1				
- 21 -	ES-1.3-8	---	INITIATE Performance of ATTACHMENT 1. Stop any running Charging pumps and PRZR HTRs. (Only pump 31 is running - stopped.)	Manual	-208.5 2970.4	0.0 2660.7	* N/A * * N/A *
			-13				
- 22 -	NSE 99-3-07S	NSE 99-3-07S	AS per SECTION 4.2.29 of NSE, One CSP run time is less than 30 minutes. (CSP 31 stopped.)	Manual	-453.6 2516.8	0.0 2660.7	* N/A * * N/A *
			-24				
- 23 -	ES-1.3-9	---	Align SI Recirc SW 2. b. PLACE SI Recirc SW 2 to ON. (NESWP 31auto started. CCWP 32 is running.)	Manual	429.8 2946.6	0.0 2660.7	* N/A * * N/A *
			+84				
- 24 -	ES-1.3-10	---	Align SI Recirc SW 4 Lo Head as follows: b. Manually start Recirc pump 32. (Bus 6A unavailable to start CRP 32. CRP 31 started.)	Manual	468.3 3414.9 Over 3200	0.0 3660.7	* N/A * * N/A *
			+18				
- 25 -	ES-1.3-14	---	ALIGN SI Recirc SW 6 Lo Head. (SI SW 6 Lo Head function Light is LIT. All running SI pumps [31 and 33] auto stopped.)	Manual	-472.4 2942.5	-472.4 2188.3	* N/A * * N/A *
			-121 -122				
- 26 -	ES-1.3-15	---	Can not ALIGN SI Recirc SW 7. Bus 6A is not available. (NESWP 31 and CCWP 31 stopped on heaviest loaded Bus.)	Manual	-723.2 2219.3	0.0 2188.3	* N/A * * N/A *
			-4 -84				
- 27 -	ES-1.3-24	---	Reset MCCs. (MCCs are already reset.)	Manual	0.0 2219.3	0.0 2188.3	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.3-35	---	Start one PAB fan. (PAB fan 31 started.)	Manual	0.0 2219.3	177.0 2365.3	* N/A * * N/A *
			+87				
- 29 -	ES-1.3-28	---	Shutdown unnecessary equipment. a. Check CCWPs. If 3 are running then stop one b. Check ESWPs. If 3 are running then stop one (one CCWP and two ESWPs are running.) (No Loads Started or Tripped at this step)	Manual	0.0 2219.3	0.0 2365.3	* N/A * * N/A *
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.)	Manual	0.0 2219.3	63.8 2429.1	* N/A * * N/A *
			+47				
- 31 -	ES-1.3-35	---	CHECK Containment Hydrogen Concentration: (Hydrogen concentration less than 0.5% by volume.)	Manual	0.0 2219.3	0.0 2429.1	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >>	Manual	0.0 2219.3	0.0 2429.1	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (SI pump 31 started.)	Manual	472.4 2691.7	0.0 2429.1	* N/A * * N/A *
			+121				
- 34 -	ES-1.4-8	---	Start SI pump 33. (Bus 6A unavailable to start SI pump 33.)	Manual	0.0 2691.7	0.0 2429.1	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 35 -	ES-1.4-9	---	Start SI pump 32 (SI pump 32 started.)	Manual	0.0 2691.7	472.4 2901.5	* N/A * * N/A *
			+122				
- 36 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 ***	Manual	0.0 2691.7	0.0 2901.5	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 37 -	ES-1.3-34	---	Determine if intact SGs should be depressurized to RCS pressure.	Manual	0.0	0.0	* N/A *
					2691.7	2901.5	* N/A *
			(No Loads Started or Tripped at this step)				
- 38 -	ES-1.3-37	---	Evaluate long term plant status.	Manual	0.0	0.0	* N/A *
					2691.7	2901.5	* N/A *
			(No Loads Started or Tripped at this step)				

SMALL BREAK LOCA (PH B)



Small Break LOCA (PH B)
Buses 2A/3A Tied Together, Bus 6A Not Available
Offsite Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
CCWP 32	2A
CRP 31	5A
ESWP 34	5A
ESWP 35	3A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
MCC 34: TURBINE TURNING GEAR	3A
MCC 36A: AUTO	5A
MCC 36C: AUTO	2A
MCC 36E: AUTO	5A
NESWP 32	2A
PAB FAN 31	3A
SI PUMP 31	5A
SI PUMP 32	2A
TOTAL MCCS & LIGHTING RESET BUS 5A	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:52 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 2756.5 Bus 6A = 2628.9 (A)

3200 Amp Overload Summary

Bus 5A Not Available
Bus 2A/3A exceeds the 3200 Amp rating at EOP steps : 11, 12, 13, 14
Bus 6A exceeds the 3200 Amp rating at EOP steps : 19

3600 Amp Overload Summary

Bus 5A Not Available
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36B, 36C and 36D	Auto	* N/A *	135.5	150.1
					* N/A *	135.5	150.1
			+57 +53 +59				
- 2 -	---	RO-1-2	SI pumps 32 and 33	Auto	* N/A *	736.9	738.5
			RHR pumps 31 and 32 (Pumps are in mini flow due to RCS pressure > 325.)		* N/A *	872.4	888.6
			(RO verifies that pumps are running.)				
			+117 +120 +122 +123				
- 3 -	E-0-9	---	CSP 32	Auto	* N/A *	0.0	471.1
			(E-0-9 verifies that pump is running.)		* N/A *	872.4	1359.7
			+25				
- 4 -	---	RO-1-3	FCUs 32, 34 and 36	Auto	* N/A *	493.2	248.0
			(RO verifies that fans are running.)		* N/A *	1365.6	1607.7
			+31 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	* N/A *	575.4	562.9
			(RO verifies that pumps are running.)		* N/A *	1941.0	2170.6
			+1 +2				
- 6 -	---	RO-1-7	CCWPs 32 and 33	Auto	* N/A *	294.4	294.2
			(RO verifies that pumps are running.)		* N/A *	2235.4	2464.8
			+7 +10				
- 7 -	---	RO-1-8	ESWPs (35 and 36)	Auto	* N/A *	429.0	429.8
			(RO verifies that pumps are running.)		* N/A *	2664.4	2894.6
			+27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	* N/A *	208.9	0.0
			(CHARGING pump 32 started on lightest loaded Bus.)		* N/A *	2873.3	2894.6
			+14				
- 9 -	< 17 >	---		Manual	* N/A *	0.0	0.0
			*** SMALL BREAK LOCA WITH SPRAY ***				
			*** EVENT IDENTIFIED, EXIT TO E-1 ***		* N/A *	2873.3	2894.6
			(No Loads Started or Tripped at this step)				

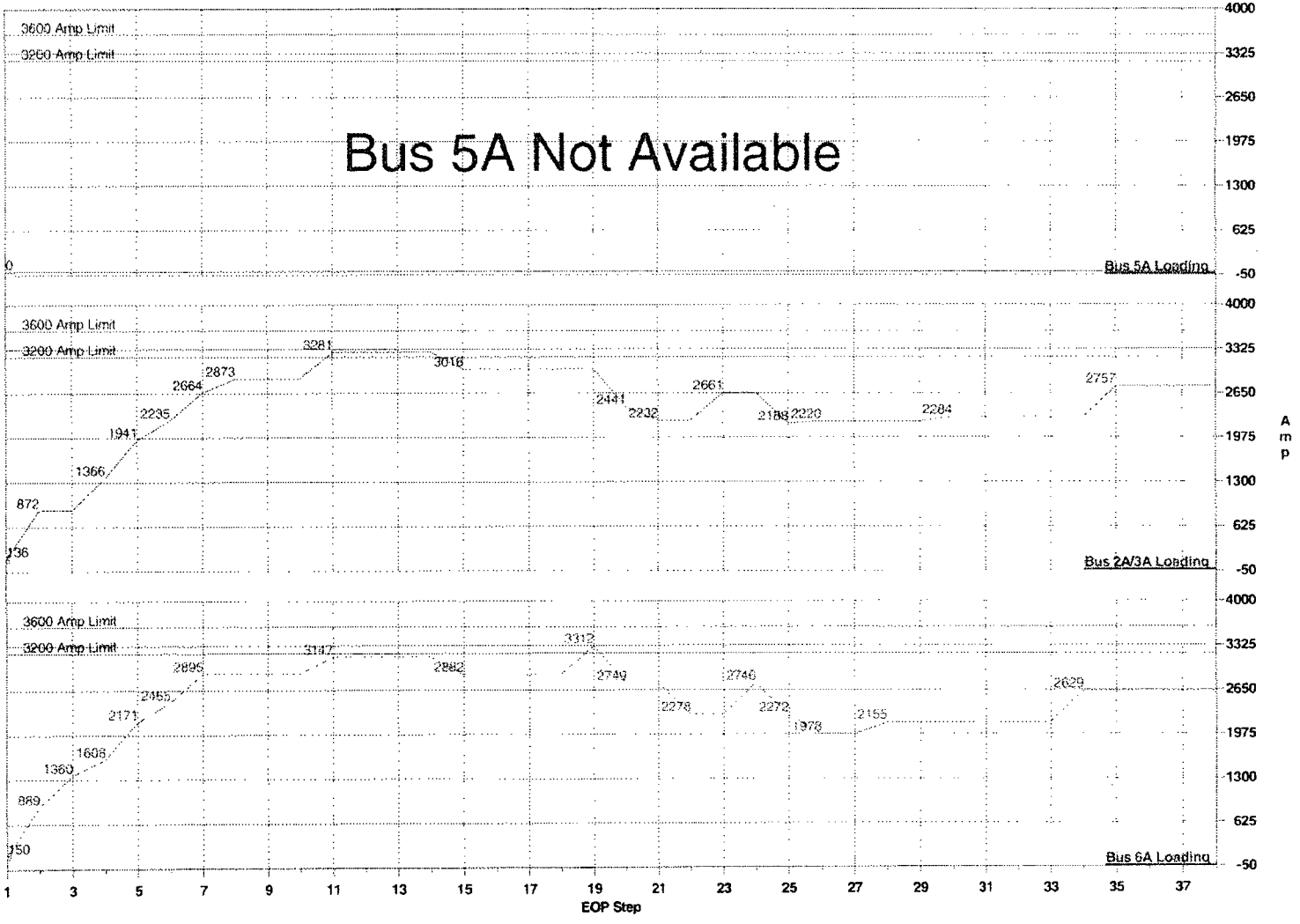
Step Number	SPO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-1-4	---	Reset SI	Manual	* N/A *	0.0	0.0
			(Steps 2 through 12 of RO-1 are completed.)		* N/A *	2873.3	2894.6
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15.	Manual	* N/A *	407.2	252.2
			(Full MCC and lighting reset on Bus 6A.)		* N/A *	3280.5 Over 3200	3146.8
			-127 -3				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment.	Manual	* N/A *	0.0	0.0
			(Load accounted for in MCC reset.)		* N/A *	3280.5 Over 3200	3146.8
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start one CHARGING pump.	Manual	* N/A *	0.0	0.0
			(CHARGING pump 32 is running.)		* N/A *	3280.5 Over 3200	3146.8
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or	Manual	* N/A *	0.0	0.0
			Containment pressure is < 16 psig.				
			(3 FCUs are running and psig > 16.		* N/A *	3280.5 Over 3200	3146.8
			CSPs remain running.)				
			(No Loads Started or Tripped at this step)				
- 15 -	E-1-14	---	Stop RHR pumps, if RCS pressure is > 325	Manual	* N/A *	-264.5	-264.8
			and pressure is stable or increasing.		* N/A *	3016.0	2882.0
			(Pressure > 325 psig.)				
			-117 -120				
- 16 -	< 19 >	---		Manual	* N/A *	0.0	0.0
			*** ENTER ES-1.3 ***				
			TRANSFER TO COLD LEG RECIRCULATION		* N/A *	3016.0	2882.0
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.3-5	---	Stop SI pump 32, if three are running.	Manual	* N/A *	0.0	0.0
			(Three SI pumps are not running, no pump stopped.)				
			If both CSPs are running then stop one.		* N/A *	3016.0	2882.0
			(Only CSP 32 is running.)				
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.3-6	---	CHECK SI Recirc SW 3 Function Complete	Manual	* N/A *	0.0	0.0
			Light - LIT (YES)				
			(RHR pumps - Auto stopped.		* N/A *	3016.0	2882.0
			Pumps already stopped in E-1)				
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 33 started on lightest loaded Bus.)	Manual	* N/A * * N/A *	0.0 3016.0	429.8 3311.8 Over 3200
			+86				-
- 20 -	ES-1.3-7	---	STOP Motor Driven Auxiliary Feed pumps: a. RCS pressure is less than SG pressure. (AFWPs stopped.)	Manual	* N/A * * N/A *	-575.4 2440.6	-962.9 2748.9
			-1 -2				
- 21 -	ES-1.3-8	---	INITIATE Performance of ATTACHMENT 1. Stop any running Charging pumps and PRZR HTRs. (Only pump 32 is running - stopped.)	Manual	* N/A * * N/A *	-208.9 2231.7	0.0 2748.9
			-14				
- 22 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.29 of NSE, One CSP run time is less than 30 minutes. (CSP 32 stopped.)	Manual	* N/A * * N/A *	0.0 2231.7	-471.1 2277.8
			-25				
- 23 -	ES-1.3-9	---	Align SI Recirc SW 2. b. PLACE SI Recirc SW 2 to ON (NESWP 32 auto started. CCWP 33 is running.)	Manual	* N/A * * N/A *	429.0 2660.7	0.0 2277.8
			+85				
- 24 -	ES-1.3-10	---	Align SI Recirc SW 4 Lo Head. b. Manually Start 32 Recirc Pump. (CRP 32 started.)	Manual	* N/A * * N/A *	0.0 2660.7	468.3 2746.1
			+23				
- 25 -	ES-1.3-14	---	Align SI Recirc SW 6 Lo Head. (SI SW 6 Lo Head function Light is Lit. All running SI pumps [31 and 33] auto stopped	Manual	* N/A * * N/A *	-472.4 2188.3	-473.7 2272.4
			-122 -123				
- 26 -	ES-1.3-15	---	Can not Align SI Recirc SW 7. Bus 5A is not available . (Second CRP can not be started. CCWP 33 stopped.)	Manual	* N/A * * N/A *	32.0 2220.3	-294.2 1978.2
			+9 -7 -10				
- 27 -	ES-1.3-24	---	Reset MCCs. (MCCs are already reset.)	Manual	* N/A * * N/A *	0.0 2220.3	0.0 1978.2
			(No Loads Started or Tripped at this step)				

Step Number	SBO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.3-25	---	Start one PAB fan. (PAB fan 32 started on lightest loaded Bus.)	Manual	* N/A * * N/A *	0.0 2220.3	177.0 2155.2
			+88				
- 29 -	ES-1.3-26	---	Shutdown unnecessary equipment. a. Check CCWPs. If 3 are runniong then stop one. b. Check ESWPs. If 3 are runniong then stop one. (Only one CCWPs and ESWPs are running.) (No Loads Started or Tripped at this step)	Manual	* N/A * * N/A *	0.0 2220.3	0.0 2155.2
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.)	Manual	* N/A * * N/A *	63.8 2284.1	0.0 2155.2
			+47				
- 31 -	ES-1.3-35	---	CHECK Containment Hydrogen Concentration: (Hydrogen concentration less than 0.5% by volume.) (No Loads Started or Tripped at this step)	Manual	* N/A * * N/A *	0.0 2284.1	0.0 2155.2
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >> (No Loads Started or Tripped at this step)	Manual	* N/A * * N/A *	0.0 2284.1	0.0 2155.2
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (Bus 5A unavailable to start pump 31.) (No Loads Started or Tripped at this step)	Manual	* N/A * * N/A *	0.0 2284.1	0.0 2155.2
- 34 -	ES-1.4-8	---	Start SI pump 33. (SI pump 33 started.)	Manual	* N/A * * N/A *	0.0 2284.1	473.7 2628.9
			+123				
- 35 -	ES-1.4-9	---	Start SI pump 32 if both 31 and 33 are not running. (SI pump 32 started.)	Manual	* N/A * * N/A *	472.4 2756.5	0.0 2628.9
			+122				
- 36 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 *** (No Loads Started or Tripped at this step)	Manual	* N/A * * N/A *	0.0 2756.5	0.0 2628.9

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 37 -	ES-1.3-34	---	Determine if intact SGs should be depressurized to RCS pressure.	Manual	* N/A *	0.0	0.0
					* N/A *	2756.5	3628.9
			(No Loads Started or Tripped at this step)				
- 38 -	ES-1.3-37	---	Evaluate long term plant status.	Manual	* N/A *	0.0	0.0
					* N/A *	2756.5	3628.9
			(No Loads Started or Tripped at this step)				

SMALL BREAK LOCA (PH B)



Small Break LOCA (PH B)
Buses 2A/3A Tied Together, Bus 5A Not Available
Offsite Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
CCWP 32	2A
CRP 32	6A
ESWP 35	3A
ESWP 36	6A
FCU 32	2A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
NESWP 32	2A
NESWP 33	6A
PAB FAN 32	6A
SI PUMP 32	2A
SI PUMP 33	6A
MCCS RESET (2A/3A) AS PER SOP-EL-15	
TOTAL MCCS & LIGHTING RESET BUS 6A	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:52 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2653.2 Bus 2A/3A = ' N/A ' Bus 6A = 2525.3 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36D and 36E	Auto	169.5	* N/A *	150.1
					169.5	* N/A *	150.1
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI Pumps 31 and 33	Auto	472.4	* N/A *	738.5
			RHR Pump 32 (Pump is in mini flow due to RCS pressure > 325.)		641.9	* N/A *	888.6
			(RO verifies that pumps are running.)				
			+120 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	453.6	* N/A *	471.1
			(E-0-9 verifies that pumps are running.)		1095.5	* N/A *	1359.7
			+24 +26				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	491.9	* N/A *	248.0
			(RO verifies that fans are running.)		1587.4	* N/A *	1607.7
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWP 33	Auto	0.0	* N/A *	562.9
			(RO verifies that pump is running.)		1587.4	* N/A *	2170.6
			+2				
- 6 -	---	RO-1-7	CCWPs 31 and 33	Auto	293.4	* N/A *	294.2
			(RO verifies that pumps are running.)		1880.8	* N/A *	2464.8
			+5 +11				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	429.8	* N/A *	429.8
			(RO verifies that pump is running.)		2310.6	* N/A *	2894.6
			-26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available. (CHARGING pump 31 started on lightest loaded Bus.)	Manual	208.5	* N/A *	0.0
					2519.1	* N/A *	2894.6
			+13				
- 9 -	< 17 >	---	*** SMALL BREAK LOCA WITH SPRAY ***	Manual	0.0	* N/A *	0.0
			*** EVENT IDENTIFIED, EXIT TO E-1 ***		2519.1	* N/A *	2894.6
			(No Loads Started or Tripped at this step)				

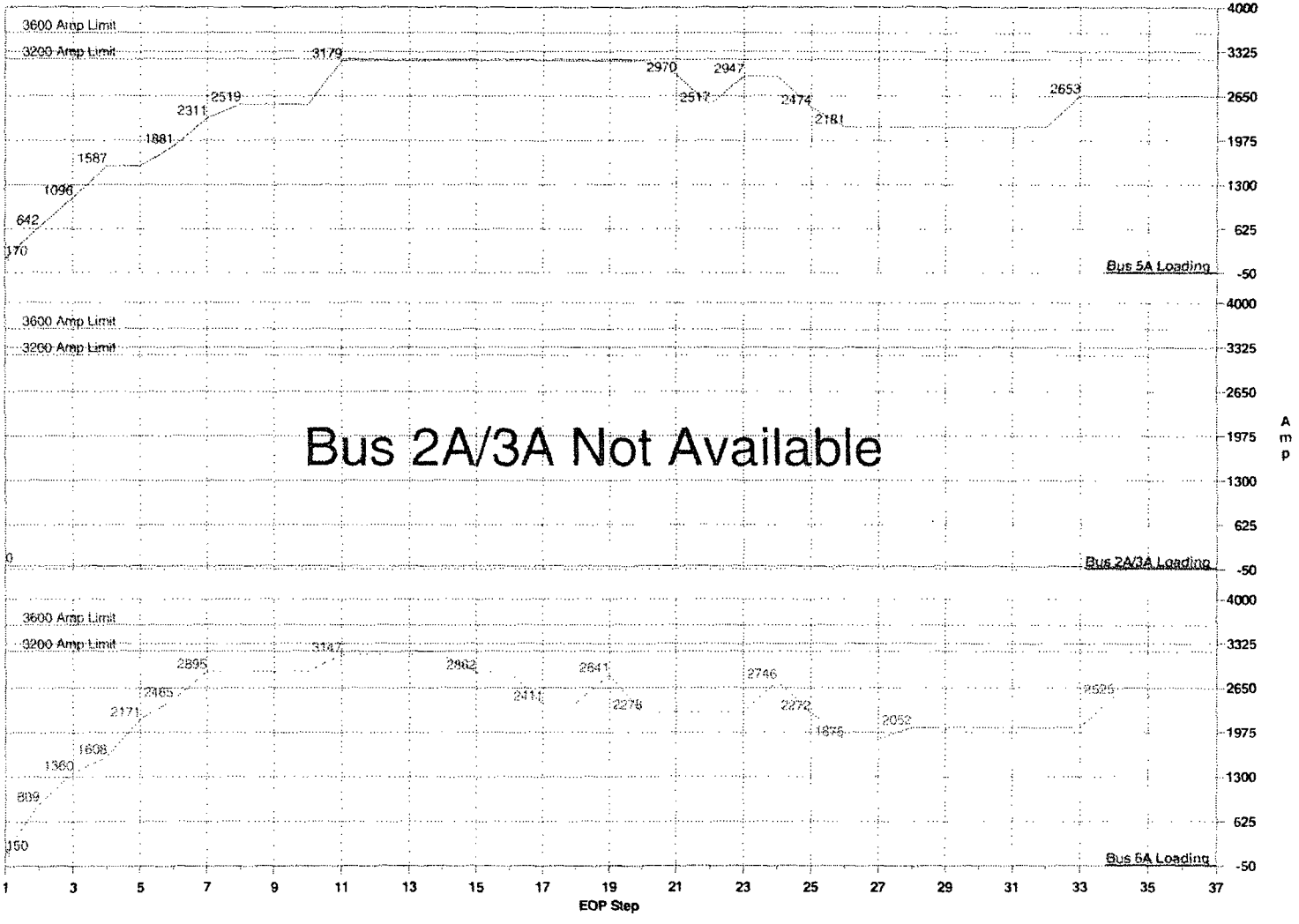
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-1-4	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2519.1	* N/A * * N/A *	0.0 2894.6
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Full MCC and lighting reset.)	Manual	659.8 3178.9	* N/A * * N/A *	252.2 3146.8
			+126 +127				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 3178.9	* N/A * * N/A *	0.0 3146.8
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 3178.9	* N/A * * N/A *	0.0 3146.8
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 psig. (3 FCUs are running. CSPs remain running.)	Manual	0.0 3178.9	* N/A * * N/A *	0.0 3146.8
			(No Loads Started or Tripped at this step)				
- 15 -	E-1-14	---	Stop RHR pumps, if RCS pressure is > 325 and pressure is stable or increasing. (Pressure > 325 psig.)	Manual	0.0 3178.9	* N/A * * N/A *	-264.8 2882.0
			-120				
- 16 -	< 19 >	---	*** ENTER ES-1.3 *** TRANSFER TO COLD LEG RECIRCULATION	Manual	0.0 3178.9	* N/A * * N/A *	0.0 2882.0
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.3-5	---	CHECK SI Recirc SW 1 Function Complete Light - LIT (YES) (Two SI pumps are running. CSP 32 stopped.)	Manual	0.0 3178.9	* N/A * * N/A *	-471.1 2410.9
			-25				
- 18 -	ES-1.3-6	---	CHECK SI Recirc SW 1 Function Complete Light - LIT (YES) (RHR pumps - Auto stopped. Pumps [32] stopped in E-1.) (No Loads Started or Tripped at this step)	Manual	0.0 3178.9	* N/A * * N/A *	0.0 2410.9

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RG-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 33 started on lightest loaded Bus.)	Manual	0.0 3178.9	* N/A * * N/A *	429.8 2840.7
- 20 -	ES-1.3-7	---	+86 STOP Motor Driven Auxiliary Feed Pumps: a. RCS pressure is less than SG pressure. (AFWPs - stopped.)	Manual	0.0 3178.9	* N/A * * N/A *	-562.9 2277.8
- 21 -	ES-1.3-8	---	-2 Initiate Performance of ATTACHMENT 1 Stop any running Charging pumps and PRZR HTRs. (Only pump 31 is running - stopped.)	Manual	-208.5 2970.4	* N/A * * N/A *	0.0 2277.8
- 22 -	NSE 99-3-075	NSE 99-3-075	-13. AS PER SECTION 4.2.29 of NSE, One CSP run time is less than 30 minutes. (CSP 31 stopped.)	Manual	-453.6 2516.8	* N/A * * N/A *	0.0 2277.8
- 23 -	ES-1.3-9	---	-24 Align SI Recirc SW 2. b. PLACE SI Recirc SW to ON (NESWP 31 auto started, CCWP 33 is running.)	Manual	429.8 2946.6	* N/A * * N/A *	0.0 2277.8
- 24 -	ES-1.3-10	---	+84 ALIGN SI Recirc SW 4 Lo Head. b. Manually START 32 Recirc Pump. (CRP 32 started.)	Manual	0.0 2946.6	* N/A * * N/A *	468.3 2746.1
- 25 -	ES-1.3-14	---	+23 ALIGN SI Recirc SW 6 Lo Head. (SI SW 6 Lo Head function Light is Lit. All running SI pumps auto stopped.)	Manual	-472.4 2474.2	* N/A * * N/A *	-473.7 2272.4
- 26 -	ES-1.3-15	---	-121 -123 Can not ALIGN SI Recirc SW 7. Bus 2A/3A is not available. (CCWP 31 and NESWP 33 stopped.)	Manual	-293.4 2180.8	* N/A * * N/A *	-397.8 1874.6
- 27 -	ES-1.3-24	---	+12 -86 -5 -11 Reset MCCs. (MCCs are already stopped.)	Manual	0.0 2180.8	* N/A * * N/A *	0.0 1874.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.3-25	---	Start one PAB fan. (PAB fan 32 started.)	Manual	0.0	* N/A *	177.0
					2180.8	* N/A *	2051.6
			+88				
- 29 -	ES-1.3-26	---	Shutdown unnecessary equipment.	Manual	0.0	* N/A *	0.0
			a. Check CCWPs. If 3 are running then stop one.				
			b. Check ESWPs. If 3 are running then stop one.		2180.8	* N/A *	2051.6
			(Only one CCWP and two ESSPs are running.)				
			(No Loads Started or Tripped at this step)				
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF	Manual	0.0	* N/A *	0.0
			480V Buses poweredfrom Offsite				
			and tie-breakers are open. Start Turbine		2180.8	* N/A *	2051.6
			turning gear (Bus 2A/3A unavailable to start gear)				
			(No Loads Started or Tripped at this step)				
- 31 -	ES-1.3-35	---	CHECK Containment Hydrogen Concentration:	Manual	0.0	* N/A *	0.0
			(Hydrogen concentration less than 0.5% by volume.)		2180.8	* N/A *	2051.6
			(No Loads Started or Tripped at this step)				
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 ***	Manual	0.0	* N/A *	0.0
			<< 6.5 HOURS ELAPSE PRIOR TO				
			ENTERING ES-1.4-1 >>		2180.8	* N/A *	2051.6
			(No Loads Started or Tripped at this step)				
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION ***	Manual	472.4	* N/A *	0.0
			Start SI pump 31.				
			(SI pump 31 started.)		2653.2	* N/A *	2051.6
			+121				
- 34 -	ES-1.4-8	---	Start SI pump 33.	Manual	0.0	* N/A *	473.7
			(SI pump 33 started.)		2653.2	* N/A *	2525.3
			+123				
- 35 -	ES-1.4-11	---		Manual	0.0	* N/A *	0.0
			*** RETURN TO ES-1.3 Step 37 ***		2653.2	* N/A *	2525.3
			(No Loads Started or Tripped at this step)				
- 36 -	ES-1.3-34	---	Determine if intact SGs should	Manual	0.0	* N/A *	0.0
			be depressurized to RCS pressure.		2653.2	* N/A *	2525.3
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 37 -	ES-1.3-37	---	Evaluate long term plant status..	Manual	0.0	* N/A *	0.0
					2653.2	* N/A *	2525.3
			(No Loads Started or Tripped at this step)				

SMALL BREAK LOCA (PH B)



Small Break LOCA (PH B)
Buses 2A and / or 3A Not Available
Offsite Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
CCWP 33	6A
CRP 32	6A
ESWP 34	5A
ESWP 36	6A
FCU 31	5A
FCU 33	5A
FCU 35	6A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
PAB FAN 32	6A
SI PUMP 31	5A
SI PUMP 33	6A
TOTAL MCCS & LIGHTING RESET BUS 5A	5A
TOTAL MCCS & LIGHTING RESET BUS 6A	6A

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:55 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1368.1 Bus 2A/3A = 1216.8 Bus 6A = 1480.9 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	110.0	94.3	100.4
					110.0	94.3	100.4
			+57 +50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	327.2	509.2	509.2
			RHR Pumps 31 and 32 (Pumps are in mini flow due to RCS pressure > 325.)		437.2	603.5	609.6
			(RO verifies that pumps are running.)				
			+117 +120 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	307.3	0.0	319.5
			(E-0-9 verifies that pumps are running.)		744.5	603.5	929.1
			+24 +25				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	258.0	258.0	129.0
			(RO verifies that fans are running.)		1002.5	861.5	1058.1
			+29 +31 +33 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	378.9	375.7
			(RO verifies that pumps are running.)		1002.5	1240.4	1433.8
			+1 +2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Auto	0.0	0.0	0.0
			(All Buses are powered from EDGs.)		1002.5	1240.4	1433.8
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	280.8	280.8	280.8
			(RO verifies that pumps are running.)		1283.3	1521.2	1714.6
			+26 +27 +28				
- 8 -	S-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	140.2	0.0	0.0
			(CHARGING pump 31 started on lightest loaded Bus.)		1423.5	1521.2	1714.6
			+13				
- 9 -	< 17 >	---		Manual	0.0	0.0	0.0
			*** SMALL BREAK LOCA WITH SPRAY ***				
			*** EVENT IDENTIFIED. EXIT TO E-1 ***		1423.5	1521.2	1714.6
			(No Loads Started or Tripped at this step)				

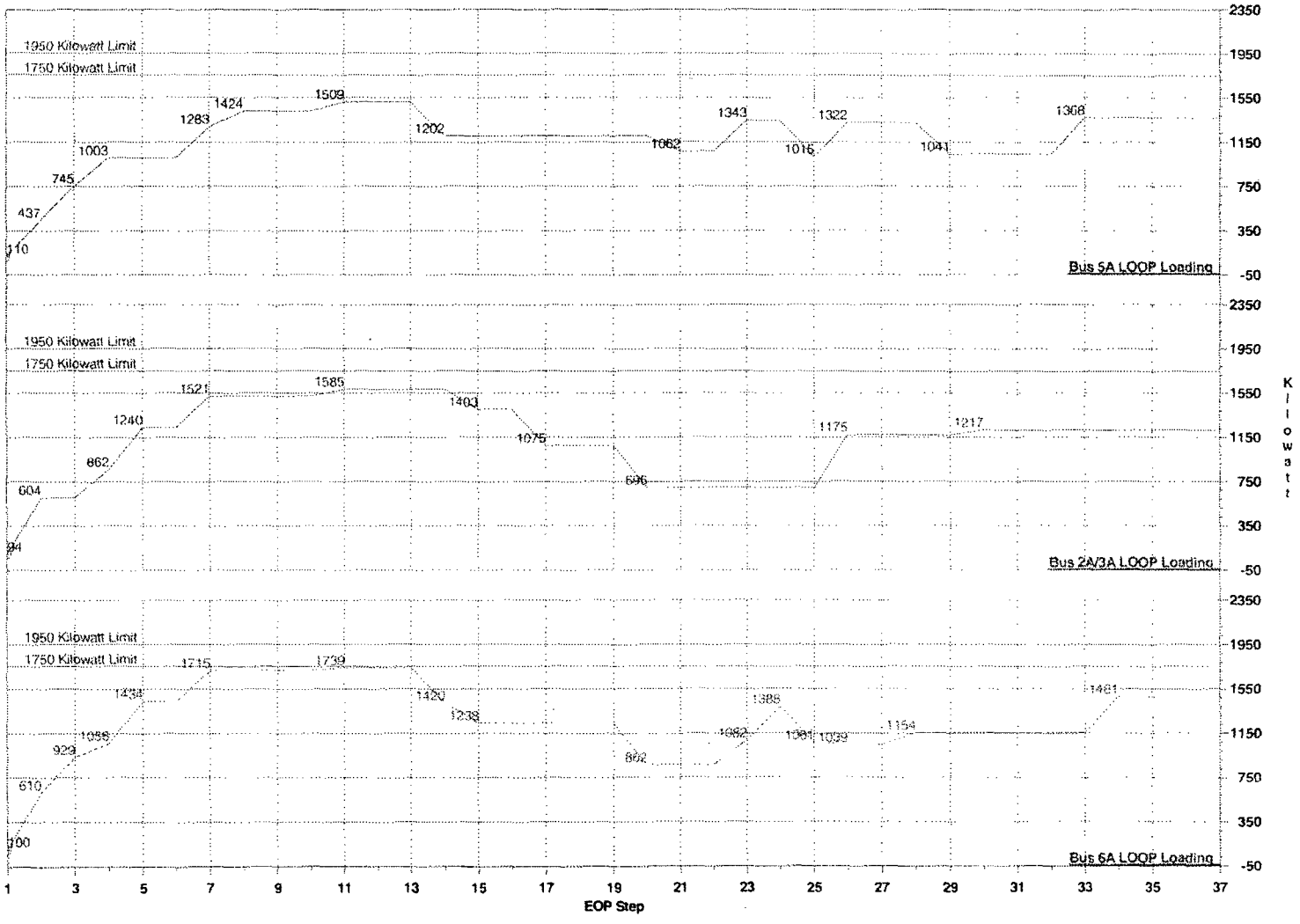
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-1-4	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1423.5	0.0 1521.2	0.0 1714.6
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15 (MCCs are reset.)	Manual	85.8 1509.3	63.3 1584.5	24.8 1739.4
			+82 +81 +83				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1509.3	0.0 1584.5	0.0 1739.4
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start CHARGING one pump (CHARGING pump 31 is running.)	Manual	0.0 1509.3	0.0 1584.5	0.0 1739.4
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 psig. (5 FCUs are running, CSPs stopped.)	Manual	-307.3 1202.0	0.0 1584.5	-319.5 1419.9
			-24 -25				
- 15 -	E-1-14	---	Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (Pressure > 325 psig)	Manual	0.0 1202.0	-182.0 1402.5	-182.0 1237.9
			-117 -120				
- 16 -	< 19 >	---	*** ENTER ES-1.3 *** TRANSFER TO COLD LEG RECIRCULATION	Manual	0.0 1202.0	0.0 1402.5	0.0 1337.9
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.3-5	---	CHECK SI Recirc SW 1 Function Complete Light - LIT. (YES) (SI pump 32 - Auto stopped. CSPs stopped in E-1.)	Manual	0.0 1202.0	-327.2 1075.3	0.0 1237.9
			-122				
- 18 -	ES-1.3-6	---	CHECK SI Recirc SW 3 Function Complete Light - LIT. (YES) (RHR pumps 31 and 32 - Auto stopped.)	Manual	0.0 1202.0	0.0 1075.3	0.0 1237.9
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	---	RO-1-20	CHECK if OFFsite power is available to a 480V Bus to start at least one NESWP. (All Buses are powered from EDGs.)	Manual	0.0 1202.0	0.0 1075.3	0.0 1237.9
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.3-7	---	STOP Motor Driven Auxiliary Feed Pumps: a. RCS pressure is less than SG pressures. (AFWPs - stopped.)	Manual	0.0 1202.0	-378.9 696.4	-375.7 862.2
			-1 -2				
- 21 -	ES-1.3-8	---	INITIATE Performance of ATTACHMENT 1. Stop Any Running Charging Pumps. (Only Charging pump 31 is running - stopped.) Place all PRZR HTRs to off. (No HTRs are on.)	Manual	-140.2 1061.8	0.0 696.4	0.0 862.2
			-13				
- 22 -	NSE 99-3-075	NSE 99-3-075	AS PER section 4.2.20 of NSE One CSP run time is less than 30 minutes. (No CSPs are running.)	Manual	0.0 1061.8	0.0 696.4	0.0 862.2
			(No Loads Started or Tripped at this step)				
- 23 -	ES-1.3-9	---	Align SI Recirc SW 2. b. PLACE SI Recirc SW 2 to ON. (NESWP 31 and CCWP 33 Auto started.)	Manual	280.8 1342.6	0.0 696.4	219.6 1081.8
			+84 +12				
- 24 -	ES-1.3-10	---	ALIGN SI Recirc SW 4 Lo Head. b. Manually START 32 Recirc Pump. (CRP 32 started.)	Manual	0.0 1342.6	0.0 696.4	306.3 1388.1
			+23				
- 25 -	ES-1.3-14	---	ALIGN SI Recirc SW 6 Lo Head. (SI SW 6 Lo Head function Light is LIT. All running SI pumps [31 and 33] auto stopped.)	Manual	-327.2 1015.4	0.0 696.4	-327.2 1060.9
			-121 -123				
- 26 -	ES-1.3-15	---	ALIGN SI Recirc SW 7. b. PLACE SI Recirc SW 7 to ON. (CCWP 32, NESWP 32 and CRP 31 Auto started.)	Manual	306.3 1321.7	478.9 1175.3	-21.5 1039.4
			+85 +8 +11 +18 -12				
- 27 -	ES-1.3-24	---	Reset MCCs via SOP-EL-15. (MCCs are already reset.)	Manual	0.0 1321.7	0.0 1175.3	0.0 1039.4
			(No Loads Started or Tripped at this step)				

Step Number	SBO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 28 -	ES-1.3-25	---	CHECK PAB Exhaust Fan Status: (No PAB fan is running.) (PAB fan 32 started on lightest loaded Bus.)	Manual	0.0 1321.7	0.0 1175.3	114.3 1153.7
			+86				
- 29 -	ES-1.3-28	---	Shutdown Unnecessary Plant Equipment: a. Check CCWPs. if 3 are running then stop one b. Check ESWPs. if 3 are running then stop one (ESWP 34 stopped on heaviest loaded Bus.)	Manual	-280.8 1040.9	0.0 1175.3	0.0 1153.7
			-36				
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 4160V Buses are powered from Offsite Power. (All Buses are powered from EDGs.) Start Turb Turning Gear. (Turning Gear started.)	Manual	0.0 1040.9	41.5 1216.8	0.0 1153.7
			+47				
- 31 -	ES-1.3-35	---	CHECK Containment Hydrogen Concentration: (Hydrogen concentration less than 0.5% by volume.)	Manual	0.0 1040.9	0.0 1216.8	0.0 1153.7
			(No Loads Started or Tripped at this step)				
- 32 -	ES-1.3- 36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >>	Manual	0.0 1040.9	0.0 1216.8	0.0 1153.7
			(No Loads Started or Tripped at this step)				
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (SI pump 31 started.)	Manual	327.2 1368.1	0.0 1216.8	0.0 1153.7
			+121				
- 34 -	ES-1.4-8	---	Start SI pump 33. (SI pump 33 started.)	Manual	0.0 1368.1	0.0 1216.8	327.2 1480.9
			+123				
- 35 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 ***	Manual	0.0 1368.1	0.0 1216.8	0.0 1480.9
			(No Loads Started or Tripped at this step)				
- 36 -	ES-1.3-34	---	Determine if intact SGs should be depressurized to RCS pressure.	Manual	0.0 1368.1	0.0 1216.8	0.0 1480.9
			(No Loads Started or Tripped at this step)				

Step Number	SPO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 37 -	ES-1.3-37	---	Evaluate long term plant status.	Manual	0.0	0.0	0.0
					1368.1	1216.8	1480.9
			(No Loads Started or Tripped at this step)				

SMALL BREAK LOCA (PH B)



Small Break LOCA (PH B)
Buses 2A/3A Tied Together, All Busses Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
CCWP 32	EDG 31
CCWP 33	EDG 32
CRP 32	EDG 32
ESWP 35	EDG 31
ESWP 36	EDG 32
FCU 31	EDG 33
FCU 32	EDG 31
FCU 33	EDG 33
FCU 34	EDG 31
FCU 35	EDG 32
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36A: AUTO	EDG 33
MCC 36B: AUTO	EDG 32
MCC 36C: AUTO	EDG 31
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 33
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 31	EDG 33
NESWP 32	EDG 31
PAB FAN 32	EDG 32
SI PUMP 31	EDG 33
SI PUMP 33	EDG 32

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:55 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1648.9 Bus 2A/3A = 1399.0 Bus 6A = * N/A * (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Bus 6A Not Available

1950 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Bus 6A Not Available

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36C, and 36E	Auto	110.0	94.3	* N/A *
					110.0	94.3	* N/A *
			+57 +50 +60				
- 2 -	---	RO-1-2	SI pumps 31, and 32	Auto	327.2	509.2	* N/A *
			RHR Pump 31 (Pumps are in mini				
			flow due to RCS pressure > 325.)		437.2	603.5	* N/A *
			(RO verifies that pumps are running.)				
			+117 +121 +122				
- 3 -	E-0-9	---	CSPs 31	Auto	307.3	0.0	* N/A *
			(E-0-9 verifies that pumps are running.)		744.5	603.5	* N/A *
			+24				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, and 34	Auto	258.0	258.0	* N/A *
			(RO verifies that fans are running.)		1002.5	861.5	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWPs 31	Auto	0.0	378.9	* N/A *
			(RO verifies that pumps are running.)		1002.5	1240.4	* N/A *
			+1				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus.	Manual	0.0	0.0	* N/A *
			to start at least one CCWP.				
			(All Buses are powered from EDGs.)		1002.5	1240.4	* N/A *
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 35)	Auto	280.8	280.8	* N/A *
			(RO verifies that pumps are running.)		1283.3	1521.2	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	140.2	0.0	* N/A *
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		1423.5	1521.2	* N/A *
			loaded Bus.)				
			+13				
- 9 -	< 17 >	---		Manual	0.0	0.0	* N/A *
			*** SMALL BREAK LOCA WITH SPRAY ***				
			*** EVENT IDENTIFIED, EXIT TO E-1 ***		1423.5	1521.2	* N/A *
			(No Loads Started or Tripped at this step)				

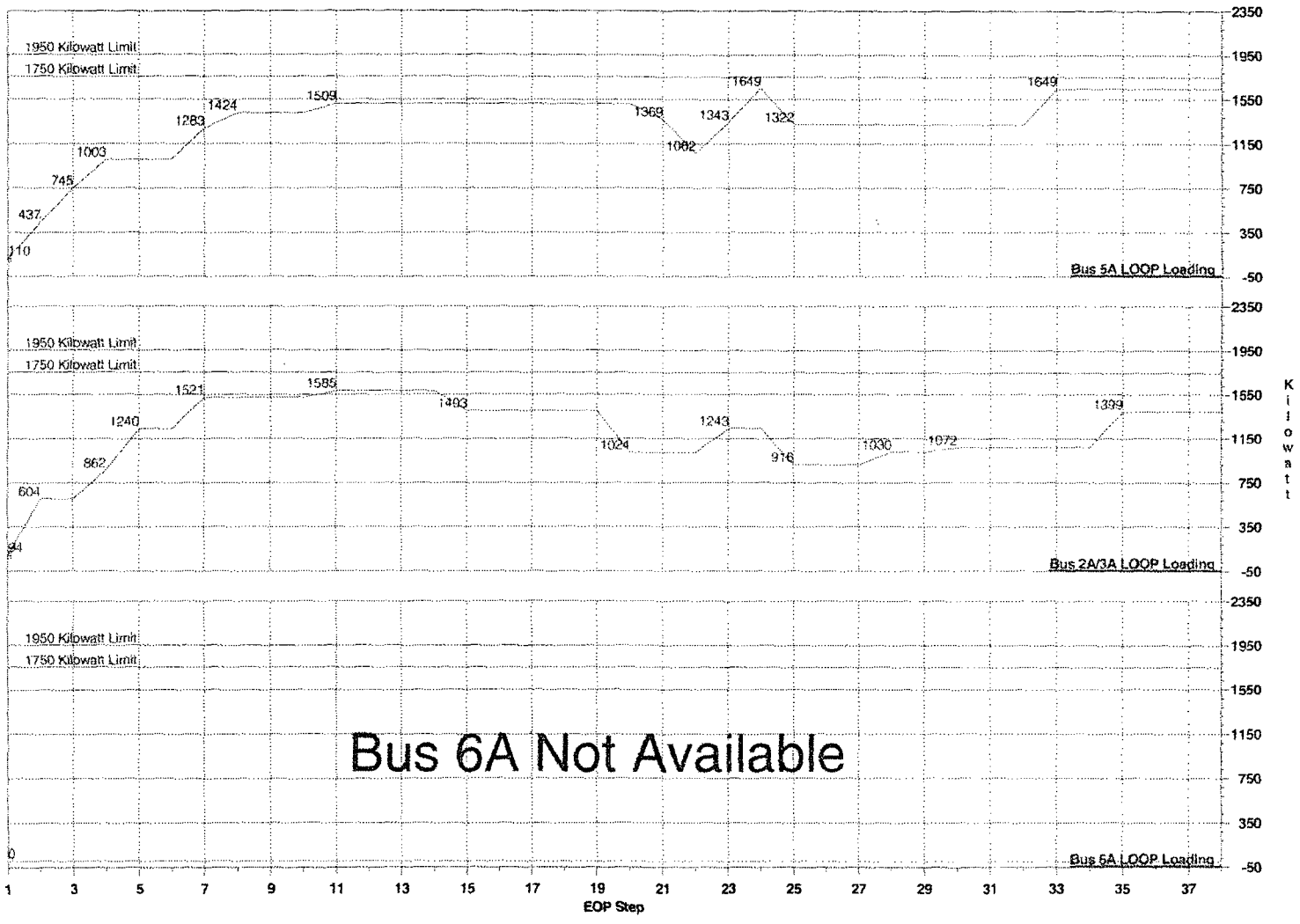
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-1-4	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1423.5	0.0 1521.2	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15 (MCCs are reset.)	Manual	85.8 1509.3	63.3 1584.5	* N/A * * N/A *
			+82 +81				
- 12 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1509.3	0.0 1584.5	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 13 -	E-1-11	---	Start CHARGING one pump. (CHARGING pump 31 is running.)	Manual	0.0 1509.3	0.0 1584.5	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-13	---	Stop CSPs if 5 FCUs are running or Containment pressure is <.16 psig. (4 FCUs are running and psig > 16 CSP 31 remains running.)	Manual	0.0 1509.3	0.0 1584.5	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 15 -	E-1-14	---	Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (Pressure > 325 psig)	Manual	0.0 1509.3	-102.0 1402.5	* N/A * * N/A *
			-117				
- 16 -	< 19 >	---	*** ENTER ES-1.3 *** TRANSFER TO COLD LEG RECIRCULATION	Manual	0.0 1509.3	0.0 1402.5	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.3-5	---	CHECK SI Recirc SW 1 Function Complete Light - LIT. (YES) (Only two SI pumps and one CSP are running. CSP 31 remains running.)	Manual	0.0 1509.3	0.0 1402.5	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.3-6	---	CHECK SI Recirc SW 3 Function Complete Light - LIT. (YES) (RHR pumps 31 and 32 - Auto stopped.)	Manual	0.0 1509.3	0.0 1402.5	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NERSWP. (All Buses are powered from EDGs.)	Manual	0.0 / 1509.3	0.0 / 1402.5	* N/A * / * N/A *
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.3-7	---	STOP Motor Driven Auxiliary Feed Pumps: a. RCS pressure is less than SG pressures. (AFWPs - stopped.)	Manual	0.0 / 1509.3	-378.9 / 1023.6	* N/A * / * N/A *
			-1				
- 21 -	ES-1.3-8	---	INITIATE Performance of ATTACHMENT 1. Stop Any Running Charging Pumps. (Only Charging pump 31 is running - stopped.) Place all PRZR HTRs to off. (No HTRs are on.)	Manual	-140.2 / 1369.1	0.0 / 1023.6	* N/A * / * N/A *
			-13				
- 22 -	NSE 99-3-075	NSE-99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (CSP 31 stopped.)	Manual	-307.3 / 1061.8	0.0 / 1023.6	* N/A * / * N/A *
			-24				
- 23 -	ES-1.3-9	---	Align SI Recirc SW 2. b. PLACE SI Recirc SW 2 to ON. (NESWP 31 and CCWP 32 Auto started.)	Manual	280.8 / 1342.6	219.6 / 1243.2	* N/A * / * N/A *
			+84 +9				
- 24 -	ES-1.3-10	---	ALIGN SI Recirc SW 4 Lo Head. b. Manually START 32 Recirc Pump. (Bus 6A unavailable to start CRP 32. CRP 31 started.)	Manual	306.3 / 1648.9	0.0 / 1243.2	* N/A * / * N/A *
			+18				
- 25 -	ES-1.3-14	---	ALIGN SI Recirc SW 6 Lo Head. (SI SW 5 Lo Head function Light is LIT. All running SI pumps [31 and 32] auto stopped.)	Manual	-327.2 / 1321.7	-327.2 / 916.0	* N/A * / * N/A *
			-121 -122				
- 26 -	ES-1.3-15	---	Can not ALIGN SI Recirc sw 7. Bus 6A is not available. (CRP 31 is running.)	Manual	0.0 / 1321.7	0.0 / 916.0	* N/A * / * N/A *
			(No Loads Started or Tripped at this step)				
- 27 -	ES-1.3-24	---	Reset MCCs via SOP-EL-15. (MCCs are already reset.)	Manual	0.0 / 1321.7	0.0 / 916.0	* N/A * / * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 29 -	ES-1.3-25	---	CHECK PAB Exhaust Fan Status: (No PAB fan is running.) (PAB fan 31 started.)	Manual	0.0 1321.7	114.3 1030.3	* N/A * * N/A *
			+87				
- 29 -	ES-1.3-28	---	Shutdown Unnecessary Plant Equipment: a. CheckCCWPs. if 3 are running then stop one b. Check ESWPs. if 3 are running then stop one (Only CCWP 32 and two ESWPs are running.) (No Loads Started or Tripped at this step)	Manual	0.0 1321.7	0.0 1030.3	* N/A * * N/A *
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite Power. (All Buses are powered from EDGs.) Start Turb Turning Gear. (Gear started.)	Manual	0.0 1321.7	41.5 1071.8	* N/A * * N/A *
			+47				
- 31 -	ES-1.3-35	---	CHECK Containment Hydrogen Concentration: (Hydrogen concentration less than 0.5% by volume.)	Manual	0.0 1321.7	0.0 1071.8	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 32 -	ES-1.3- 36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >>	Manual	0.0 1321.7	0.0 1071.8	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (SI pump 31 started.)	Manual	327.2 1649.9	0.0 1071.8	* N/A * * N/A *
			+121				
- 34 -	ES-1.4-8	---	Start SI pump 33. (Bus 6A unavailable to start SI pump 33.)	Manual	0.0 1648.9	0.0 1071.8	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 35 -	ES-1.4-9	---	Start SI pump 32 (SI pump 32 started.)	Manual	0.0 1648.9	327.2 1399.0	* N/A * * N/A *
			+132				
- 36 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 ***	Manual	0.0 1648.9	0.0 1399.0	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/1A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 37 -	ES-1.3-34	---	Determine if intact SGs should be depressurized to RCS pressure.	Manual	0.0	0.0	* N/A *
					1648.9	1399.0	* N/A *
			(No Loads Started or Tripped at this step)				
- 38 -	ES-1.3-37	---	Evaluate long term plant status.	Manual	0.0	0.0	* N/A *
					1648.9	1399.0	* N/A *
			(No Loads Started or Tripped at this step)				

SMALL BREAK LOCA (PH B)



Small Break LOCA (PH B)
Buses 2A/3A Tied Together, Bus 6A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
CCWP 32	EDG 31
CRP 31	EDG 33
ESWP 34	EDG 33
ESWP 35	EDG 31
FCU 31	EDG 33
FCU 32	EDG 31
FCU 33	EDG 33
FCU 34	EDG 31
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36A: AUTO	EDG 33
MCC 36C: AUTO	EDG 31
MCC 36E: AUTO	EDG 33
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
NESWP 31	EDG 33
PAB FAN 31	EDG 31
SI PUMP 31	EDG 33
SI PUMP 32	EDG 31

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NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:55 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 1460.2 Bus 6A = 1388.1 (kW)

1750 kW Overload Summary

Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36B, 36C and 36D	Auto	* N/A *	94.3	100.4
					* N/A *	94.3	100.4
			+57 +63 +59				
- 2 -	---	RO-1-2	SI pumps 32 and 33	Auto	* N/A *	509.2	509.2
			RHR Pumps 31 and 32 (Pumps are in mini flow due to RCS pressure > 325.)		* N/A *	603.5	609.6
			(RO verifies that pumps are running.)				
			+117 +120 +122 +123				
- 3 -	E-0-9	---	CSP 32	Auto	* N/A *	0.0	319.5
			(E-0-9 verifies that pumps are running.)		* N/A *	603.5	929.1
			+25				
- 4 -	---	RO-1-3	FCUs 32, 34 and 35	Auto	* N/A *	258.0	129.0
			(RO verifies that fans are running.)		* N/A *	861.5	1058.1
			+31 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	* N/A *	378.9	375.7
			(RO verifies that pumps are running.)		* N/A *	1240.4	1433.8
			+1 +2				
- 6 -	---	RO-1-7	CHECK if Offsite power is vailable to a 480V Bus to start at least one CCWP.	Manual	* N/A *	0.0	0.0
			(All Buses are powered from EDGs.)		* N/A *	1240.4	1433.8
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (35 and 36)	Auto	* N/A *	280.8	280.8
			(RO verifies that pumps are running.)		* N/A *	1521.2	1714.6
			+27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	* N/A *	140.2	0.0
			(CHARGING pump 32 started on lightest loaded Bus.)		* N/A *	1661.4	1714.6
			+14				
- 9 -	< 17 >	---		Manual	* N/A *	0.0	0.0
			*** SMALL BREAK LOCA WITH SPRAY ***				
			*** EVENT IDENTIFIED, EXIT TO E-1 ***		* N/A *	1661.4	1714.6
			(No Loads Started or Tripped at this step)				

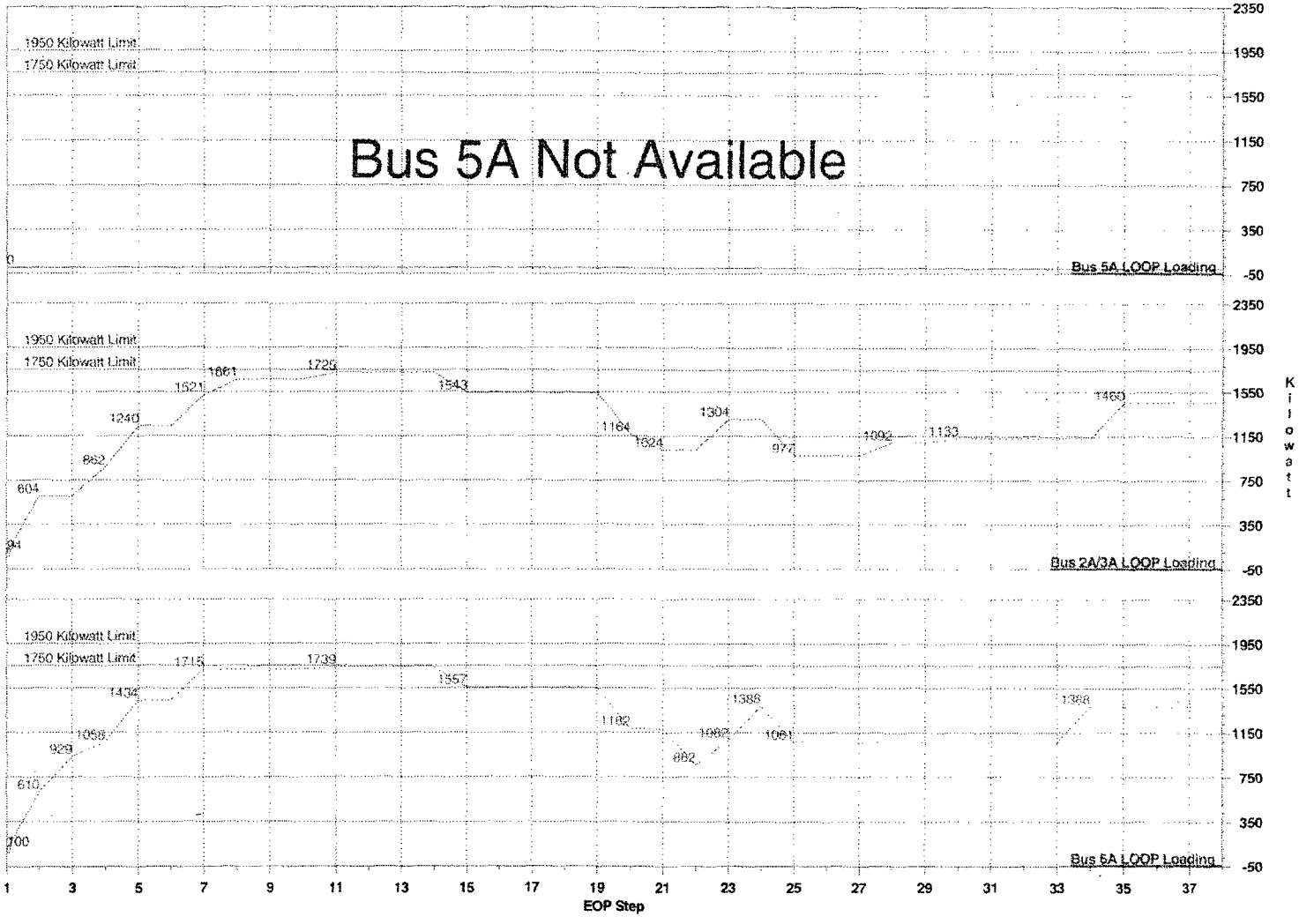
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-1-4	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	* N/A * * N/A *	0.0 1661.4	0.0 1714.6
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (MCC are reset.)	Manual	* N/A * * N/A *	63.3 1724.7	24.8 1739.4
- 12 -	E-1-8	---	+81 +83 ESTABLISH Instrumrnt Air to Containment. (Load accounted for in MCC reset.)	Manual	* N/A * * N/A *	0.0 1724.7	0.0 1739.4
- 13 -	E-1-11	---	(No Loads Started or Tripped at this step) Start CHARGING one pump. (CHARGING pump 32 is running.)	Manual	* N/A * * N/A *	0.0 1724.7	0.0 1739.4
- 14 -	E-1-13	---	(No Loads Started or Tripped at this step) Stop CSPs if 5 FCUs are running or Containment pressure is < 16 psig. (3 FCUs are running and psig > 16. CSP remains running.)	Manual	* N/A * * N/A *	0.0 1724.7	0.0 1739.4
- 15 -	E-1-14	---	(No Loads Started or Tripped at this step) Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (Pressure > 325 psig)	Manual	* N/A * * N/A *	-182.0 1542.7	-182.0 1557.4
- 16 -	< 19 >	---	-117 -120 *** ENTER ES-1.3 *** TRANSFER TO COLD LEG RECIRCULATION	Manual	* N/A * * N/A *	0.0 1542.7	0.0 1557.4
- 17 -	ES-1.3-5	---	(No Loads Started or Tripped at this step) CHECK SI Recirc SW 1 Function Complete Light - LIT. (YES) (Only two SI pumps and one CSP are running. CSP 32 remains running.)	Manual	* N/A * * N/A *	0.0 1542.7	0.0 1557.4
- 18 -	ES-1.3-6	---	(No Loads Started or Tripped at this step) CHECK SI Recirc SW 3 Function Complete Light - LIT. (YES) (RHR pumps 31 and 32 - Auto stopped.)	Manual	* N/A * * N/A *	0.0 1542.7	0.0 1557.4
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (All Buses are powered from EDGs.)	Manual	* N/A * * N/A *	0.0 1542.7	0.0 1557.4
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.3-7	---	STOP Motor Driven Auxiliary Feed Pumps: a. RCS pressure is less than SG pressures. (AFWPs - stopped.)	Manual	* N/A * * N/A *	-378.9 1163.8	-375.7 1181.7
			-1 -2				
- 21 -	ES-1.3-8	---	INITIATE Performance of ATTACHMENT 1. Stop Any Running Charging Pumps. (Only Charging pump 32 is running - stopped.) Place all PRZR HTRs to off. (No HTRs are on.)	Manual	* N/A * * N/A *	-140.2 1023.6	0.0 1181.7
			-14				
- 22 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE, One CSP run time is less than 30 minutes. (CSP 32 stopped.)	Manual	* N/A * * N/A *	0.0 1023.6	-319.5 862.2
			-25				
- 23 -	ES-1.3-9	---	Align SI Recirc SW 2. b. PLACE SI Recirc SW 2 to ON. (NESWP 32 and CCWP 32 Auto started.)	Manual	* N/A * * N/A *	280.8 1304.4	219.6 1081.8
			-85 -12				
- 24 -	ES-1.3-10	---	ALIGN SI Recirc SW 4 Lo Head. b. Manually START 32 Recirc Pump. (CRP 32 started.)	Manual	* N/A * * N/A *	0.0 1304.4	306.3 1388.1
			-23				
- 25 -	ES-1.3-14	---	ALIGN SI Recirc SW 6 Lo Head. (SI SW 6 Lo Head function Light is LIT. All running SI pumps (32 and 33) auto stopped.)	Manual	* N/A * * N/A *	-327.2 977.2	-327.2 1060.9
			-122 -123				
- 26 -	ES-1.3-15	---	Can not Align Recirc SW 7. Bus 5A is not available. (Second CRP can not be started.)	Manual	* N/A * * N/A *	0.0 977.2	0.0 1060.9
			(No Loads Started or Tripped at this step)				
- 27 -	ES-1.3-24	---	Reset MCCs. (MCC already reset.)	Manual	* N/A * * N/A *	0.0 977.2	0.0 1060.9
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 28 -	ES-1.3-25	---	CHECK PAB Exhaust Fan Status: (No PAB fan is running.) (PAB fan 31 started on lightest loaded Bus.)	Manual	* N/A * * N/A *	114.3 1091.5	0.0 1060.9
			+87				
- 29 -	ES-1.3-28	---	Shutdown Unnecessary Plant Equipment: a. CheckCCWPs. if 3 are running then stop one b. Check ESWPs. if 3 are running then stop one (Only one CCWP [33] and two ESWPs are running.) (No Loads Started or Tripped at this step)	Manual	* N/A * * N/A *	0.0 1091.5	0.0 1060.9
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite Power. (All Buses are powered from EDGs.) Start Turb Turning Gear. (Gear started.) +47	Manual	* N/A * * N/A *	41.5 1133.0	0.0 1060.9
- 31 -	ES-1.3-35	---	CHECK Containment Hydrogen Concentration: (Hydrogen concentration less than 0.5% by volume.) (No Loads Started or Tripped at this step)	Manual	* N/A * * N/A *	0.0 1133.0	0.0 1060.9
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >> (No Loads Started or Tripped at this step)	Manual	* N/A * * N/A *	0.0 1133.0	0.0 1060.9
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (Bus 5A unavailable to start pump 31.) (No Loads Started or Tripped at this step)	Manual	* N/A * * N/A *	0.0 1133.0	0.0 1060.9
- 34 -	ES-1.4-8	---	Start SI pump 33. (SI pump 33 started.) +123	Manual	* N/A * * N/A *	0.0 1133.0	327.2 1388.1
- 35 -	ES-1.4-9	---	Start SI pump 32 (SI pump 32 started.) +122	Manual	* N/A * * N/A *	327.2 1460.2	0.0 1388.1
- 36 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 *** (No Loads Started or Tripped at this step)	Manual	* N/A * * N/A *	0.0 1460.2	0.0 1388.1

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 37 -	ES-1.3-34	---	Determine if intact SGs should be depressurized to RCS pressure.	Manual	* N/A *	0.0	0.0
					* N/A *	1460.2	1388.1
			(No Loads Started or Tripped at this step)				
- 38 -	ES-1.3-37	---	Evaluate long term plant status.	Manual	* N/A *	0.0	0.0
					* N/A *	1460.2	1388.1
			(No Loads Started or Tripped at this step)				

SMALL BREAK LOCA (PH B)



Small Break LOCA (PH B)
Buses 2A/3A Tied Together, Bus 5A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
CCWP 33	EDG 32
CRP 32	EDG 32
ESWP 35	EDG 31
ESWP 36	EDG 32
FCU 32	EDG 31
FCU 34	EDG 31
FCU 35	EDG 32
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36B: AUTO	EDG 32
MCC 36C: AUTO	EDG 31
MCC 36D: AUTO	EDG 32
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 32	EDG 31
PAB FAN 31	EDG 31
SI PUMP 32	EDG 31
SI PUMP 33	EDG 32

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

SMALL BREAK LOCA (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:55 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1342.6 Bus 2A/3A = * N/A * Bus 6A = 1502.4 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36B, 36D and 36E	Auto	110.0	* N/A *	100.4
					110.0	* N/A *	100.4
			+50 +53 +59 +69				
- 2 -	---	RO-1-2	SI pumps 31, and 33	Auto	327.2	* N/A *	509.2
			RHR Pumps 32 (Pumps are in mini flow due to RCS pressure > 325.)		437.2	* N/A *	609.6
			(RO verifies that pumps are running.)				
			+120 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	307.3	* N/A *	319.5
			(E-0-9 verifies that pumps are running.)		744.5	* N/A *	929.1
			+24 +25				
- 4 -	---	RO-1-3	FCUs 31, 33, and 35	Auto	258.0	* N/A *	129.0
			(RO verifies that fans are running.)		1002.5	* N/A *	1058.1
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWPs 33	Auto	0.0	* N/A *	375.7
			(RO verifies that pumps are running.)		1002.5	* N/A *	1433.8
			+2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Manual	0.0	* N/A *	0.0
			(All Buses are powered from EDGs.)		1002.5	* N/A *	1433.8
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	280.8	* N/A *	280.8
			(RO verifies that pumps are running.)		1283.3	* N/A *	1714.6
			+26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	140.2	* N/A *	0.0
			(CHARGING pump 31 started on lightest loaded Bus.)		1423.5	* N/A *	1714.6
			+13				
- 9 -	< 17 >	---		Manual	0.0	* N/A *	0.0
			*** SMALL BREAK LOCA WITH SPRAY ***				
			*** EVENT IDENTIFIED, EXIT TO E-1 ***		1423.5	* N/A *	1714.6
			(No Loads Started or Tripped at this step)				

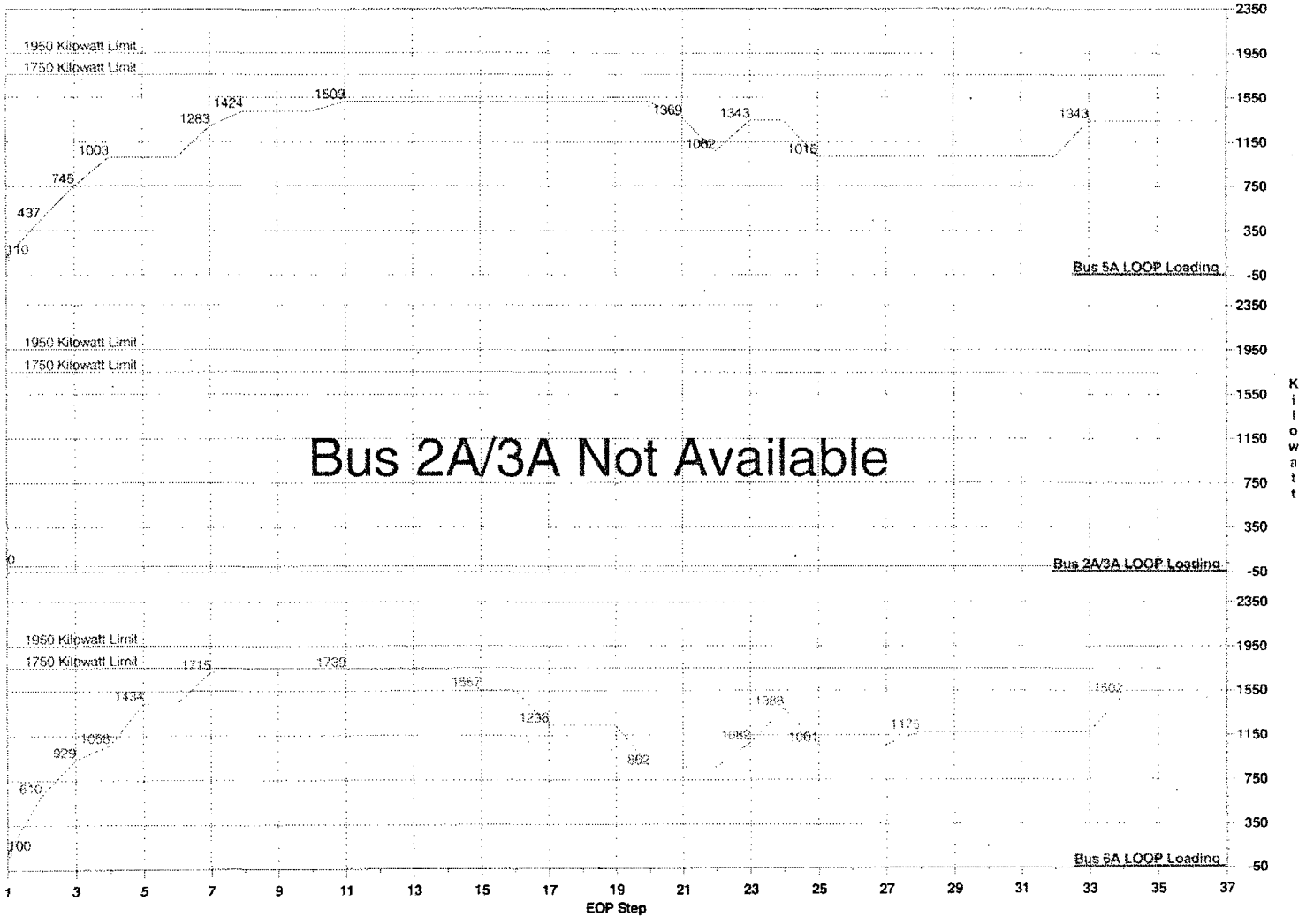
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-1-4	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1423.5	* N/A * * N/A *	0.0 1714.6
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (MCCs are reset.)	Manual	86.8 1509.3	* N/A * * N/A *	24.8 1739.4
- 12 -	ES-1-8	---	+92 +83 ESTABLISH Instrumnet Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1509.3	* N/A * * N/A *	0.0 1739.4
- 13 -	E-1-11	---	(No Loads Started or Tripped at this step) Start CHARGING one pump (CHARGING pump 31 is running.)	Manual	0.0 1509.3	* N/A * * N/A *	0.0 1739.4
- 14 -	E-1-13	---	(No Loads Started or Tripped at this step) Stop CSPs if 5 FCUs are running or Containment pressure is < 16 psig. (3 FCUs are running, CSPs remain running.)	Manual	0.0 1509.3	* N/A * * N/A *	0.0 1739.4
- 15 -	E-1-14	---	(No Loads Started or Tripped at this step) Stop RHR pumps if pressure is > 325 and pressure is stable or increasing. (Pressure > 325 psig)	Manual	0.0 1509.3	* N/A * * N/A *	-182.0 1557.4
- 16 -	< 19 >	---	-130 *** ENTER ES-1.3 *** TRANSFER TO COLD LEG RECIRCULATION	Manual	0.0 1509.3	* N/A * * N/A *	0.0 1557.4
- 17 -	ES-1.3-5	---	(No Loads Started or Tripped at this step) CHECK Recirc SW 1 Function Complete Light - LIT. (YES) (3 SI pumps and two CSPs are running. CSP 32 is stopped 31 remains running.)	Manual	0.0 1509.3	* N/A * * N/A *	-319.5 1237.9
- 18 -	ES-1.3-6	---	-85 CHECK SI Recirc SW Function Complete Light - LIT YES ...3 pumps ...to st ...	Manual	0.0 1509.3	* N/A * * N/A *	0.0 1237.9
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (All Buses are powered from EDGs.)	Manual	0.0 1509.3	* N/A * * N/A *	0.0 1237.9
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.3-7	---	STOP Motor Driven Auxiliary Feed Pumps: a. RCS pressure is less than SG pressures. (AFWPs - stopped.)	Manual	0.0 1509.3	* N/A * * N/A *	-375.7 862.2
			-2				
- 21 -	ES-1.3-8	---	INITIATE Performance of ATTACHMENT 1. Stop Any Running Charging Pumps. (Only Charging pump 31 is running - stopped.) Place all PRZR HTRs to off. (No HTRs are on.)	Manual	-140.2 1369.1	* N/A * * N/A *	0.0 862.2
			-13				
- 22 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE, One CSP run time is less than 30 minutes. (CSP 31 stopped.)	Manual	-307.3 1061.8	* N/A * * N/A *	0.0 862.2
			-24				
- 23 -	ES-1.3-9	---	Align SI Recirc SW 2. b. PLACE SI Recirc SW 2 to ON. (NESWP 31 and CCWP 33 Auto started.)	Manual	280.8 1342.6	* N/A * * N/A *	219.6 1081.8
			+84 +12				
- 24 -	ES-1.3-10	---	ALIGN SI Recirc SW 4 Lo Head. b. Manually START 32 Recirc Pump. (CRP 32 started.)	Manual	0.0 1342.6	* N/A * * N/A *	306.3 1388.1
			+23				
- 25 -	ES-1.3-14	---	ALIGN SI Recirc SW 6 Lo Head. (SI SW 6 Lo Head function Light is LIT. All running SI pumps (31 and 33) auto stopped.)	Manual	-327.2 1015.4	* N/A * * N/A *	-327.2 1060.9
			-121 -123				
- 26 -	ES-1.3-15	---	Can not ALIGN SI Recirc SW 7, Bus 2A/3A is not available	Manual	0.0 1015.4	* N/A * * N/A *	0.0 1060.9
			(No Loads Started or Tripped at this step)				
- 27 -	ES-1.3-24	---	Reset MCCs. (MCCs are already reset.)	Manual	0.0 1015.4	* N/A * * N/A *	0.0 1060.9
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 28 -	ES-1.3-29	---	CHECK PAB Exhaust Fan Status: No PAB fan is running. (PAB fan 32 started.)	Manual	0.0 1015.4	* N/A * * N/A *	114.3 1175.2
			+88				
- 29 -	ES-1.3-30	---	Shutdown Unnecessary Plant Equipment: a. CheckCCWPs. if 3 are running then stop one b. Check ESWPs. if 3 are running then stop one (Only one CCWP [33] and two ESWPs are running.) (No Loads Started or Tripped at this step)	Manual	0.0 1015.4	* N/A * * N/A *	0.0 1175.2
- 30 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite Power. Start Turbine Turning Gear. (Bus 2A/3A unavailble to start Turning Gear) (No Loads Started or Tripped at this step)	Manual	0.0 1015.4	* N/A * * N/A *	0.0 1175.3
- 31 -	ES-1.3-35	---	CHECK Containment Hydrogen Concentration: (Hydrogen concentration less than 0.5% by volume.)	Manual	0.0 1015.4	* N/A * * N/A *	0.0 1175.2
			(No Loads Started or Tripped at this step)				
- 32 -	ES-1.3-36	---	*** EXIT TO ES-1.4 *** << 6.5 HOURS ELAPSE PRIOR TO ENTERING ES-1.4-1 >>	Manual	0.0 1015.4	* N/A * * N/A *	0.0 1175.3
			(No Loads Started or Tripped at this step)				
- 33 -	ES-1.4-7	---	*** START HIGH-HEAD RECIRCULATION *** Start SI pump 31. (SI pump 31 started.)	Manual	327.2 1342.6	* N/A * * N/A *	0.0 1175.2
			+121				
- 34 -	ES-1.4-8	---	Start SI pump 33. (SI pump 33 started.)	Manual	0.0 1342.6	* N/A * * N/A *	327.2 1502.4
			+123				
- 35 -	ES-1.4-11	---	*** RETURN TO ES-1.3 Step 37 ****	Manual	0.0 1342.6	* N/A * * N/A *	0.0 1502.4
			(No Loads Started or Tripped at this step)				
- 36 -	ES-1.3-34	---	Determine if intact SGs should be depressurized to RCS pressure.	Manual	0.0 1342.6	* N/A * * N/A *	0.0 1502.4
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 3A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 37 -	ES-1.3-37	---	Evaluate long term plant status.	Manual	0.0	* N/A *	0.0
					1342.6	* N/A *	1502.4
			(NO Loads Started or Tripped at this step)				

SMALL BREAK LOCA (PH B)



Small Break LOCA (PH B)
Buses 2A and / or 3A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
CCWP 33	EDG 32
CRP 32	EDG 32
ESWP 34	EDG 33
ESWP 36	EDG 32
FCU 31	EDG 33
FCU 33	EDG 33
FCU 35	EDG 32
MCC 36A: AUTO	EDG 33
MCC 36B: AUTO	EDG 32
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 33
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 31	EDG 33
PAB FAN 32	EDG 32
SI PUMP 31	EDG 33
SI PUMP 33	EDG 32

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

STEAM BREAK (PH B)
ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:54 PM

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2180.8 Bus 2A = 2129.2 Bus 3A = 1714.9 Bus 6A = 2367.0 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 3A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

STEAM BREAK (PH B) - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25,2009 Time : 5:54 PM [46]

Step Number	SPO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	0.0	150.1
					169.5	135.5	0.0	150.1
			+57 +50 +53 +59 +60					
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	472.4	264.5	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)					
			(RO verifies that pumps are running.)		641.9	607.9	264.5	888.6
			+117 +120 +121 +122 +123					
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	453.6	0.0	0.0	471.1
			(E-0-9 verifies that pumps are running.)					
					1095.5	607.9	264.5	1359.7
			+24 +25					
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	491.9	247.2	246.0	248.0
			(RO verifies that fans are running.)					
					1587.4	855.1	510.5	1607.7
			+29 +31 +33 +35 +37					
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	0.0	575.4	562.9
			(RO verifies that pumps are running.)					
					1587.4	855.1	1085.9	2170.6
			+1 +2					
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.5	251.3	0.0	251.2
			(RO verifies that pumps are running.)					
					1837.9	1106.4	1085.9	2421.8
			+4 +7 +10					
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	429.8	0.0	429.0	429.8
			(RO verifies that pumps are running.)					
					2267.7	1106.4	1514.9	2851.6
			+26 +27 +28					
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	0.0	0.0	208.9	0.0
			is > than 325 psig and CCW is available.					
			(CHARGING pump 32 started on lightest		2267.7	1106.4	1723.8	2851.6
			loaded Bus.)					
			+14					
- 9 -	< 15 >	---		Manual	0.0	0.0	0.0	0.0
			*** FAULTED STEAM GENERATOR ***					
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		2267.7	1106.4	1723.8	2851.6
			(No Loads Started or Tripped at this step)					

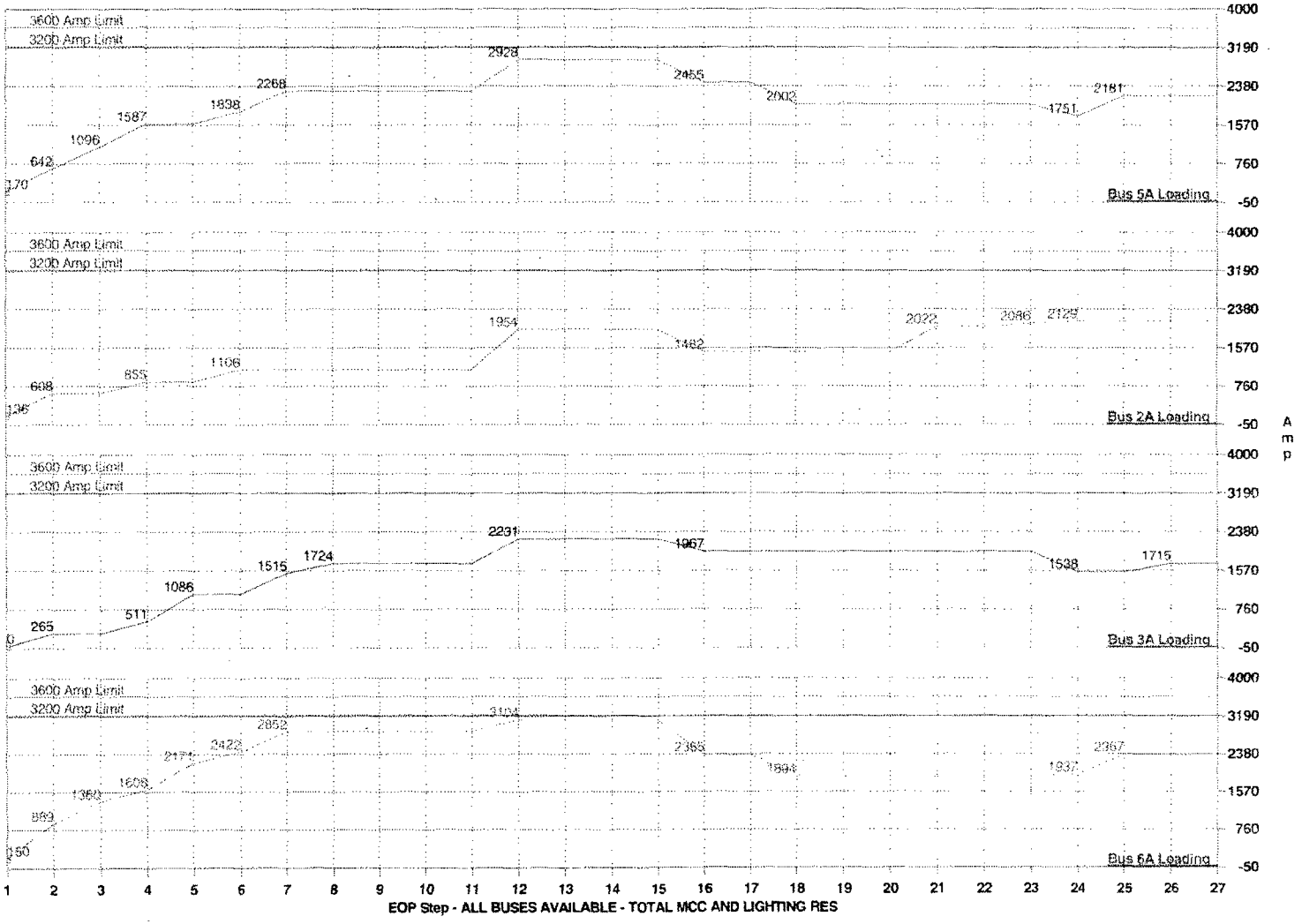
STEAM BREAK (PH B) - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25,2009 Time : 3:54 PM [46]

Step Number	SPO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	0.0	0.0	0.0	0.0
					2267.7	1106.4	1723.8	2851.6
- 11 -	E-1-4	---	(No Loads Started or Tripped at this step) Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0	0.0	0.0	0.0
					2267.7	1106.4	1723.8	2851.6
- 12 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	659.8	848.0	507.6	252.2
					2927.5	1954.4	2231.4	3103.8
- 13 -	E-1-8	---	+126 +124 +125 +127 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0	0.0	0.0	0.0
					2927.5	1954.4	2231.4	3103.8
- 14 -	E-1-11	---	(No Loads Started or Tripped at this step) Start one CHARGING pump. (CHARGING pump 32 is running.)	Manual	0.0	0.0	0.0	0.0
					2927.5	1954.4	2231.4	3103.8
- 15 -	< 12 >	---	(No Loads Started or Tripped at this step) *** GO TO ES-1.1, SI TERMINATION ***	Manual	0.0	0.0	0.0	0.0
					2927.5	1954.4	2231.4	3103.8
- 16 -	ES-1.1-4	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (All SI pumps stopped.)	Manual	-472.4	-472.4	-264.5	-738.5
					2455.1	1482.0	1966.9	2365.3
- 17 -	ES-1.1-8	---	-117 -120 -121 -122 -123 Start one CHARGING pump. (CHARGING pump 32 is running.)	Manual	0.0	0.0	0.0	0.0
					2455.1	1482.0	1966.9	2365.3
- 18 -	ES-1.1-10	---	(No Loads Started or Tripped at this step) Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG. (5 FCUs are running and PSIG < 16. CSPs are stopped.) -24 -25	Manual	-453.6	0.0	0.0	-471.1
					2001.5	1482.0	1966.9	1894.2

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	0.0 2001.5	0.0 1482.0	0.0 1966.9	0.0 1894.2
			(No Loads Started or Tripped at this step)					
- 20 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (No CSPs are running.)	Manual	0.0 2001.5	0.0 1482.0	0.0 1966.9	0.0 1894.2
			(No Loads Started or Tripped at this step)					
- 21 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Group 32 on lightest loaded Bus.) +98	Manual	0.0 2001.5	540.3 2022.3	0.0 1966.9	0.0 1894.2
- 22 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fan loads accounted for in MCC resets.)	Manual	0.0 2001.5	0.0 2022.3	0.0 1966.9	0.0 1894.2
			(No Loads Started or Tripped at this step)					
- 23 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 2001.5	63.8 2086.1	0.0 1966.9	0.0 1894.2
- 24 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. Stop 1 of 3 ESWPs and Shutdown Motor-driven AFWPs if desired. (CCWP 31 and ESWP 35 stopped on heaviest loaded Bus. AFWPs remain running.) +8 +11 -4 -7 -10 -27	Manual	-250.5 1751.0	43.1 2129.2	-429.0 1537.9	43.0 1937.2
- 25 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 33 started on lightest loaded Bus.)	Manual	429.8 2180.8	0.0 2129.2	0.0 1537.9	429.8 2367.0
			+84 +86					
- 26 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started on lightest loaded Bus. Blowers and CCR ventilation started at MCC reset.) +87	Manual	0.0 2180.8	0.0 2129.2	177.0 1714.9	0.0 2367.0
- 27 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	0.0 2180.8	0.0 2129.2	0.0 1714.9	0.0 2367.0
			(No Loads Started or Tripped at this step)					

STEAM BREAK (PH B)



Steam Break (PH B)
Total MCC and Lighting Reset
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 32	2A
CCWP 33	6A
CHARGING PUMP 32	3A
ESWP 34	5A
ESWP 36	6A
FCU 32	2A
FCU 33	5A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 33	6A
PAB FAN 31	3A
PRESSURIZER HEATER 32	2A
TOTAL MCC & LIGHTING RESET (2A)	
TOTAL MCC & LIGHTING RESET (3A)	
TOTAL MCC & LIGHTING RESET (5A)	
TOTAL MCC & LIGHTING RESET (6A)	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

STEAM BREAK (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:52 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2252.9 Bus 2A/3A = 2533.1 Bus 6A = 2422.8 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

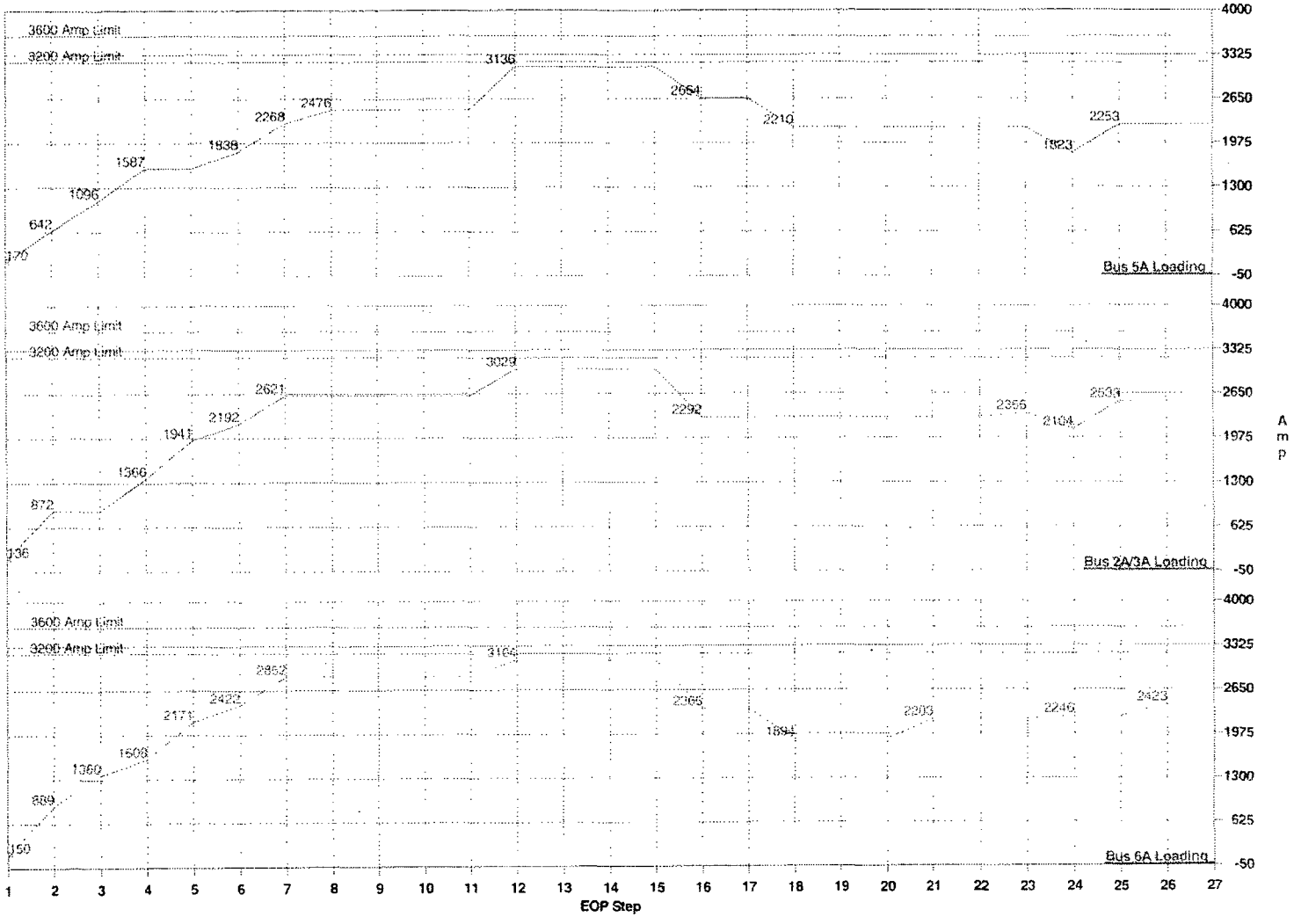
Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	150.1
					169.5	135.5	150.1
- 2 -	---	RO-1-2	+57 +50 +53 +59 +60 SI pumps 31, 32 and 33 RHR pumps 31 and 32 (maul flow, RCS press > 325) (RO verifies that pumps are running.)	Auto	472.4	736.9	738.5
					641.9	872.4	888.6
- 3 -	E-0-9	---	+117 +120 +121 +122 +123 CSPs 31 and 32 (E-0-9 verifies that pumps are running.)	Auto	453.6	0.0	471.1
					1095.5	872.4	1359.7
- 4 -	---	RO-1-3	+24 +25 FCUs 31, 32, 33, 34 and 35 (RO verifies that fans are running.)	Auto	491.9	493.2	248.0
					1587.4	1365.6	1607.7
- 5 -	---	RO-1-5	+29 +31 +33 +35 +37 AFWPs 31 and 33 (RO verifies that pumps are running.)	Auto	0.0	575.4	562.9
					1587.4	1941.0	2170.6
- 6 -	---	RO-1-7	+1 +2 CCWPs 31, 32 and 33 (RO verifies that pumps are running.)	Auto	250.5	251.3	251.2
					1837.9	2192.3	2421.8
- 7 -	---	RO-1-8	+4 +7 +10 ESWPs (34, 35 and 36) (RO verifies that pumps are running.)	Auto	429.8	429.0	429.8
					2267.7	2621.3	2851.6
- 8 -	E-0-11	---	+26 +27 +28 Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available. (CHARGING pump 31 started on lightest loaded Bus.)	Manual	208.5	0.0	0.0
					2476.2	2621.3	2851.6
- 9 -	> 15 >	---	+19 *** FAULT STEAM GENERATOR *** *** EVENT IDENTIFIED - EXIT TO E-2 ***	Manual	0.0	0.0	0.0
					2476.2	2621.3	2851.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	0.0 2476.2	0.0 2621.3	0.0 2851.6
- 11 -	E-1-4	---	(No Loads Started or Tripped at this step) Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2476.2	0.0 2621.3	0.0 2851.6
- 12 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15 (Total MCC and Lighting reset.)	Manual	659.8 3136.0	407.2 3028.5	252.2 3103.8
- 13 -	E-1-8	---	+124 +127 +3 ESTABLISHISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 3136.0	0.0 3028.5	0.0 3103.8
- 14 -	E-1-11	---	(No Loads Started or Tripped at this step) Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 3136.0	0.0 3028.5	0.0 3103.8
- 15 -	< 12 >	---	(No Loads Started or Tripped at this step) *** GO TO ES-1.1, SI TERMINATION ***	Manual	0.0 3136.0	0.0 3028.5	0.0 3103.8
- 16 -	ES-1.1-4	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (All SI pumps stopped.)	Manual	-472.4 2663.6	-736.9 2291.6	-738.5 2365.3
- 17 -	ES-1.1-8	---	-117 -120 -121 -122 -123 Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2663.6	0.0 2291.6	0.0 2365.3
- 18 -	ES-1.1-10	---	(No Loads Started or Tripped at this step) Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG. (5 FCUs are running and PSIG < 16. CSPs are stopped.) -24 -25	Manual	-453.0 2210.0	0.0 2291.6	-471.1 1894.2

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-12	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	0.0 2210.0	0.0 2291.6	0.0 1894.2
			(No Loads Started or Tripped at this step)				
- 20 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (No CSPs are running.)	Manual	0.0 2210.0	0.0 2291.6	0.0 1894.2
			(No Loads Started or Tripped at this step)				
- 21 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Control Group on lightest loaded Bus.) +114	Manual	0.0 2210.0	0.0 2291.6	308.6 2202.8
- 22 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCCs are already reset. CRDM Fan loads accounted for in MCC resets.)	Manual	0.0 2210.0	0.0 2291.6	0.0 2202.8
			(No Loads Started or Tripped at this step)				
- 23 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning gear. (Gear started.) +47	Manual	0.0 2210.0	63.8 2355.4	0.0 2202.8
- 24 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. Stop 1 of 3 ESWPs and Shutdown Motor-driven AFWPs if desired. (First CCWP 32 and then ESWP 34 stopped on heaviest loaded Buses. AFWPs remain running.) +5 +11 -4 -7 -10 -26	Manual	-386.9 1823.1	-251.3 2104.1	43.0 2245.8
- 25 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 32 started on lightest loaded Bus.)	Manual	429.8 2252.9	429.0 2533.1	0.0 2245.8
			+84 +85				
- 26 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 32 started on lightest loaded Bus. Blowers and CCR vent. started at MCC reset.) +88	Manual	0.0 2252.9	0.0 2533.1	177.0 2422.8
- 27 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	0.0 2252.9	0.0 2533.1	0.0 2422.8
			(No Loads Started or Tripped at this step)				

STEAM BREAK (PH B)



Steam Break (PH B)
Buses 2A/3A Tied Together, All Buses Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 31	5A
CCWP 33	6A
CHARGING PUMP 31	5A
ESWP 35	3A
ESWP 36	6A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 32	2A
PAB FAN 32	6A
PRESSURIZER HEATER CONTROL GROUP	6A
TOTAL MCCS & LIGHTING RESET BUS 5A	
TOTAL MCCS & LIGHTING RESET BUS 6A	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

STEAM BREAK (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:52 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2914.3 Bus 2A/3A = 3004.5 Bus 6A = * N/A * (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A Not Available

3600 Amp Overload Summary

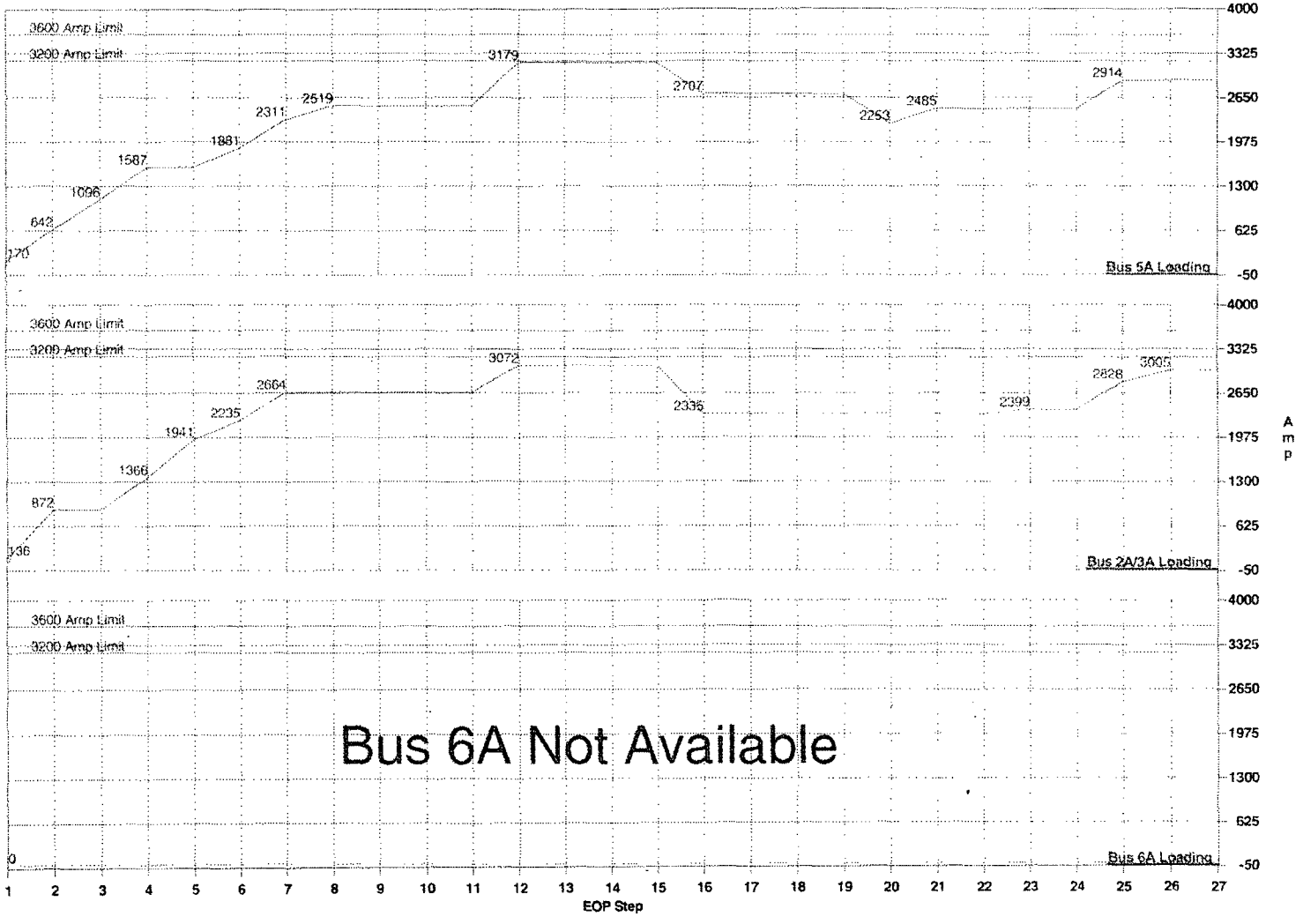
Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A Not Available

Step Number	SES Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36C and 36E	Auto	169.5	135.5	* N/A *
					169.5	135.5	* N/A *
			+67 +50 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 32	Auto	472.4	736.9	* N/A *
			RHR pumps 31 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	872.4	* N/A *
			+117 +121 +122				
- 3 -	E-0-9	---	CSPs 31	Auto	453.6	0.0	* N/A *
			(E-0-9 verifies that pump is running.)		1095.5	872.4	* N/A *
			+24				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34	Auto	491.9	493.2	* N/A *
			(RO verifies that fans are running.)		1587.4	1365.6	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWPs 31	Auto	0.0	575.4	* N/A *
			(RO verifies that pump is running.)		1587.4	1941.0	* N/A *
			+1				
- 6 -	---	RO-1-7	CCWPs 31 and 32	Auto	293.4	294.4	* N/A *
			(RO verifies that pumps are running.)		1880.8	2235.4	* N/A *
			+4 +7				
- 7 -	---	RO-1-8	ESWPs (34 and 35)	Auto	429.8	429.0	* N/A *
			(RO verifies that pumps are running.)		2310.6	2664.4	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	0.0	* N/A *
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest				
			loaded Bus.)				
			+13				
- 9 -	< 15 >	---		Manual	0.0	0.0	* N/A *
			*** FAULT STEAM GENERATOR ***				
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		2519.1	2664.4	* N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	0.0	0.0	* N/A *
					2519.1	2664.4	* N/A *
- 11 -	E-1-4	---	(No Loads Started or Tripped at this step). Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0	0.0	* N/A *
					2519.1	2664.4	* N/A *
- 12 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15 (Total MCC and Lighting reset.)	Manual	659.8	407.2	* N/A *
					3178.9	3071.6	* N/A *
- 13 -	E-1-8	---	+125 +3 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0	0.0	* N/A *
					3178.9	3071.6	* N/A *
- 14 -	E-1-11	---	(No Loads Started or Tripped at this step) Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0	0.0	* N/A *
					3178.9	3071.6	* N/A *
- 15 -	< 12 >	---	(No Loads Started or Tripped at this step) *** GO TO ES-1.1, SI TERMINATION ***	Manual	0.0	0.0	* N/A *
					3178.9	3071.6	* N/A *
- 16 -	ES-1.1-4	---	(No Loads Started or Tripped at this step) Stop RHR pump. (Only pump 31 running - stopped.) Stop SI pumps. (Only pumps 31 and 32 running - stopped.)	Manual	-472.4	-736.9	* N/A *
					2706.5	2334.7	* N/A *
- 17 -	ES-1.1-8	---	-117 -121 -122 Start a CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0	0.0	* N/A *
					2706.5	2334.7	* N/A *
- 18 -	ES-1.1-10	---	(No Loads Started or Tripped at this step) Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG.	Manual	0.0	0.0	* N/A *
					2706.5	2334.7	* N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	0.0 2706.5	0.0 2334.7	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 20 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE ONe CSP run time is less than 30 minutes. (CSP 31 stopped.)	Manual	-453.6 2252.9	0.0 2334.7	* N/A * * N/A *
			-24				
- 21 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Group 33 on lightest loaded Bus.)	Manual	231.6 2484.5	0.0 2334.7	* N/A * * N/A *
			-109				
- 22 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCCs are already reset. CRDM Fan loads accounted for in MCC resets.)	Manual	0.0 2484.5	0.0 2334.7	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 23 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.)	Manual	0.0 2484.5	63.8 2398.5	* N/A * * N/A *
			+47				
- 24 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. (CCWPs 31 and 32 running.) Stop 1 of 3 ESWPs. (ESWPs 34 and 35 running.) Shutdown Motor-driven AFWPs if desired. (Bus 6A not available. AFWP 31 remains running) (No Loads Started or Tripped at this step)	Manual	0.0 2484.5	0.0 2398.5	* N/A * * N/A *
- 25 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWPs 31 and 32 started.)	Manual	429.8 2914.3	429.0 2827.5	* N/A * * N/A *
			+84 +85				
- 26 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started. Blowers unavailable, powered from Bus 6A/MCC 37. CCR vent. started.)	Manual	0.0 2914.3	177.0 3004.5	* N/A * * N/A *
			+87				
- 27 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	0.0 2914.3	0.0 3004.5	* N/A * * N/A *

STEAM BREAK (PH B)



Steam Break (PH B)
Buses 2A/3A Tied Together, Bus 6A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
CCWP 31	5A
CCWP 32	2A
CHARGING PUMP 31	5A
ESWP 34	5A
ESWP 35	3A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36C: AUTO	2A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 32	2A
PAB FAN 31	3A
PRESSURIZER HEATER 32	2A
TOTAL MCCS & LIGHTING RESET BUS 5A	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
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STEAM BREAK (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:53 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 3036.4 Bus 6A = 2852.6 (A)

3200 Amp Overload Summary

Bus 5A Not Available
Bus 2A/3A exceeds the 3200 Amp rating at EOP steps : 12, 13, 14, 15
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

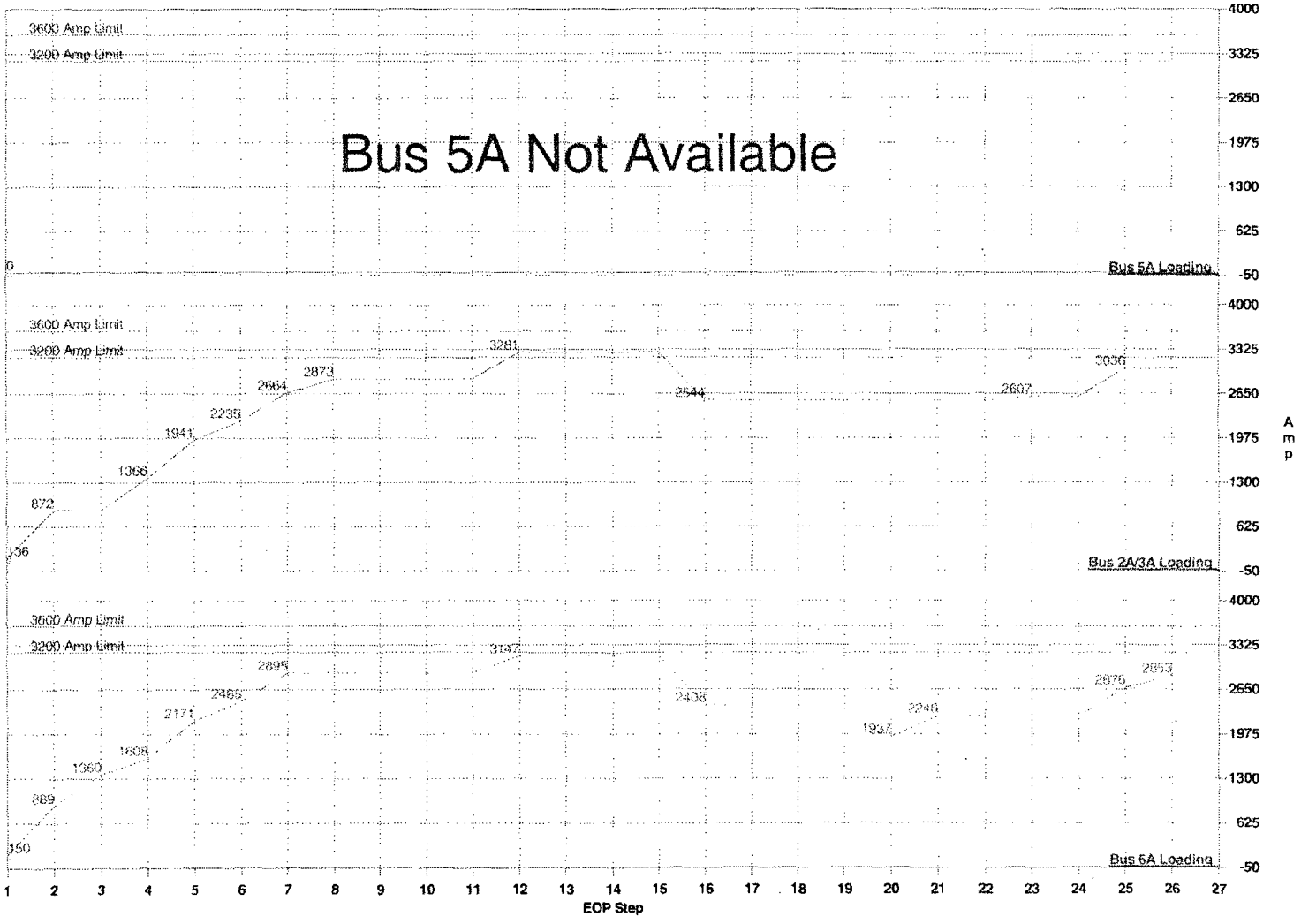
Bus 5A Not Available
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

Step Number	SKO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36B, 36C and 36D	Auto	* N/A *	135.5	150.1
					* N/A *	135.5	150.1
			+57 +53 +59				
- 2 -	---	RO-1-2	SI pumps 32 and 33	Auto	* N/A *	736.9	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		* N/A *	872.4	888.6
			+117 +120 +122 +123				
- 3 -	E-0-9	---	CSP 32	Auto	* N/A *	0.0	471.1
			(E-0-9 verifies that pump is running.)		* N/A *	872.4	1359.7
			+25				
- 4 -	---	RO-1-3	FCUs 32, 34 and 35	Auto	* N/A *	493.2	248.0
			(RO verifies that fans are running.)		* N/A *	1365.6	1607.7
			+31 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	* N/A *	575.4	562.9
			(RO verifies that pumps are running.)		* N/A *	1941.0	2170.6
			+1 +2				
- 6 -	---	RO-1-7	CCWPs 32 and 33	Auto	* N/A *	294.4	294.2
			(RO verifies that pumps are running.)		* N/A *	2235.4	2464.8
			+7 +10				
- 7 -	---	RO-1-8	ESWPs (35 and 36)	Auto	* N/A *	429.0	429.8
			(RO verifies that pumps are running.)		* N/A *	2664.4	2894.6
			+27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	* N/A *	208.9	0.0
			is > than 325 psig and CCW is avallable.				
			(CHARGING pump 32 started on lightest		* N/A *	2873.3	2894.6
			loaded Bus.)				
			+14				
- 9 -	< 15 >	---		Manual	* N/A *	0.0	0.0
			*** FAULT STEAM GENERATOR ***				
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		* N/A *	2873.3	2894.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	* N/A *	0.0	0.0
					* N/A *	2873.3	2894.6
			(No Loads Started or Tripped at this step)				
- 11 -	E-1-4	---	Reset SI.	Manual	* N/A *	0.0	0.0
			(Steps 2 through 12 of RO-1 are completed.)		* N/A *	2873.3	2894.6
			(No Loads Started or Tripped at this step)				
- 12 -	---	RO-1-15	RESET MCCs as per SOP-EL-15.	Manual	* N/A *	407.2	252.2
			(Total MCC and Lighting reset.)		* N/A *	3280.5 Over 3200	3146.8
			+127 +3				
- 13 -	E-1-8	---	ESTABLISH Instrument Air to Containment.	Manual	* N/A *	0.0	0.0
			(Load accounted for in MCC reset.)		* N/A *	3280.5 Over 3200	3146.8
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-11	---	Start one CHARGING pump.	Manual	* N/A *	0.0	0.0
			(CHARGING pump 32 is running.)		* N/A *	3280.5 Over 3200	3146.8
			(No Loads Started or Tripped at this step)				
- 15 -	< 12 >	---	*** GO TO ES-1.1, SI TERMINATION ***	Manual	* N/A *	0.0	0.0
					* N/A *	3280.5 Over 3200	3146.8
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-4	---	Stop RHR pumps. (All RHR pumps stopped.)	Manual	* N/A *	-736.9	-738.5
			Stop SI pumps. (Only pumps 32 and 33 running - stopped.)		* N/A *	2543.6	2408.3
			-117 -120 -122 -123				
- 17 -	ES-1.1-8	---	Start a CHARGING pump.	Manual	* N/A *	0.0	0.0
			(CHARGING pump 32 is running.)		* N/A *	2543.6	2408.3
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.1-10	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG.	Manual	* N/A *	0.0	0.0
					* N/A *	2543.6	2408.3
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	* N/A *	0.0	0.0
					* N/A *	2543.6	2408.3
			(No Loads Started or Tripped at this step)				
- 20 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (CSP 32 stopped.)	Manual	* N/A *	0.0	-471.1
					* N/A *	2543.6	1937.2
			-25				
- 21 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Control Group on lightest loaded Bus.)	Manual	* N/A *	0.0	308.6
					* N/A *	2543.6	2245.8
			+114				
- 22 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. Bus 5A unavailable to start CRDM Fans.)	Manual	* N/A *	0.0	0.0
					* N/A *	2543.6	2245.8
			(No Loads Started or Tripped at this step)				
- 23 -	---	RO-1-27c	START AC and DC Oil Pumps IF 480V buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.)	Manual	* N/A *	63.8	0.0
					* N/A *	2607.4	2245.8
			+47				
- 24 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. (CCWPs 32 and 33 running.) Stop 1 of 3 ESWPs (ESWPs 35 and 36 running.) Shutdown Motor-driven AFWPs if desired. (AFWPs remain running.)	Manual	* N/A *	0.0	0.0
					* N/A *	2607.4	2245.8
			(No Loads Started or Tripped at this step)				
- 25 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 32 and 33 started.)	Manual	* N/A *	429.0	429.8
					* N/A *	3036.4	2675.6
			+85 +86				
- 26 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 32 started on lightest loaded Bus. Blowers and CCR vent. started at MCC resets.)	Manual	* N/A *	0.0	177.0
					* N/A *	3036.4	2852.6
			+88				
- 27 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	* N/A *	0.0	0.0
					* N/A *	3036.4	2852.6
			(No Loads Started or Tripped at this step)				

STEAM BREAK (PH B)



Steam Break (PH B)
Buses 2A/3A Tied Together, Bus 5A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 32	2A
CCWP 33	6A
CHARGING PUMP 32	3A
ESWP 35	3A
ESWP 36	6A
FCU 32	2A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
NESWP 32	2A
NESWP 33	6A
PAB FAN 32	6A
PRESSURIZER HEATER CONTROL GROUP	6A
MCCS RESET (2A/3A) AS PER SOP-EL-15	
TOTAL MCCS & LIGHTING RESET BUS 6A	

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STEAM BREAK (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:52 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2682.7 Bus 2A/3A = * N/A * Bus 6A = 2852.6 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

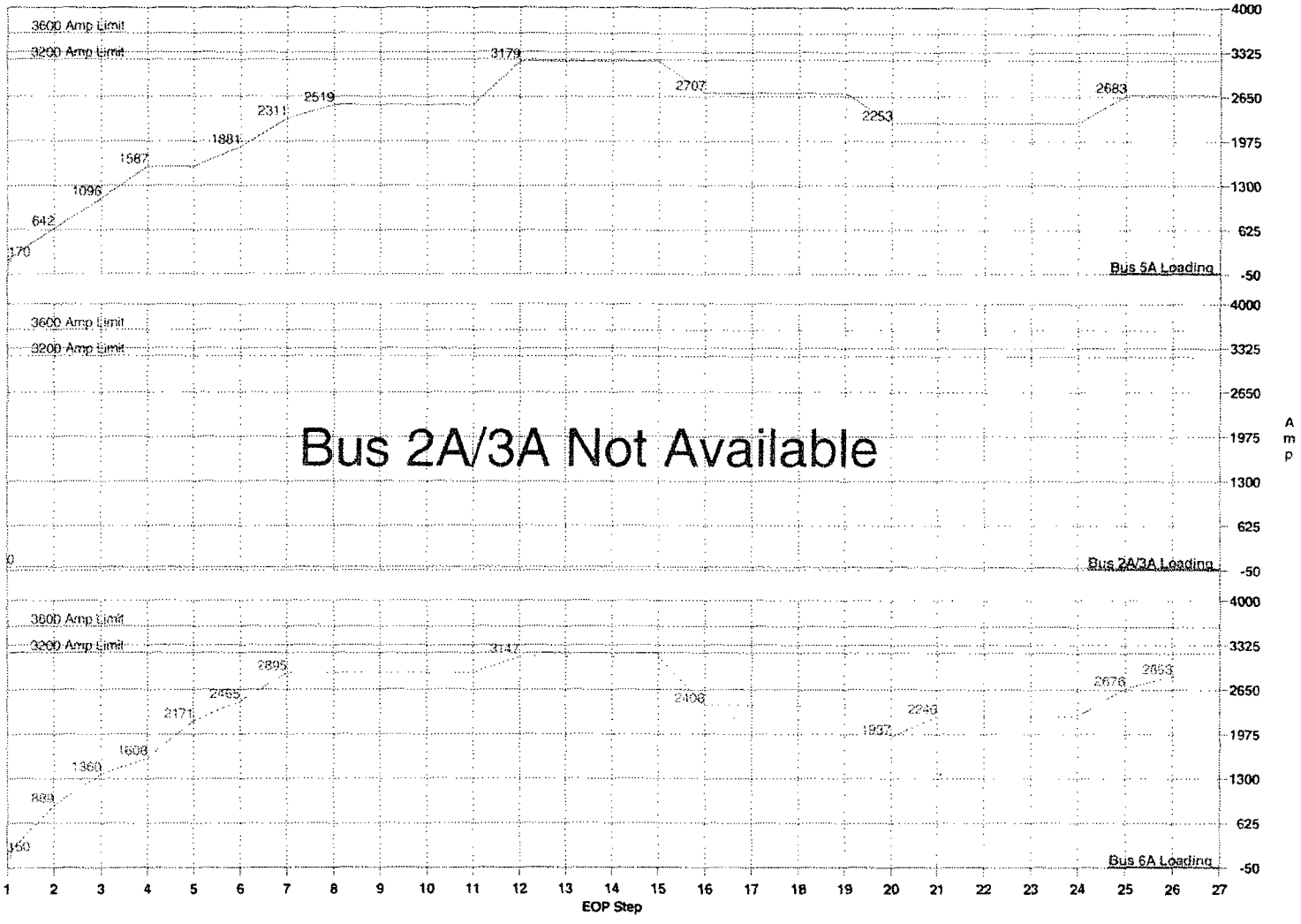
Bus 5A is below the 3600 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36D and 36E	Auto	169.5	* N/A *	150.1
					169.5	* N/A *	150.1
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI Pumps 31 and 33	Auto	472.4	* N/A *	738.5
			RHR Pumps 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	* N/A *	888.6
			+120 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	453.6	* N/A *	471.1
			(E-0-9 verifies that pumps are running.)		1095.5	* N/A *	1359.7
			+24 +25				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	491.9	* N/A *	248.0
			(RO verifies that fans are running.)		1587.4	* N/A *	1607.7
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWP 33	Auto	0.0	* N/A *	562.9
			(RO verifies that pump is running.)		1587.4	* N/A *	2170.6
			+2				
- 6 -	---	RO-1-7	CCWPs 31 and 33	Auto	293.4	* N/A *	294.2
			(RO verifies that pumps are running.)		1880.8	* N/A *	2464.8
			+4 +10				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	429.8	* N/A *	429.8
			(RO verifies that pumps are running.)		2310.6	* N/A *	2894.6
			+26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	* N/A *	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		2519.1	* N/A *	2894.6
			loaded Bus.)				
			+13				
- 9 -	< 15 >	---		Manual	0.0	* N/A *	0.0
			*** FAULT STEAM GENERATOR ***				
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		2519.1	* N/A *	2894.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	0.0	* N/A *	0.0
					2519.1	* N/A *	2894.6
			(No Loads Started or Tripped at this step)				
- 11 -	E-1-4	---	Reset SI.	Manual	0.0	* N/A *	0.0
			(Steps 2 through 12 of RO-1 are completed.)		2519.1	* N/A *	2894.6
			(No Loads Started or Tripped at this step)				
- 12 -	---	RO-1-15	RESET MCCs as per SOP-EL-15.	Manual	659.8	* N/A *	252.2
			(Total MCC and Lighting reset.)		3178.9	* N/A *	3146.8
			+126 +127				
- 13 -	E-1-8	---	ESTABLISH Instrument Air to Containment.	Manual	0.0	* N/A *	0.0
			(Load accounted for in MCC reset.)		3178.9	* N/A *	3146.8
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-11	---	Start one CHARGING pump.	Manual	0.0	* N/A *	0.0
			(CHARGING pump 31 is running.)		3178.9	* N/A *	3146.8
			(No Loads Started or Tripped at this step)				
- 15 -	< 12 >	---		Manual	0.0	* N/A *	0.0
			*** GO TO ES-1.1, SI TERMINATION ***		3178.9	* N/A *	3146.8
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-4	---	Stop RHR pumps. (Only pump 32 running - stopped.)	Manual	-472.4	* N/A *	-738.5
			Stop SI pumps. (Only pumps 31 and 33 running - stopped.)		2706.5	* N/A *	2408.3
			-120 -121 -123				
- 17 -	ES-1.1-8	---	Start one CHARGING pump.	Manual	0.0	* N/A *	0.0
			(CHARGING pump 31 is running.)		2706.5	* N/A *	2408.3
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.1-10	---	Stop CSPs if 5 FCUs are running	Manual	0.0	* N/A *	0.0
			Containment pressure is < 16 PSIG.		2706.5	* N/A *	2408.3
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never stripped.)	Manual	0.0 3706.5	* N/A * * N/A *	0.0 2408.3
			(No Loads Started or Tripped at this step)				
- 20 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (CSPs stopped.)	Manual	-453.6 2252.9	* N/A * * N/A *	-471.1 1937.2
			-24 -25				
- 21 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Control Group on lightest loaded Bus.)	Manual	0.0 2252.9	* N/A * * N/A *	308.6 2245.8
			+114				
- 22 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fan loads accounted for in MCC resets.)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2345.8
			(No Loads Started or Tripped at this step)				
- 23 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Bus 2A/3A unavailable.)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2345.8
			(No Loads Started or Tripped at this step)				
- 24 -	ES-1.1-30	---	Stop 1 of 3 CCWPs. (CCWPs 31 and 33 running.) Stop 1 of 3 ESWPs. (ESWPs 34 and 36 running.) Shutdown Motor-driven AFWPs if desired. (Bus 2A/3A not available. AFWP 33 remains running)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2245.8
			(No Loads Started or Tripped at this step)				
- 25 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 33 started.)	Manual	429.8 2682.7	* N/A * * N/A *	429.8 2675.6
			+84 +86				
- 26 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 32 started. Blowers and CCR ventilation started at MCC reset.)	Manual	0.0 2682.7	* N/A * * N/A *	177.0 2852.6
			+88				
- 27 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	0.0 2682.7	* N/A * * N/A *	0.0 2852.6
			(No Loads Started or Tripped at this step)				

STEAM BREAK (PH B)



Steam Break (PH B)
Buses 2A and / or 3A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 33	6A
CCWP 31	5A
CCWP 33	6A
CHARGING PUMP 31	5A
ESWP 34	5A
ESWP 36	6A
FCU 31	5A
FCU 33	5A
FCU 35	6A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 33	6A
PAB FAN 32	6A
PRESSURIZER HEATER CONTROL GROUP	6A
TOTAL MCCS & LIGHTING RESET BUS 5A	
TOTAL MCCS & LIGHTING RESET BUS 6A	

NEW YORK POWER AUTHORITY
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STEAM BREAK (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:53 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1163.1 Bus 2A/3A = 1231.1 Bus 6A = 1221.5 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

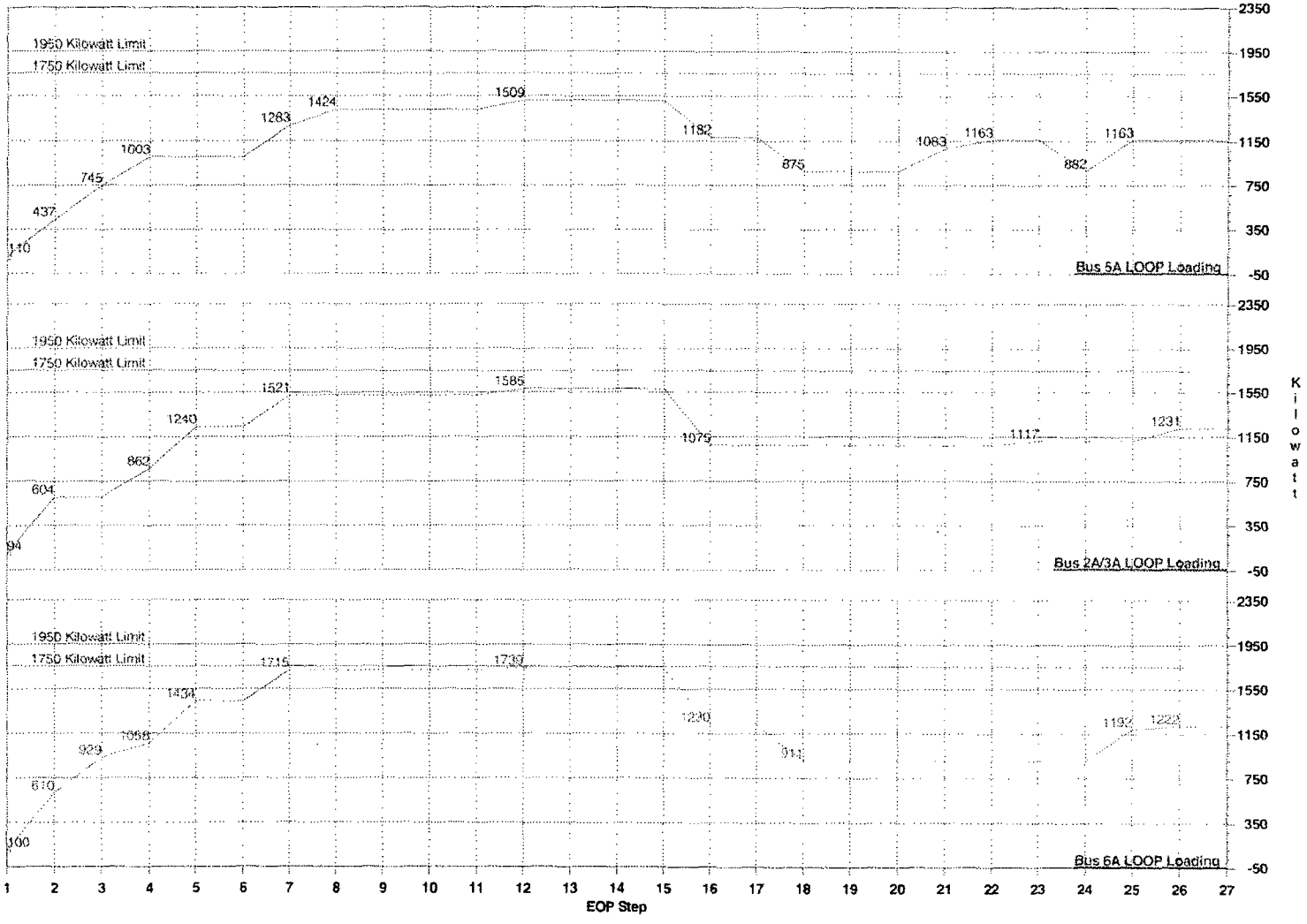
Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	110.0	94.3	100.4
					110.0	94.3	100.4
			+57 +50 +53 -59 +60				
- 2 -	---	RO-1-2	ST pumps 31, 32 and 33	Auto	327.2	509.2	509.2
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		437.2	603.5	609.6
			+117 +120 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	307.3	0.0	319.5
			(E-0-9 verifies that pumps are running.)				
					744.5	603.5	929.1
			+24 +25				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	258.0	258.0	129.0
			(RO verifies that fans are running.)				
					1002.5	861.5	1058.1
			+29 +31 +33 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	378.9	375.7
			(RO verifies that pumps are running.)				
					1002.5	1240.4	1433.8
			+1 +2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Manual	0.0	0.0	0.0
			(All Buses are powered from EDGs.)		1002.5	1240.4	1433.8
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	280.8	280.8	280.8
			(RO verifies that pumps are running.)		1283.3	1521.2	1714.6
			+26 +27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	140.2	0.0	0.0
			(CHARGING pump 31 started on lightest loaded Bus.)		1423.5	1521.2	1714.6
			+13				
- 9 -	< 15 >	---		Manual	0.0	0.0	0.0
			*** FAULTED STEAM GENERATOR ***				
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		1423.5	1521.2	1714.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	0.0 1423.5	0.0 1521.2	0.0 1714.6
- 11 -	E-1-4	---	(No Loads Started or Tripped at this step) Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1423.5	0.0 1521.2	0.0 1714.6
- 12 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (MCCs are reset.)	Manual	85.8 1509.3	63.3 1584.5	24.8 1739.4
- 13 -	E-1-8	---	+82 +81 +83 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1509.3	0.0 1584.5	0.0 1739.4
- 14 -	E-1-11	---	(No Loads Started or Tripped at this step) Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1509.3	0.0 1584.5	0.0 1739.4
- 15 -	< 12 >	---	(No Loads Started or Tripped at this step) *** GO TO ES-1.1, SI TERMINATION ***	Manual	0.0 1509.3	0.0 1584.5	0.0 1739.4
- 16 -	ES-1.1-4	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (All SI pumps stopped.)	Manual	-327.2 1182.1	-509.3 1075.3	-509.2 1230.2
- 17 -	ES-1.1-8	---	-117 -120 -121 -122 -123 Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1182.1	0.0 1075.3	0.0 1230.2
- 18 -	ES-1.1-10	---	(No Loads Started or Tripped at this step) Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG. (5 FCUs are running. CSPs stopped.) -24 -26	Manual	-307.3 874.8	0.0 1075.3	-319.5 910.7

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	0.0 874.8	0.0 1075.3	0.0 910.7
			(No Loads Started or Tripped at this step)				
- 20 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (No CSPs are running.)	Manual	0.0 874.8	0.0 1075.3	0.0 910.7
			(No Loads Started or Tripped at this step)				
- 21 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Group 33 energized on lightest loaded Bus. +109	Manual	207.9 1082.7	0.0 1075.3	0.0 910.7
- 22 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fans started on MCC 38.) +70 +71 +72 +73	Manual	80.4 1163.1	0.0 1075.3	0.0 910.7
- 23 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 1163.1	41.5 1116.8	0.0 910.7
- 24 -	ES-1.1-20	---	Stop 1 of 3 ESWPs. (ESWP 34 stopped on heaviest loaded Bus.) Shutdown Motor-driven AFWPs if desired. (AFWPs remain running.) -26	Manual	-280.8 882.3	0.0 1116.8	0.0 910.7
- 25 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 33 started on lightest loaded Bus.) +84 +86	Manual	280.8 1163.1	0.0 1116.8	280.8 1191.5
- 26 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started on lightest loaded Bus. Blowers started, CCR ventilation is running.) +87 +66 +67	Manual	0.0 1163.1	114.3 1231.1	30.0 1221.5
- 27 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	0.0 1163.1	0.0 1231.1	0.0 1221.5

STEAM BREAK (PH B)



Steam Break (PH B)
Buses 2A/3A Tied Together, All Buses Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
AFWP 33	EDG 32
CHARGING PUMP 31	EDG 33
ESWP 35	EDG 31
ESWP 36	EDG 32
FCU 31	EDG 33
FCU 32	EDG 31
FCU 33	EDG 33
FCU 34	EDG 31
FCU 35	EDG 32
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36A: AUTO	EDG 33
MCC 36B: AUTO	EDG 32
MCC 36C: AUTO	EDG 31
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 33
MCC 37: PENT. BLOWER (#1)	EDG 32
MCC 37: PENT. BLOWER (#2)	EDG 32
MCC 38: CRDM FAN 31 (FAN#1)	EDG 33
MCC 38: CRDM FAN 32 (FAN#2)	EDG 33
MCC 38: CRDM FAN 33 (FAN#3)	EDG 33
MCC 38: CRDM FAN 34 (FAN#4)	EDG 33
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 31	EDG 33
NESWP 33	EDG 31
PAB FAN 31	EDG 31
PRESSURIZER HEATER 33	EDG 33

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

STEAM BREAK (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:53 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1443.9 Bus 2A/3A = 1511.9 Bus 6A = ' N/A ' (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Bus 6A Not Available

1950 kW Overload Summary

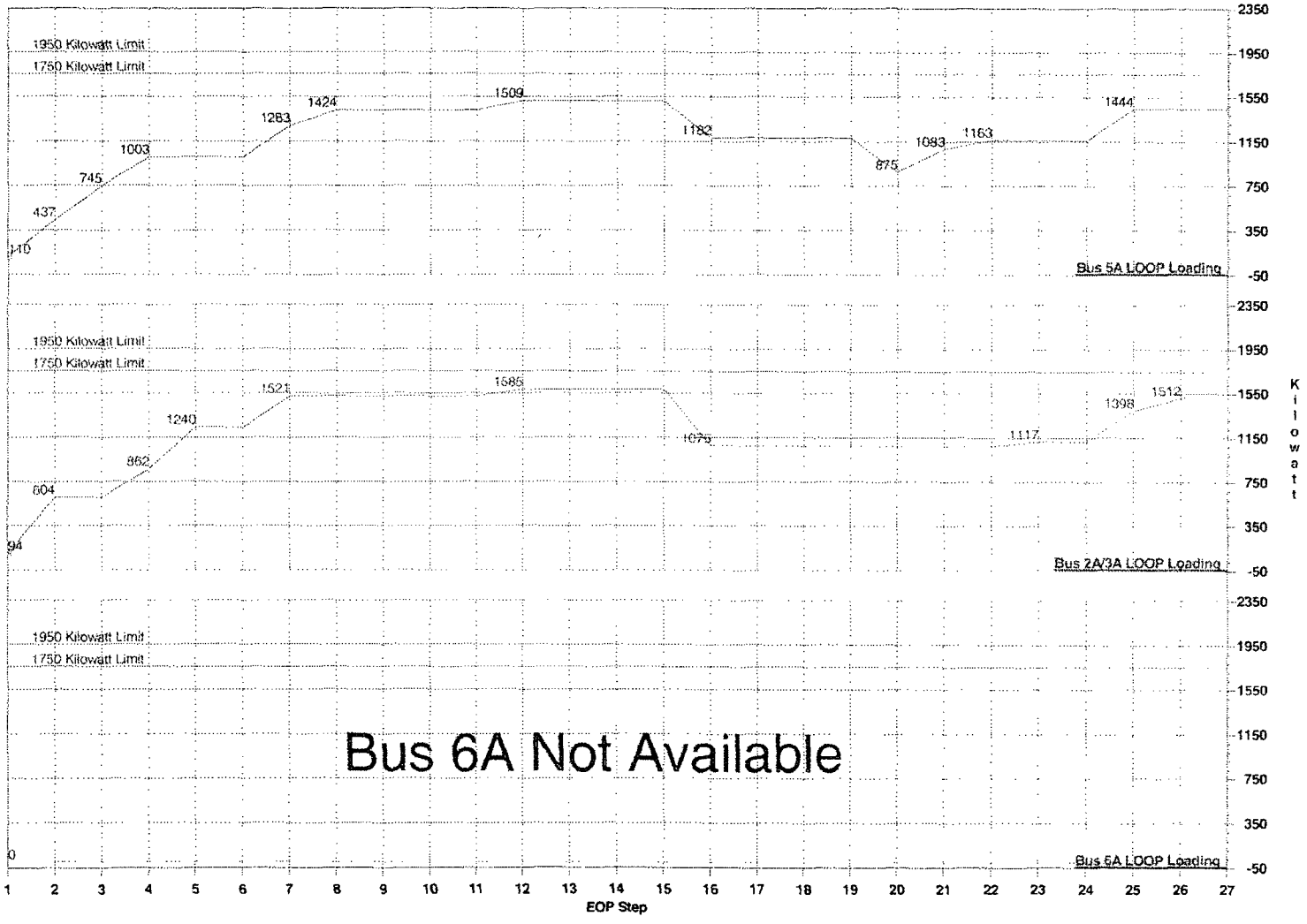
Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Bus 6A Not Available

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	. ---	---	MCC 36A, 36C and 36E	Auto	110.0	94.3	* N/A *
					110.0	94.3	* N/A *
			+57 +50 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 32	Auto	327.2	509.2	* N/A *
			RHR pumps 31 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		437.2	603.5	* N/A *
			+117 +121 +122				
- 3 -	E-0-9	---	CSP 31	Auto	307.3	0.0	* N/A *
			(E-0-9 verifies that pump is running.)				
					744.5	603.5	* N/A *
			+24				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34	Auto	258.0	258.0	* N/A *
			(RO verifies that fans are running.)				
					1002.5	861.5	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWP 31	Auto	0.0	378.9	* N/A *
			(RO verifies that pump is running.)				
					1002.5	1240.4	* N/A *
			+1				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus	Manual	0.0	0.0	* N/A *
			to start at least one SCWP.				
			(All Buses are powered from EDGs.)		1002.5	1240.4	* N/A *
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs ( )	Auto	280.8	280.8	* N/A *
			(RO verifies that pumps are running.)		1283.3	1521.2	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	140.2	0.0	* N/A *
			is > than 325 psig & CCW is available.				
			(CHARGING pump 31 started on lightest		1423.5	1521.2	* N/A *
			loaded Bus.)				
			+13				
- 9 -	< 15 >	---		Manual	0.0	0.0	* N/A *
			*** FAULTED STEAM GENERATOR ***				
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		1423.5	1521.2	* N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	0.0 1423.5	0.0 1521.3	* N/A * * N/A *
- 11 -	E-1-4	---	(No Loads Started or Tripped at this step) Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1423.5	0.0 1521.2	* N/A * * N/A *
- 12 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (MCCs are reset.)	Manual	85.8 1509.3	63.3 1584.5	* N/A * * N/A *
- 13 -	E-1-8	---	+82 +81 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1509.3	0.0 1584.5	* N/A * * N/A *
- 14 -	E-1-11	---	(No Loads Started or Tripped at this step) Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1509.3	0.0 1584.5	* N/A * * N/A *
- 15 -	< 12 >	---	(No Loads Started or Tripped at this step) *** GO TO ES-1.1, SI TERMINATION ***	Manual	0.0 1509.3	0.0 1584.5	* N/A * * N/A *
- 16 -	ES-1.1-4	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (Only pump 31 running - stopped.) Stop SI pumps. (Only pumps 31 and 32 running - stopped.)	Manual	-327.2 1182.1	-509.2 1075.3	* N/A * * N/A *
- 17 -	ES-1.1-8	---	-117 -121 -122 Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1182.1	0.0 1075.3	* N/A * * N/A *
- 18 -	ES-1.1-10	---	(No Loads Started or Tripped at this step) Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG.	Manual	0.0 1182.1	0.0 1075.3	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running (MCC 36A-E never stripped.)	Manual	0.0 1182.1	0.0 1075.3	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 20 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (CSF 31 stopped.)	Manual	-307.3 874.8	0.0 1075.3	* N/A * * N/A *
			-24				
- 21 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Group 33 energized on lightest loaded Bus.)	Manual	207.9 1082.7	0.0 1075.3	* N/A * * N/A *
			+109				
- 22 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans (MCC are already reset. CRDM Fans started on MCC 38.)	Manual	80.4 1163.1	0.0 1075.3	* N/A * * N/A *
			+70 +71 +72 +73				
- 23 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.)	Manual	0.0 1163.1	41.5 1116.8	* N/A * * N/A *
			+47				
- 24 -	ES-1.1-20	---	Stop 1 of 3 ESWPs. (ESWPs 34 and 35 are running.) Shutdown Motor-driven AFWPs if desired. (Bus 6A not available. AFWP 31 remains running)	Manual	0.0 1163.1	0.0 1116.8	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 25 -	ES-1.1-26	---	Check that at least two NESWPs are running. (Two NESWPs started.)	Manual	280.8 1443.9	280.8 1397.6	* N/A * * N/A *
			+84 +65				
- 26 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started. Blowers unavailable. powered from Bus 6A/MCC 37. CCR vent. is on.)	Manual	0.0 1443.9	114.3 1511.9	* N/A * * N/A *
			+87				
- 27 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	0.0 1443.9	0.0 1511.9	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

STEAM BREAK (PH B)



Steam Break (PH B)
Buses 2A/3A Tied Together, Bus 6A Not Available
Loss of Off-site power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
CHARGING PUMP 31	EDG 33
ESWP 34	EDG 33
ESWP 35	EDG 31
FCU 31	EDG 33
FCU 32	EDG 31
FCU 33	EDG 33
FCU 34	EDG 31
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36A: AUTO	EDG 33
MCC 36C: AUTO	EDG 31
MCC 36E: AUTO	EDG 33
MCC 38: CRDM FAN 31 (FAN#1)	EDG 33
MCC 38: CRDM FAN 32 (FAN#2)	EDG 33
MCC 38: CRDM FAN 33 (FAN#3)	EDG 33
MCC 38: CRDM FAN 34 (FAN#4)	EDG 33
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
NESWP 31	EDG 33
NESWP 32	EDG 31
PAB FAN 31	EDG 31
PRESSURIZER HEATER 33	EDG 33

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

STEAM BREAK (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:53 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 1537.8 Bus 6A = 1612.8 (kW)

1750 kW Overload Summary

Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36B, 36C and 36D	Auto	* N/A *	94.3	100.4
					* N/A *	94.3	100.4
			+57 +53 +59				
- 2 -	---	RO-1-2	SI pumps 31 and 32	Auto	* N/A *	509.2	509.2
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		* N/A *	603.5	609.6
			+117 +120 +122 +123				
- 3 -	E-0-9	---	CSP 33	Auto	* N/A *	0.0	319.5
			(E-0-9 verifies that pump is running.)		* N/A *	603.5	929.1
			+25				
- 4 -	---	RO-1-3	FCUs 32, 34 and 35	Auto	* N/A *	258.0	129.0
			(RO verifies that fans are running.)		* N/A *	861.5	1058.1
			+31 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	* N/A *	378.9	375.7
			(RO verifies that pumps are running.)		* N/A *	1240.4	1433.8
			+1 +2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Manual	* N/A *	0.0	0.0
			(All Buses are powered from EDGs.)		* N/A *	1240.4	1433.8
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (35 and 36)	Auto	* N/A *	280.8	280.8
			(RO verifies that pumps are running.)		* N/A *	1521.2	1714.6
			+27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	* N/A *	140.2	0.0
			(CHARGING pump 32 started on lightest loaded Bus.)		* N/A *	1661.4	1714.6
			+14				
- 9 -	< 19 >	---		Manual	* N/A *	0.0	0.0
			*** FAULTED STEAM GENERATOR ***				
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		* N/A *	1661.4	1714.6
			(No Loads Started or Tripped at this step)				

Step Number	SPO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	* N/A *	0.0	0.0
					* N/A *	1661.4	1714.6
			(No Loads Started or Tripped at this step)				
- 11 -	E-1-4	---	Reset SI	Manual	* N/A *	0.0	0.0
			(Steps 2 through 12 of RO-1 are completed.)		* N/A *	1661.4	1714.6
			(No Loads Started or Tripped at this step)				
- 12 -	---	RO-1-15	RESET MCCs as per SOP-EL-15	Manual	* N/A *	63.3	24.8
			(MCCs are reset.)		* N/A *	1724.7	1739.4
			+81 +83				
- 13 -	E-1-8	---	ESTABLISH Instrument Air to Containment.	Manual	* N/A *	0.0	0.0
			(Load accounted for in MCC reset.)		* N/A *	1724.7	1739.4
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-11	---	Start one CHARGING pump.	Manual	* N/A *	0.0	0.0
			(CHARGING pump 32 is running.)		* N/A *	1724.7	1739.4
			(No Loads Started or Tripped at this step)				
- 15 -	< 12 >	---	*** GO TO ES-1.1, SI TERMINATION ***	Manual	* N/A *	0.0	0.0
					* N/A *	1724.7	1739.4
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-4	---	Stop RHR pumps. (All RHR pumps stopped.)	Manual	* N/A *	-509.2	-509.2
			Stop SI pumps. (Only pumps 32 and 33 running - stopped.)		* N/A *	1215.5	1230.2
			-117 -120 -122 -123				
- 17 -	ES-1.1-8	---	Start one CHARGING pump.	Manual	* N/A *	0.0	0.0
			(CHARGING pump 32 is running.)		* N/A *	1215.5	1230.2
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.1-10	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG.	Manual	* N/A *	0.0	0.0
					* N/A *	1215.5	1230.2
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running (MCC 36A-E never striped.)	Manual	* N/A *	0.0	0.0
					* N/A *	1215.5	1230.2
			(No Loads Started or Tripped at this step)				
- 20 -	NSE 99-1-075	NSE 99-1-075	ASA PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (CSP 32 stopped.)	Manual	* N/A *	0.0	-319.5
					* N/A *	1215.5	910.7
			-25				
- 21 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Control Group energized on lightest loaded Bus.)	Manual	* N/A *	0.0	277.0
					* N/A *	1215.5	1187.7
			+114				
- 22 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. Bus 5A unavailable to power CRDM Fans.)	Manual	* N/A *	0.0	0.0
					* N/A *	1215.5	1187.7
			(No Loads Started or Tripped at this step)				
- 23 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.)	Manual	* N/A *	41.5	0.0
					* N/A *	1257.0	1187.7
			+47				
- 24 -	ES-1.1-20	---	Stop 1 of 3 ESWPs. (ESWPs 35 and 36 are running.) Shutdown Motor-driven AFWPs if desired. (AFWPs remain running.)	Manual	* N/A *	0.0	0.0
					* N/A *	1257.0	1187.7
			(No Loads Started or Tripped at this step)				
- 25 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWPs 32 and 33 are started.)	Manual	* N/A *	280.8	280.8
					* N/A *	1537.8	1468.5
			+85 +86				
- 26 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 32 started on lightest loaded Bus. Blowers started. CCR ventilation is running.)	Manual	* N/A *	0.0	144.3
					* N/A *	1537.8	1612.8
			+83 +66 +67				
- 27 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	* N/A *	0.0	0.0
					* N/A *	1537.8	1612.8
			(No Loads Started or Tripped at this step)				

STEAM BREAK (PH B)

Steam Break (PH 8)
Buses 2A/3A Tied Together, Bus 5A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
AFWP 33	EDG 32
CHARGING PUMP 32	EDG 31
ESWP 35	EDG 31
ESWP 36	EDG 32
FCU 32	EDG 31
FCU 34	EDG 31
FCU 35	EDG 32
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36B: AUTO	EDG 32
MCC 36C: AUTO	EDG 31
MCC 36D: AUTO	EDG 32
MCC 37: PENT. BLOWER (#1)	EDG 32
MCC 37: PENT. BLOWER (#2)	EDG 32
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 32	EDG 31
NESWP 33	EDG 32
PAB FAN 32	EDG 32
PRESSURIZER HEATER CONTROL GROUP	EDG 32

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IPJ-CALC-ED-00207 REV 8

STEAM BREAK (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
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*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1443.9 Bus 2A/3A = * N/A * Bus 6A = 1335.8 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36B, 36D and 36E	Auto	110.0	* N/A *	100.4
					110.0	* N/A *	100.4
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 33	Auto	327.2	* N/A *	509.2
			RHR pump 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		437.2	* N/A *	609.6
			+120 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	307.3	* N/A *	319.5
			(E-0-9 verifies that pump is running.)				
					744.5	* N/A *	929.1
			+24 +25				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	258.0	* N/A *	129.0
			(RO verifies that fans are running.)				
					1002.5	* N/A *	1058.1
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWPs 33	Auto	0.0	* N/A *	375.7
			(RO verifies that pump is runnig.)				
					1002.5	* N/A *	1433.8
			+2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus	Manual	0.0	* N/A *	0.0
			to start at least one CCWP.				
			(All Buses are powered from EDGs.)		1002.5	* N/A *	1433.8
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 35)	Auto	280.8	* N/A *	280.8
			(RO verifies that pump is running.)		1283.3	* N/A *	1714.6
			+26 +28				
- 8 -	E-0-13	---	Start one CHARGING pump if RCS pressure	Manual	140.2	* N/A *	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		1423.5	* N/A *	1714.6
			loaded Bus.)				
			+13				
- 9 -	< 15 >	---		Manual	0.0	* N/A *	0.0
			*** FAULTED STEAM GENERATOR ***				
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		1423.5	* N/A *	1714.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	---	RO-1-20	Start one PAB fan. (While in this step procedure , a PAB fan can not be started if 2A/3A Tie Breaker is closed.)	Manual	0.0 1423.5	* N/A * * N/A *	0.0 1714.6
			(No Loads Started or Tripped at this step)				
- 11 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	0.0 1423.5	* N/A * * N/A *	0.0 1714.6
			(No Loads Started or Tripped at this step)				
- 12 -	E-1-4	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1423.5	* N/A * * N/A *	0.0 1714.6
			(No Loads Started or Tripped at this step)				
- 13 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (MCCs are reset.)	Manual	85.8 1509.3	* N/A * * N/A *	24.8 1739.4
			+82 +83				
- 14 -	E-1-8	---	ESTABLISH Instrument Air to Containmenet. (Load accounted for in MCC reset.)	Manual	0.0 1509.3	* N/A * * N/A *	0.0 1739.4
			(No Loads Started or Tripped at this step)				
- 15 -	E-1-11	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1509.3	* N/A * * N/A *	0.0 1739.4
			(No Loads Started or Tripped at this step)				
- 16 -	< 12 >	---	*** GO TO ES-1.1, SI TERMINATION ***	Manual	0.0 1509.3	* N/A * * N/A *	0.0 1739.4
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.1-4	---	Stop RHR pump. (Only pump 32 running - stopped.) Stop SI pumps. (Only pumps 31 and 33 running - stopped.)	Manual	-327.2 1182.1	* N/A * * N/A *	-509.2 1230.2
			-120 -121 -123				
- 18 -	ES-1.1-8	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1182.1	* N/A * * N/A *	0.0 1230.2
			(No Loads Started or Tripped at this step)				

Step Number	SKO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.1-10	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG.	Manual	0.0	* N/A *	0.0
					1182.1	* N/A *	1230.2
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.1-13	---	Check BAST transfer pumps are running (MCC 36A-E never striped.)	Manual	0.0	* N/A *	0.0
					1182.1	* N/A *	1230.2
			(No Loads Started or Tripped at this step)				
- 21 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (CSPs stopped.)	Manual	-307.3	* N/A *	-319.5
					874.8	* N/A *	910.7
			-24 -25				
- 22 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Control Group energized on lightest loaded Bus.)	Manual	207.9	* N/A *	0.0
					1082.7	* N/A *	910.7
			+109				
- 23 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans (MCC are already reset. CRDM Fans started on MCC 38.)	Manual	80.4	* N/A *	0.0
					1163.1	* N/A *	910.7
			+70 +71 +72 +73				
- 24 -	---	RO-1-27c	SATRT AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsitew and tie-breakers are open. Start Turb Turning Gear. (Bus 2A/3A unavailable.)	Manual	0.0	* N/A *	0.0
					1163.1	* N/A *	910.7
			(No Loads Started or Tripped at this step)				
- 25 -	ES-1.1-20	---	Stop 1 of 3 ESWPs. (ESWPs 34 and 35 are running.) Shutdown Motor-driven AFWPs if desired. (Bus 2A/3A not available. AFWP 33 remains running)	Manual	0.0	* N/A *	0.0
					1163.1	* N/A *	910.7
			(No Loads Started or Tripped at this step)				
- 26 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 33 started.)	Manual	280.8	* N/A *	280.8
					1443.9	* N/A *	1191.5
			+84 +86				
- 27 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (Bus 2A/3A unavailable, PAB Fan 22 started. Blowers started, CCR ventilation is running.)	Manual	0.0	* N/A *	144.3
					1443.9	* N/A *	1335.8
			+88 +66 +67				

STEAM BREAK (PH B)

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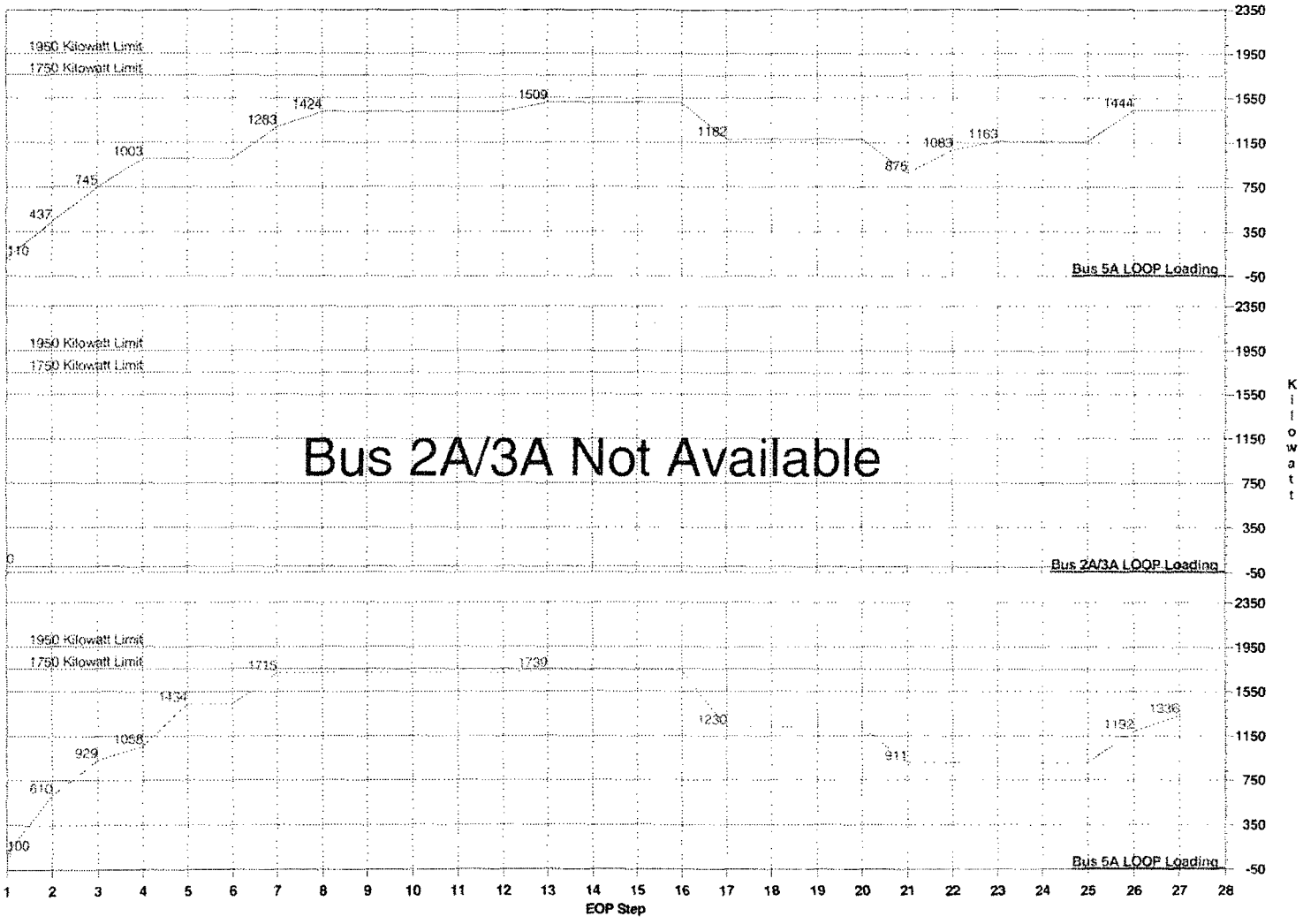
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
28	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM (No Loads Started or Tripped at this step)	Manual	0.0 1443.9	* N/A * * N/A *	0.0 1335.8

STEAM BREAK (PH B)



Steam Break (PH B)
Buses 2A and / or 3A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 33	EDG 32
CHARGING PUMP 31	EDG 33
ESWP 34	EDG 33
ESWP 36	EDG 32
FCU 31	EDG 33
FCU 33	EDG 33
FCU 35	EDG 32
MCC 36A: AUTO	EDG 33
MCC 36B: AUTO	EDG 32
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 33
MCC 37: PENT. BLOWER (#1)	EDG 32
MCC 37: PENT. BLOWER (#2)	EDG 32
MCC 38: CRDM FAN 31 (FAN#1)	EDG 33
MCC 38: CRDM FAN 32 (FAN#2)	EDG 33
MCC 38: CRDM FAN 33 (FAN#3)	EDG 33
MCC 38: CRDM FAN 34 (FAN#4)	EDG 33
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 31	EDG 33
NESWP 33	EDG 32
PAB FAN 32	EDG 32
PRESSURIZER HEATER 33	EDG 33

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STEAM BREAK
ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
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*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2180.8 Bus 2A = 2129.2 Bus 3A = 1714.9 Bus 6A = 2367.0 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

STEAM BREAK - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25,2009 Time : 3:54 PM [45]

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	0.0	150.1
					169.5	135.5	0.0	150.1
			+57 +50 +53 +59 +60					
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	472.4	264.5	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)					
			(RO verifies that pumps are running.)		641.9	607.9	264.5	888.6
			+117 +120 +121 +122 +123					
- 3 -	E-0-9	---	CSPs 31 and 32	Manual	0.0	0.0	0.0	0.0
			(CSPs started during Phase B only.)					
			(E-0-9 verifies that spray is not required.)		641.9	607.9	264.5	888.6
			(No Loads Started or Tripped at this step)					
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	491.9	247.2	246.0	248.0
			(RO verifies that fans are running.)					
					1133.8	855.1	510.5	1136.6
			+29 +31 +33 +35 +37					
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	0.0	575.4	562.9
			(RO verifies that pumps are running.)					
					1133.8	855.1	1085.9	1699.5
			+1 +2					
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.5	251.3	0.0	251.2
			(RO verifies that pumps are running.)					
					1384.3	1106.4	1085.9	1950.7
			+4 +7 +10					
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	429.8	0.0	429.0	429.8
			(RO verifies that pumps are running.)					
					1814.1	1106.4	1514.9	2380.5
			+26 +27 +28					
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	0.0	0.0	208.9	0.0
			is > than 325 psig and CCW is available.					
			(CHARGING pump 32 started on lightest		1814.1	1106.4	1723.8	2380.5
			loaded Bus.)					
			+14					
- 9 -	< 15 >	---		Manual	0.0	0.0	0.0	0.0
			*** FAULTED STEAM GENERATOR ***					
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		1814.1	1106.4	1723.8	2380.5
			(No Loads Started or Tripped at this step)					

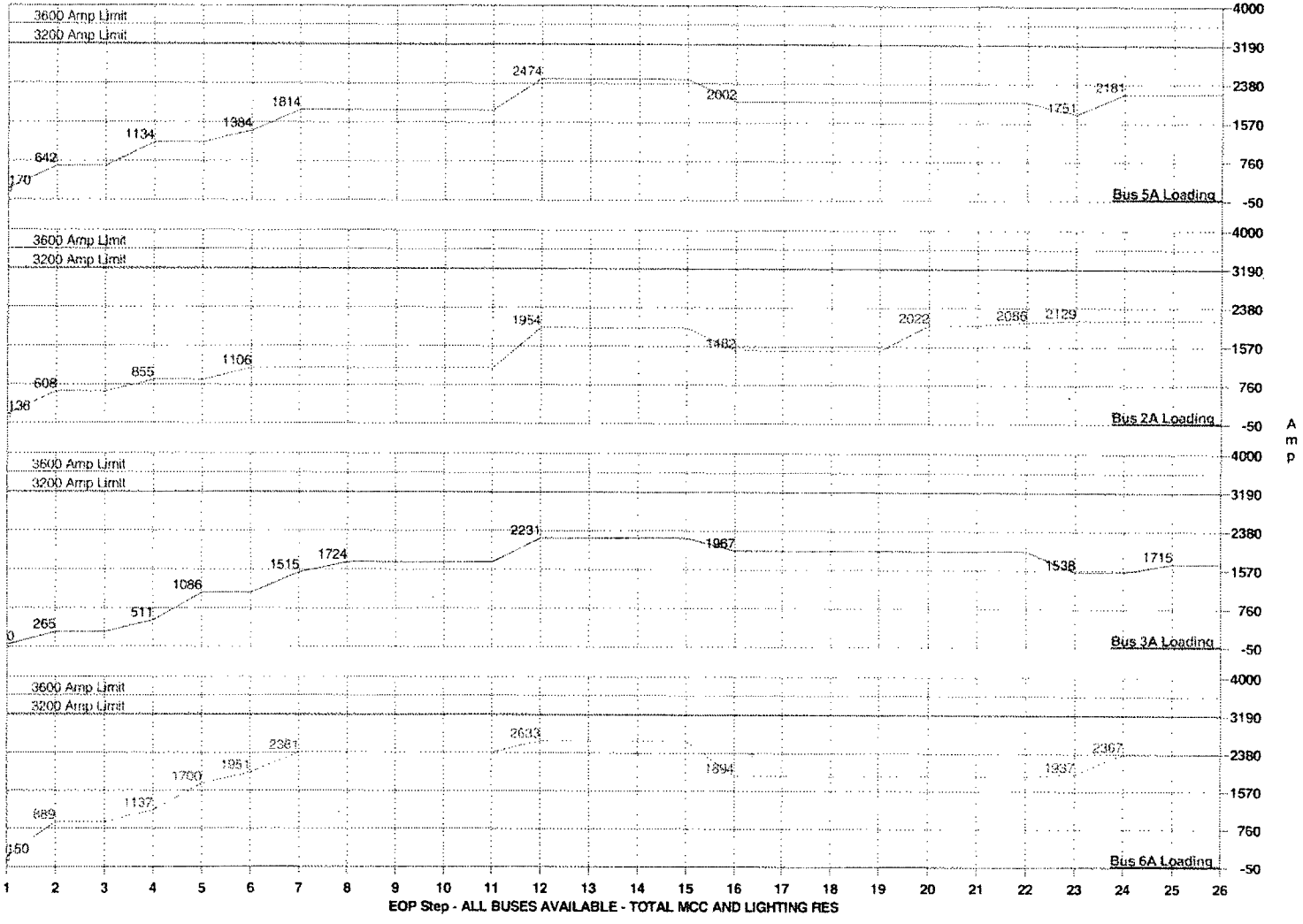
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	0.0	0.0	0.0	0.0
					1814.1	1106.4	1723.8	2380.5
			(No Loads Started or Tripped at this step)					
- 11 -	E-1-4	---	Reset SI	Manual	0.0	0.0	0.0	0.0
			(Steps 2 through 12 of RO-1 are completed.)					
					1814.1	1106.4	1723.8	2380.5
			(No Loads Started or Tripped at this step)					
- 12 -	---	RO-1-15	RESET MCCs as per SOP-EL-15.	Manual	659.8	848.0	507.6	252.2
			(Total MCC and Lighting reset.)					
					2473.9	1954.4	2231.4	2633.7
			+126 +124 +125 +127					
- 13 -	E-1-8	---	ESTABLISH Instrument Air to Containment.	Manual	0.0	0.0	0.0	0.0
			(Load accounted for in MCC reset.)					
					2473.9	1954.4	2231.4	2632.7
			(No Loads Started or Tripped at this step)					
- 14 -	E-1-11	---	Start one CHARGING pump.	Manual	0.0	0.0	0.0	0.0
			(CHARGING pump 32 is running.)					
					2473.9	1954.4	2231.4	2632.7
			(No Loads Started or Tripped at this step)					
- 15 -	< 12 >	---		Manual	0.0	0.0	0.0	0.0
			*** GO TO ES-1.1, SI TERMINATION ***					
					2473.9	1954.4	2231.4	2632.7
			(No Loads Started or Tripped at this step)					
- 16 -	ES-1.1-4	---	Stop RHR pumps. (All RHR pumps stopped.)	Manual	-472.4	-472.4	-264.5	-738.5
			Stop SI pumps. (All SI pumps stopped.)					
					2001.5	1482.0	1966.9	1894.2
			-117 -120 -121 -122 -123					
- 17 -	ES-1.1-8	---	Start one CHARGING pump.	Manual	0.0	0.0	0.0	0.0
			(CHARGING pump 32 is running.)					
					2001.5	1482.0	1966.9	1894.2
			(No Loads Started or Tripped at this step)					
- 18 -	ES-1.1-10	---	Stop CSPs.	Manual	0.0	0.0	0.0	0.0
			(Spray not actuated. No pumps are running.)					
					2001.5	1482.0	1966.9	1894.2
			(No Loads Started or Tripped at this step)					

STEAM BREAK - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25 2009 Time : 3:54 PM [45]

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	0.0	0.0	0.0	0.0
					2001.5	1482.0	1966.9	1894.2
			(No Loads Started or Tripped at this step)					
- 20 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Group 32 on lightest loaded Bus.) +98	Manual	0.0	540.3	0.0	0.0
					2001.5	2022.3	1966.9	1894.2
- 21 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans (MCCs are already reset. CRDM Fan loads accounted for in MCC resets.)	Manual	0.0	0.0	0.0	0.0
					2001.5	2022.3	1966.9	1894.2
			(No Loads Started or Tripped at this step)					
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0	63.8	0.0	0.0
					2001.5	2086.1	1966.9	1894.2
- 23 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. Stop 1 of 3 ESWPs and Shutdown Motor-driven AFWPs if desired. (First CCWP 31 and then ESWP 35 stopped on heaviest loaded Buses. AFWPs remain running.) +8 +11 -4 -7 -10 -27	Manual	-250.5	43.1	-429.0	43.0
					1751.0	2129.2	1537.9	1937.2
- 24 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 33 started on lightest loaded Bus.)	Manual	429.8	0.0	0.0	429.8
					2180.8	2129.2	1537.9	2367.0
			+84 +86					
- 25 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started on lightest loaded Bus. Blowers and CCR ventilation started at MCC reset.) +87	Manual	0.0	0.0	177.0	0.0
					2180.8	2129.2	1714.9	2367.0
- 26 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	0.0	0.0	0.0	0.0
					2180.8	2129.2	1714.9	2367.0
			(No Loads Started or Tripped at this step)					

STEAM BREAK


3600 Amp Limit
3200 Amp Limit
Bus 5A Loading
70
642
1134
1384
1814
2474
2002
1751
2181
Bus 2A Loading
138
608
855
1106
1954
1482
2022
2086
2129
Bus 3A Loading
0
265
511
1086
1515
1724
2231
1967
1538
1715
Bus 6A Loading
50
689
1137
1700
1951
2381
2633
1894
1937
2367
4000
3190
2380
1570
760
-50
Amp
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
EOP Step - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RES

Steam Break
Total MCC and Lighting Reset
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 32	2A
CCWP 33	6A
CHARGING PUMP 32	3A
ESWP 35	31
ESWP 36	6A
FCU 32	2A
FCU 33	5A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 33	6A
PAB FAN 31	3A
PRESSURIZER HEATER 32	2A
TOTAL MCC & LIGHTING RESET (2A)	
TOTAL MCC & LIGHTING RESET (3A)	
TOTAL MCC & LIGHTING RESET (5A)	
TOTAL MCC & LIGHTING RESET (6A)	

NEW YORK POWER AUTHORITY
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ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 RSV 8

STEAM BREAK

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:53 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2252.9 Bus 2A/3A = 2533.1 Bus 6A = 2422.8 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

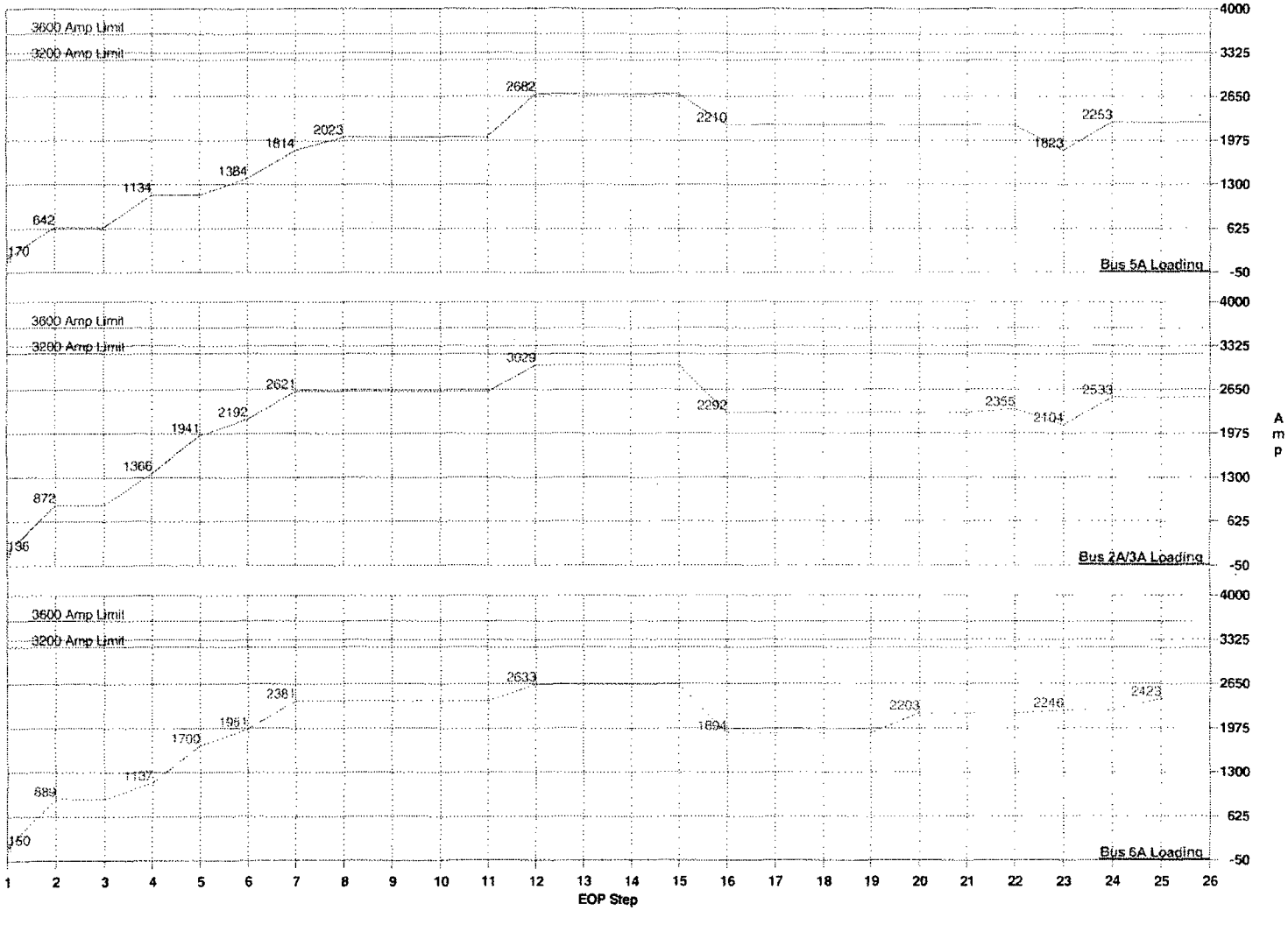
Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	150.1
					169.5	135.5	150.1
			+57 +50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	736.9	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	872.4	888.6
			+117 +120 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not required.	Manual	0.0	0.0	0.0
			CSPs started during Phase B only.)				
			(E-0-9 verifies that pumps are not running.)		641.9	872.4	888.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	491.9	493.2	248.0
			(RO verifies that fans are running.)				
					1133.8	1365.6	1136.6
			+29 +31 +33 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	575.4	562.9
			(RO verifies that pumps are running.)				
					1133.8	1941.0	1699.5
			+1 +2				
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.5	251.3	251.2
			(RO verifies that pumps are running.)				
					1384.3	2192.3	1950.7
			+4 +7 +10				
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	429.8	429.0	429.8
			(RO verifies that pumps are running.)				
					1814.1	2621.3	2380.5
			+26 +27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	0.0	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		2022.6	2621.3	2380.5
			loaded Bus.)				
			+13				
- 9 -	< 15 >	---		Manual	0.0	0.0	0.0
			*** FAULTED STEAM GENERATOR ***				
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		2022.6	2621.3	2380.5
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	< 6 >	---		Manual	0.0	0.0	0.0
			*** GO TO E-1 AT THE COMPLETION OF E-2 ***		2022.6	2621.3	2380.5
			(No Loads Started or Tripped at this step)				
- 11 -	E-1-4	---	Reset SI	Manual	0.0	0.0	0.0
			(Steps 2 through 12 of RO-1 are completed.)		2022.6	2621.3	2380.5
			(No Loads Started or Tripped at this step)				
- 12 -	---	RO-1-15	RESET MCCs as per SOP-EL-15.	Manual	659.8	407.2	252.2
			(Total MCC and Lighting reset.)		2682.4	3028.5	2632.7
			+126 +127 +3				
- 13 -	E-1-6	---	ESTABLISH Instrument Air to Containment.	Manual	0.0	0.0	0.0
			(Load accounted for in MCC reset.)		2682.4	3028.5	2632.7
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-11	---	Start one CHARGING pump.	Manual	0.0	0.0	0.0
			(CHARGING pump 31 is running.)		2682.4	3028.5	2632.7
			(No Loads Started or Tripped at this step)				
- 15 -	< 13 >	---		Manual	0.0	0.0	0.0
			*** GO TO ES-1.1, SI TERMINATION ***		2682.4	3028.5	2632.7
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-4	---	Stop RHR pumps. (All RHR pumps stopped.)	Manual	-472.4	-736.9	-738.5
			Stop SI pumps. (All SI pumps stopped.)		2210.0	2291.6	1894.2
			-117 -120 -121 -122 -123				
- 17 -	ES-1.1-8	---	Start one CHARGING pump.	Manual	0.0	0.0	0.0
			(CHARGING pump 31 is running.)		2210.0	2291.6	1894.2
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.1-10	---	Stop CSPs.	Manual	0.0	0.0	0.0
			(Spray not actuated. No pumps are running.)		2210.0	2291.6	1894.2
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	0.0 3210.0	0.0 2291.6	0.0 1894.2
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Control Group on lightest loaded Bus.) +114	Manual	0.0 2210.0	0.0 2291.6	308.6 2202.8
- 21 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCCs are already reset. CRDM Fan loads accounted for in MCC resets.)	Manual	0.0 2210.0	0.0 2291.6	0.0 2202.8
			(No Loads Started or Tripped at this step)				
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps 1F 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 2210.0	63.8 2355.4	0.0 2202.8
- 23 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. Stop 1 of 3 ESWPs and Shutdown Motor-driven AFWPs if desired. (First CCWP 32 and then ESWP 34 stopped on heaviest loaded Buses. AFWPs remain running.) +5 +11 -4 -7 -10 -26	Manual	-386.9 1823.1	-251.3 2104.1	43.0 2245.8
- 24 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 32 started on lightest loaded Bus.)	Manual	429.8 2252.9	429.0 2533.1	0.0 2245.8
			+84 +85				
- 25 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 32 started on lightest loaded Bus. Blowers and CCR vent. started at MCC reset.) +88	Manual	0.0 2252.9	0.0 2533.1	177.0 2422.8
- 26 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	0.0 2252.9	0.0 2533.1	0.0 2422.8
			(No Loads Started or Tripped at this step)				

STEAM BREAK


3600 Amp Limit
3200 Amp Limit
642
170
1134
1384
1814
2023
2682
2210
1823
2253
Bus 5A Loading
3600 Amp Limit
3200 Amp Limit
872
136
1366
1941
2192
2621
3029
2292
2355
2104
2533
Bus 2A/3A Loading
3600 Amp Limit
3200 Amp Limit
689
150
1137
1700
1961
2381
2633
1894
2203
2249
2423
Bus 5A Loading
4000
3325
2650
1975
1300
625
-50
Amp
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
EOP Step

Steam Break
Buses 2A/3A Tied Together, All Buses Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 31	5A
CCWP 33	6A
CHARGING PUMP 31	5A
ESWP 35	3A
ESWP 36	6A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 32	2A
PAB FAN 32	6A
PRESSURIZER HEATER CONTROL GROUP	6A
TOTAL MCCS & LIGHTING RESET BUS 5A	
TOTAL MCCS & LIGHTING RESET BUS 6A	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

1P3-CALC-ED-00207 REV 8

STEAM BREAK

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:53 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2914.3 Bus 2A/3A = 3004.5 Bus 6A = * N/A * (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A Not Available

3600 Amp Overload Summary

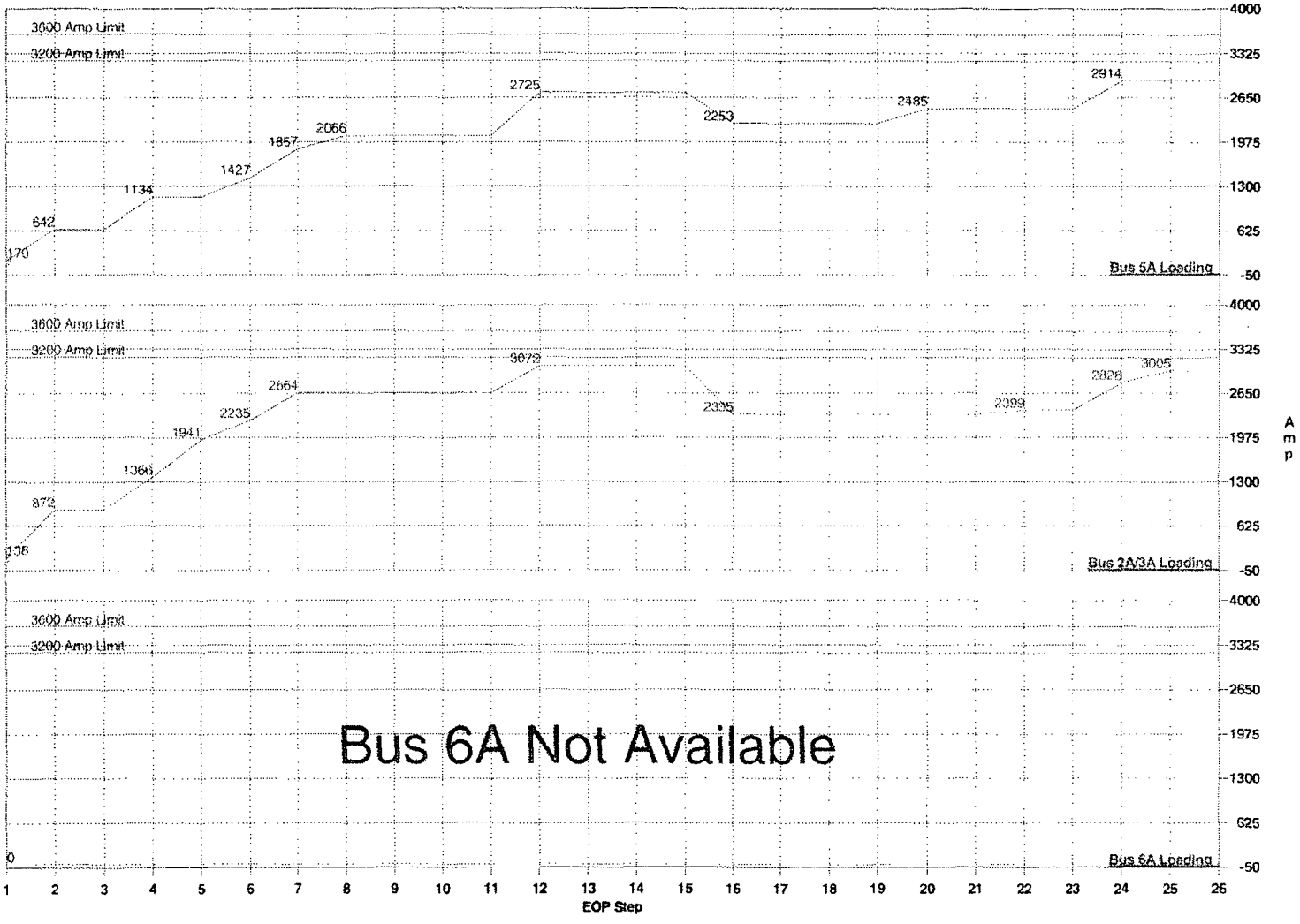
Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A Not Available

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36C and 36E	Auto	169.5	135.5	* N/A *
					169.5	135.5	* N/A *
			+57 +60 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 32	Auto	472.4	736.9	* N/A *
			RHR pump 31 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	872.4	* N/A *
			+117 +121 +122				
- 3 -	E-0-9	---	CSP 31 (Spray not required.	Manual	0.0	0.0	* N/A *
			CSPs started during Phase B only.)				
			(E-0-9 verifies that pumps are not running.)		641.9	872.4	* N/A *
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34	Auto	491.9	493.2	* N/A *
			(RO verifies that fans are running.)		1133.8	1365.6	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWP 31	Auto	0.0	575.4	* N/A *
			(RO verifies that pump is running.)		1133.8	1941.0	* N/A *
			+1				
- 6 -	---	RO-1-7	CCWPs 31 and 32	Auto	293.4	294.4	* N/A *
			(RO verifies that pumps are running.)		1427.2	2235.4	* N/A *
			+4 +7				
- 7 -	---	RO-1-8	ESWPs (34 and 35)	Auto	429.8	429.0	* N/A *
			(RO verifies that pumps are running.)		1857.0	2664.4	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGER pump if RCS pressure	Manual	208.5	0.0	* N/A *
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		2065.5	2664.4	* N/A *
			loaded Bus.)				
			+13				
- 9 -	< 15 >	---		Manual	0.0	0.0	* N/A *
			*** FAULTED STEAM GENERATOR ***				
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		2065.5	2664.4	* N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	0.0	0.0	* N/A *
					2065.5	2664.4	* N/A *
			(No Loads Started or Tripped at this step)				
- 11 -	E-1-4	---	Reset SI.	Manual	0.0	0.0	* N/A *
			(Steps 2 through 12 of RO-1 are completed.)				
					2065.5	2664.4	* N/A *
			(No Loads Started or Tripped at this step)				
- 12 -	---	RO-1-15	RESET MCCs as per SOP-EL-15.	Manual	659.8	407.2	* N/A *
			(Total MCC and Lighting reset.)				
					2725.3	3071.6	* N/A *
			+126 +3				
- 13 -	E-1-8	---	ESTABLISH Instrument Air to Containment.	Manual	0.0	0.0	* N/A *
			(Load accounted for in MCC reset.)				
					2725.3	3071.6	* N/A *
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-11	---	Start one CHARGING pump.	Manual	0.0	0.0	* N/A *
			(CHARGING pump 31 is running.)				
					2725.3	3071.6	* N/A *
			(No Loads Started or Tripped at this step)				
- 15 -	< 12 >	---		Manual	0.0	0.0	* N/A *
			*** GO TO ES-1.1, SI TERMINATION ***				
					2725.3	3071.6	* N/A *
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-4	---	Stop RHR pumps. (Only pump 31 running-stopped.)	Manual	-472.4	-736.9	* N/A *
			Stop SI pumps. (Only pumps 31 and 32 running - stopped.)				
					2252.9	2334.7	* N/A *
			-117 -121 -122				
- 17 -	ES-1.1-8	---	Start one CHARGING pump.	Manual	0.0	0.0	* N/A *
			(CHARGING pump 31 is running.)				
					2252.9	2334.7	* N/A *
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.1-10	---	Stop CSPs.	Manual	0.0	0.0	* N/A *
			(Spray not actuated. No pumps are running.)				
					2252.9	2334.7	* N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never stripped.)	Manual	0.0 2252.9	0.0 2334.7	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Group 33 on lightest loaded Bus.) +109	Manual	231.6 2484.5	0.0 2334.7	* N/A * * N/A *
- 21 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCCs are already reset. CRDM Fan loads accounted for in MCC resets.)	Manual	0.0 2484.5	0.0 2334.7	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 2484.5	63.8 2398.5	* N/A * * N/A *
- 23 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. (CCWPs 31 and 32 running.) Stop 1 of 3 ESWPs. (ESWPs 34 and 35 running.) Shutdown Motor-driven AFWPs if desired. (Bus 6A not available. AFWP 31 remains running.) (No Loads Started or Tripped at this step)	Manual	0.0 2484.5	0.0 2398.5	* N/A * * N/A *
- 24 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 32 started)	Manual	429.8 2914.3	429.0 2827.5	* N/A * * N/A *
			+84 +85				
- 25 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started. Blowers unavailable, powered from Bus 6A/MCC27, CCR vent. started.) +87	Manual	0.0 2914.3	177.0 3004.5	* N/A * * N/A *
- 26 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	0.0 2914.3	0.0 3004.5	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

STEAM BREAK


3600 Amp Limit
3200 Amp Limit
642
1134
1427
1857
2066
2725
2253
2485
2914
Bus 5A Loading
3600 Amp Limit
3200 Amp Limit
872
1366
1941
2235
2664
3072
2335
2099
2828
3005
Bus 2A/3A Loading
3600 Amp Limit
3200 Amp Limit
Bus 6A Not Available
Bus 6A Loading
4000
3325
2650
1975
1300
625
-50
Amp
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
EOP Step

Steam Break
Buses 2A/3A Tied Together, Bus 6A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
CCWP 31	5A
CCWP 32	2A
CHARGING PUMP 31	5A
ESWP 34	5A
ESWP 35	3A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
MCC 34: TURBINE TURNING GEAR	3A
MCC 36A: AUTO	5A
MCC 36C: AUTO	2A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 32	2A
PAB FAN 31	3A
PRESSURIZER HEATER 33	5A
TOTAL MCCS & LIGHTING RESET BUS 5A	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

STEAM BREAK

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:53 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 2827.5 Bus 6A = 3062.2 (A)

3200 Amp Overload Summary

Bus 5A Not Available
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

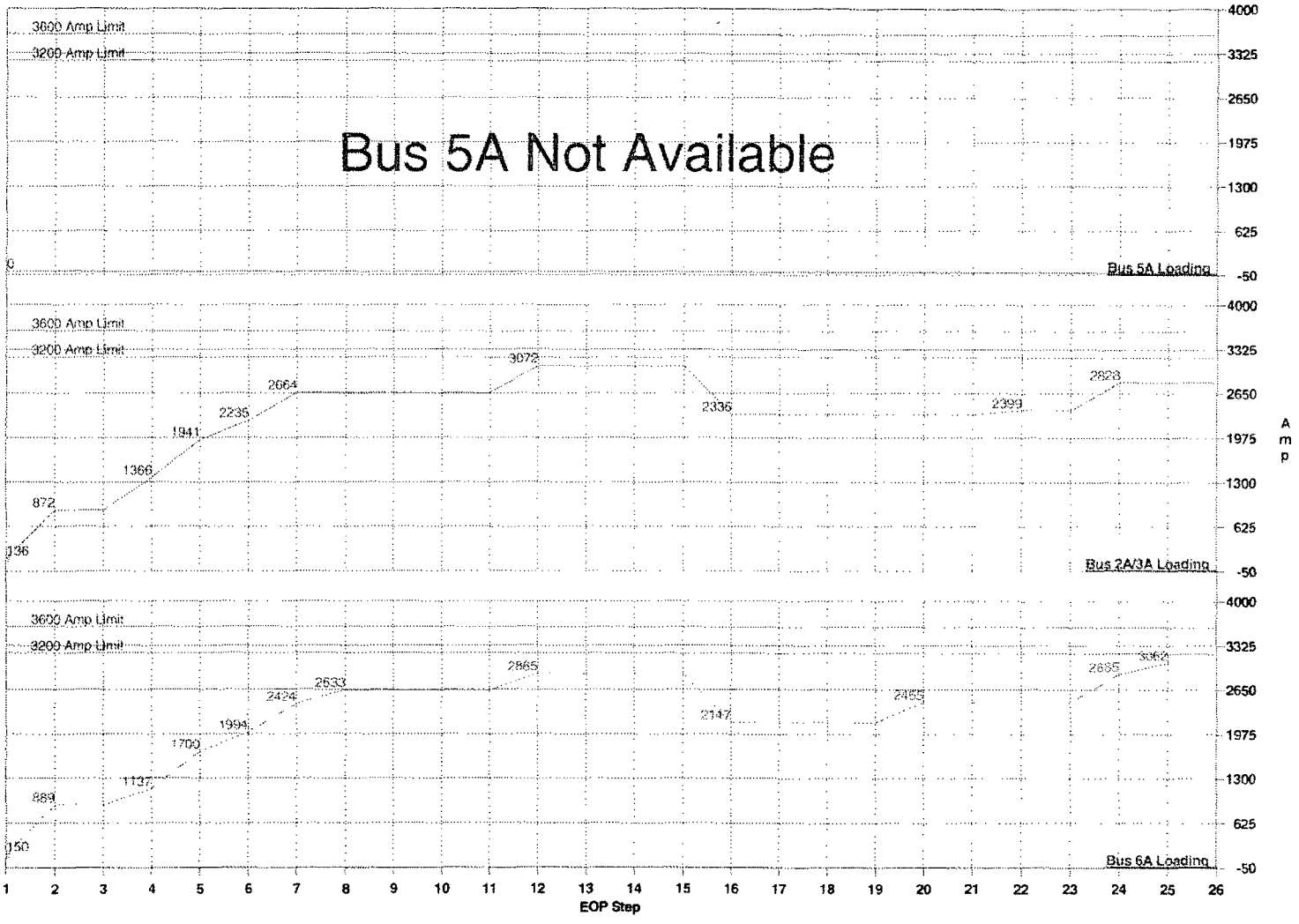
Bus 5A Not Available
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36B, 36C and 36D	Auto	* N/A *	135.5	150.1
					* N/A *	135.5	150.1
			+57 +63 +59				
- 2 -	---	RO-1-2	SI pumps 32 and 33	Auto	* N/A *	736.9	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		* N/A *	872.4	888.6
			+117 +120 +122 +123				
- 3 -	E-0-9	---	CSP 32 (Spray not required.	Manual	* N/A *	0.0	0.0
			CSPs started during Phase B only.)				
			(E-0-9 verifies that pump is not running.)		* N/A *	872.4	888.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 32, 34 and 35	Auto	* N/A *	493.2	248.0
			(RO verifies that fans are running.)		* N/A *	1365.6	1136.6
			+31 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	* N/A *	575.4	562.9
			(RO verifies that pumps are running.)		* N/A *	1941.0	1699.5
			+1 +2				
- 6 -	---	RO-1-7	CCWPs 32 and 33	Auto	* N/A *	294.4	294.2
			(RO verifies that pumps are running.)		* N/A *	2235.4	1993.7
			+7 +10				
- 7 -	---	RO-1-8	ESWPs (35 and 36)	Auto	* N/A *	429.0	429.8
			(RO verifies that pumps are running.)		* N/A *	2664.4	2423.5
			+27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	* N/A *	0.0	209.6
			is > than 325 psig and CCW is available.				
			(CHARGING pump 33 started on lightest		* N/A *	2664.4	2633.1
			loaded Bus.)				
			+15				
- 9 -	< 15 >	---		Manual	* N/A *	0.0	0.0
			*** FAULTED STEAM GENERATOR ***				
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		* N/A *	2664.4	2633.1
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	* N/A *	0.0	0.0
					* N/A *	2664.4	2633.1
			(No Loads Started or Tripped at this step)				
- 11 -	E-1-4	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	* N/A *	0.0	0.0
					* N/A *	2664.4	2633.1
			(No Loads Started or Tripped at this step)				
- 12 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	* N/A *	407.2	252.2
					* N/A *	3071.6	2885.3
			+127 +3				
- 13 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (load accounted for in MCC reset.)	Manual	* N/A *	0.0	0.0
					* N/A *	3071.6	2885.3
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-11	---	Start one CHARGING pump. (Charging pump 33 is running.)	Manual	* N/A *	0.0	0.0
					* N/A *	3071.6	2885.3
			(No Loads Started or Tripped at this step)				
- 15 -	< 12 >	---	*** GO TO ES-1.1, SI TERMINATION ***	Manual	* N/A *	0.0	0.0
					* N/A *	3071.6	2885.3
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-4	---	Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (Only pumps 32 and 33 running-stopped.)	Manual	* N/A *	-736.9	-738.5
					* N/A *	2334.7	2146.8
			-117 -120 -122 -123				
- 17 -	ES-1.1-8	---	Start one CHARGING pump. (CHARGING pump 33 is running.)	Manual	* N/A *	0.0	0.0
					* N/A *	2334.7	2146.8
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.1-10	---	Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	* N/A *	0.0	0.0
					* N/A *	2334.7	2146.8
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	* N/A *	0.0	0.0
					* N/A *	2334.7	2146.8
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Control Group on lightest loaded Bus.) +114	Manual	* N/A *	0.0	308.6
					* N/A *	2334.7	2455.4
- 21 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans (MCCs are already reset. CRDM Fans unavailable, power from Bus 5A/MCC 38.)	Manual	* N/A *	0.0	0.0
					* N/A *	2334.7	2455.4
			(No Loads Started or Tripped at this step)				
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	* N/A *	63.8	0.0
					* N/A *	2398.5	2455.4
- 23 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. (CCWPs 32 and 33 running.) Stop 1 of 3 ESWPs. (ESWPs 35 and 36 running.) Shutdown Motor-driven AFWPs if desired. (AFWPs remain running.)	Manual	* N/A *	0.0	0.0
					* N/A *	2398.5	2455.4
			(No Loads Started or Tripped at this step)				
- 24 -	ES-1.1-25	---	Check that at least two NESWPs are running. (NESWP 32 and 33 started.)	Manual	* N/A *	429.0	429.8
					* N/A *	2827.5	2885.2
			+85 +86				
- 25 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 32 started on lightest loaded Bus. Blowers and CCR vent. at MCC reset.) +88	Manual	* N/A *	0.0	177.0
					* N/A *	2827.5	3062.2
- 26 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	* N/A *	0.0	0.0
					* N/A *	2827.5	3062.2
			(No Loads Started or Tripped at this step)				

STEAM BREAK


Bus 5A Not Available
3600 Amp Limit
3200 Amp Limit
Bus 5A Loading
Bus 2A/3A Loading
Bus 6A Loading
872
1366
1941
2235
2664
3072
2336
2399
2823
889
1137
1700
1994
2424
2633
2865
2147
2455
2685
3362
EOP Step
Amp

Steam Break
Buses 2A/3A Tied Together, Bus 5A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 32	2A
CCWP 33	6A
CHARGING PUMP 33	6A
ESWP 35	3A
ESWP 36	6A
FCU 32	2A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
NESWP 32	2A
NESWP 33	6A
PAB FAN 32	6A
PRESSURIZER HEATER CONTROL GROUP	6A
MCCS RESET (2A/3A) AS PER SOP-EL-15	
TOTAL MCCS & LIGHTING RESET BUS 6A	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

STEAM BREAK

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:53 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2682.7 Bus 2A/3A = * N/A * Bus 6A = 2852.6 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36D and 36E	Auto	169.5	* N/A *	150.1
					169.5	* N/A *	150.1
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 33	Auto	472.4	* N/A *	738.5
			RHR pump 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	* N/A *	888.6
			+120 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not required.	Manual	0.0	* N/A *	0.0
			CSPs started during phase B only.)				
			(E-0-9 verifies that pumps are not running.)		641.9	* N/A *	888.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	491.9	* N/A *	248.0
			(RO verifies that fans are running.)		1133.8	* N/A *	1136.6
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWP 33	Auto	0.0	* N/A *	562.9
			(RO verifies that pump is running.)		1133.8	* N/A *	1699.5
			+2				
- 6 -	---	RO-1-7	CCWPs 31 and 33	Auto	293.4	* N/A *	294.2
			(RO verifies that pumps are running.)		1427.2	* N/A *	1993.7
			+4 +10				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	429.8	* N/A *	429.8
			(RO verifies that pumps are running.)		1857.0	* N/A *	2423.5
			+26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	* N/A *	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		2065.5	* N/A *	2423.5
			loaded Bus.)				
			+13				
- 9 -	< 15 >	---		Manual	0.0	* N/A *	0.0
			*** FAULTED STEAM GENERATOR ***				
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		2065.5	* N/A *	2423.5
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	< 6 >	---		Manual	0.0	* N/A *	0.0
			*** GO TO E-1 AT THE COMPLETION OF E-2 ***		2065.5	* N/A *	2423.5
			(No loads Started or Tripped at this step)				
- 11 -	E-1-4	---	Reset SI.	Manual	0.0	* N/A *	0.0
			(Steps 2 through 12 of RO-1 are completed.)		2065.5	* N/A *	2423.5
			(No Loads Started or Tripped at this step)				
- 12 -	---	RO-1-15	RESET MCCs as per SOP-EL-15.	Manual	659.8	* N/A *	252.2
			(Total MCC and Lighting reset.)		2725.3	* N/A *	2675.7
			+126 +127				
- 13 -	E-1-8	---	ESTABLISH Instrument Air to Containmenet.	Manual	0.0	* N/A *	0.0
			(Load accounted for in MCC reset.)		2725.3	* N/A *	2675.7
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-11	---	Start one CHARGING pump.	Manual	0.0	* N/A *	0.0
			(CHARGING pump 31 is running.)		2725.3	* N/A *	2675.7
			(No Loads Started or Tripped at this step)				
- 15 -	< 12 >	---		Manual	0.0	* N/A *	0.0
			*** GO TO ES-1.1, SI TERMINATION ***		2725.3	* N/A *	2675.7
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-4	---	Stop RHR pumps. (Only pump 32 running - stopped.)	Manual	-472.4	* N/A *	-738.5
			Stop SI pumps. (Only pumps 31 and 33 running - stopped.)		2252.9	* N/A *	1937.2
			-120 -121 -123				
- 17 -	ES-1.1-8	---	Start one CHARGING pump.	Manual	0.0	* N/A *	0.0
			(CHARGING pump 31 is running.)		2252.9	* N/A *	1937.2
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.1-10	---	Stop CSPs.	Manual	0.0	* N/A *	0.0
			(Spray not actuated. No pumps are running.)		2252.9	* N/A *	1937.2
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running. (NCC 36A-E never stripped.)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 1927.2
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. (Energized Pressurizer Heater Control Group on lightest loaded Bus.)	Manual	0.0 2252.9	* N/A * * N/A *	308.6 2245.8
			+114				
- 21 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fan Loads accounted for in MCC resets.)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2245.8
			(No Loads Started or Tripped at this step)				
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Bus 2A/3A unavailable.)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2245.8
			(No Loads Started or Tripped at this step)				
- 23 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. (CCWPs 31 and 33 running.) Stop 1 of 3 ESWPs. (ESWPs 34 and 36 running.) Shutdown Motor-driven AFWPs if desired. (Bus 2A/3A not available. AFWP 33 remains running)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2245.8
			(No Loads Started or Tripped at this step)				
- 24 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 33 started.)	Manual	429.8 2682.7	* N/A * * N/A *	429.8 2675.6
			+84 +86				
- 25 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 32 started. Blowers and CCR ventilation started at MCC reset.)	Manual	0.0 2682.7	* N/A * * N/A *	177.0 2852.6
			+88				
- 26 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	0.0 2682.7	* N/A * * N/A *	0.0 2852.6
			(No Loads Started or Tripped at this step)				

STEAM BREAK


3600 Amp Limit
3200 Amp Limit
170
642
1134
1427
1857
2066
2725
2253
2683
Bus 5A Loading
3600 Amp Limit
3200 Amp Limit
Bus 2A/3A Not Available
0
Bus 2A/3A Loading
3600 Amp Limit
3200 Amp Limit
150
889
1137
1700
1994
2424
2678
1937
2249
2676
2853
Bus 6A Loading
4000
3325
2650
1975
1300
625
-50
Amp
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
EOP Step

Steam Break
Buses 2A and / or 3A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 33	6A
CCWP 31	5A
CCWP 33	6A
CHARGING PUMP 31	5A
ESWP 34	5A
ESWP 36	6A
FCU 31	5A
FCU 33	5A
FCU 35	6A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 33	6A
PAB FAN 32	6A
PRESSURIZER HEATER CONTROL GROUP	6A
TOTAL MCCS & LIGHTING RESET BUS 5A	
TOTAL MCCS & LIGHTING RESET BUS 6A	

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STEAM BREAK

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:53 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1163.1 Bus 2A/3A = 1231.1 Bus 6A = 1221.5 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

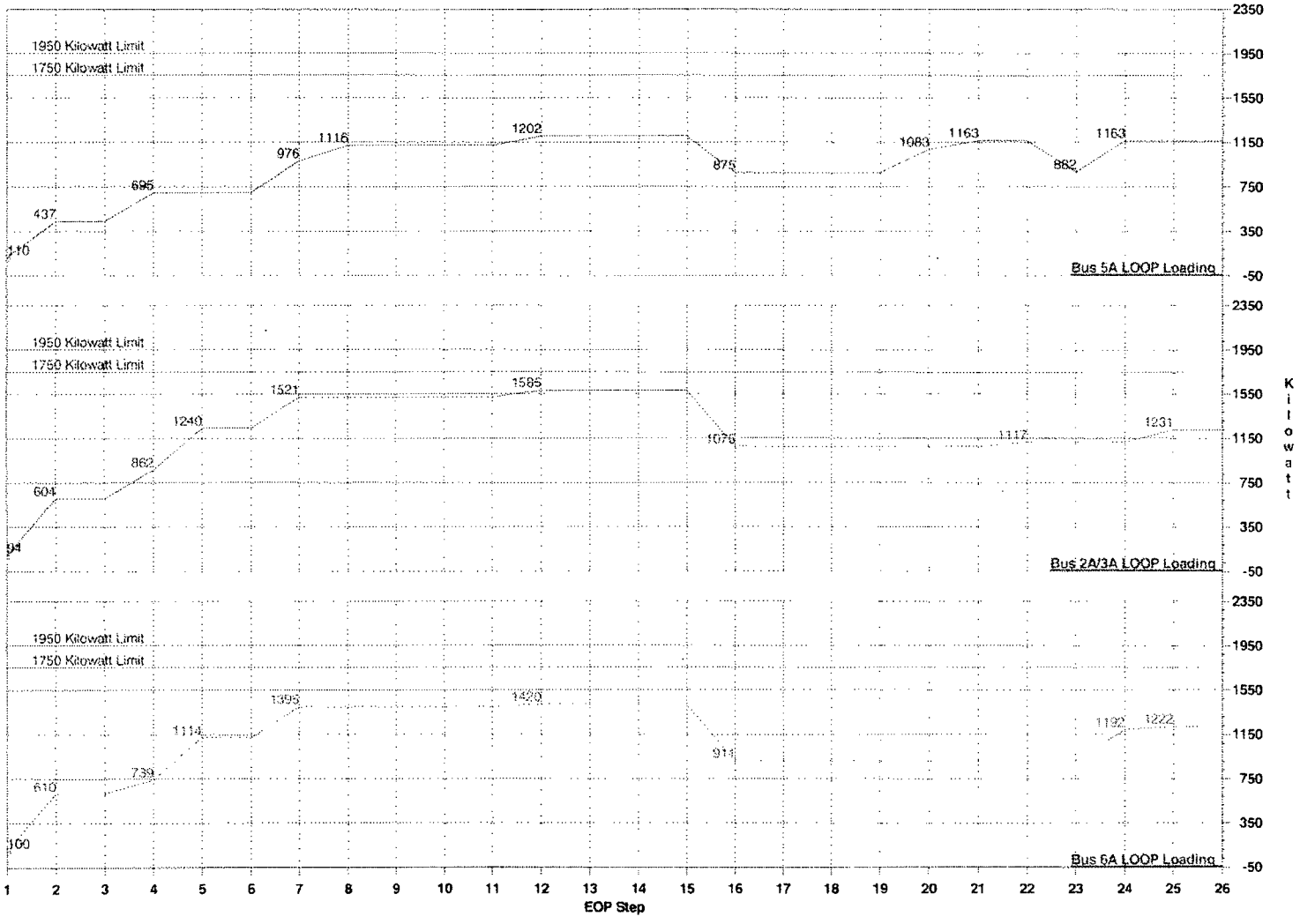
Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	110.0	94.3	100.4
					110.0	94.3	100.4
			+57 +50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	327.2	509.2	509.2
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		437.2	603.5	609.6
			+117 +120 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not required.	Manual	0.0	0.0	0.0
			CSPs started during Phase B only.)				
			(E-0-9 verifies that pumps are not running.)		437.2	603.5	609.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	258.0	258.0	129.0
			(RO verifies that fans are running.)		695.2	861.5	738.6
			+29 +31 +33 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	378.9	375.7
			(RO verifies that pumps are running.)		695.2	1240.4	1114.3
			-1 +2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Manual	0.0	0.0	0.0
			(All Buses are powered from EDGs.)		695.2	1240.4	1114.3
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	280.8	280.8	280.8
			(RO verifies that pumps are running.)		976.0	1521.2	1395.1
			+26 +27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	140.2	0.0	0.0
			(CHARGING pump 31 started on lightest loaded Bus.)		1116.2	1521.2	1395.1
			+13				
- 9 -	< 19 >	---		Manual	0.0	0.0	0.0
			*** FAULTED STEAM GENERATOR ***				
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		1116.2	1521.2	1395.1
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	[illegible]	Bus 5A Step/Total Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF [illegible] ***		[illegible] / 11[illegible]	[illegible].0 / [illegible]2	0.0 / 1395.1
			(No Loads Started or Tripped at th[illegible]				
- 11 -	E-1-4	---	Reset SI (Steps 2 through 12 of RO-1 a[illegible]	[illegible]	[illegible]		0.0 / 1395.1
			(No Loads Started [illegible]				
- 12 -	---	RO-1-15	RESET MCCs as per S[illegible]15 (MCC are reset.)	[illegible]	85.[illegible] / [illegible].0	[illegible] / [illegible].5	24.8 / 1419.9
			+82 +81 +83				
- 13 -	E-1-8	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 / 1202.0	0.0 / 1584.5	0.0 / 1419.9
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-11	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 / 1202.0	0.0 / 1584.5	0.0 / 1419.9
			(No Loads Started or Tripped at this step)				
- 15 -	< 12 >	---	*** GO TO ES-1.1, SI TERMINATION ***	Manual	0.0 / 1202.0	0.0 / 1584.5	0.0 / 1419.9
			(No Loads Star[illegible] or Tripped at this step)				
- 16 -	ES-1.1-4	---	Stop RHR pumps. [illegible] RHR [illegible]mps [illegible]opped.) Stop SI pumps. [illegible]All [illegible] pu[illegible]s stopped.)	Manual	-327.2 / 874.8	-509.2 / 1075.3	-509.2 / 910.7
			-117 -120 -121 -[illegible] -123				
- 17 -	ES-1.1-8	---	Start one CHARG[illegible] p[illegible] (CHARG[illegible] pump [illegible] is [illegible])	Manual	0.0 / 874.8	0.0 / 10[illegible].3	0.0 / 910.7
			(No L[illegible] Star[illegible] at [illegible] step)				
- 18 -	ES-1.1-10	---	Stop [illegible] (S[illegible] ot [illegible]s are [illegible]ning.)	Manual	0.0 / 874.8	0.0 / 1075.3	0.0 / 910.7
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	- Manual	0.0 874.8	0.0 1075.3	0.0 910.7
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater 33 energized on lightest loaded Bus.) +109	Manual	207.9 1082.7	0.0 1075.3	0.0 910.7
- 21 -	ES-1.1-18	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fans started on MCC 38.) +70 +71 +72 +73	Manual	80.4 1163.1	0.0 1075.3	0.0 910.7
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 1163.1	41.5 1116.8	0.0 910.7
- 23 -	ES-1.1-20	---	Stop 1 of 3 ESWPs. (ESWP 34 stopped on heaviest loaded Bus.) Shutdown Motor-driven AFWPs if desired. (AFWPs remain running.) -26	Manual	-280.9 882.3	0.0 1116.8	0.0 910.7
- 24 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWPs 31 and 32 started on lightest loaded Buses.) +84 +86	Manual	280.8 1163.1	0.0 1116.8	280.8 1191.5
- 25 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started on lightest loaded Bus. Blowers started, CCR ventilation is running.) +87 +66 +67	Manual	0.0 1163.1	114.3 1231.1	30.0 1221.5
- 26 -	ES-1.1-32	---	Go to appropriate plant procedure as directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	0.0 1163.1	0.0 1231.1	0.0 1221.5

STEAM BREAK


1950 Kilowatt Limit
1750 Kilowatt Limit
437
695
976
1116
1202
875
1083
1163
882
1163
Bus 5A LOOP Loading
1950 Kilowatt Limit
1750 Kilowatt Limit
604
862
1240
1521
1585
1076
1117
1231
Bus 2A/3A LOOP Loading
1950 Kilowatt Limit
1750 Kilowatt Limit
610
739
1114
1395
1420
911
1192
1222
Bus 6A LOOP Loading
2350
1950
1550
1150
750
350
-50
Kilowatt
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
EOP Step

Steam Break
Buses 2A/3A Tied Together, All Buses Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
AFWP 33	EDG 32
CHARGING PUMP 31	EDG 33
ESWP 35	EDG 31
ESWP 36	EDG 32
FCU 31	EDG 33
FCU 32	EDG 31
FCU 33	EDG 33
FCU 34	EDG 31
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36A: AUTO	EDG 33
MCC 36B: AUTO	EDG 32
MCC 36C: AUTO	EDG 31
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 33
MCC 37: PENT. BLOWER (#1)	EDG 32
MCC 37: PENT. BLOWER (#2)	EDG 32
MCC 38: CRDM FAN 31 (FAN#1)	EDG 33
MCC 38: CRDM FAN 32 (FAN#2)	EDG 33
MCC 38: CRDM FAN 33 (FAN#3)	EDG 33
MCC 38: CRDM FAN 34 (FAN#4)	EDG 33
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 31	EDG 32
NESWP 33	EDG 32
PAB FAN 31	EDG 31
PRESSURIZER HEATER 33	EDG 33

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

STEAM BREAK

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:53 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1443.9 Bus 2A/3A = 1511.9 Bus 6A = * N/A * (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Bus 6A Not Available

1950 kW Overload Summary

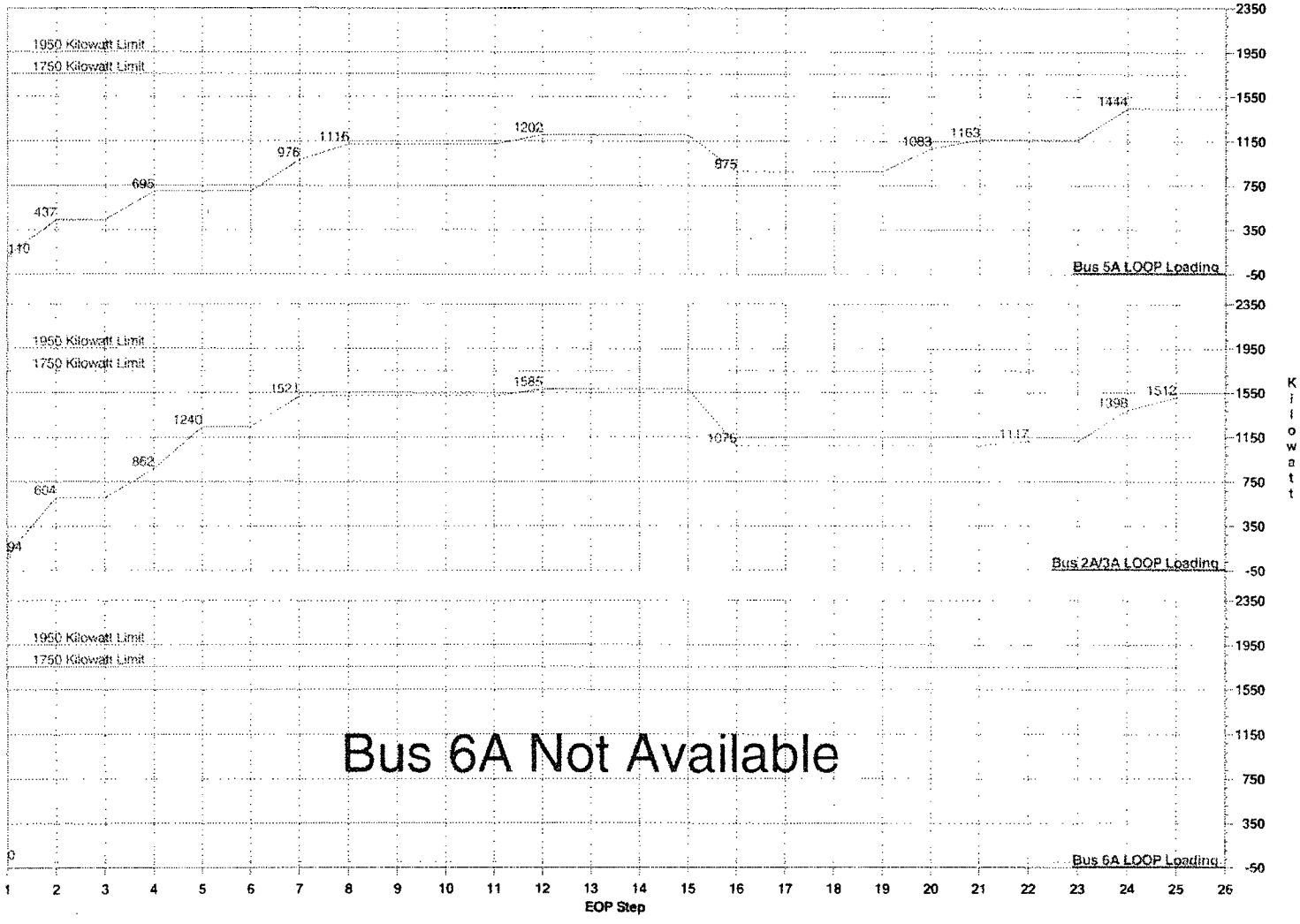
Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Bus 6A Not Available

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36C and 36E	Auto	110.0	94.3	* N/A *
					110.0	94.3	* N/A *
			+57 +50 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 32 RHR pump 31 (mini flow, RCS press > 325) (RO verifies that pumps are running.)	Auto	327.2	509.2	* N/A *
					437.2	603.5	* N/A *
			+117 +121 +122				
- 3 -	E-0-9	---	CSP 31 (Spray not required. CSPs started during phase B only.) (E-0-9 verifies that pump is not running.)	Manual	0.0	0.0	* N/A *
					437.2	603.5	* N/A *
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34 (RO verifies that fans are running.)	Auto	258.0	258.0	* N/A *
					695.2	861.5	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWP 31 (RO verifies that pump is running.)	Auto	0.0	378.9	* N/A *
					695.2	1240.4	* N/A *
			+1				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP. (All Buses are powered from EDGs.)	Manual	0.0	0.0	* N/A *
					695.2	1240.4	* N/A *
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 35) (RO verifies that pumps are running.)	Auto	280.8	280.8	* N/A *
					976.0	1521.2	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available. (CHARGING pump 31 started on lightest loaded Bus.)	Manual	140.2	0.0	* N/A *
					1116.2	1521.2	* N/A *
			+13				
- 9 -	< 15 >	---	*** FAULTED STEAM GENERATOR *** *** EVENT IDENTIFIED - EXIT TO E-2 ***	Manual	0.0	0.0	* N/A *
					1116.2	1521.2	* N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	0.0 1116.2	0.0 1521.2	* N/A * * N/A *
- 11 -	E-1-4	---	(No Loads Started or Tripped at this step) Reset SI (Step 3 through 12 of RO-1 are completed.)	Manual	0.0 1116.2	0.0 1521.2	* N/A * * N/A *
- 12 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCC as per SOP-EL-15. (MCCs are reset.)	Manual	85.8 1202.0	63.3 1584.5	* N/A * * N/A *
- 13 -	E-1-6	---	+62 +81 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1202.0	0.0 1584.5	* N/A * * N/A *
- 14 -	E-1-11	---	(No Loads Started or Tripped at this step) Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1202.0	0.0 1584.5	* N/A * * N/A *
- 15 -	< 12 >	---	(No Loads Started or Tripped at this step) *** GO TO ES-1.1, SI TERMINATION ***	Manual	0.0 1202.0	0.0 1584.5	* N/A * * N/A *
- 16 -	ES-1.1-4	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (Only pump 31 running-stopped.) Stop SI pumps. (Only pumps 31 and 32 running-stopped.)	Manual	-227.2 874.8	-509.2 1075.3	* N/A * * N/A *
- 17 -	ES-1.1-8	---	-117 -121 -122 Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 874.8	0.0 1075.3	* N/A * * N/A *
- 18 -	ES-1.1-10	---	(No Loads Started or Tripped at this step) Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	0.0 874.8	0.0 1075.3	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	0.0 874.8	0.0 1075.3	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater 33 energized on lightest loaded Bus.) +109	Manual	207.9 1082.7	0.0 1075.3	* N/A * * N/A *
- 21 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fans started on MCC 38.) +70 +71 +72 +73	Manual	80.4 1163.1	0.0 1075.3	* N/A * * N/A *
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakes are open. Start Turb Turning Gear. (Gear Started.) +47	Manual	0.0 1163.1	41.5 1116.8	* N/A * * N/A *
- 23 -	ES-1.1-20	---	Stop 1 of 3 ESWPs (ESWPs 34 and 35 are running.) Shutdown Motor-driven AFWPs if desired. (Bus 6A not available. AFWP 31 remains running.)	Manual	0.0 1163.1	0.0 1116.8	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 24 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWPs 31 and 32 started.) +84 +85	Manual	280.8 1443.9	280.8 1397.6	* N/A * * N/A *
- 25 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started, Blowers unavailable, powered from Bus 6A/MCC 37. CCR vent. is on.) +87	Manual	0.0 1443.9	114.3 1511.9	* N/A * * N/A *
- 26 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM	Manual	0.0 1443.9	0.0 1511.9	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

STEAM BREAK


1950 Kilowatt Limit
1750 Kilowatt Limit
110
437
695
976
1116
1202
975
1083
1163
1444
Bus 5A LOOP Loading
1950 Kilowatt Limit
1750 Kilowatt Limit
94
604
862
1240
1521
1585
1076
1117
1398
1512
Bus 2A/3A LOOP Loading
1950 Kilowatt Limit
1750 Kilowatt Limit
Bus 6A Not Available
0
Bus 6A LOOP Loading
2350
1950
1550
1150
750
350
-50
Kilowatt
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
EOP Step

Steam Break
Buses 2A/3A Tied Together, Bus 6A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
CHARGING PUMP 31	EDG 33
ESWP 34	EDG 33
ESWP 35	EDG 31
FCU 31	EDG 33
FCU 32	EDG 31
FCU 33	EDG 33
FCU 34	EDG 31
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36A: AUTO	EDG 33
MCC 36C: AUTO	EDG 31
MCC 36E: AUTO	EDG 33
MCC 38: CRDM FAN 31 (FAN#1)	EDG 33
MCC 38: CRDM FAN 32 (FAN#2)	EDG 33
MCC 38: CRDM FAN 33 (FAN#3)	EDG 33
MCC 38: CRDM FAN 34 (FAN#4)	EDG 33
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
NESWP 31	EDG 33
NESWP 32	EDG 31
PAB FAN 31	EDG 31
PRESSURIZER HEATER 33	EDG 33

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STEAM BREAK

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
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*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 1511.9 Bus 6A = 1638.7 (kW)

1750 kW Overload Summary

Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

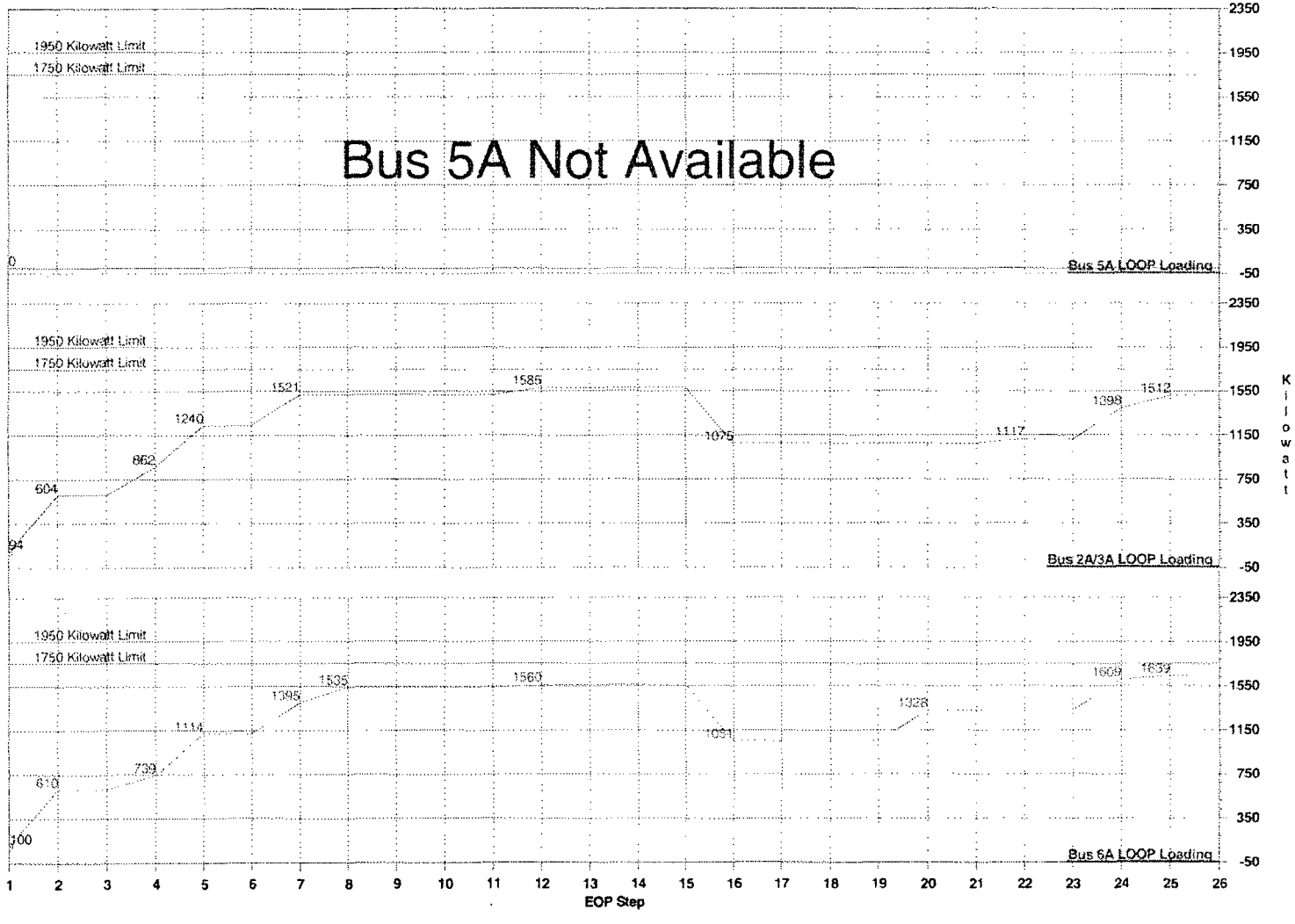
Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36B, 36C and 36D	Auto	* N/A *	94.3	100.4
					* N/A *	94.3	100.4
			+57 +53 +59				
- 2 -	---	RO-1-2	SI pumps 32 and 33	Auto	* N/A *	509.2	509.2
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		* N/A *	603.5	609.6
			+117 +120 +122 +123				
- 3 -	E-0-9	---	CSP 32 (Spray not required.	Manual	* N/A *	0.0	0.0
			CSPs started during phase B only.)				
			(E-0-9 verifies that pump is not running.)		* N/A *	603.5	609.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 32, 34 and 35	Auto	* N/A *	258.0	129.0
			(RO verifies that fans are running.)		* N/A *	861.5	738.6
			+31 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	* N/A *	378.9	375.7
			(RO verifies that pumps are running.)		* N/A *	1240.4	1114.3
			+1 +2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus	Manual	* N/A *	0.0	0.0
			to start at least one CCWP.				
			(All Buses are powered from EDGs.)		* N/A *	1240.4	1114.3
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (35 and 36)	Auto	* N/A *	280.8	280.8
			(RO verifies that pumps are running.)		* N/A *	1521.2	1395.1
			+27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	* N/A *	0.0	140.2
			is > than 325 psig and CCW is available.				
			(CHARGING pump 33 started on lightest		* N/A *	1521.2	1535.3
			loaded Bus.)				
			+15				
- 9 -	< 15 >	---		Manual	* N/A *	0.0	0.0
			*** FAULTED STEAM GENERATOR ***				
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		* N/A *	1521.2	1535.3
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	< 6 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	* N/A *	0.0	0.0
					* N/A *	1521.2	1535.3
- 11 -	E-1-4	---	(No Loads Started or Tripped at this step) Reset SI (Step 2 through 12 of RO-1 are completed.)	Manual	* N/A *	0.0	0.0
					* N/A *	1521.2	1535.3
- 12 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCC as per SOP-EL-15. (MCCs are reset.)	Manual	* N/A *	63.3	24.8
					* N/A *	1584.5	1560.1
- 13 -	E-1-8	---	+81 +83 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	* N/A *	0.0	0.0
					* N/A *	1584.5	1560.1
- 14 -	E-1-11	---	(No Loads Started or Tripped at this step) Start one CHARGING pump. (CHARGING pump 33 is running.)	Manual	* N/A *	0.0	0.0
					* N/A *	1584.5	1560.1
- 15 -	< 12 >	---	(No Loads Started or Tripped at this step) *** GO TO ES-1.1, SI TERMINATION ***	Manual	* N/A *	0.0	0.0
					* N/A *	1584.5	1560.1
- 16 -	ES-1.1-4	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (Only pumps 32 and 33 running - stopped.)	Manual	* N/A *	-509.2	-509.2
					* N/A *	1075.3	1050.9
- 17 -	ES-1.1-8	---	-117 -120 -122 -123 Start one CHARGING pump. (CHARGING pump 33 is running.)	Manual	* N/A *	0.0	0.0
					* N/A *	1075.3	1050.9
- 18 -	ES-1.1-10	---	(No Loads Started or Tripped at this step) Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	* N/A *	0.0	0.0
					* N/A *	1075.3	1050.9
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	* N/A *	0.0	0.0
					* N/A *	1075.3	1050.9
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.1-17	---	Energize at least one pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Control Group energized on lightest loaded Bus. +114	Manual	* N/A *	0.0	277.0
					* N/A *	1075.3	1327.9
- 21 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fans unavailable, powered from Bus 5A/MCC 38.)	Manual	* N/A *	0.0	0.0
					* N/A *	1075.3	1327.9
			(No Loads Started or Tripped at this step)				
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480v Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	* N/A *	41.5	0.0
					* N/A *	1116.8	1327.9
- 33 -	ES-1.1-20	---	Stop 1 of 3 ESWPs. (ESWPs 35 and 36 are running.) Shutdown Motor-driven AFWPs if desired. (AFWPs remain running.)	Manual	* N/A *	0.0	0.0
					* N/A *	1116.8	1327.9
			(No Loads Started or Tripped at this step)				
- 34 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWPs 32 and 33 started.)	Manual	* N/A *	280.8	280.8
					* N/A *	1397.6	1608.7
			+85 +86				
- 25 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started on lightest loaded Bus. Blowers started. CCR ventilation is running.) +87 +66 +67	Manual	* N/A *	114.3	30.0
					* N/A *	1511.9	1638.7
- 26 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM	Manual	* N/A *	0.0	0.0
					* N/A *	1511.9	1638.7
			(No Loads Started or Tripped at this step)				

STEAM BREAK


Bus 5A Not Available
1950 Kilowatt Limit
1750 Kilowatt Limit
0
Bus 5A LOOP Loading
1950 Kilowatt Limit
1750 Kilowatt Limit
94
604
862
1240
1521
1585
1075
1117
1098
1512
Bus 2A/3A LOOP Loading
1950 Kilowatt Limit
1750 Kilowatt Limit
100
610
739
1114
1395
1535
1560
1051
1028
1609
1639
Bus 6A LOOP Loading
2350
1950
1550
1150
750
350
-50
Kilowatt
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
EOP Step

Steam Break
Buses 2A/3A Tied Together, Bus 5A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
AFWP 33	EDG 32
CHARGING PUMP 33	EDG 32
ESWP 35	EDG 31
ESWP 36	EDG 32
FCU 32	EDG 31
FCU 34	EDG 31
FCU 35	EDG 32
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36B: AUTO	EDG 32
MCC 36C: AUTO	EDG 31
MCC 36D: AUTO	EDG 32
MCC 37: PENT. BLOWER (#1)	EDG 32
MCC 37: PENT. BLOWER (#2)	EDG 32
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 32	EDG 31
NESWP 33	EDG 32
PAB FAN 31	EDG 31
PRESSURIZER HEATER CONTROL GROUP	EDG 32

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IPJ-CALC-ED-00207 REV 8

STEAM BREAK

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:53 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1443.9 Bus 2A/3A = * N/A * Bus 6A = 1335.8 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

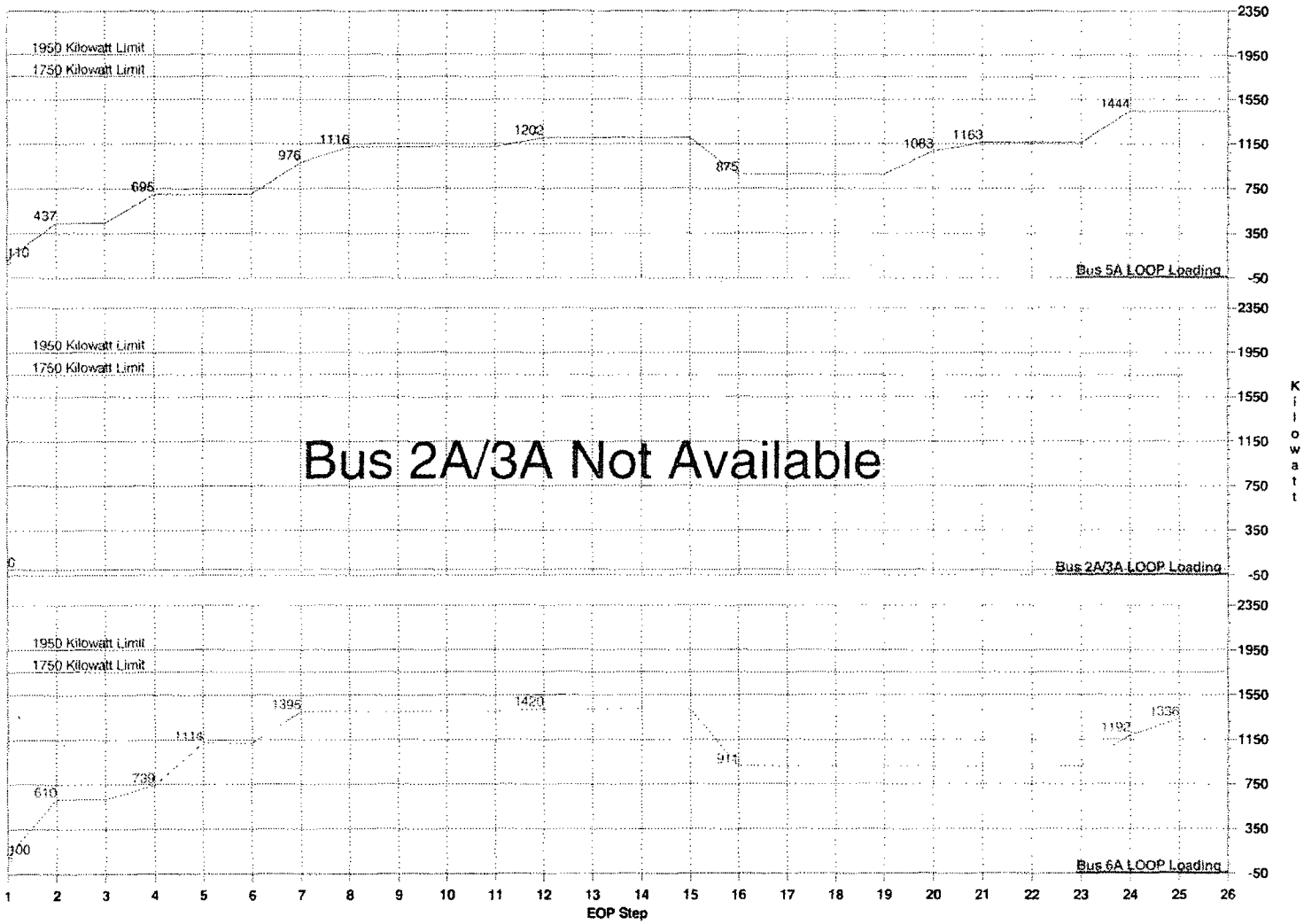
Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 35A, 36B, 36D and 36E	Auto	110.0	* N/A *	100.4
					110.0	* N/A *	100.4
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 33	Auto	327.2	* N/A *	509.2
			RHR pump 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		437.2	* N/A *	609.6
			+120 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not required.	Manual	0.0	* N/A *	0.0
			CSPs started during phase B only.)				
			(E-0-9 verifies that pumps are not running.)		437.2	* N/A *	609.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	258.0	* N/A *	129.0
			(RO verifies that fans are running.)		695.2	* N/A *	738.6
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWP 33	Auto	0.0	* N/A *	375.7
			(RO verifies that pump is running.)		695.2	* N/A *	1114.3
			+2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus	Manual	0.0	* N/A *	0.0
			to start at least one CCWP.				
			(All Buses are powered from EDGs.)		695.2	* N/A *	1114.3
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	280.8	* N/A *	280.8
			(RO verifies that pumps are running.)		976.0	* N/A *	1395.1
			+26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	140.2	* N/A *	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		1116.2	* N/A *	1395.1
			loaded Bus.)				
			+13				
- 9 -	< 15 >	---		Manual	0.0	* N/A *	0.0
			*** FAULT STEAM GENERATOR ***				
			*** EVENT IDENTIFIED - EXIT TO E-2 ***		1116.2	* N/A *	1395.1
			(No Loads Started or Tripped at this step)				

Step Number	SBO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	< 9 >	---	*** GO TO E-1 AT THE COMPLETION OF E-2 ***	Manual	0.0	* N/A *	0.0
					1116.2	* N/A *	1395.1
			(No Loads Started or Tripped at this step)				
- 11 -	E-1-4	---	Reset SI	Manual	0.0	* N/A *	0.0
			(Step 2 through 12 of RO-1 are completed.)				
					1116.2	* N/A *	1395.1
			(No Loads Started or Tripped at this step)				
- 12 -	---	RO-1-15	RESET MCCs as per SOP-EL-15.	Manual	85.8	* N/A *	24.8
			(MCC are reset.)				
					1202.0	* N/A *	1419.9
			+82 +83				
- 13 -	E-1-8	---	ESTABLISH Instrument Air to Containment.	Manual	0.0	* N/A *	0.0
			(Load accounted for in MCC reset.)				
					1202.0	* N/A *	1419.9
			(No Loads Started or Tripped at this step)				
- 14 -	E-1-11	---	Start one CHARGING pump.	Manual	0.0	* N/A *	0.0
			(CHARGING pump 31 is running.)				
					1202.0	* N/A *	1419.9
			(No Loads Started or Tripped at this step)				
- 15 -	< 12 >	---		Manual	0.0	* N/A *	0.0
			*** GO TO ES-1.1, SI TERMINATION ***				
					1202.0	* N/A *	1419.9
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-4	---	Stop RHR pumps. (Only pump 32 running - stopped.)	Manual	-327.2	* N/A *	-509.2
			Stop SI pumps. (Only pumps 31 and 33 running - stopped.)				
					874.8	* N/A *	910.7
			-120 -121 -123				
- 17 -	ES-1.1-8	---	Start one CHARGING pump.	Manual	0.0	* N/A *	0.0
			(CHARGING pump 31 is running.)				
					874.8	* N/A *	910.7
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.1-10	---	Stop CSPs.	Manual	0.0	* N/A *	0.0
			(Spray not actuated. No pumps are running.)				
					874.8	* N/A *	910.7
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	0.0 874.8	* N/A * * N/A *	0.0 910.7
			(No Loads Started or Tripped at this step)				
- 20 -	ES-1.1-17	---	Energize at least one pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Group 33 energized on lightest loaded Bus.) +109	Manual	207.9 1082.7	* N/A * * N/A *	0.0 910.7
- 21 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fans started on MCC 38.) +70 +71 +72 +73	Manual	80.4 1163.1	* N/A * * N/A *	0.0 910.7
- 22 -	---	RO-1-37c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Bus 2A/3A unavailable.) (No Loads Started or Tripped at this step)	Manual	0.0 1163.1	* N/A * * N/A *	0.0 910.7
- 23 -	ES-1.1-20	---	Stop 1 of 3 ESWPs. (ESWPs 34 and 36 running.) Shutdown Motor-driven AFWPs if desired. (Bus2A/3A not available. AFWP 33 remains running) (No Loads Started or Tripped at this step)	Manual	0.0 1163.1	* N/A * * N/A *	0.0 910.7
- 24 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWPs 31 and 33 started.) +84 +86	Manual	280.8 1443.9	* N/A * * N/A *	280.8 1191.5
- 25 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (Bus 2A/3A unavailable, PAB Fan 32 started. Blowers started, CCR ventilation is running.) +88 +66 +67	Manual	0.0 1443.9	* N/A * * N/A *	144.3 1335.8
- 26 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	0.0 1443.9	* N/A * * N/A *	0.0 1335.8

STEAM BREAK


1950 Kilowatt Limit
1750 Kilowatt Limit
110
437
695
976
1116
1202
875
1083
1163
1444
Bus 5A LOOP Loading
1950 Kilowatt Limit
1750 Kilowatt Limit
Bus 2A/3A Not Available
0
Bus 2A/3A LOOP Loading
1950 Kilowatt Limit
1750 Kilowatt Limit
100
610
739
1116
1395
1420
911
1192
1336
Bus 6A LOOP Loading
2350
1950
1550
1150
750
350
-50
Kilowatt
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
EOP Step

Steam Break
Buses 2A and / or 3A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 33	EDG 32
CHARGING PUMP 31	EDG 33
ESWP 34	EDG 33
ESWP 36	EDG 32
FCU 31	EDG 33
FCU 33	EDG 33
FCU 35	EDG 32
MCC 36A: AUTO	EDG 33
MCC 36B: AUTO	EDG 32
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 33
MCC 37: PENT. BLOWER (#1)	EDG 32
MCC 37: PENT. BLOWER (#2)	EDG 32
MCC 38: CRDM FAN 31 (FAN#1)	EDG 33
MCC 38: CRDM FAN 32 (FAN#2)	EDG 33
MCC 38: CRDM FAN 33 (FAN#3)	EDG 33
MCC 38: CRDM FAN 34 (FAN#4)	EDG 33
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 31	EDG 33
NESWP 33	EDG 32
PAB FAN 32	EDG 32
PRESSURIZER HEATER 33	EDG 33

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

INADVERTENT SI (PN B)
ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:55 PM

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2180.8 Bus 2A = 2129.2 Bus 3A = 1714.9 Bus 6A = 2367.0 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

INADVERTENT SI (PH B) - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25,2009 Time : 3:55 PM [55]

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	0.0	150.1
					169.5	135.5	0.0	150.1
			+57 +58 +59 +59 +60					
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	472.4	264.5	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)					
			(RO verifies that pumps are running.)		641.9	607.9	264.5	888.6
			+117 +120 +121 +122 +123					
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	453.6	0.0	0.0	471.1
			(E-0-9 verifies that pumps are running.)		1095.5	607.9	264.5	1359.7
			+24 +25					
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	491.9	247.2	246.0	248.0
			(RO verifies that fans are running.)		1587.4	855.1	510.5	1607.7
			+29 +31 +33 +35 +37					
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	0.0	575.4	562.9
			(RO verifies that pumps are running.)		1587.4	855.1	1085.9	2170.6
			+1 +2					
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.5	251.3	0.0	251.2
			(RO verifies that pumps are running.)		1837.9	1106.4	1085.9	2421.8
			+4 +7 -10					
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	429.8	0.0	429.0	429.8
			(RO verifies that pumps are running.)		2267.7	1106.4	1514.9	2851.6
			+26 +27 +28					
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	0.0	0.0	208.9	0.0
			is > than 325 psig and CCW is available.					
			(CHARGING pump 32 started on lightest		2267.7	1106.4	1723.8	2851.6
			loaded Bus.)					
			+14					
- 9 -	< 19 >	---		Manual	0.0	0.0	0.0	0.0
			*** INADVERTENT SI ***					
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		2267.7	1106.4	1723.8	2851.6
			(No Loads Started or Tripped at this step)					

INADVERTENT SI (PH B) - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25,2009 Time : 3:55 PM (95)

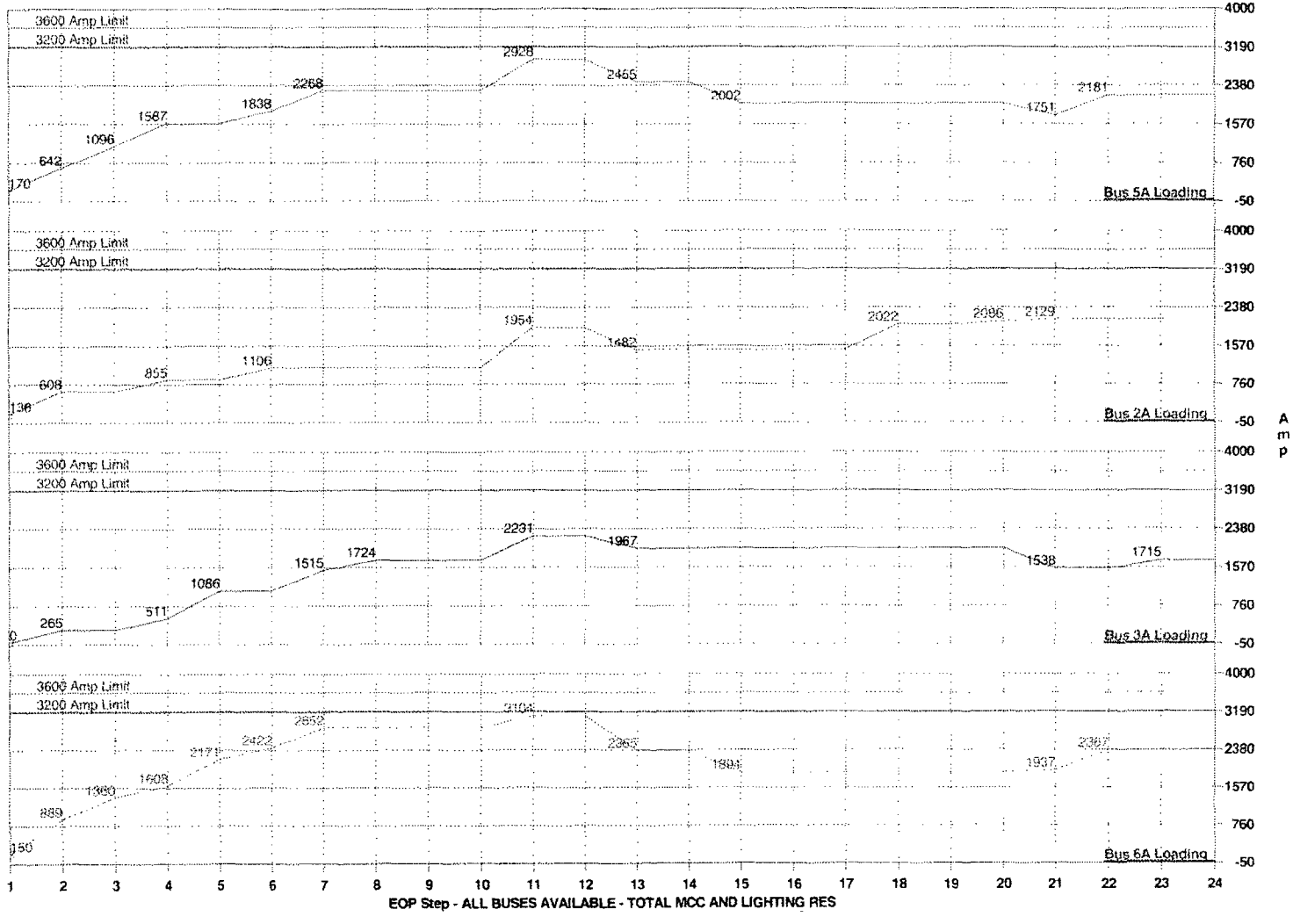
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	ES-1.1-1	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0	0.0	0.0	0.0
					2267.7	1106.4	1723.8	2851.6
			(No Loads Started or Tripped at this step)					
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	659.8	848.0	507.6	252.2
					2927.5	1954.4	2231.4	3103.8
			+126 +124 +125 +127					
- 12 -	ES-1.1-3	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0	0.0	0.0	0.0
					2927.5	1954.4	2231.4	3103.8
			(No Loads Started or Tripped at this step)					
- 13 -	ES-1.1-4	---	Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (All SI pumps stopped.)	Manual	-472.4	-472.4	-264.5	-738.6
					2455.1	1482.0	1966.9	2365.2
			-117 -120 -121 -122 -123					
- 14 -	ES-1.1-8	---	Start one CHARGING pump. (CHARGING pump 32 is running.)	Manual	0.0	0.0	0.0	0.0
					2455.1	1482.0	1966.9	2365.2
			(No Loads Started or Tripped at this step)					
- 15 -	ES-1.1-10	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG. (5 FCUs are running and PSIG < 16. CSPs are stopped.)	Manual	-453.6	0.0	0.0	-471.1
					2001.5	1482.0	1966.9	1894.2
			-24 -25					
- 16 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never stripped.)	Manual	0.0	0.0	0.0	0.0
					2001.5	1482.0	1966.9	1894.2
			(No Loads Started or Tripped at this step)					
- 17 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (No CSPs are running.)	Manual	0.0	0.0	0.0	0.0
					2001.5	1482.0	1966.9	1894.2
			(No Loads Started or Tripped at this step)					
- 18 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Croup 32 on lightest loaded Bus.) +98	Manual	0.0	540.3	0.0	0.0
					2001.5	2022.3	1966.9	1894.2

INADVERTENT (PH B) - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25,2009 Time : 3:55 PM [55]

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fan loads accounted for in ' resets.)	Manual	0.0	0.0	0.0	0.0
					2001.5	2022.3	1966.9	1894.2
			(No Loads Start· : Tripped at this s					
- 20 -	---	RO-1-27c	START AC and S.. ..C Oil Pumps IF 480V buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0	63.8	0.0	0.0
					2001.5	2086.1	1966.9	1894.2
- 21 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. Stop 1 of 3 ESWPs and Shutdown Motor-driven AFWPs if desired. (CCWP 31 and ESWP 35 stopped on heaviest loaded Bus. AFWPs remain running.) +8 +11 -4 -7 -10 -27	Manual	-250.5	43.1	-429.0	43.0
					1751.0	2139.2	1537.9	1937.2
- 22 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 33 started on lightest loaded Bus.)	Manual	429.8	0.0	0.0	429.8
					2180.8	2139.2	1537.9	2367.0
			+84 +86					
- 23 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started on lightest loaded Bus. Blowers and CCR ventilation started at MCC reset.) +87	Manual	0.0	0.0	177.0	0.0
					2180.8	2139.2	1714.9	2367.0
- 24 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	0.0	0.0	0.0	0.0
					2180.8	2139.2	1714.9	2367.0
			(No Loads Started or Tripped at this step)					

INADVERTENT SI (PH B)



Inadvertent SI (PH B)
Total MCC and Lighting Reset
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 32	2A
CCWP 33	6A
CHARGING PUMP 32	3A
ESWP 34	5A
ESWP 36	6A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 33	6A
PAB FAN 31	3A
PRESSURIZER HEATER 32	2A
TOTAL MCC & LIGHTING RESET (2A)	
TOTAL MCC & LIGHTING RESET (3A)	
TOTAL MCC & LIGHTING RESET (5A)	
TOTAL MCC & LIGHTING RESET (6A)	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

INADVERTENT SI (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:55 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2252.9 Bus 2A/3A = 2533.1 Bus 6A = 3422.8 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

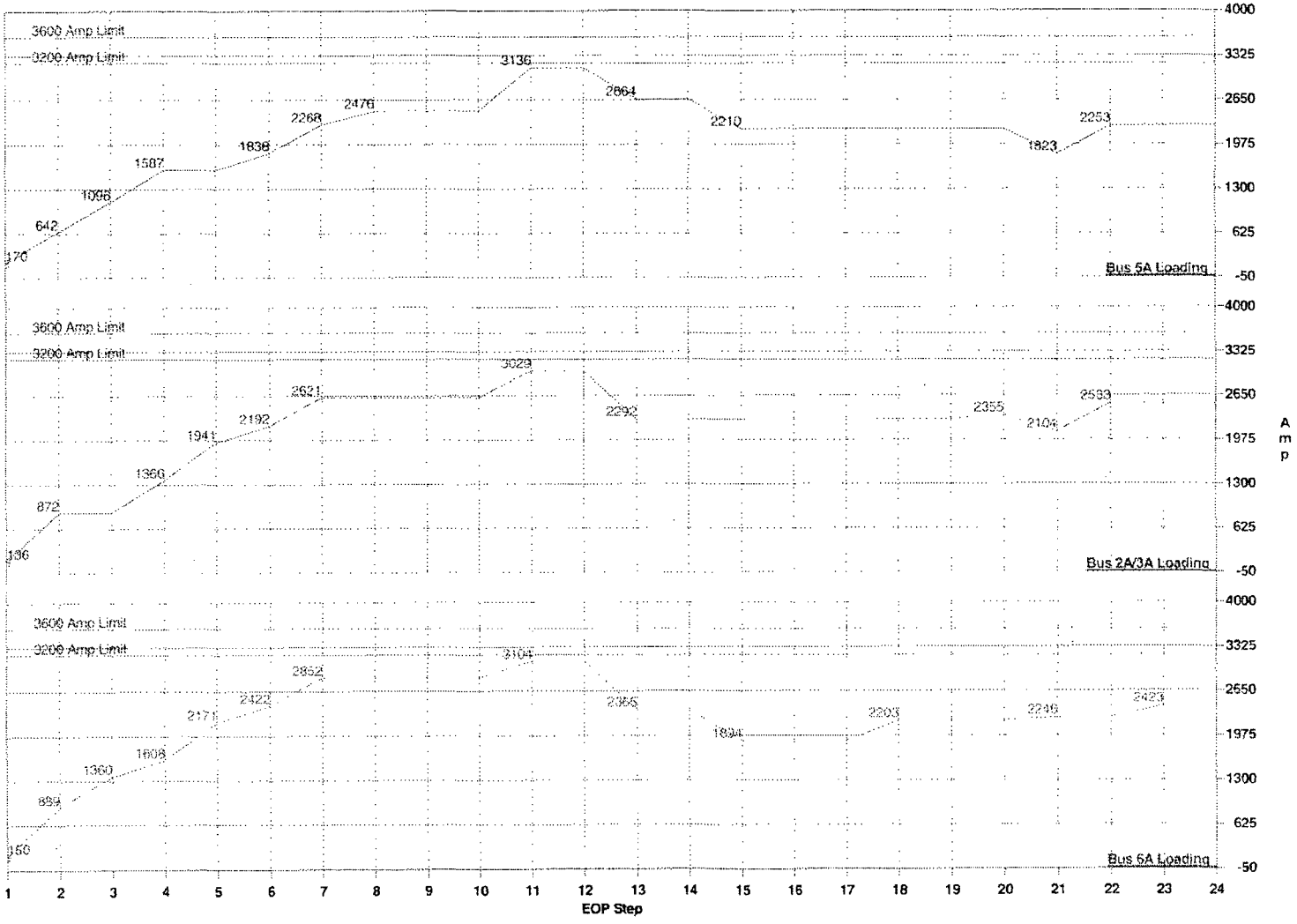
Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	150.1
					169.5	135.5	150.1
			+57 +50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	736.9	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	872.4	888.6
			+117 +120 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	453.6	0.0	471.1
			(E-0-9 verifies that pumps are running.)		1095.5	872.4	1359.7
			+24 +25				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	491.9	493.2	248.0
			(RO verifies that fans are running.)		1587.4	1365.6	1607.7
			+29 +31 +33 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	575.4	562.9
			(RO verifies that pumps are running.)		1587.4	1941.0	2170.6
			+1 +2				
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.5	251.3	251.2
			(RO verifies that pumps are running.)		1837.9	2192.3	2421.8
			+4 +7 +10				
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	429.8	429.0	429.8
			(RO verifies that pumps are running.)		2267.7	2621.3	2851.6
			+26 +27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	0.0	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 33 started on lightest		2476.2	2621.3	2851.6
			loaded Bus.)				
			+13				
- 9 -	< 19 >	---		Manual	0.0	0.0	0.0
			***** INADVERTENT SI ***_____				
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		2476.2	2621.3	2851.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	ES-1.1-1	---	Reset SI. (Steps 2 through 12 of RO-2 are completed.)	Manual	0.0 2476.2	0.0 2621.3	0.0 2851.6
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15 (Total MCC and Lighting reset.)	Manual	659.8 3136.0	407.2 3028.5	252.2 3103.8
			+126 +127 +3				
- 12 -	ES-1.1-3	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 3136.0	0.0 3028.5	0.0 3103.8
			(No Loads Started or Tripped at this step)				
- 13 -	ES-1.1-4	---	Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (All SI pumps stopped.)	Manual	-473.4 2662.6	-736.9 2291.6	-738.5 2365.3
			-117 -120 -121 -122 -123				
- 14 -	ES-1.1-8	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2662.6	0.0 2291.6	0.0 2365.3
			(No Loads Started or Tripped at this step)				
- 15 -	FR-1.1-10	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG. (5 FCUs are running and PSIG < 16. CSPs are stopped.) -24 -25	Manual	-453.6 2210.0	0.0 2291.6	-471.1 1894.2
- 16 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	0.0 2210.0	0.0 2291.6	0.0 1894.2
			(No Loads Started or Tripped at this step)				
- 17 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (No CSPs are running.)	Manual	0.0 2210.0	0.0 2291.6	0.0 1894.2
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Control Group on lightest loaded Bus.) +114	Manual	0.0 2210.0	0.0 2291.6	308.6 2202.8

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCCs are already reset. CRDM Fan loads accounted for in MCC resets.)	Manual	0.0 2310.0	0.0 2391.6	0.0 2202.8
			(No Loads Started or Tripped at this step)				
- 20 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning gear. (Gear started.) +47	Manual	0.0 2310.0	63.8 2355.4	0.0 2202.8
- 21 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. Stop 1 of 3 ESWPs and Shutdown Motor-driven AFWPs if desired. (First CCWP 32 and then ESWP 34 stopped on heaviest loaded Buses. AFWPs remain running.) +5 +11 -4 -7 -10 -25	Manual	-386.9 1823.1	-251.3 2104.1	43.0 2245.8
- 22 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 32 started on lightest loaded Bus.) +84 +85	Manual	429.8 2252.9	429.0 2533.1	0.0 2245.8
- 23 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 32 started on lightest loaded Bus. Blowers and CCR vent. started at MCC reset.) +88	Manual	0.0 2252.9	0.0 2533.1	177.0 2422.8
- 24 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	0.0 2252.9	0.0 2533.1	0.0 2422.8

INADVERTENT SI (PH B)



Inadvertent SI (PH B)
Buses 2A/3A Tied Together, All Buses Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 32	2A
CCWP 33	6A
CHARGING PUMP 31	5A
ESWP 35	3A
ESWP 36	6A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 32	2A
PAB FAN 31	3A
PRESSURIZER HEATER CONTROL GROUP	6A
TOTAL MCC & LIGHTING RESET (5A)	
TOTAL MCC & LIGHTING RESET (6A)	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
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ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

INADVERTENT SI (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
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*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2914.3 Bus 2A/3A = 3004.5 Bus 6A = * N/A * (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A Not Available

3600 Amp Overload Summary

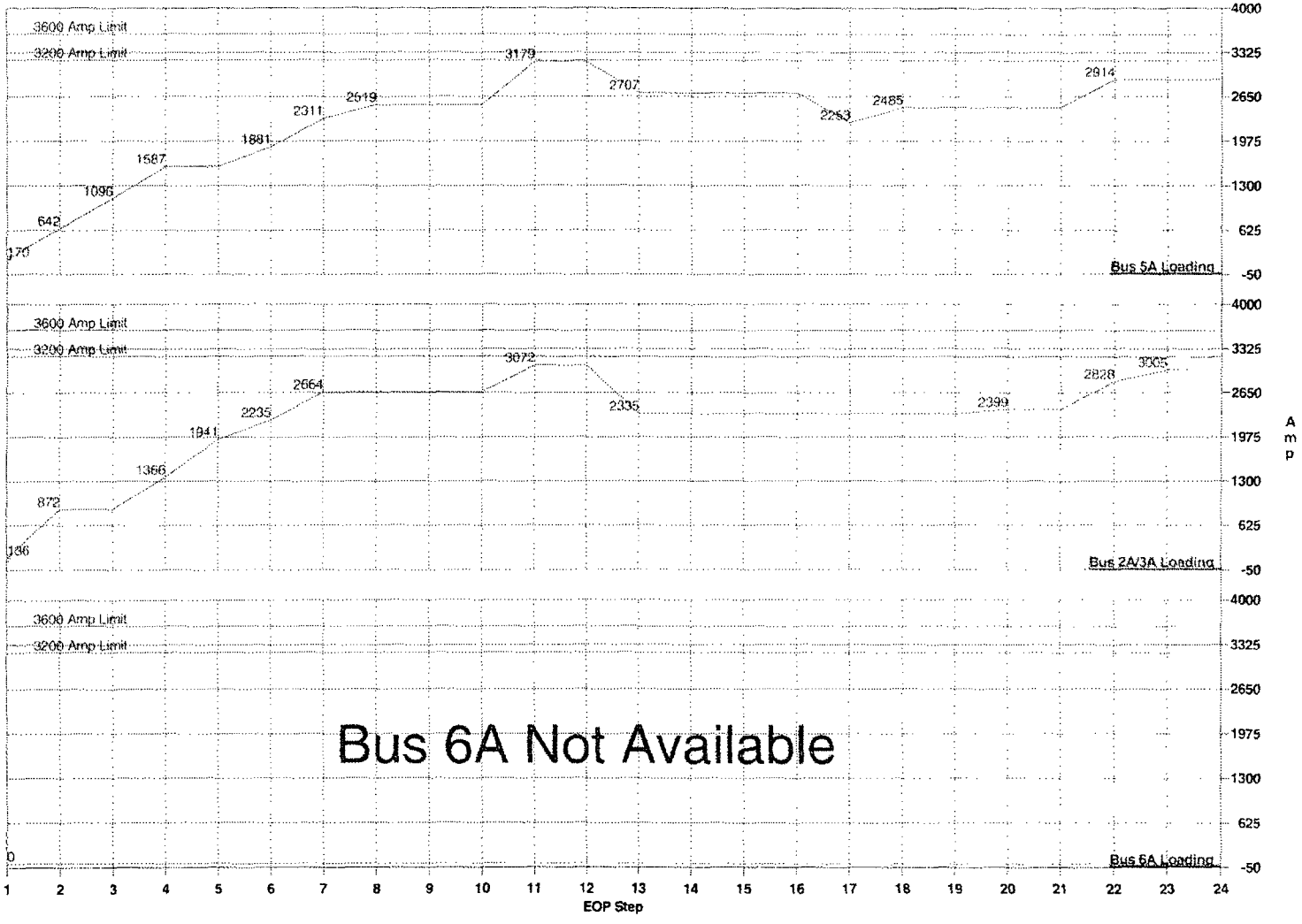
Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A Not Available

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36C and 36E	Auto	169.5	135.5	* N/A *
					169.5	135.5	* N/A *
			+57 +50 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 32	Auto	472.4	736.9	* N/A *
			RHR pumps 31 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	872.4	* N/A *
			+117 +121 +122				
- 3 -	E-0-9	---	CSPs 31	Auto	453.6	0.0	* N/A *
			(E-0-9 verifies that pump is running.)		1095.5	872.4	* N/A *
			+24				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34	Auto	491.9	493.2	* N/A *
			(RO verifies that fans are running.)		1587.4	1365.6	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWPs 31	Auto	0.0	575.4	* N/A *
			(RO verifies that pump is running.)		1587.4	1941.0	* N/A *
			+1				
- 6 -	---	RO-1-7	CCWPs 31 and 32	Auto	293.4	294.4	* N/A *
			(RO verifies that pumps are running.)		1880.8	2235.4	* N/A *
			+4 +7				
- 7 -	---	RO-1-8	ESWPs (34 and 35)	Auto	429.8	429.0	* N/A *
			(RO verifies that pumps are running.)		2310.6	2664.4	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	0.0	* N/A *
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest				
			loaded Bus.)				
			+13				
- 9 -	< 10 >	---	_____*** INADVERTENT SI ***_____	Manual	0.0	0.0	* N/A *
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		2519.1	2664.4	* N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	ES-1.1-1	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2519.1	0.0 2664.4	* N/A * * N/A *
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15 (Total MCC and Lighting reset.)	Manual	659.8 3178.9	407.2 3071.6	* N/A * * N/A *
- 12 -	ES-1.1-3	---	+126 +3 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 3178.9	0.0 3071.6	* N/A * * N/A *
- 13 -	ES-1.1-4	---	(No Loads Started or Tripped at this step) Stop RHR pump. (Only pump 31 running - stopped.) Stop SI pumps. (Only pumps 31 and 32 running - stopped.)	Manual	-472.4 2706.5	-736.9 2334.7	* N/A * * N/A *
- 14 -	ES-1.1-9	---	-117 -121 -122 Start a CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2706.5	0.0 2334.7	* N/A * * N/A *
- 15 -	ES-1.1-10	---	(No Loads Started or Tripped at this step) Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG.	Manual	0.0 2706.5	0.0 2334.7	* N/A * * N/A *
- 16 -	ES-1.1-13	---	(No Loads Started or Tripped at this step) Check BAST transfer pumps are running. (MCC 36A-E never stripped.)	Manual	0.0 2706.5	0.0 2334.7	* N/A * * N/A *
- 17 -	NSE 99-3-075	NSE 99-3-075	(No Loads Started or Tripped at this step) AS PER SECTION 4.2.20 of NSE ONe CSP run time is less than 30 minutes. (CSP 31 stopped.)	Manual	-453.6 2252.9	0.0 2334.7	* N/A * * N/A *
- 18 -	ES-1.1-17	---	-24 Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Group 33 on lightest loaded Bus.) -109	Manual	231.6 2484.5	0.0 2334.7	* N/A * * N/A *

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCCs are already reset. CRDM Fan loads accounted for in MCC resets.)	Manual	0.0 2484.5	0.0 2334.7	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 20 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 2484.5	63.8 2398.5	* N/A * * N/A *
- 21 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. (CCWPs 31 and 32 running.) Stop 1 of 3 ESWPs. (ESWPs 34 and 35 running.) Shutdown Motor-driven AFWPs if desired. (Bus 6A not available. AFWP 31 remains running) (No Loads Started or Tripped at this step)	Manual	0.0 2484.5	0.0 2398.5	* N/A * * N/A *
- 22 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWPs 31 and 32 started.) +84 +85	Manual	429.8 2914.3	429.0 2827.5	* N/A * * N/A *
- 23 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started. Blowers unavailable, powered from Bus 6A/MCC 37. CCR vent. started.) +87	Manual	0.0 2914.3	177.0 3004.5	* N/A * * N/A *
- 24 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SN. (No Loads Started or Tripped at this step)	Manual	0.0 2914.3	0.0 3004.5	* N/A * * N/A *

INADVERTENT SI (PH B)



Inadvertent SI (PH B)
Buses 2A/3A Tied Together, Bus 6A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
CCWP 31	5A
CCWP 32	2A
CHARGING PUMP 31	5A
ESWP 34	5A
ESWP 35	3A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36C: AUTO	2A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 32	2A
PAB FAN 31	3A
PRESSURIZER HEATER 33	5A
TOTAL MCCS & LIGHTING RESET BUS 5A	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

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INADVERTENT SI (PH B)

LOAD LIST TRACKING NUMBER : 1015

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*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 3036.4 Bus 6A = 2852.6 (A)

3200 Amp Overload Summary

Bus 5A Not Available
Bus 2A/3A exceeds the 3200 Amp rating at EOP steps : 11, 12
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A Not Available
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

INADVERTENT SI (PH B)

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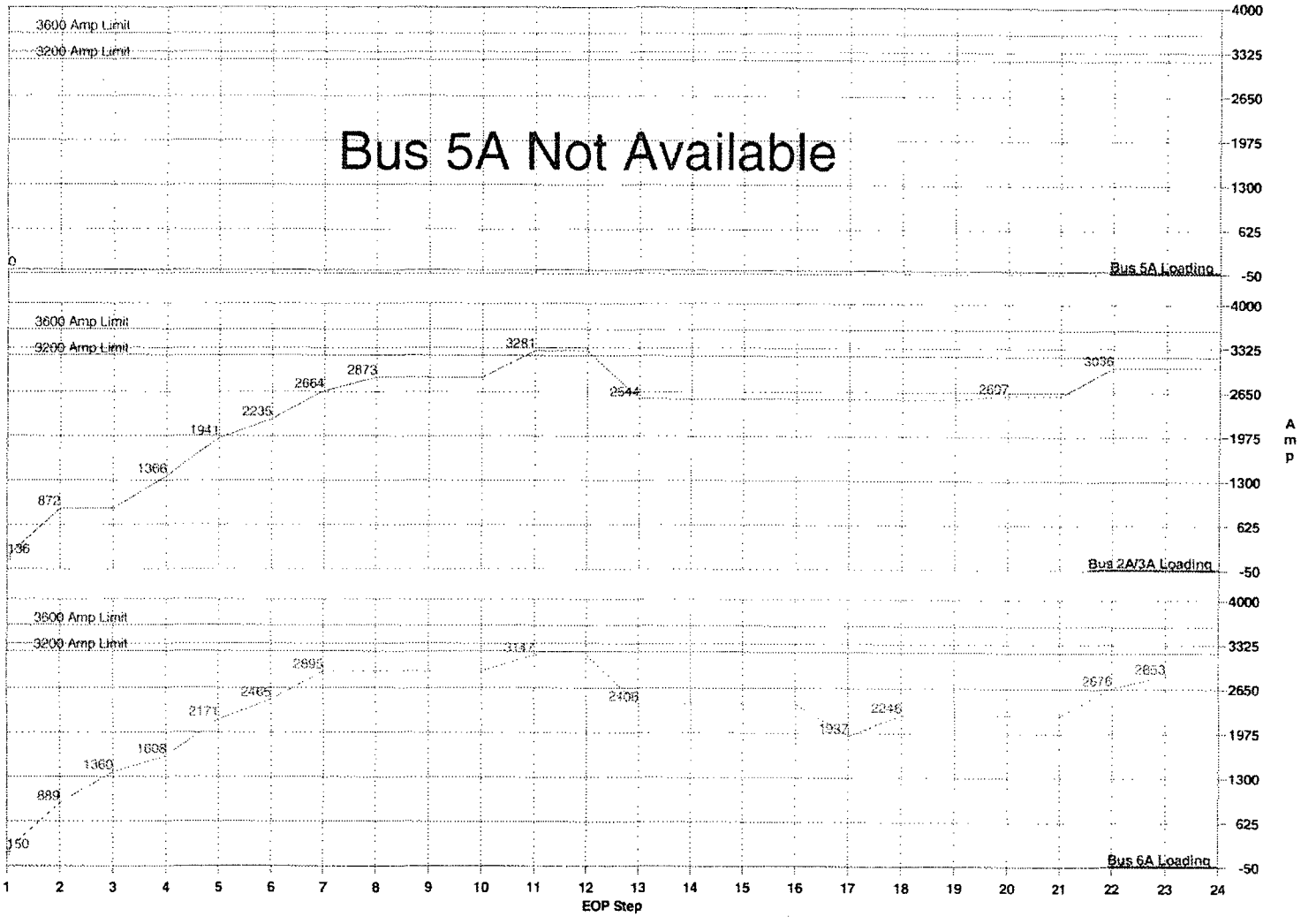
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36B, 36C and 36D	Auto	* N/A *	135.5	150.1
					* N/A *	135.5	150.1
			+57 +58 +59				
- 2 -	---	RO-1-2	SI pumps 32 and 33	Auto	* N/A *	736.9	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		* N/A *	872.4	888.6
			+117 +120 +122 +123				
- 3 -	E-0-9	---	CSP 32	Auto	* N/A *	0.0	471.1
			(E-0-9 verifies that pump is running.)		* N/A *	872.4	1359.7
			+25				
- 4 -	---	RO-1-3	FCUs 32, 34 and 35	Auto	* N/A *	493.2	248.0
			(RO verifies that fans are running.)		* N/A *	1365.6	1607.7
			+31 +36 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	* N/A *	575.4	562.9
			(RO verifies that pumps are running.)		* N/A *	1941.0	2170.6
			+1 +2				
- 6 -	---	RO-1-7	CCWPs 32 and 33	Auto	* N/A *	294.4	294.2
			(RO verifies that pumps are running.)		* N/A *	2235.4	2464.8
			+7 +10				
- 7 -	---	RO-1-8	ESWPs (35 and 36)	Auto	* N/A *	429.0	429.8
			(RO verifies that pumps are running.)		* N/A *	2664.4	2894.6
			+27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available. (CHARGING pump 32 started on lightest loaded Bus.)	Manual	* N/A *	208.9	0.0
					* N/A *	2873.3	2894.6
			+14				
- 9 -	< 19 >	---	*** INADVERTENT SI ***	Manual	* N/A *	0.0	0.0
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		* N/A *	2873.3	2894.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	ES-1.1-1	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	* N/A *	0.0	0.0
					* N/A *	2873.3	2894.6
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	* N/A *	407.2	252.2
					* N/A *	3280.5 Over 3200	3146.8
			+127 +3				
- 12 -	ES-1.1-3	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	* N/A *	0.0	0.0
					* N/A *	3280.5 Over 3200	2146.8
			(No Loads Started or Tripped at this step)				
- 13 -	ES-1.1-4	---	Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (Only pumps 32 and 33 running - stopped.)	Manual	* N/A *	-736.9	-738.5
					* N/A *	2543.6	2408.3
			-117 -130 -132 -123				
- 14 -	ES-1.1-8	---	Start a CHARGING pump. (CHARGING pump 32 is running.)	Manual	* N/A *	0.0	0.0
					* N/A *	2543.6	2408.3
			(No Loads Started or Tripped at this step)				
- 15 -	ES-1.1-10	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG.	Manual	* N/A *	0.0	0.0
					* N/A *	2543.6	2408.3
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	* N/A *	0.0	0.0
					* N/A *	2543.6	2408.3
			(No Loads Started or Tripped at this step)				
- 17 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (CSP 32 stopped.)	Manual	* N/A *	0.0	-471.1
					* N/A *	2543.6	1937.2
			-25				
- 18 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Control Group on lightest loaded Bus.) +114	Manual	* N/A *	0.0	308.6
					* N/A *	2543.6	2245.8

Step Number	SPO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A-3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. Bus 5A unavailable to start CRDM Fans.)	Manual	* N/A * * N/A *	0.0 2543.6	0.0 2245.8
			(No Loads Started or Tripped at this step)				
- 20 -	---	RO-1-27c	START AC and DC Oil Pumps IF 480V buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	* N/A * * N/A *	63.8 2607.4	0.0 2245.8
- 21 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. (CCWPs 32 and 33 running.) Stop 1 of 3 ESWPs (ESWPs 35 and 36 running.) Shutdown Motor-driven AFWPs if desired. (AFWPs remain running.)	Manual	* N/A * * N/A *	0.0 2607.4	0.0 2245.8
			(No Loads Started or Tripped at this step)				
- 22 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 32 and 33 started.) +85 +86	Manual	* N/A * * N/A *	429.0 3036.4	429.8 2675.6
- 23 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 32 started on lightest loaded Bus. Blowers and CCR vent. started at MCC resets.) +CS	Manual	* N/A * * N/A *	0.0 3036.4	177.0 2852.6
- 24 -	ES-1.1-33	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	* N/A * * N/A *	0.0 3036.4	0.0 2852.6
			(No Loads Started or Tripped at this step)				

INADVERTENT SI (PH B)



Inadvertent SI (PH B)
Buses 2A/3A Tied Together, Bus 5A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 32	2A
CCWP 33	6A
CHARGING PUMP 32	3A
ESWP 35	3A
ESWP 36	6A
FCU 32	2A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
NESWP 32	2A
NESWP 33	6A
PAB FAN 32	6A
PRESSURIZER HEATER CONTROL GROUP	6A
MCCS RESET (2A/3A) AS PER SOP-EL-15	
TOTAL MCCS & LIGHTING RESET BUS 6A	

NEW YORK POWER AUTHORITY
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INADVERTENT SI (PH B)

LOAD LIST TRACKING NUMBER : 1015

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*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2682.7 Bus 3A/3A = * N/A * Bus 6A = 2852.6 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

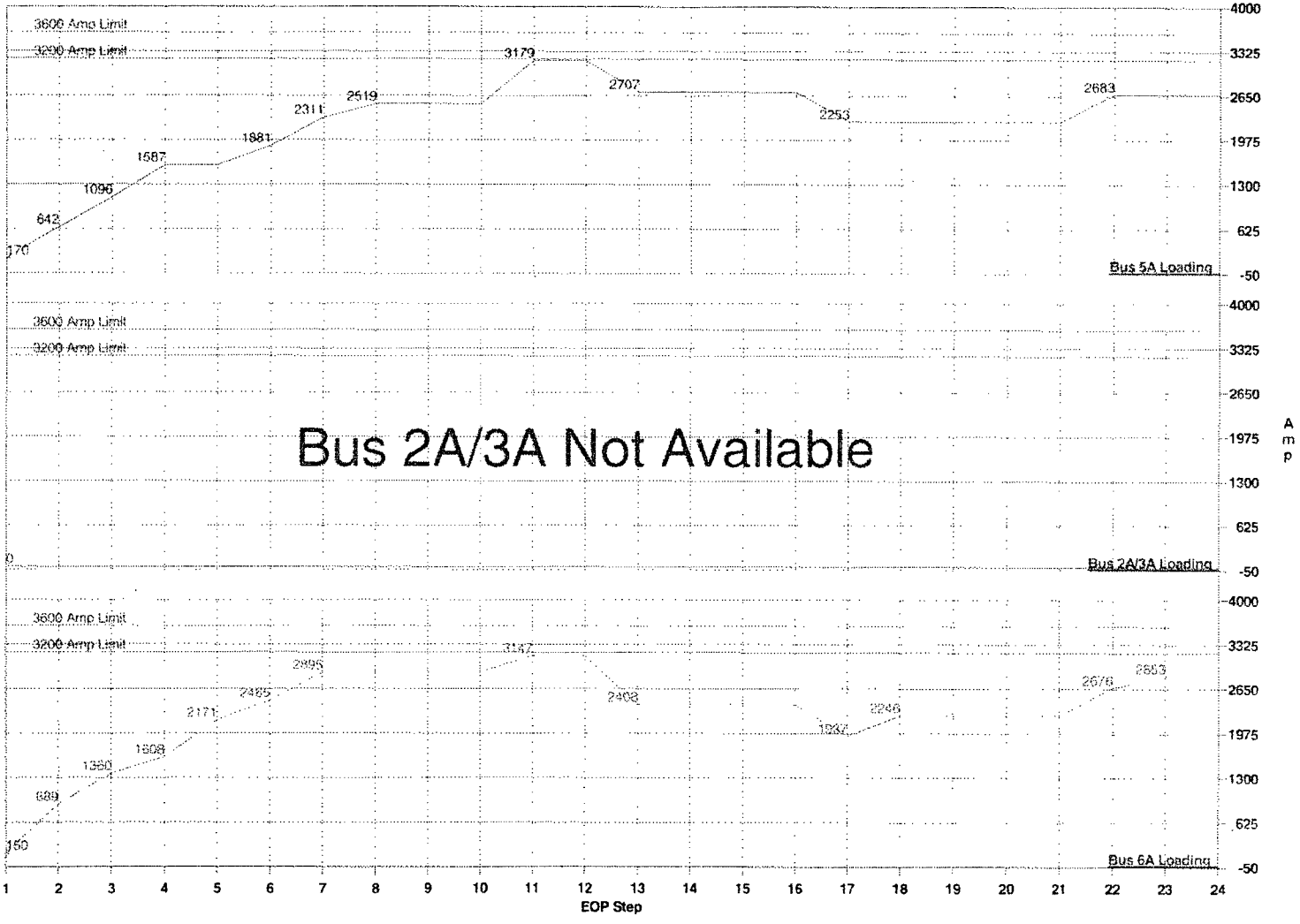
Bus 5A is below the 3600 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36D and 36E	Auto	169.5	* N/A *	150.1
					169.5	* N/A *	150.1
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI Pumps 31 and 33	Auto	472.4	* N/A *	738.5
			RHR Pumps 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	* N/A *	888.6
			+120 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	453.6	* N/A *	471.1
			(E-0-9 verifies that pumps are running.)		1095.5	* N/A *	1359.7
			+24 +25				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	491.9	* N/A *	248.0
			(RO verifies that fans are running.)		1587.4	* N/A *	1607.7
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWP 33	Auto	0.0	* N/A *	562.9
			(RO verifies that pump is running.)		1587.4	* N/A *	2170.6
			+2				
- 6 -	---	RO-1-7	CCWPs 31 and 33	Auto	293.4	* N/A *	294.2
			(RO verifies that pumps are running.)		1880.8	* N/A *	2464.8
			+4 +10				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	429.8	* N/A *	429.8
			(RO verifies that pumps are running.)		2310.6	* N/A *	2894.6
			+26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	* N/A *	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest				
			loaded Bus.)		2519.1	* N/A *	2894.6
			+13				
- 9 -	< 19 >	---	*** INADVERTENT SI ***	Manual	0.0	* N/A *	0.0
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		2519.1	* N/A *	2894.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	ES-1.1-1	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2519.1	* N/A * * N/A *	0.0 2894.6
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	659.8 3178.9	* N/A * * N/A *	252.2 3146.8
- 12 -	ES-1.1-3	---	+126 +127 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 3178.9	* N/A * * N/A *	0.0 3146.8
- 13 -	ES-1.1-4	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (Only pump 32 running - stopped.) Stop SI pumps. (Only pumps 31 and 33 running - stopped.)	Manual	-472.4 2706.5	* N/A * * N/A *	-738.5 2408.3
- 14 -	ES-1.1-8	---	-120 -121 -123 Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2706.5	* N/A * * N/A *	0.0 2408.3
- 15 -	ES-1.1-10	---	(No Loads Started or Tripped at this step) Stop CSPs if 5 FCUs are running Containment pressure is < 16 PSIG.	Manual	0.0 2706.5	* N/A * * N/A *	0.0 2408.3
- 16 -	ES-1.1-13	---	(No Loads Started or Tripped at this step) Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	0.0 2706.5	* N/A * * N/A *	0.0 2408.3
- 17 -	NSE 99-3-075	NSE 99-3-075	(No Loads Started or Tripped at this step) AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (CSPs stoped.)	Manual	-453.6 2252.9	* N/A * * N/A *	-471.1 1937.2
- 18 -	ES-1.1-17	---	-24 -25 Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Control Group on lightest loaded Bus.) +114	Manual	0.0 2252.9	* N/A * * N/A *	308.6 2245.8

Step Number	SPO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fan loads accounted for in MCC resets.) (No Loads Started or Tripped at this step)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2245.8
- 20 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Bus 2A/3A unavailable.) (No Loads Started or Tripped at this step)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2245.8
- 21 -	ES-1.1-28	---	Stop 1 of 3 CCWPs. (CCWPs 31 and 33 running.) Stop 1 of 3 ESWPs. (ESWPs 34 and 36 running.) Shutdown Motor-driven AFWPs if desired. (Bus 2A/3A not available. AFWP 33 remains running) (No Loads Started or Tripped at this step)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2245.8
- 22 -	ES-1.1-36	---	Check that at least two NESWPs are running. (NESWP 31 and 32 started.) +84 ,86	Manual	429.8 2682.7	* N/A * * N/A *	429.8 2675.6
- 23 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 32 started. Blowers and CCR ventilation started at MCC reset.) +88	Manual	0.0 2682.7	* N/A * * N/A *	177.0 2852.6
- 24 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	0.0 2682.7	* N/A * * N/A *	0.0 2852.6

INADVERTENT SI (PH B)



Inadvertent SI (PH B)
Buses 2A and / or 3A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 33	6A
CCWP 31	5A
CCWP 33	6A
CHARGING PUMP 31	5A
ESWP 34	5A
ESWP 36	6A
FCU 31	5A
FCU 33	5A
FCU 35	6A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 33	6A
PAB FAN 31	3A
PRESSURIZER HEATER CONTROL GROUP	6A
TOTAL MCC & LIGHTING RESET (5A)	
TOTAL MCC & LIGHTING RESET (6A)	

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INADVERTENT SI (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:55 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1163.1 Bus 2A/3A = 1231.1 Bus 6A = 1221.5 (KW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

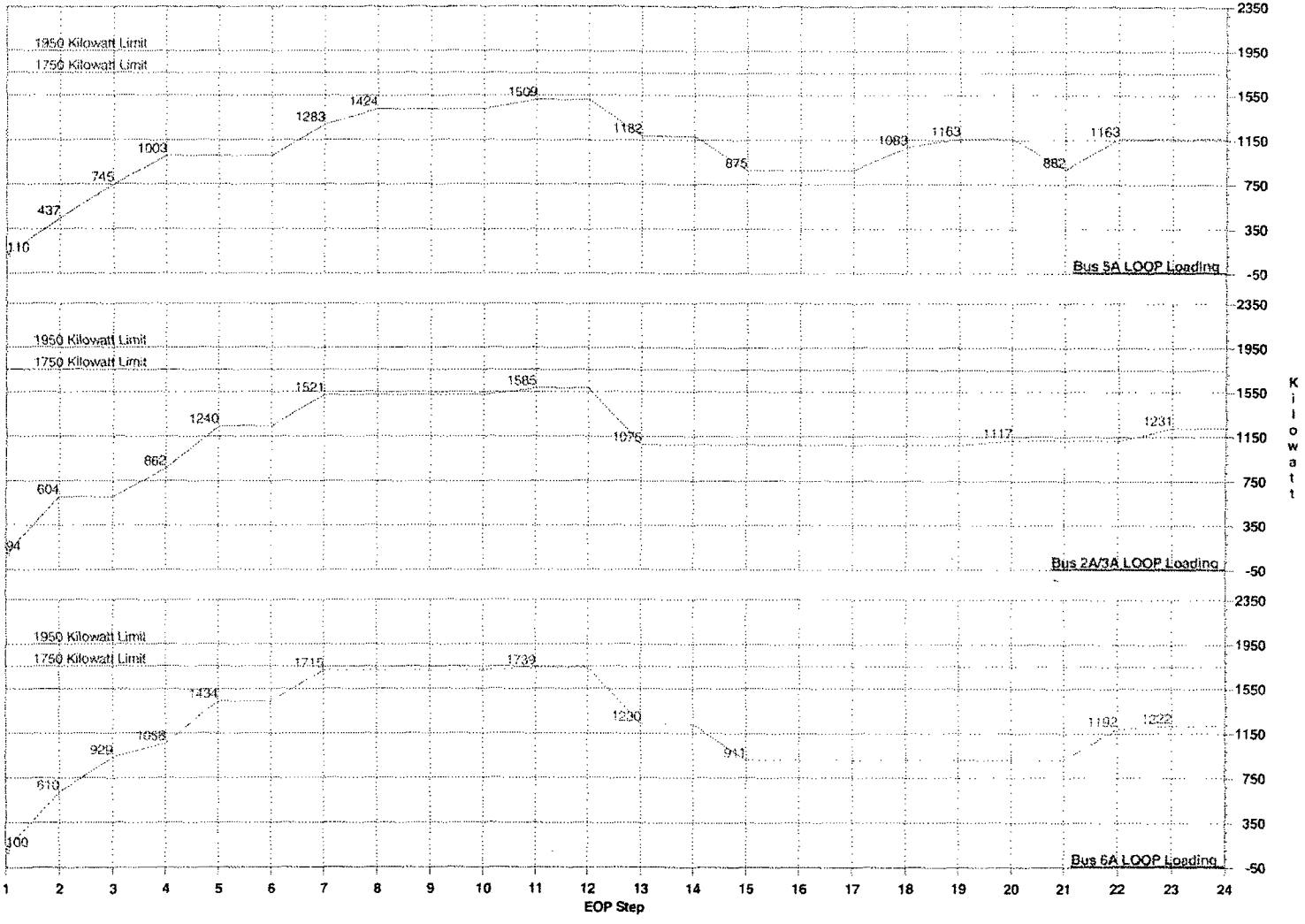
Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	110.0	94.3	100.4
					110.0	94.3	100.4
			+57 +50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	327.2	509.2	509.2
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		437.2	603.5	609.6
			+117 +120 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	307.3	0.0	319.5
			(E-0-9 verifies that pumps are running.)		744.5	603.5	929.1
			+24 +25				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	258.0	258.0	129.0
			(RO verifies that fans are running.)		1002.5	861.5	1058.1
			+29 +31 +33 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	378.9	375.7
			(RO verifies that pumps are running.)		1002.5	1240.4	1433.8
			+1 +2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Manual	0.0	0.0	0.0
			(All Buses are powered from EDGs.)		1002.5	1240.4	1433.8
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	280.8	280.8	280.8
			(RO verifies that pumps are running.)		1283.3	1521.2	1714.6
			+26 +27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	140.2	0.0	0.0
			(CHARGING pump 31 started on lightest loaded Bus.)		1423.5	1521.2	1714.6
			+13				
- 9 -	< 10 >	---	_____*** INADVERTENT SI ***_____	Manual	0.0	0.0	0.0
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		1423.5	1521.2	1714.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	ES-1.1-1	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1423.5	0.0 1521.2	0.0 1714.6
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (MCCs are reset.)	Manual	85.8 1509.3	63.3 1584.5	24.8 1739.4
			+82 +81 +83				
- 12 -	ES-1.1-3	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1509.3	0.0 1584.5	0.0 1739.4
			(No Loads Started or Tripped at this step)				
- 13 -	ES-1.1-4	---	Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (All SI pumps stopped.)	Manual	-327.2 1182.1	-509.2 1075.3	-509.2 1230.2
			-117 -120 -121 -122 -123				
- 14 -	ES-1.1-8	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1182.1	0.0 1075.3	0.0 1230.2
			(No Loads Started or Tripped at this step)				
- 15 -	ES-1.1-10	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG. (5 FCUs are running. CSPs stopped.)	Manual	-307.3 874.8	0.0 1075.3	-319.5 910.7
			-24 -25				
- 16 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never stripped.)	Manual	0.0 874.8	0.0 1075.3	0.0 910.7
			(No Loads Started or Tripped at this step)				
- 17 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (No CSPs are running.)	Manual	0.0 874.8	0.0 1075.3	0.0 910.7
			(No Loads Started or Tripped at this step)				
- 18 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Group 33 energized on lightest loaded Bus. +109	Manual	207.9 1082.7	0.0 1075.3	0.0 910.7

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fans started on MCC 38.) +70 +71 +72 +73	Manual	80.4 1163.1	0.0 1075.3	0.0 910.7
- 20 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 1163.1	41.5 1116.8	0.0 910.7
- 21 -	ES-1.1-20	---	Stop 1 of 3 ESWPs. (ESWP 34 stopped on heaviest loaded Bus.) Shutdown Motor-driven AFWPs if desired. (AFWPs remain running.) -26	Manual	-280.8 882.3	0.0 1116.8	0.0 910.7
- 22 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 33 started on lightest loaded Bus.) +84 +86	Manual	280.8 1163.1	0.0 1116.8	280.8 1191.5
- 23 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started on lightest loaded Bus. Blowers started, CCR ventilation is running.) +87 +66 +67	Manual	0.0 1163.1	114.3 1231.1	30.0 1221.5
- 24 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	0.0 1163.1	0.0 1231.1	0.0 1221.5

INADVERTENT SI (PH B)



Inadvertent SI (PH B)
Buses 2A/3A Tied Together, All Buses Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
AFWP 33	EDG 32
CHARGING PUMP 31	EDG 33
ESWP 35	EDG 31
ESWP 36	EDG 32
FCU 31	EDG 33
FCU 32	EDG 31
FCU 33	EDG 33
FCU 34	EDG 31
FCU 35	EDG 32
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36A: AUTO	EDG 33
MCC 36B: AUTO	EDG 32
MCC 36C: AUTO	EDG 31
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 33
MCC 37: PENT. BLOWER (#1)	EDG 32
MCC 37: PENT. BLOWER (#2)	EDG 32
MCC 38: CRDM FAN 31 (FAN#1)	EDG 33
MCC 38: CRDM FAN 32 (FAN#2)	EDG 33
MCC 38: CRDM FAN 33 (FAN#3)	EDG 33
MCC 38: CRDM FAN 34 (FAN#4)	EDG 33
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 31	EDG 33
NESWP 33	EDG 32
PAB FAN 31	EDG 31
PRESSURIZER HEATER 33	EDG 33

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INADVERTENT ST (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:56 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1443.9 Bus 2A/3A = 1511.9 Bus 6A = ' N/A ' (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Bus 6A Not Available

1950 kW Overload Summary

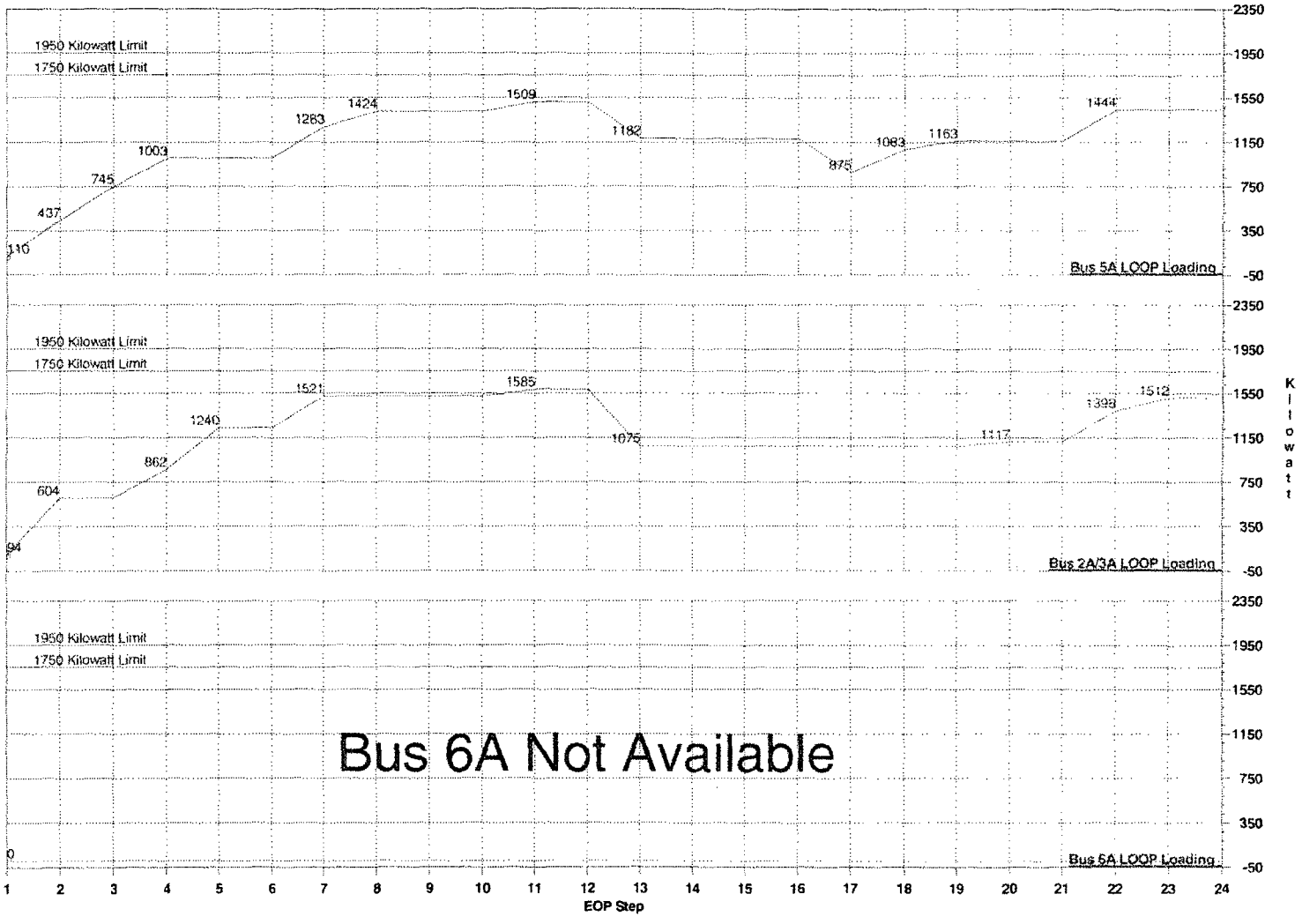
Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Bus 6A Not Available

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36C and 36E	Auto	110.0	94.3	* N/A *
					110.0	94.3	* N/A *
			+57 +50 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 32	Auto	327.2	509.2	* N/A *
			RHR pumps 31 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		437.2	603.5	* N/A *
			+117 +121 +122				
- 3 -	E-0-9	---	CSP 31	Auto	307.3	0.0	* N/A *
			(E-0-9 verifies that pump is running.)				
					744.5	603.5	* N/A *
			+24				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34	Auto	258.0	258.0	* N/A *
			(RO verifies that fans are running.)				
					1002.5	861.5	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWP 31	Auto	0.0	378.9	* N/A *
			(RO verifies that pump is running.)				
					1002.5	1240.4	* N/A *
			+1				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Manual	0.0	0.0	* N/A *
			(All Buses are powered from EDGs.)		1002.5	1240.4	* N/A *
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 35)	Auto	280.8	280.8	* N/A *
			(RO verifies that pumps are running.)				
					1283.3	1521.2	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	140.2	0.0	* N/A *
			(CHARGING pump 31 started on lightest loaded Bus.)		1423.5	1521.2	* N/A *
			+13				
- 9 -	< 19 >	---	_____*** INADVERTENT SI ***_____	Manual	0.0	0.0	* N/A *
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		1423.5	1521.2	* N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	ES-1.1-1	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1423.5	0.0 1521.2	* N/A * * N/A *
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (MCCs are reset.)	Manual	85.8 1509.3	63.3 1584.5	* N/A * * N/A *
- 12 -	ES-1.1-3	---	+82 -81 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1509.3	0.0 1584.5	* N/A * * N/A *
- 13 -	ES-1.1-4	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (Only pump 31 running - stopped.) Stop SI pumps. (Only pumps 31 and 32 running - stopped.)	Manual	-327.2 1182.1	-509.2 1075.3	* N/A * * N/A *
- 14 -	ES-1.1-8	---	-117 -121 -122 Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1182.1	0.0 1075.3	* N/A * * N/A *
- 15 -	ES-1.1-10	---	(No Loads Started or Tripped at this step) Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG.	Manual	0.0 1182.1	0.0 1075.3	* N/A * * N/A *
- 16 -	ES-1.1-13	---	(No Loads Started or Tripped at this step) Check BAST transfer pumps are running (MCC 36A-E never striped.)	Manual	0.0 1182.1	0.0 1075.3	* N/A * * N/A *
- 17 -	NSE 99-3-075	NSE 99-3-075	(No Loads Started or Tripped at this step) AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (CSP 31 stopped.)	Manual	-307.3 874.8	0.0 1075.3	* N/A * * N/A *
- 18 -	ES-1.1-17	---	-24 Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Group 33 energized on lightest loaded Bus.) +109	Manual	207.9 1082.7	0.0 1075.3	* N/A * * N/A *

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans (MCC are already reset. CRDM Fans started on MCC 38.) +70 +71 +72 +73	Manual	80.4 1163.1	0.0 1075.3	* N/A * * N/A *
- 20 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 1163.1	41.5 1116.8	* N/A * * N/A *
- 21 -	ES-1.1-20	---	Stop 1 of 3 ESWPs. (ESWPs 34 and 35 are running.) Shutdown Motor-driven AFWPs if desired. (Bus 6A not available. AFWP 31 remains running) (No Loads Started or Tripped at this step)	Manual	0.0 1163.1	0.0 1116.8	* N/A * * N/A *
- 22 -	ES-1.1-26	---	Check that at least two NESWPs are running. (Two NESWPs started.) +84 +85	Manual	280.8 1443.9	280.8 1397.6	* N/A * * N/A *
- 23 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started. Blowers unavailable, powered from Bus 6A/MCC 37. CCR vent. is on.) +87	Manual	0.0 1443.9	114.3 1511.9	* N/A * * N/A *
- 24 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	0.0 1443.9	0.0 1511.9	* N/A * * N/A *

INADVERTENT SI (PH B)



Inadvertent SI (PH B)
Buses 2A/3A Tied Together, Bus 6A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
CHARGING PUMP 31	EDG 33
ESWP 34	EDG 33
ESWP 35	EDG 31
FCU 31	EDG 33
FCU 32	EDG 31
FCU 33	EDG 33
FCU 34	EDG 31
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36A: AUTO	EDG 33
MCC 36C: AUTO	EDG 31
MCC 36E: AUTO	EDG 33
MCC 38: CRDM FAN 31 (FAN#1)	EDG 33
MCC 38: CRDM FAN 32 (FAN#2)	EDG 33
MCC 38: CRDM FAN 33 (FAN#3)	EDG 33
MCC 38: CRDM FAN 34 (FAN#4)	EDG 33
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
NESWP 31	EDG 33
NESWP 32	EDG 31
PAB FAN 31	EDG 31
PRESSURIZER HEATER 33	EDG 33

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Version 1.1

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INADVERTENT SI (PH B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:56 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 1537.8 Bus 6A = 1612.8 (kW)

1750 kW Overload Summary

Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

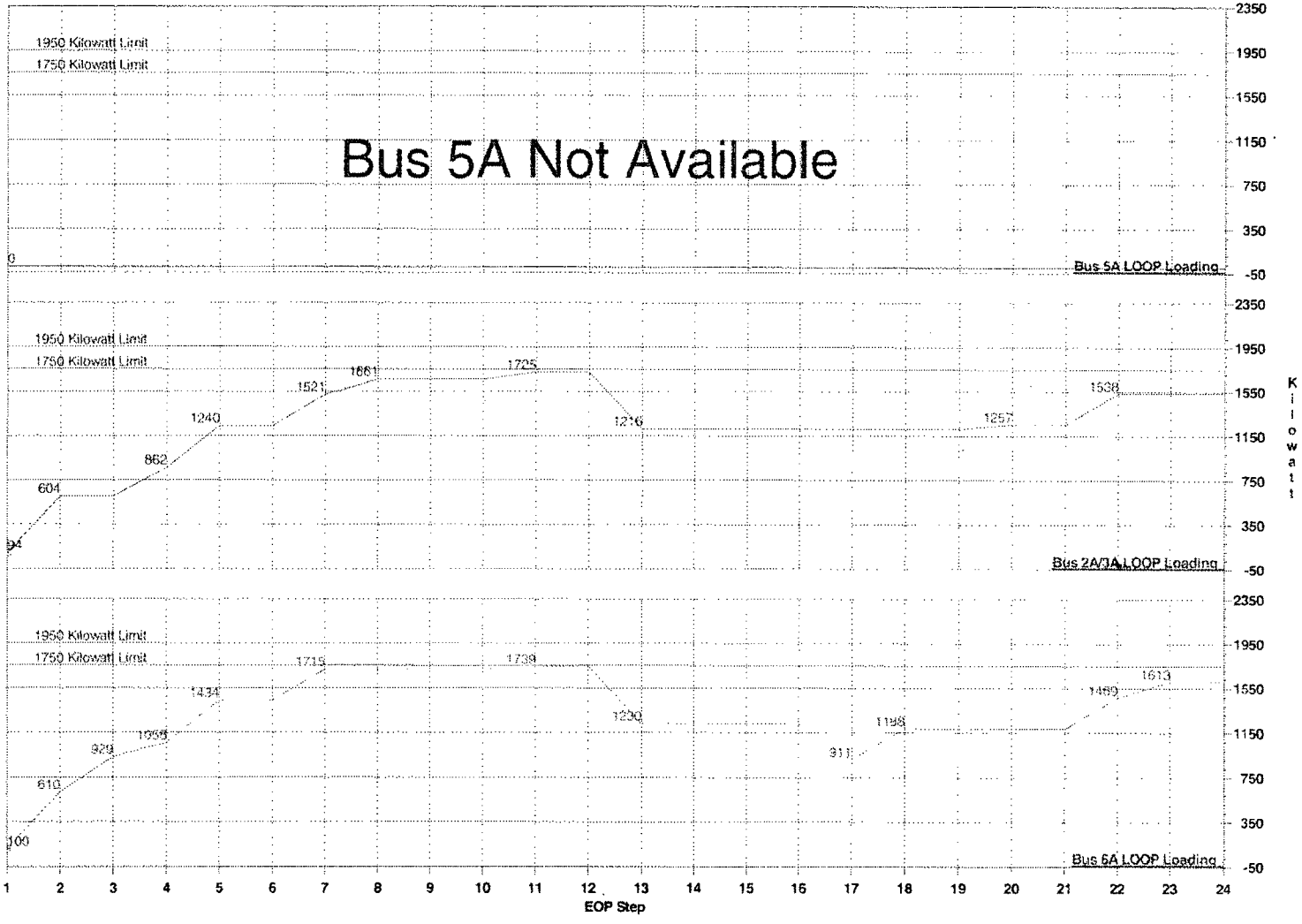
Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36B, 36C and 36D	Auto	* N/A *	94.3	100.4
					* N/A *	94.3	100.4
			+57 +53 +59				
- 2 -	---	RO-1-2	SI pumps 33 and 32	Auto	* N/A *	509.2	509.2
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		* N/A *	603.5	609.6
			+117 +130 +122 +123				
- 3 -	E-0-9	---	CSP 32	Auto	* N/A *	0.0	319.5
			(E-0-9 verifies that pump is running.)		* N/A *	603.5	929.1
			+25				
- 4 -	---	RO-1-3	FCUs 32, 34 and 35	Auto	* N/A *	258.0	129.0
			(RO verifies that fans are running.)		* N/A *	861.5	1058.1
			+21 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	* N/A *	378.9	376.7
			(RO verifies that pumps are running.)		* N/A *	1240.4	1433.8
			+1 +2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Manual	* N/A *	0.0	0.0
			(All Buses are powered from EDGs.)		* N/A *	1340.4	1433.8
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (35 and 36)	Auto	* N/A *	280.8	280.8
			(RO verifies that pumps are running.)		* N/A *	1521.2	1714.6
			+27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	* N/A *	140.2	0.0
			(CHARGING pump 32 started on lightest loaded Bus.)		* N/A *	1661.4	1714.6
			+14				
- 9 -	< 10 >	---	*** INADVERTENT SI ***	Manual	* N/A *	0.0	0.0
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		* N/A *	1661.4	1714.6
			(No Loads Started or Tripped at this step)				

Step Number	SNO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	ES-1.1-1	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	* N/A *	0.0	0.0
					* N/A *	1661.4	1714.6
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15 (MCCs are reset.)	Manual	* N/A *	63.3	24.8
					* N/A *	1724.7	1739.4
			+81 +83				
- 12 -	ES-1.1-3	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	* N/A *	0.0	0.0
					* N/A *	1724.7	1739.4
			(No Loads Started or Tripped at this step)				
- 13 -	ES-1.1-4	---	Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (Only pumps 32 and 33 running - stopped.)	Manual	* N/A *	-509.2	-509.2
					* N/A *	1215.5	1230.2
			-117 -120 -122 -123				
- 14 -	ES-1.1-6	---	Start one CHARGING pump. (CHARGING pump 32 is running.)	Manual	* N/A *	0.0	0.0
					* N/A *	1215.5	1230.2
			(No Loads Started or Tripped at this step)				
- 15 -	ES-1.1-10	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG.	Manual	* N/A *	0.0	0.0
					* N/A *	1215.5	1230.2
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-13	---	Check BAST transfer pumps are running (MCC 36A-E never striped.)	Manual	* N/A *	0.0	0.0
					* N/A *	1215.5	1230.2
			(No Loads Started or Tripped at this step)				
- 17 -	NSE 99-3-075	NSE 99-3-075	ASA PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (CSP 32 stopped.)	Manual	* N/A *	0.0	-319.5
					* N/A *	1215.5	910.7
			-35				
- 18 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Control Group energized on lightest loaded Bus.) +114	Manual	* N/A *	0.0	277.0
					* N/A *	1215.5	1187.7

Step Number	SMO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. Bus 5A unavailable to power CRDM Fans.)	Manual	* N/A * * N/A *	0.0 1215.5	0.0 1187.7
			(No Loads Started or Tripped at this step)				
- 20 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	* N/A * * N/A *	41.5 1257.0	0.0 1187.7
- 21 -	ES-1.1-35	---	Stop 1 of 3 ESWPs. (ESWPs 35 and 36 are running.) Shutdown Motor-driven AFWPs if desired. (AFWPs remain running.)	Manual	* N/A * * N/A *	0.0 1257.0	0.0 1187.7
			(No Loads Started or Tripped at this step)				
- 22 -	ES-1.1-36	---	Check that at least two NESWPs are running. (NESWPs 32 and 33 are started.)	Manual	* N/A * * N/A *	280.8 1537.8	280.8 1468.5
			+85 +86				
- 23 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 32 started on lightest loaded Bus. Blowers started. CCR ventilation is running.) +88 +66 +67	Manual	* N/A * * N/A *	0.0 1537.8	144.3 1612.8
- 24 -	ES-1.1-33	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	* N/A * * N/A *	0.0 1537.8	0.0 1612.8
			(No Loads Started or Tripped at this step)				

INADVERTENT SI (PH B)



Inadvertent SI (PH B)
Buses 2A/3A Tied Together, Bus 5A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

	EQUIPMENT RUNNING	POWER FROM EDG
1	AFWP 31	EDG 31
2	AFWP 33	EDG 32
3	CHARGING PUMP 32	EDG 31
4	ESWP 35	EDG 31
5	ESWP 36	EDG 32
6	FCU 32	EDG 31
7	FCU 34	EDG 31
8	FCU 35	EDG 32
14	MCC 34: TURBINE TURNING GEAR	EDG 31
15	MCC 36B: AUTO	EDG 32
16	MCC 36C: AUTO	EDG 31
17	MCC 36D: AUTO	EDG 32
18	MCC 37: PENT. BLOWER (#1)	EDG 32
19	MCC 37: PENT. BLOWER (#2)	EDG 32
20	MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
21	MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
22	NESWP 32	EDG 31
23	NESWP 33	EDG 32
24	PAB FAN 32	EDG 32
25	PRESSURIZER HEATER CONTROL GROUP	EDG 32

NEW YORK POWER AUTHORITY
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INADVERTENT SI (PM B)

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : :56 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1443.9 Bus 2A/3A = * N/A * Bus 6A = 1335.8 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

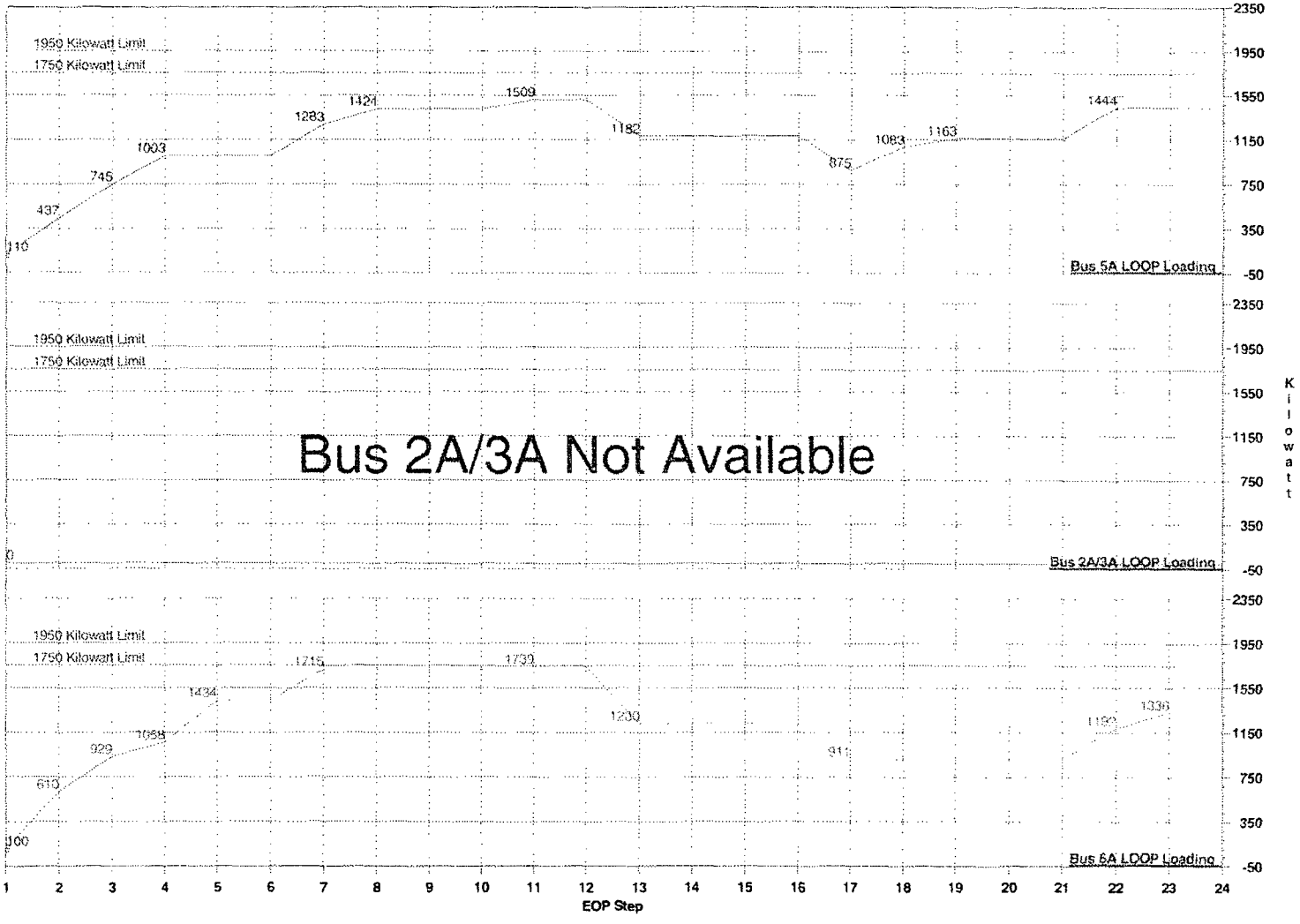
Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 26A, 36B, 36D and 36E	Auto	110.0	* N/A *	100.4
					110.0	* N/A *	100.4
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 33	Auto	327.2	* N/A *	509.2
			RHR pump 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		437.2	* N/A *	609.6
			+120 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Auto	307.3	* N/A *	319.5
			(E-0-9 verifies that pump is running.)				
					744.5	* N/A *	929.1
			+24 +25				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	258.0	* N/A *	129.0
			(RO verifies that fans are running.)				
					1002.5	* N/A *	1058.1
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWPs 33	Auto	0.0	* N/A *	375.7
			(RO verifies that pump is running.)				
					1002.5	* N/A *	1433.8
			+2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus	Manual	0.0	* N/A *	0.0
			to start at least one CCWP.				
			(All Buses are powered from EDGs.)		1002.5	* N/A *	1433.8
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	280.8	* N/A *	280.8
			(RO verifies that pump is running.)				
					1282.3	* N/A *	1714.6
			+26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	140.3	* N/A *	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		1423.5	* N/A *	1714.6
			loaded Bus.)				
			+13				
- 9 -	< 19 >	---		Manual	0.0	* N/A *	0.0
			*** INADVERTENT SI ***				
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		1423.5	* N/A *	1714.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	ES-1.1-1	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1423.5	* N/A * * N/A *	0.0 1714.6
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (MCCs are reset.)	Manual	85.8 1509.3	* N/A * * N/A *	24.8 1739.4
			+82 +83				
- 12 -	ES-1.1-3	---	ESTABLISH Instrument Air to Containmenet. (Load accounted for in MCC reset.)	Manual	0.0 1509.3	* N/A * * N/A *	0.0 1739.4
			(No Loads Started or Tripped at this step)				
- 13 -	ES-1.1-4	---	Stop RHR pump. (Only pump 32 running - stopped.) Stop SI pumps. (Only pumps 31 and 33 running - stopped.)	Manual	-327.2 1182.1	* N/A * * N/A *	-509.2 1230.2
			-120 -121 -123				
- 14 -	ES-1.1-8	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1182.1	* N/A * * N/A *	0.0 1230.2
			(No Loads Started or Tripped at this step)				
- 15 -	ES-1.1-10	---	Stop CSPs if 5 FCUs are running or Containment pressure is < 16 PSIG.	Manual	0.0 1182.1	* N/A * * N/A *	0.0 1230.2
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-13	---	Check BAST transfer pumps are running (MCC 36A-E never striped.)	Manual	0.0 1182.1	* N/A * * N/A *	0.0 1230.2
			(No Loads Started or Tripped at this step)				
- 17 -	NSE 99-3-075	NSE 99-3-075	AS PER SECTION 4.2.20 of NSE One CSP run time is less than 30 minutes. (CSPs stopped.)	Manual	-307.3 874.8	* N/A * * N/A *	-319.5 910.7
			-24 -25				
- 18 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Control Group energized on lightest loaded Bus.) +109	Manual	207.9 1082.7	* N/A * * N/A *	0.0 910.7

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans (MCC are already reset. CRDM Fans started on MCC 38.) +70 +71 +72 +73	Manual	80.4 1163.1	* N/A *	0.0 910.7
- 20 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsitew and tie-breakers are open. Start Turb Turning Gear. (Bus 2A/3A unavailable.) (No Loads Started or Tripped at this step)	Manual	0.0 1163.1	* N/A *	0.0 910.7
- 21 -	ES-1.1-20	---	Stop 1 of 3 ESWPs. (ESWPs 34 and 35 are running.) Shutdown Motor-driven AFWPs if desired. (Bus 2A/3A not available. AFWP 33 remains running) (No Loads Started or Tripped at this step)	Manual	0.0 1163.1	* N/A *	0.0 910.7
- 22 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 33 started.) +84 +86	Manual	280.8 1443.9	* N/A *	280.8 1191.5
- 23 -	ES-1.1-37	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (Bus 2A/3A unavailable, PAB Fan 32 started. Blowers started, CCR ventilation is running.) +88 +66 +67	Manual	0.0 1443.9	* N/A *	144.3 1335.8
- 24 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	0.0 1443.9	* N/A *	0.0 1335.8

INADVERTENT SI (PH B)



Inadvertent SI (PH B)
Buses 2A and / or 3A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 33	EDG 32
CHARGING PUMP 31	EDG 33
ESWP 34	EDG 33
ESWP 36	EDG 32
FCU 31	EDG 33
FCU 33	EDG 33
FCU 35	EDG 32
MCC 36A: AUTO	EDG 33
MCC 36B: AUTO	EDG 32
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 33
MCC 37: PENT. BLOWER (#1)	EDG 32
MCC 37: PENT. BLOWER (#2)	EDG 32
MCC 38: CRDM FAN 31 (FAN#1)	EDG 33
MCC 38: CRDM FAN 32 (FAN#2)	EDG 33
MCC 38: CRDM FAN 33 (FAN#3)	EDG 33
MCC 38: CRDM FAN 34 (FAN#4)	EDG 33
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 31	EDG 33
NESWP 33	EDG 32
PAB FAN 32	EDG 32
PRESSURIZER HEATER 33	EDG 33

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INADVERTENT SI
ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
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*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2180.8 Bus 2A = 2129.2 Bus 3A = 1714.9 Bus 6A = 2367.0 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

INADVERTENT SI - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

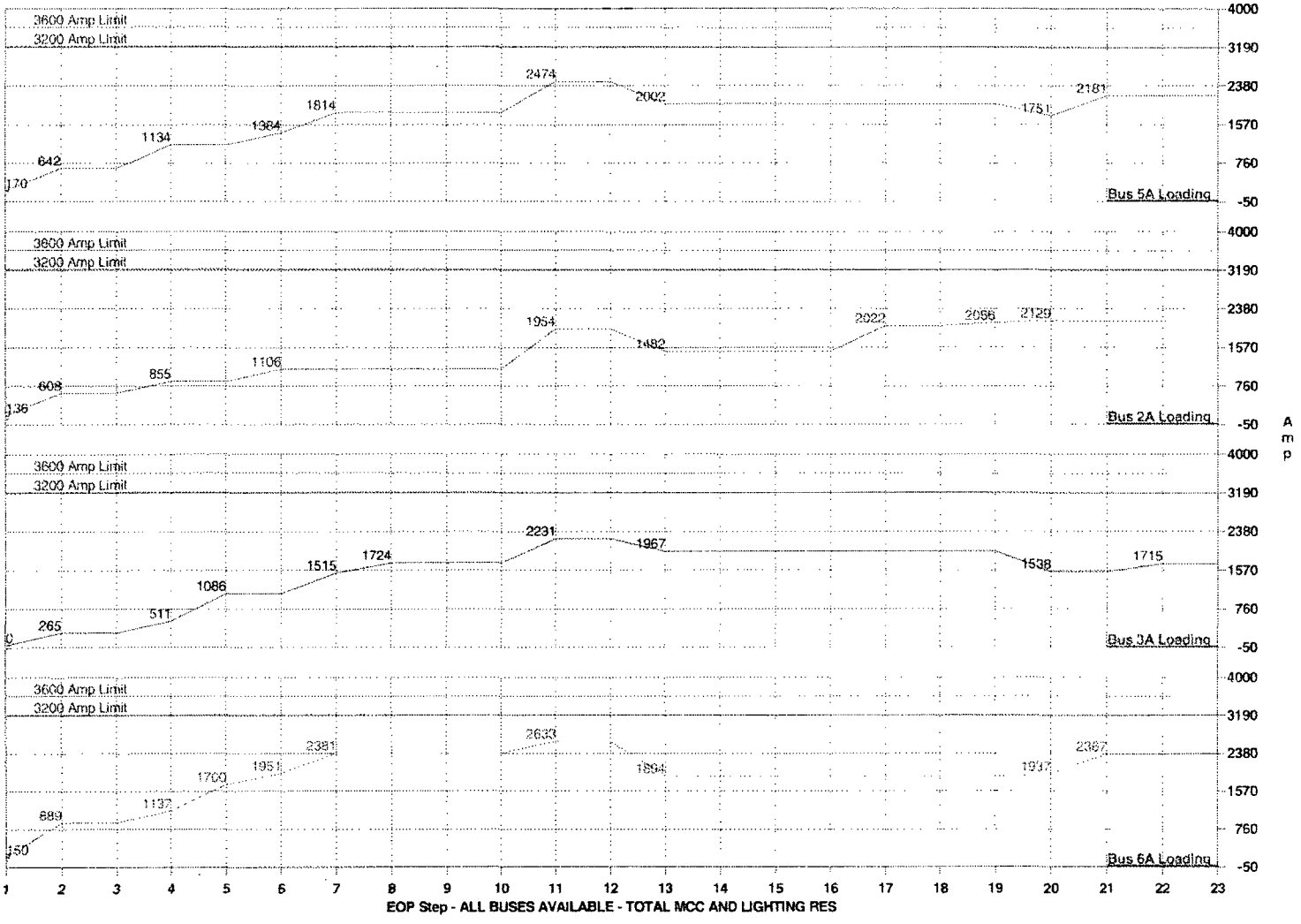
Report Date : August 25,2009 Time : 3:56 PM [64]

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	0.0	150.1
					169.5	135.5	0.0	150.1
			+57 +60 +53 +59 +60					
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	472.4	264.5	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)					
			(RO verifies that pumps are running.)		641.9	607.9	264.5	888.6
			+117 +120 +121 +122 +123					
- 3 -	E-0-9	---	CSPs 31 and 32	Manual	0.0	0.0	0.0	0.0
			(CSPs started during Phase B only.)					
			(E-0-9 verifies that spray is not required.)		641.9	607.9	264.5	888.6
			(No Loads Started or Tripped at this step)					
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	491.9	247.2	246.0	248.0
			(RO verifies that fans are running.)		1133.8	855.1	510.5	1136.6
			+29 +31 +33 +35 +37					
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	0.0	575.4	562.9
			(RO verifies that pumps are running.)		1133.8	855.1	1085.9	1699.5
			+1 +2					
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.5	251.3	0.0	251.2
			(RO verifies that pumps are running.)		1384.3	1106.4	1085.9	1950.7
			+4 +7 +10					
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	429.8	0.0	429.0	429.8
			(RO verifies that pumps are running.)		1814.1	1106.4	1514.9	2380.5
			+25 +27 +28					
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	0.0	0.0	208.9	0.0
			is > than 325 psig and CCW is available.					
			(CHARGING pump 32 started on lightest		1814.1	1106.4	1723.8	2380.5
			loaded Bus.)					
			+14					
- 9 -	< 19 >	---		Manual	0.0	0.0	0.0	0.0
			*** INADVERTENT SI ***					
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		1814.1	1106.4	1723.8	2380.5
			(No Loads Started or Tripped at this step)					

Step Number	SMA Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	ES-1.1-1	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1814.1	0.0 1106.4	0.0 1723.8	0.0 2380.5
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	659.0 3473.9	848.0 1954.4	507.6 2231.4	252.2 2632.7
- 12 -	ES-1.1-3	---	+126 +124 +125 +127 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 3473.9	0.0 1954.4	0.0 2231.4	0.0 2632.7
- 13 -	ES-1.1-4	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (All SI pumps stopped.)	Manual	-472.4 3001.5	-472.4 1482.0	-264.5 1966.9	-738.5 1894.2
- 14 -	ES-1.1-8	---	-117 -120 -121 -122 -123 Start one CHARGING pump. (CHARGING pump 32 is running.)	Manual	0.0 3001.5	0.0 1482.0	0.0 1966.9	0.0 1894.2
- 15 -	ES-1.1-10	---	(No Loads Started or Tripped at this step) Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	0.0 3001.5	0.0 1482.0	0.0 1966.9	0.0 1894.2
- 16 -	ES-1.1-15	---	(No Loads Started or Tripped at this step) Check BAST transfer pumps are running. (MCC 36A-B never striped.)	Manual	0.0 3001.5	0.0 1482.0	0.0 1966.9	0.0 1894.2
- 17 -	ES-1.1-16	---	(No Loads Started or Tripped at this step) Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Group 32 or lightest loaded Bus.)	Manual	0.0 3001.5	540.3 2022.3	0.0 1966.9	0.0 1894.2
- 18 -	ES-1.1-18	---	+93 Reset MCCs. Start CRDM Fans (MCCs are already reset. CRDM Fan loads accounted for in MCC resets.) (No Loads Started or Tripped at this step)	Manual	0.0 3001.5	0.0 2022.3	0.0 1966.9	0.0 1894.2

Step Number	SSO Step	FU Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0	65.8	0.0	0.0
					2001.5	2086.1	1966.9	1894.2
- 20 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. Stop 1 of 3 ESWPs and Shutdown Motor-driven AFWPs if desired. (First CCWP 31 and then ESWP 35 stopped on heaviest loaded Buses. AFWPs remain running.) +8 +11 -4 -7 -10 -27	Manual	-200.5	-43.1	-429.0	43.0
					1751.0	2129.2	1537.9	1937.2
- 21 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 33 started on lightest loaded Bus.)	Manual	429.8	0.0	0.0	429.8
					2180.8	2129.2	1537.9	2367.0
			+84 +86					
- 22 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started on lightest loaded Bus. Blowers and CCR ventilation started at MCC reset.) +87	Manual	0.0	0.0	177.0	0.0
					2180.8	2129.2	1714.9	2367.0
- 23 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM.	Manual	0.0	0.0	0.0	0.0
					2180.8	2129.2	1714.9	2367.0
			(No Loads Started or Tripped at this step)					

INADVERTENT SI



Inadvertent SI
Total MCC and Lighting Reset
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 32	2A
CCWP 33	6A
CHARGING PUMP 32	3A
ESWP 34	5A
ESWP 36	6A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	3A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 33	6A
PAB FAN 31	3A
PRESSURIZER HEATER 32	2A
TOTAL MCC & LIGHTING RESET (2A)	
TOTAL MCC & LIGHTING RESET (3A)	
TOTAL MCC & LIGHTING RESET (5A)	
TOTAL MCC & LIGHTING RESET (6A)	

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INADVERTENT SI

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
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*** BUSES 2A AND 3A TIED TOGETHER ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2252.9 Bus 2A/3A = 2533.1 Bus 6A = 2402.8 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

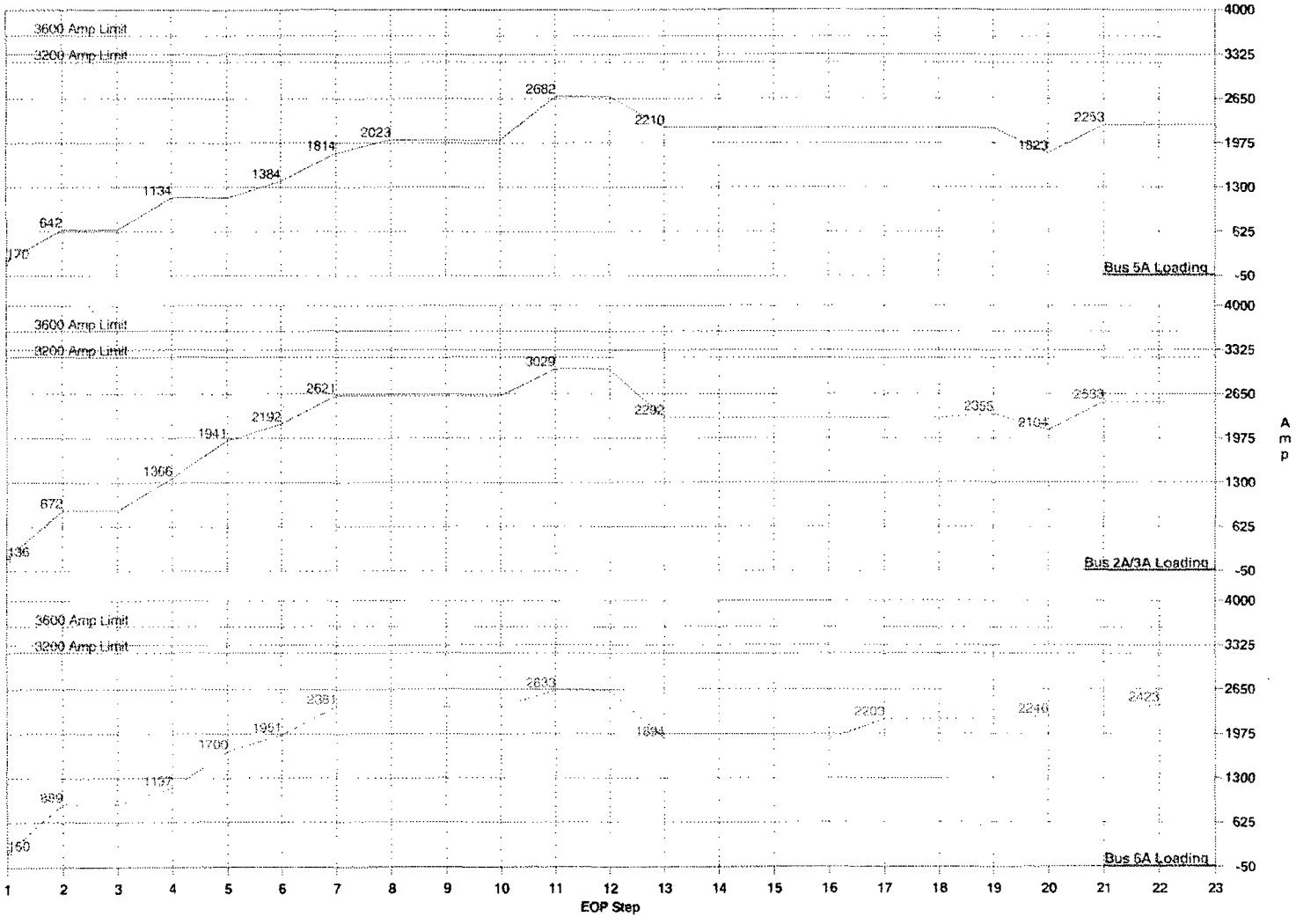
Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 5A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	150.1
					169.5	135.5	150.1
			+57 +60 +63 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	736.9	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	872.4	888.6
			+117 +120 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not required.	Manual	0.0	0.0	0.0
			CSPs started during Phase B only.)				
			(E-0-9 verifies that pumps are not running.)		641.9	872.4	888.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	ECUs 31, 32, 33, 34 and 35	Auto	491.9	493.2	248.0
			(RO verifies that fans are running.)				
					1133.8	1365.6	1136.6
			+29 +31 +33 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	575.4	562.9
			(RO verifies that pumps are running.)				
					1133.8	1941.0	1699.5
			+1 +2				
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.5	251.3	251.2
			(RO verifies that pumps are running.)				
					1384.3	2192.3	1950.7
			+4 +7 +10				
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	429.8	429.0	429.8
			(RO verifies that pumps are running.)				
					1814.1	2621.3	2380.5
			+26 +27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	0.0	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		2022.6	2621.3	2380.5
			loaded Bus.)				
			+13				
- 9 -	< 13 >	---		Manual	0.0	0.0	0.0
			***** INADVERTENT SI *****				
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		2022.6	2621.3	2380.5
			(No Loads Started or Tripped at this step)				

Step Number	SAG Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	ES-1.1-1	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2022.6	0.0 2621.3	0.0 2380.5
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	659.8 2682.4	407.2 3028.5	252.2 2632.7
			+126 +127 +3				
- 12 -	ES-1.1-3	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 2682.4	0.0 3028.5	0.0 2632.7
			(No Loads Started or Tripped at this step)				
- 13 -	ES-1.1-4	---	Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (All SI pumps stopped.)	Manual	-472.4 2210.0	-736.9 2291.6	-738.5 1894.2
			-117 -120 -121 -122 -123				
- 14 -	ES-1.1-8	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2210.0	0.0 2291.6	0.0 1894.2
			(No Loads Started or Tripped at this step)				
- 15 -	ES-1.1-10	---	Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	0.0 2210.0	0.0 2291.6	0.0 1894.2
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-12	---	Check BAST transfer pumps are running. (MCC 36A-E never stripped.)	Manual	0.0 2210.0	0.0 2291.6	0.0 1894.2
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Control Group on lightest loaded Bus.)	Manual	0.0 2210.0	0.0 2291.6	308.6 2202.8
			+114				
- 18 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCCs are already reset. CRDM Fan loads accounted for in MCC resets.)	Manual	0.0 2210.0	0.0 2291.6	0.0 2202.8
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RO-1-57c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 2310.0	63.8 3355.4	0.0 2202.8
- 20 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. Stop 1 of 3 ESWPs and Shutdown Motor-driven AFWPs if desired. (First CCWP 32 and then ESWP 34 stopped on heaviest loaded Buses. AFWPs remain running.) +5 +11 -4 -7 -10 -26	Manual	-386.9 1923.1	-251.3 2104.1	43.0 2245.8
- 21 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 32 started on lightest loaded Bus.) +84 -85	Manual	429.8 2352.9	429.0 2533.1	0.0 2245.8
- 22 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 32 started on lightest loaded Bus. Blowers and CCR vent. started at MCC reset.) +88	Manual	0.0 2352.9	0.0 2533.1	177.0 2422.8
- 23 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	0.0 2352.9	0.0 2533.1	0.0 2422.8

INADVERTENT SI



Inadvertent SI
Buses 2A/3A Tied Together, All Buses Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 31	5A
CCWP 33	6A
CHARGING PUMP 31	5A
ESWP 35	3A
ESWP 36	6A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 32	2A
PAB FAN 32	6A
PRESSURIZER HEATER CONTROL GROUP	6A
TOTAL MCC & LIGHTING RESET (5A)	
TOTAL MCC & LIGHTING RESET (6A)	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
ENERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 0

INADVERTENT SI

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:56 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2914.3 Bus 2A/3A = 3004.5 Bus 6A = * N/A * (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A Not Available

3600 Amp Overload Summary

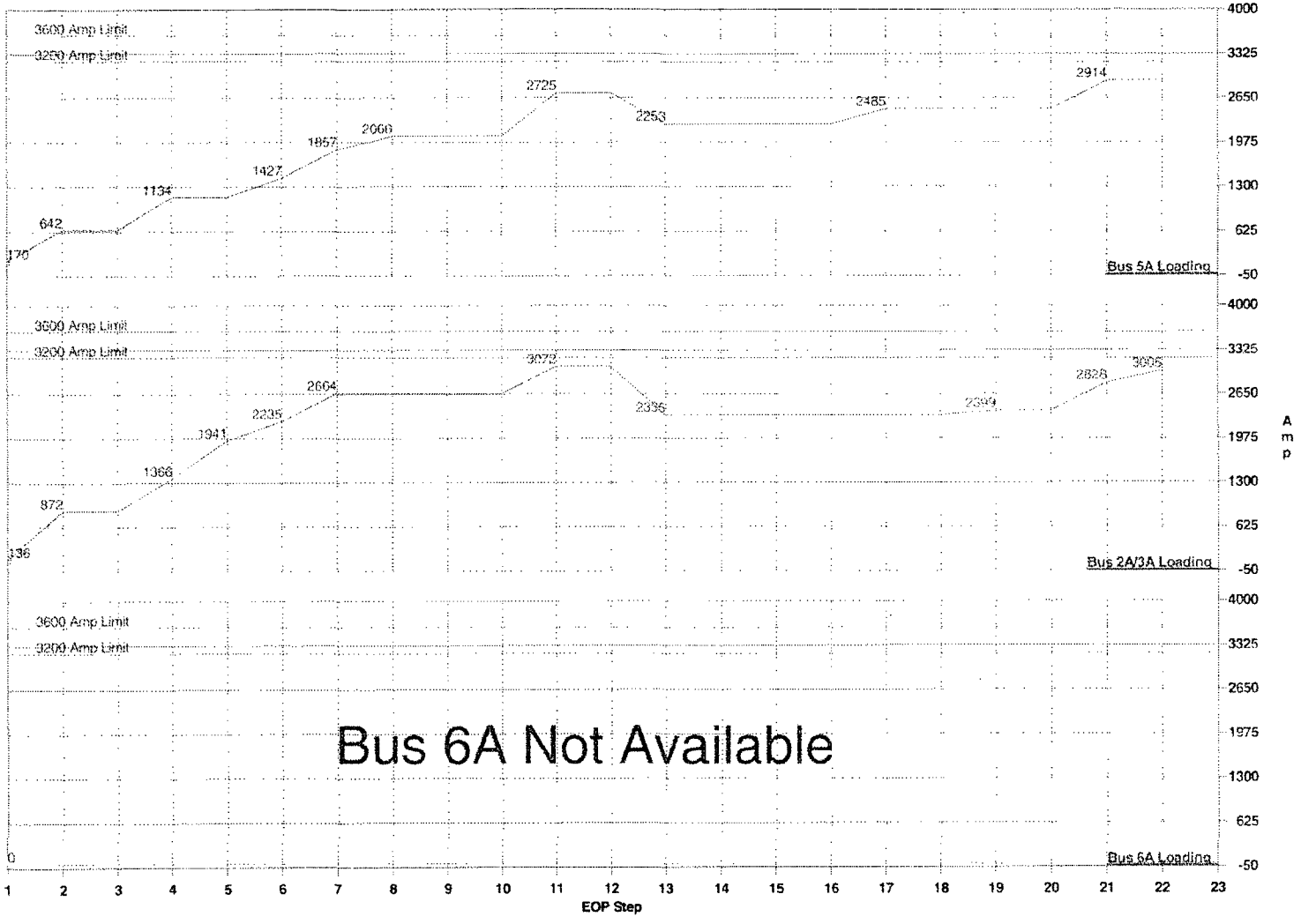
Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A Not Available

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36C and 36E	Auto	169.5	135.5	* N/A *
					169.5	135.5	* N/A *
			+57 +50 +60				
- 2 -	---	RO-1-2	ST pumps 31 and 32	Auto	472.4	736.9	* N/A *
			RHR pump 31 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	872.4	* N/A *
			+117 +121 +122				
- 3 -	E-0-9	---	CSP 31 (Spray not required.	Manual	0.0	0.0	* N/A *
			CSPs started during Phase B only.)				
			(E-0-9 verifies that pumps are not running.)		641.9	872.4	* N/A *
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34	Auto	491.9	493.2	* N/A *
			(RO verifies that fans are running.)		1133.8	1365.6	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWP 31	Auto	0.0	575.4	* N/A *
			(RO verifies that pump is running.)		1133.8	1941.0	* N/A *
			+1				
- 6 -	---	RO-1-7	CCWPs 31 and 32	Auto	292.4	294.4	* N/A *
			(RO verifies that pumps are running.)		1427.2	2235.4	* N/A *
			+4 +7				
- 7 -	---	RO-1-8	ESWPs (34 and 35)	Auto	429.8	429.0	* N/A *
			(RO verifies that pumps are running.)		1857.0	2664.4	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	0.0	* N/A *
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		2065.5	2664.4	* N/A *
			loaded Bus.)				
			+13				
- 9 -	< 10 >	---	*** INADVERTENT SI ***	Manual	0.0	0.0	* N/A *
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		2065.5	2664.4	* N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SPO Step	EO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	ES-1.1-9	---	Reset SI. (Steps 2 through 12 of EO-1 are completed.)	Manual	0.0 2065.5	0.0 2864.4	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 11 -	---	EO-1-15	RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	659.8 2725.3	407.2 3071.6	* N/A * * N/A *
			+126 +3				
- 12 -	ES-1.1-7	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 2725.3	0.0 3071.6	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 13 -	ES-1.1-6	---	Stop RHR pumps. (Only pump 31 running-stopped.) Stop SI pumps. (Only pumps 31 and 32 running - stopped.)	Manual	-472.4 2252.9	-736.9 2334.7	* N/A * * N/A *
			-117 -121 -122				
- 14 -	ES-1.1-8	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2252.9	0.0 2334.7	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 15 -	ES-1.1-10	---	Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	0.0 2252.9	0.0 2334.7	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	0.0 2252.9	0.0 2334.7	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Group 33 on lightest loaded Bus.)	Manual	231.6 2484.5	0.0 2334.7	* N/A * * N/A *
			+109				
- 18 -	ES-1.1-15	---	Reset MCCs. Start CRDM Fans. (MCCs are already reset. CRDM Fan loads accounted for in MCC resets.)	Manual	0.0 2484.5	0.0 2334.7	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 2484.5	63.8 3398.5	* N/A * * N/A *
- 20 -	ES-1.1-30	---	Stop 1 of 3 CCWPs. (CCWPs 31 and 32 running.) Stop 1 of 3 ESWPs. (ESWPs 34 and 35 running.) Shutdown Motor-driven AFWPs if desired. (Bus 6A not available. AFWP 31 remains running.) (No Loads Started or Tripped at this step)	Manual	0.0 2484.5	0.0 3398.5	* N/A * * N/A *
- 21 -	ES-1.1-36	---	Check that at least two NESWPs are running. (NESWP 31 and 32 started) +84 +85	Manual	429.8 2914.3	429.0 2827.5	* N/A * * N/A *
- 22 -	ES-1.1-37	---	Start a PAB Fan. Penetration Blowers and CCR ventilation. (PAB Fan 31 started. Blowers unavailable, powered from Bus 6A/MCC37, CCR vent. is running) +87	Manual	0.0 2914.3	177.0 3004.5	* N/A * * N/A *
- 23 -	ES-1.1-32	---	Go to appropriate plant operating procedure As directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	0.0 2914.3	0.0 3004.5	* N/A * * N/A *

INADVERTENT SI



Inadvertent SI
Buses 2A/3A Tied Together, Bus 6A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
CCWP 31	5A
CCWP 32	2A
CHARGING PUMP 31	5A
ESWP 34	5A
ESWP 35	3A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
MCC 35: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36C: AUTO	2A
MCC 36E: AUTO	5A
NESWP 31	5A
NESWP 32	2A
PAB FAN 31	3A
PRESSURIZER HEATER 33	5A
TOTAL MCC & LIGHTING RESET (5A)	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

INADVERTENT SI

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:56 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 3004.5 Bus 6A = 2885.2 (A)

3200 Amp Overload Summary

Bus 5A Not Available
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

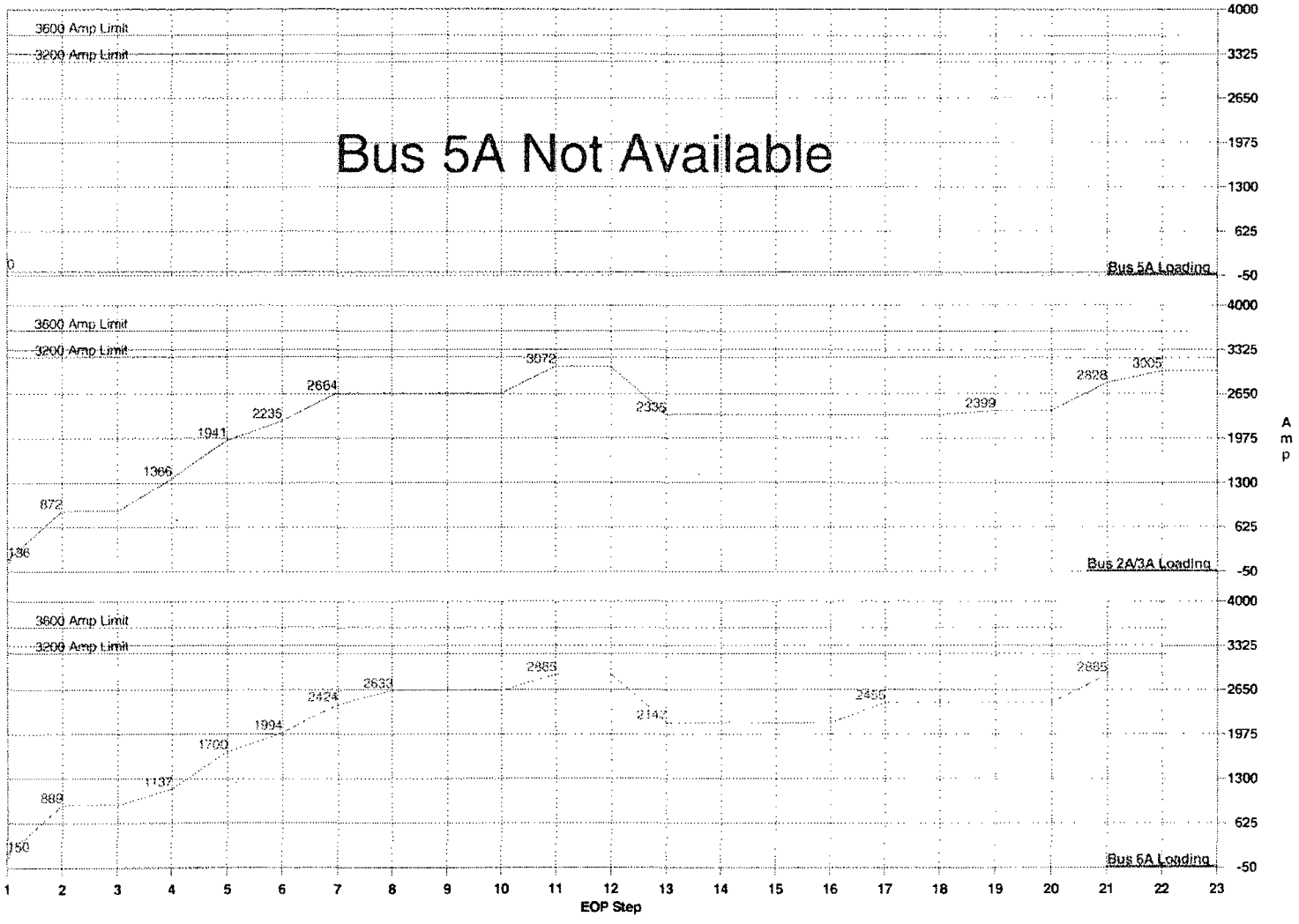
Bus 5A Not Available
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 3A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36B, 36C and 36D	Auto	* N/A *	135.5	150.1
					* N/A *	135.5	150.1
			+57 +53 +59				
- 2 -	---	RO-1-2	SI pumps 32 and 33	Auto	* N/A *	736.9	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		* N/A *	872.4	888.6
			+117 +120 +122 +123				
- 3 -	E-0-9	---	CSP 32 (Spray not required.	Manual	* N/A *	0.0	0.0
			CSPs started during Phase B only.)				
			(E-0-9 verifies that pump is not running.)		* N/A *	872.4	888.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 32, 34 and 36	Auto	* N/A *	493.2	248.0
			(RO verifies that fans are running.)		* N/A *	1365.6	1136.6
			+31 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	* N/A *	575.4	562.9
			(RO verifies that pumps are running.)		* N/A *	1941.0	1699.5
			+1 +2				
- 6 -	---	RO-1-7	CCWPs 32 and 33	Auto	* N/A *	294.4	294.2
			(RO verifies that pumps are running.)		* N/A *	2235.4	1993.7
			+7 +10				
- 7 -	---	RO-1-8	ESWPs (35 and 36)	Auto	* N/A *	429.0	429.8
			(RO verifies that pumps are running.)		* N/A *	2664.4	2423.5
			+27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	* N/A *	0.0	209.6
			is > than 325 psig and CCW is available.				
			(CHARGING pump 33 started on lightest		* N/A *	2664.4	2633.1
			loaded Bus.)				
			+15				
- 9 -	< 19 >	---	*** INADVERTENT SI ***	Manual	* N/A *	0.0	0.0
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		* N/A *	2664.4	2633.1
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	ES-1.1-1	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	* N/A *	0.0	0.0
					* N/A *	2664.4	2633.1
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	* N/A *	407.2	252.2
					* N/A *	3071.6	2885.3
			+127 +3				
- 12 -	ES-1.1-3	---	ESTABLISH Instrument Air to Containment. (load accounted for in MCC reset.)	Manual	* N/A *	0.0	0.0
					* N/A *	3071.6	2885.3
			(No Loads Started or Tripped at this step)				
- 13 -	ES-1.1-4	---	Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (Only pumps 32 and 33 running-stopped.)	Manual	* N/A *	-736.9	-738.5
					* N/A *	2334.7	2146.8
			-117 -120 -122 -123				
- 14 -	ES-1.1-8	---	Start one CHARGING pump. (CHARGING pump 33 is running.)	Manual	* N/A *	0.0	0.0
					* N/A *	2334.7	2146.8
			(No Loads Started or Tripped at this step)				
- 15 -	ES-1.1-10	---	Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	* N/A *	0.0	0.0
					* N/A *	2334.7	2146.8
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never stripped.)	Manual	* N/A *	0.0	0.0
					* N/A *	2334.7	2146.8
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Control Group start on lightest loaded Bus.)	Manual	* N/A *	0.0	308.6
					* N/A *	2334.7	2455.4
			+134				
- 18 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans (MCCs are already reset. CRDM Fans unavailable, power from Bus 5A/MCC 38.)	Manual	* N/A *	0.0	0.0
					* N/A *	2334.7	2455.4
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RO-1-37c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	* N/A * * N/A *	63.8 2398.5	0.0 2455.4
- 20 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. (CCWPs 32 and 33 running.) Stop 1 of 3 ESWPs. (ESWPs 35 and 36 running.) Shutdown Motor-driven AFWPs if desired. (AFWPs remain running.) (No Loads Started or Tripped at this step)	Manual	* N/A * * N/A *	0.0 2398.5	0.0 2455.4
- 21 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 32 and 33 started.)	Manual	* N/A * * N/A *	429.0 2827.5	429.8 2885.3
- 22 -	ES-1.1-27	---	+83 +86 Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started on lightest loaded Bus. Blowers and CCR vent. at MCC reset.) +87	Manual	* N/A * * N/A *	177.0 3004.5	0.0 2885.2
- 23 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	* N/A * * N/A *	0.0 3004.5	0.0 2885.2

INADVERTENT SI



Inadvertent SI
Buses 2A/3A Tied Together, Bus 5A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 32	2A
CCWP 33	6A
CHARGING PUMP 33	6A
ESWP 35	3A
ESWP 36	6A
FCU 32	2A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
NESWP 32	2A
NESWP 33	6A
PAB FAN 32	6A
PRESSURIZER HEATER 31	3A
MCCS RESET (2A/3A) AS PER SOP-EL-15	
TOTAL MCC & LIGHTING RESET (6A)	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP2-CALC-ED-00207 REV 8

INADVERTENT SI

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
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*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2682.7 Bus 2A/3A = * N/A * Bus 6A = 2852.6 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

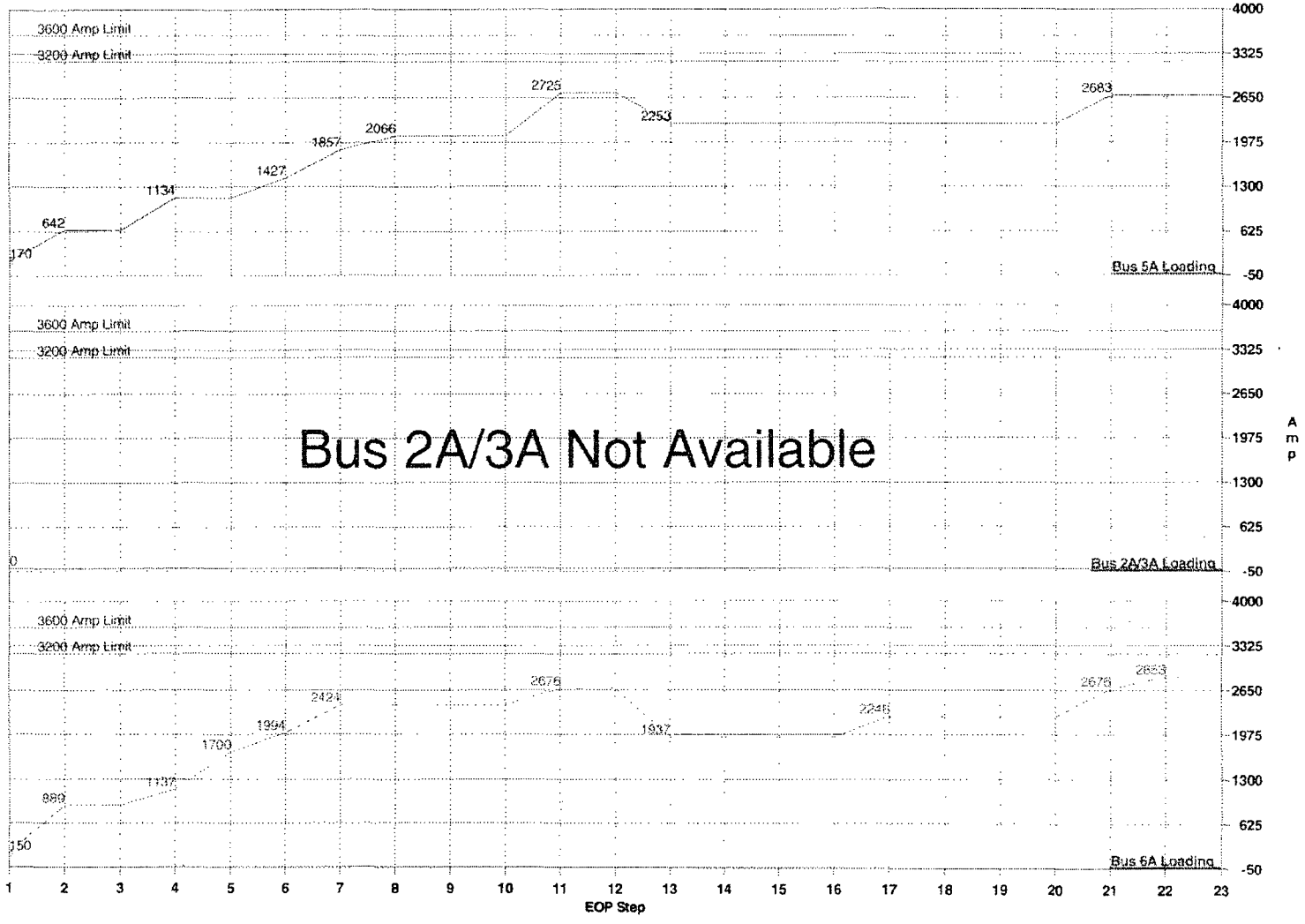
Bus 5A is below the 3600 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A is below the 3600 Amp rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36D and 36E	Auto	169.5	* N/A *	150.1
					169.5	* N/A *	150.1
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 33	Auto	472.4	* N/A *	738.5
			RHR pump 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	* N/A *	888.6
			+120 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not required.	Manual	0.0	* N/A *	0.0
			CSPs started during phase B only.)				
			(E-0-9 verifies that pumps are not running.)		641.9	* N/A *	888.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	491.9	* N/A *	248.0
			(RO verifies that fans are running.)		1133.8	* N/A *	1136.6
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWP 33	Auto	0.0	* N/A *	562.9
			(RO verifies that pump is running.)		1133.8	* N/A *	1699.5
			+2				
- 6 -	---	RO-1-7	CCWPs 31 and 33	Auto	293.4	* N/A *	294.2
			(RO verifies that pumps are running.)		1427.2	* N/A *	1993.7
			+4 +10				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	429.8	* N/A *	429.8
			(PO verifies that pumps are running.)		1857.0	* N/A *	2423.5
			+26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	* N/A *	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		2065.5	* N/A *	2423.5
			loaded Bus.)				
			+13				
- 9 -	< 19 >	---	*** INADVERTENT SI ***	Manual	0.0	* N/A *	0.0
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		2065.5	* N/A *	2423.5
			(No Loads Started or Tripped at this step)				

Step Number	SBO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	ES-1.1-1	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2065.5	* N/A * * N/A *	0.0 3423.5
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	659.8 2725.3	* N/A * * N/A *	252.2 2675.7
- 12 -	ES-1.1-3	---	+126 +127 ESTABLISH Instrument Air to Containmenet. (Load accounted for in MCC reset.)	Manual	0.0 2725.3	* N/A * * N/A *	0.0 2675.7
- 13 -	ES-1.1-4	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (Only pump 32 running - stopped.) Stop SI pumps. (Only pumps 31 and 33 running - stopped.)	Manual	-472.4 2252.9	* N/A * * N/A *	-738.5 1937.2
- 14 -	ES-1.1-6	---	-130 -121 -123 Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 1937.2
- 15 -	ES-1.1-10	---	(No Loads Started or Tripped at this step) Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 1937.2
- 16 -	ES-1.1-13	---	(No Loads Started or Tripped at this step) Check BAST transfer pumps are running. (MCC 36A-E never stripped.)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 1937.2
- 17 -	ES-1.1-17	---	(No Loads Started or Tripped at this step) Energize at least one Pressurizer Heater Group. (Energized Pressurizer Heater Control Group on lightest loaded Bus.)	Manual	0.0 2252.9	* N/A * * N/A *	308.6 2246.6
- 18 -	ES-1.1-19	---	+114 Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fan Loads accounted for in MCC resets.) (No Loads Started or Tripped at this step)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2246.6

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Bus 2A/3A unavailable.) (No Loads Started or Tripped at this step)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2245.8
- 20 -	ES-1.1-20	---	Stop 1 of 3 CCWPs. (CCWPs 31 and 33 running.) Stop 1 of 3 ESWPs. (ESWPs 34 and 36 running.) Shutdown Motor-driven AFWPs if desired. (Bus 2A/3A not available. AFWP 33 remains running) (No Loads Started or Tripped at this step)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2245.0
- 21 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWP 31 and 33 started.)	Manual	429.8 2682.7	* N/A * * N/A *	429.8 2675.6
			+84 +86				
- 22 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 32 started. Blowers and CCR ventilation started at MCC reset.) +88	Manual	0.0 2682.7	* N/A * * N/A *	177.0 2852.6
- 23 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	0.0 2682.7	* N/A * * N/A *	0.0 2852.6

INADVERTENT SI



Inadvertent SI
Buses 2A and / or 3A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 33	6A
CCWP 31	5A
CCWP 33	6A
CHARGING PUMP 31	5A
ESWP 34	5A
ESWP 36	6A
FCU 31	5A
FCU 33	5A
FCU 35	6A
MCC 36A: AUTO	5A
MCC 36E: AUTO	5A
MCC 36B: AUTO	6A
MCC 36D: AUTO	6A
NESWP 31	5A
NESWP 33	6A
PAB FAN 32	6A
PRESSURIZER HEATER CONTROL GROUP	6A
TOTAL MCC & LIGHTING RESET (5A)	
TOTAL MCC & LIGHTING RESET (6A)	

NEW YORK POWER AUTHORITY
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Version 1.1

IP3-CALC-ED-00207 REV 8

INADVERTENT SI

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:56 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1163.1 Bus 2A/3A = 1231.1 Bus 6A = 1221.5 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

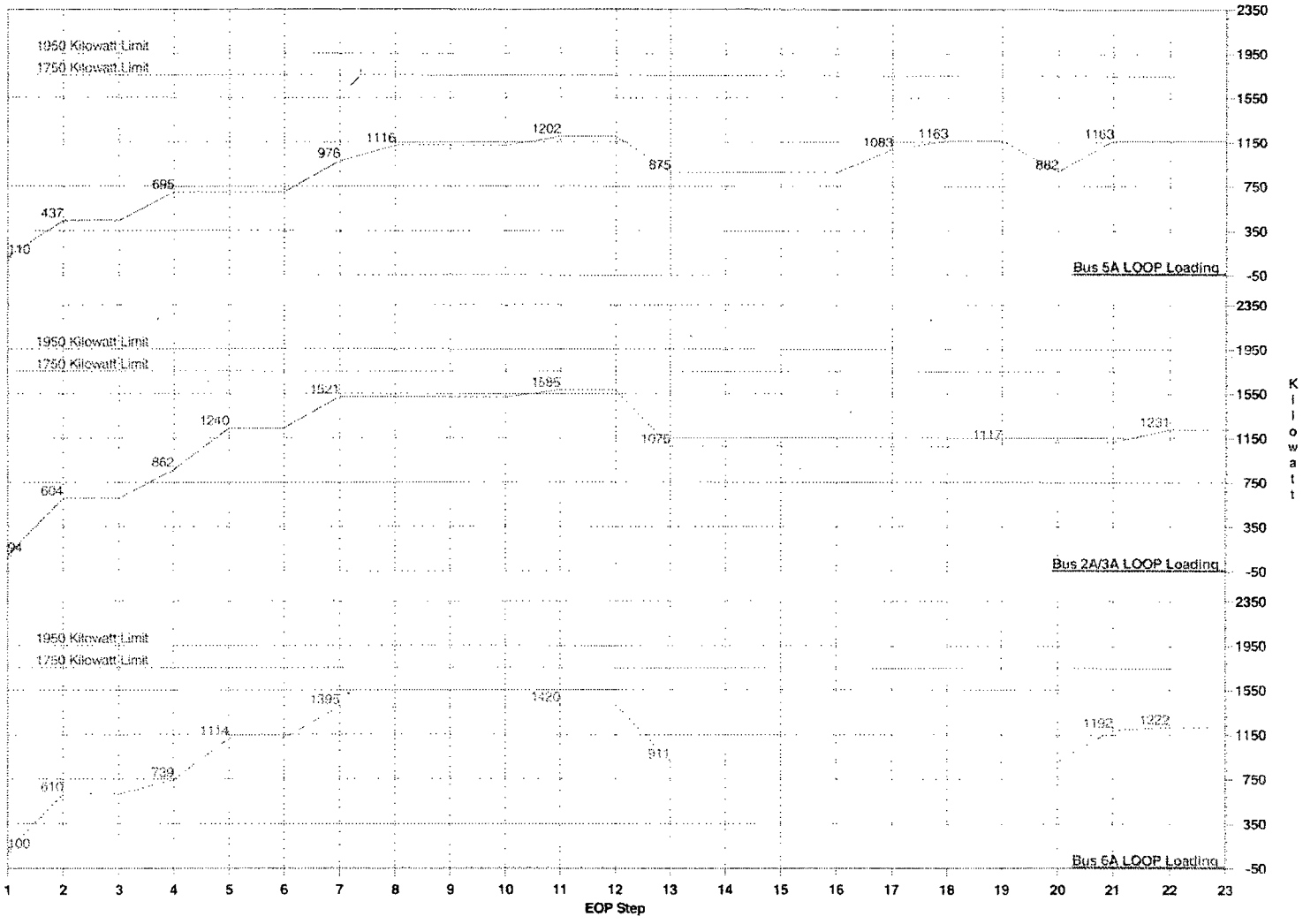
Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	110.0	94.3	100.4
					110.0	94.3	100.4
			+57 +58 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	327.2	509.2	509.2
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		437.2	603.5	609.6
			+117 +120 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not required.	Manual	0.0	0.0	0.0
			CSPs started during Phase B only.)				
			(E-0-9 verifies that pumps are not running.)		437.2	603.5	609.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	258.0	258.0	129.0
			(RO verifies that fans are running.)				
					695.2	861.5	738.6
			+29 +31 +33 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	378.9	375.7
			(RO verifies that pumps are running.)				
					695.2	1240.4	1114.3
			+1 +2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus	Manual	0.0	0.0	0.0
			to start at least one CCWP.				
			(All Buses are powered from EDGs.)		695.2	1240.4	1114.3
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	280.8	280.8	280.8
			(RO verifies that pumps are running.)		976.0	1521.2	1395.1
			+26 +27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	140.2	0.0	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		1116.2	1521.2	1395.1
			loaded Bus.)				
			+13				
- 9 -	< 19 >	---		Manual	0.0	0.0	0.0
			*** INADVERTENT SI ***				
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		1116.2	1521.2	1395.1
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 3A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	ES-1.1-1	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1116.2	0.0 1521.2	0.0 1396.1
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15 (MCC are reset.)	Manual	85.8 1202.0	63.3 1584.5	24.0 1419.9
			+82 +81 +83				
- 12 -	ES-1.1-3	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1202.0	0.0 1584.5	0.0 1419.9
			(No Loads Started or Tripped at this step)				
- 13 -	ES-1.1-4	---	Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (All SI pumps stopped.)	Manual	-327.3 874.8	-509.2 1075.3	-509.2 910.7
			-117 -120 -121 -122 -123				
- 14 -	ES-1.1-6	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 874.8	0.0 1075.3	0.0 910.7
			(No Loads Started or Tripped at this step)				
- 15 -	ES-1.1-10	---	Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	0.0 874.8	0.0 1075.3	0.0 910.7
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-13	---	Check BAST transfer pumps are running. (MCC 36A-E never stripped.)	Manual	0.0 874.8	0.0 1075.3	0.0 910.7
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.1-17	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater 33 energized on lightest loaded Bus.) +109	Manual	207.9 1082.7	0.0 1075.3	0.0 910.7
- 18 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fans started on MCC 38.) +70 +71 +72 +73	Manual	80.4 1163.1	0.0 1075.3	0.0 910.7

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 1163.1	41.5 1116.8	0.0 910.7
- 20 -	ES-1.1-20	---	Stop 1 of 3 ESWPs. (ESWP 34 stopped on heaviest loaded Bus.) Shutdown Motor-driven AFWPs if desired, (AFWPs remain running.) -26	Manual	-280.8 882.3	0.0 1116.8	0.0 910.7
- 21 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWPs 31 and 33 started on lightest loaded Buses.) +84 +86	Manual	280.8 1163.1	0.0 1116.8	280.8 1191.5
- 22 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started on lightest loaded Bus. Blowers started, CCR ventilation is running.) +87 +66 +67	Manual	0.0 1163.1	114.3 1231.1	30.0 1221.5
- 23 -	ES-1.1-32	---	Go to appropriate plant procedure as directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	0.0 1163.1	0.0 1231.1	0.0 1221.5

INADVERTENT SI



Inadvertent SI
Buses 2A/3A Tied Together, All Buses Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
AFWP 33	EDG 32
CHARGING PUMP 31	EDG 33
ESWP 35	EDG 31
ESWP 36	EDG 32
FCU 31	EDG 33
FCU 32	EDG 31
FCU 33	EDG 33
FCU 34	EDG 31
FCU 35	EDG 32
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36A: AUTO	EDG 33
MCC 36B: AUTO	EDG 32
MCC 36C: AUTO	EDG 31
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 33
MCC 37: PENT. BLOWER (#1)	EDG 32
MCC 37: PENT. BLOWER (#2)	EDG 32
MCC 38: CRDM FAN 31 (FAN#1)	EDG 33
MCC 38: CRDM FAN 32 (FAN#2)	EDG 33
MCC 38: CRDM FAN 33 (FAN#3)	EDG 33
MCC 38: CRDM FAN 34 (FAN#4)	EDG 33
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 31	EDG 33
NESWP 33	EDG 32
PAB FAN 31	EDG 31
PRESSURIZER HEATER 33	EDG 33

NEW YORK POWER AUTHORITY
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ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IPJ-CALC-ED-00307 REV 8

INADVERTENT SI

LOAD LIST TRACKING NUMBER : 1015

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*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1443.9 Bus 2A/3A = 1511.9 Bus 6A = * N/A * (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Bus 6A Not Available

1950 kW Overload Summary

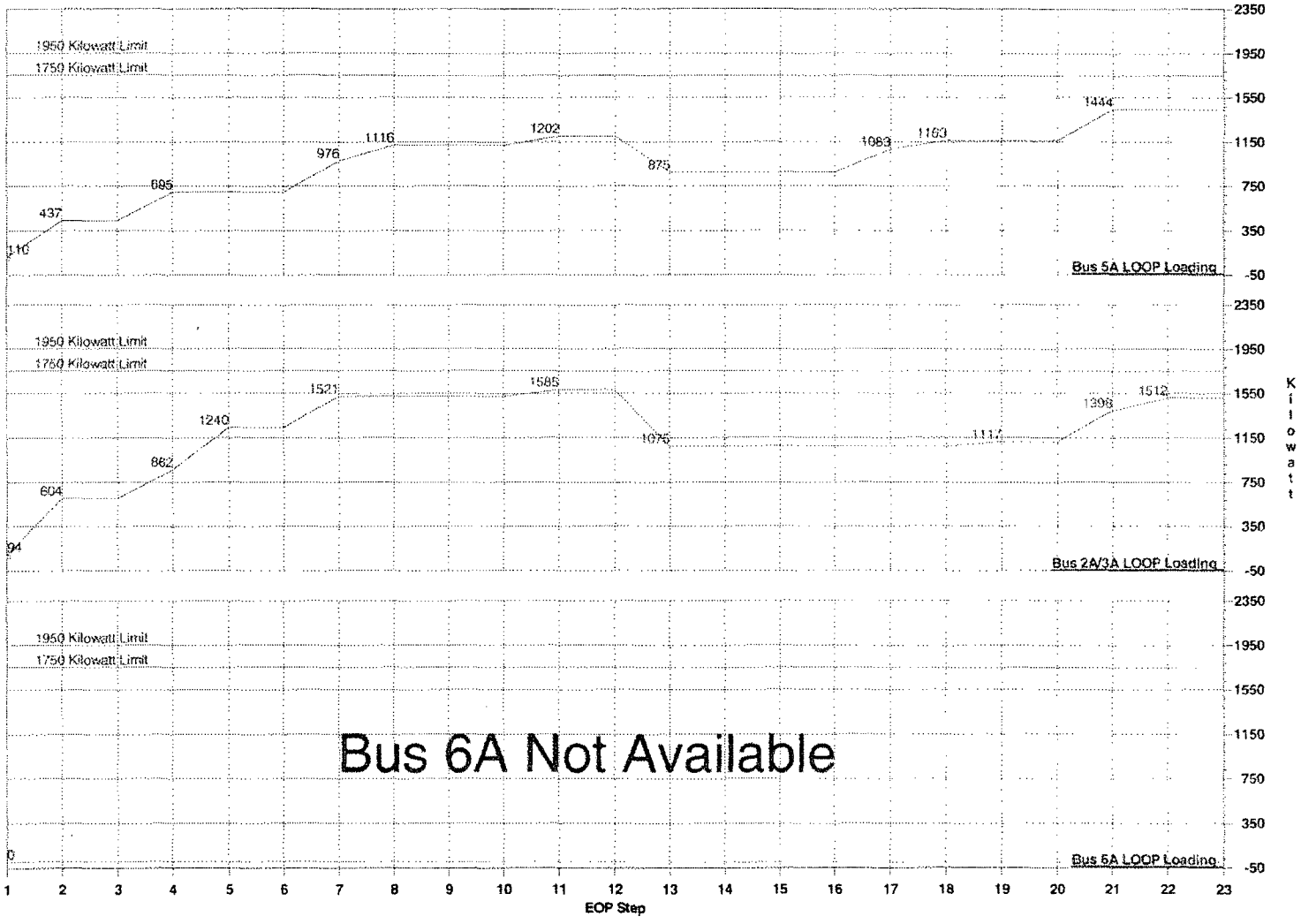
Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Bus 6A Not Available

Step Number	sRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36C and 36E	Auto	110.0	94.3	* N/A *
					110.0	94.3	* N/A *
			+67 +50 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 32 RHR pump 31 (mini flow, RCS press > 325) (RO verifies that pumps are running.)	Auto	327.2	509.2	* N/A *
					437.2	603.5	* N/A *
			+117 +121 +122				
- 3 -	E-0-9	---	CSP 31 (Spray not required. CSPs started during phase B only.) (E-0-9 verifies that pump is not running.)	Manual	0.0	0.0	* N/A *
					437.2	603.5	* N/A *
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34 (RO verifies that fans are running.)	Auto	258.0	258.0	* N/A *
					695.2	861.5	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWP 31 (RO verifies that pump is running.)	Auto	0.0	378.9	* N/A *
					695.2	1240.4	* N/A *
			+1				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP. (All Buses are powered from EDGs.)	Manual	0.0	0.0	* N/A *
					695.2	1240.4	* N/A *
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 35) (RO verifies that pumps are running.)	Auto	280.8	280.8	* N/A *
					976.0	1521.2	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available. (CHARGING pump 31 started on lightest loaded Bus.)	Manual	140.2	0.0	* N/A *
					1116.2	1521.2	* N/A *
			+12				
- 9 -	< 19 >	---	_____*** INADVERTENT SI ***_____ *** EVENT IDENTIFIED - EXIT TO ES-1.1 ***	Manual	0.0	0.0	* N/A *
					1116.2	1521.2	* N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	ES-1.1-1	---	Reset SI (Step 2 through 12 of RO-1 are completed.)	Manual	0.0 1116.2	0.0 1521.2	* N/A * * N/A *
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCC as per SOP-EL-15. (MCCs are reset.)	Manual	85.8 1202.0	63.3 1584.5	* N/A * * N/A *
- 12 -	ES-1.1-3	---	+82 +81 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1202.0	0.0 1584.5	* N/A * * N/A *
- 13 -	ES-1.1-4	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (Only pump 31 running-stopped.) Stop SI pumps. (Only pumps 31 and 32 running-stopped.)	Manual	-327.2 874.8	-509.2 1075.3	* N/A * * N/A *
- 14 -	ES-1.1-8	---	-117 -121 -122 Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 874.8	0.0 1075.3	* N/A * * N/A *
- 15 -	ES-1.1-10	---	(No Loads Started or Tripped at this step) Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	0.0 874.8	0.0 1075.3	* N/A * * N/A *
- 16 -	ES-1.1-13	---	(No Loads Started or Tripped at this step) Check BAST transfer pumps are running. (MCC 36A-E never stripped.)	Manual	0.0 874.8	0.0 1075.3	* N/A * * N/A *
- 17 -	ES-1.1-17	---	(No Loads Started or Tripped at this step) Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater 33 energized on lightest loaded Bus.) +109	Manual	207.9 1082.7	0.0 1075.3	* N/A * * N/A *
- 18 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fans started on MCC 38.) +70 +71 +72 +73	Manual	80.6 1163.1	0.0 1075.3	* N/A * * N/A *

Step Number	(SPI) Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step-Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakes are open. Start Turb Turning Gear. (Gear Started.) +47	Manual	0.0 1163.1	41.5 1116.8	* N/A * * N/A *
- 30 -	ES-1.1-20	---	Stop 1 of 3 ESWPs (ESWPs 34 and 35 are running.) Shutdown Motor-driven AFWPs if desired. (Bus 6A not available. AFWP 31 remains running.)	Manual	0.0 1163.1	0.0 1116.8	* N/A * * N/A *
- 31 -	ES-1.1-26	---	(No Loads Started or Tripped at this step) Check that at least two NESWPs are running. (NESWPs 31 and 32 started.) +84 +85	Manual	280.8 1443.9	280.8 1397.6	* N/A * * N/A *
- 32 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started, Blowers unavailable, powered from Bus 6A/MCC 37. CCR vent. is on.) +87	Manual	0.0 1443.9	114.3 1511.9	* N/A * * N/A *
- 33 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM (No Loads Started or Tripped at this step)	Manual	0.0 1443.9	0.0 1511.9	* N/A * * N/A *

INADVERTENT SI



Inadvertent SI
Buses 2A/3A Tied Together, Bus 6A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
CHARGING PUMP 31	EDG 33
ESWP 34	EDG 33
ESWP 35	EDG 31
FCU 31	EDG 33
FCU 32	EDG 31
FCU 33	EDG 33
FCU 34	EDG 31
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36A: AUTO	EDG 33
MCC 36C: AUTO	EDG 31
MCC 36E: AUTO	EDG 33
MCC 38: CRDM FAN 31 (FAN#1)	EDG 33
MCC 38: CRDM FAN 32 (FAN#2)	EDG 33
MCC 38: CRDM FAN 33 (FAN#3)	EDG 33
MCC 38: CRDM FAN 34 (FAN#4)	EDG 33
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
NESWP 31	EDG 33
NESWP 32	EDG 31
PAB FAN 31	EDG 31
PRESSURIZER HEATER 33	EDG 33

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INADVERTENT SI

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
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*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 1511.9 Bus 6A = 1638.7 (kW)

1750 kW Overload Summary

Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

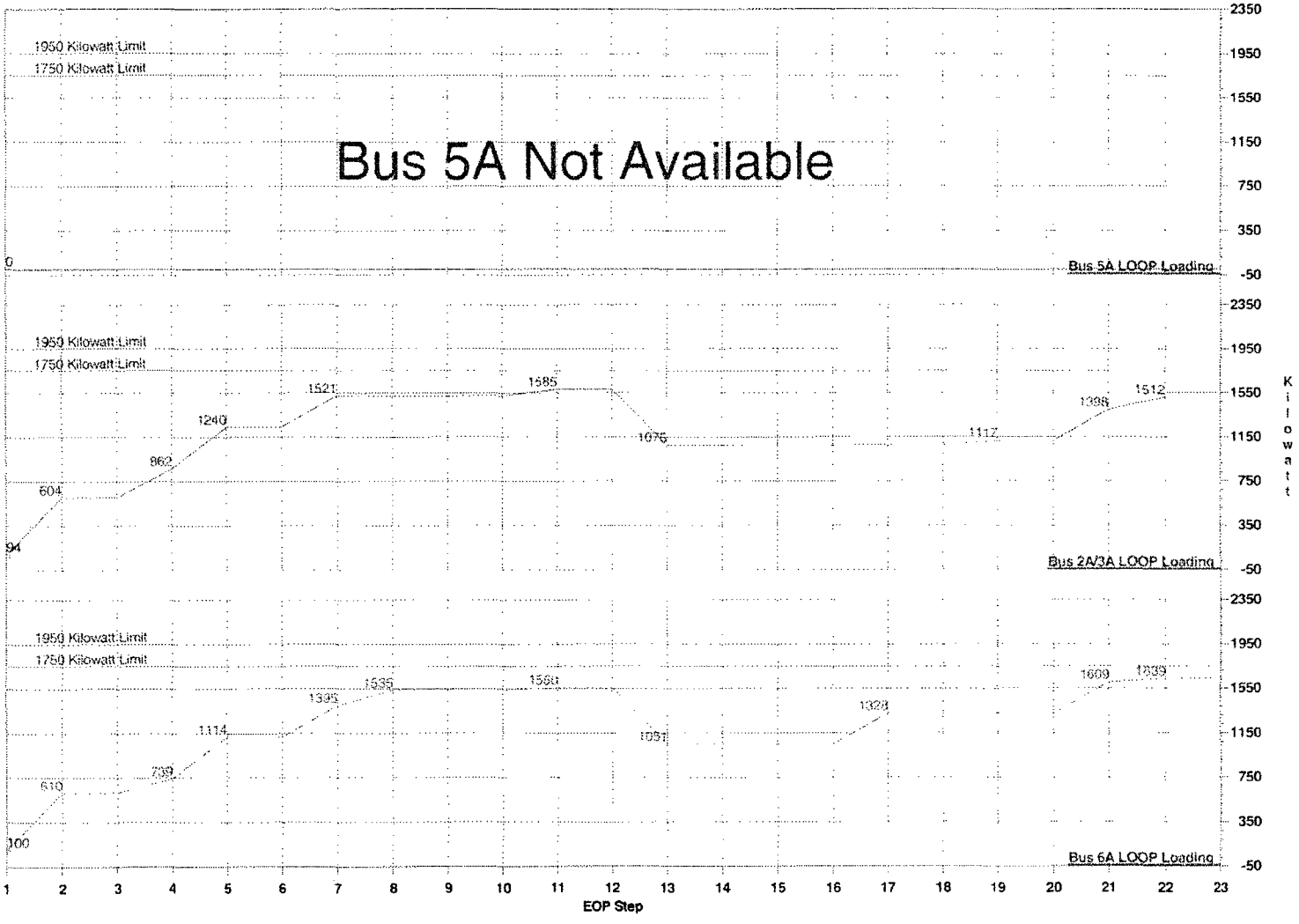
Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36B, 36C and 36D	Auto	* N/A *	94.3	100.4
					* N/A *	94.3	100.4
			+57 +53 +59				
- 2 -	---	RO-1-2	SI pumps 32 and 33	Auto	* N/A *	509.2	509.2
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		* N/A *	603.5	609.6
			+117 +120 +122 +123				
- 3 -	E-0-9	---	CSP 32 (Spray not required.	Manual	* N/A *	0.0	0.0
			CSPs started during phase B only.)				
			(E-0-9 verifies that pump is not running.)		* N/A *	603.5	609.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 32, 34 and 35	Auto	* N/A *	258.0	129.0
			(RO verifies that fans are running.)		* N/A *	861.5	738.6
			+31 +36 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	* N/A *	378.9	375.7
			(RO verifies that pumps are running.)		* N/A *	1240.4	1114.3
			+1 +2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus	Manual	* N/A *	0.0	0.0
			to start at least one CCWP.				
			(All Buses are powered from EDGs.)		* N/A *	1240.4	1114.3
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	SSWPs (35 and 36)	Auto	* N/A *	280.8	280.8
			(RO verifies that pumps are running.)		* N/A *	1521.2	1395.1
			+27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	* N/A *	0.0	140.2
			is > than 325 psig and CCW is available.				
			(CHARGING pump 33 started on lightest		* N/A *	1521.2	1535.3
			loaded Bus.)				
			+15				
- 9 -	< 13 >	---	_____*** 1NADVERTENT SI ***_____	Manual	* N/A *	0.0	0.0
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		* N/A *	1521.2	1535.3
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	ES-1.1-1	---	Reset SI (Step 2 through 12 of RO-1 are completed.)	Manual	* N/A *	0.0	0.0
					* N/A *	1521.2	1535.3
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCC as per SOP-EL-15. (MCCs are reset.)	Manual	* N/A *	63.3	24.8
					* N/A *	1584.5	1560.1
			-81 -83				
- 12 -	ES-1.1-3	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	* N/A *	0.0	0.0
					* N/A *	1584.5	1560.1
			(No Loads Started or Tripped at this step)				
- 13 -	ES-1.1-4	---	Stop RHR pumps. (All RHR pumps stopped.) Stop SI pumps. (Only pumps 32 and 33 running - stopped.)	Manual	* N/A *	-509.2	-509.2
					* N/A *	1075.3	1050.9
			-117 -120 -122 -123				
- 14 -	ES-1.1-6	---	Start one CHARGING pump. (CHARGING pump 33 is running.)	Manual	* N/A *	0.0	0.0
					* N/A *	1075.3	1050.9
			(No Loads Started or Tripped at this step)				
- 15 -	ES-1.1-10	---	Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	* N/A *	0.0	0.0
					* N/A *	1075.3	1050.9
			(No Loads Started or Tripped at this step)				
- 16 -	ES-1.1-11	---	Check BAST transfer pumps are running. (MCC 36A-E never stripped.)	Manual	* N/A *	0.0	0.0
					* N/A *	1075.3	1050.9
			(No Loads Started or Tripped at this step)				
- 17 -	ES-1.1-17	---	Energize at least one pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Control Group energized on lightest loaded Bus. -114	Manual	* N/A *	0.0	277.0
					* N/A *	1075.3	1327.9
- 18 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fans unavailable, powered from Bus 5A/MCC 38.)	Manual	* N/A *	0.0	0.0
					* N/A *	1075.3	1327.9
			(No Loads Started or Tripped at this step)				

Step Number	SPO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/1A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480v Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	* N/A *	41.5	0.0
					* N/A *	1116.8	1327.9
- 20 -	ES-1.1-20	---	Stop 1 of 3 ESWPs. (ESWPs 35 and 36 are running.) Shutdown Motor-driven AFWPs if desired. (AFWPs remain running.)	Manual	* N/A *	0.0	0.0
					* N/A *	1116.8	1327.9
			(No Loads Started or Tripped at this step)				
- 21 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWPs 32 and 33 started.)	Manual	* N/A *	280.8	280.8
					* N/A *	1397.6	1608.7
			+85 +86				
- 22 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (PAB Fan 31 started on lightest loaded Bus. Blowers started. CCR ventilation is running.) +87 +66 +67	Manual	* N/A *	114.3	30.0
					* N/A *	1511.9	1638.7
- 23 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM	Manual	* N/A *	0.0	0.0
					* N/A *	1511.9	1638.7
			(No Loads Started or Tripped at this step)				

INADVERTENT SI



Inadvertent SI
Buses 2A/3A Tied Together, Bus 5A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
AFWP 33	EDG 32
CHARGING PUMP 33	EDG 32
ESWP 35	EDG 31
ESWP 36	EDG 32
FCU 32	EDG 31
FCU 34	EDG 31
FCU 35	EDG 32
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36B: AUTO	EDG 32
MCC 36C: AUTO	EDG 31
MCC 36D: AUTO	EDG 32
MCC 37: BAST HEATER (TANK #1)	EDG 32
MCC 37: BAST HEATER (TANK #2)	EDG 32
MCC 37: PENT. BLOWER (#1)	EDG 32
MCC 37: PENT. BLOWER (#2)	EDG 32
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 32	EDG 31
NESWP 33	EDG 32
PAB FAN 31	EDG 31
PRESSURIZER HEATER CONTROL GROUP	EDG 32

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INADVERTENT SI

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
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*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1443.9 Bus 2A/3A = * N/A * Bus 6A = 1335.8 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

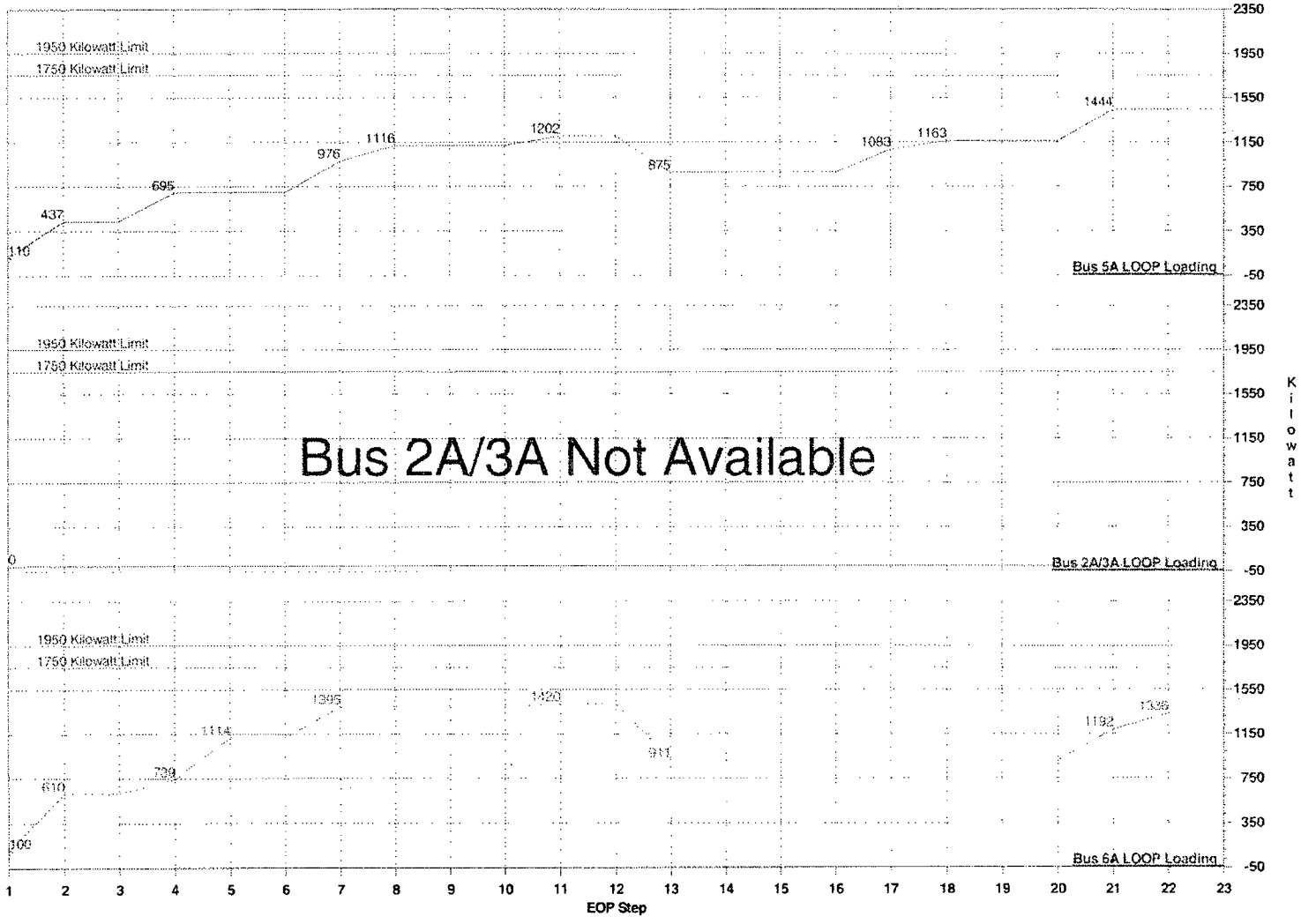
Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36B, 36D and 36E	Auto	110.0	* N/A *	100.4
					110.0	* N/A *	100.4
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 33	Auto	327.2	* N/A *	509.2
			RHR pump 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		437.2	* N/A *	609.6
			+120 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32 (Spray not required.	Manual	0.0	* N/A *	0.0
			CSPs started during phase B only.)				
			(E-0-9 verifies that pumps are not running.)		437.2	* N/A *	609.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	258.0	* N/A *	129.0
			(RO verifies that fans are running.)		695.2	* N/A *	738.6
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWP 33	Auto	0.0	* N/A *	375.7
			(RO verifies that pump is running.)		695.2	* N/A *	1114.3
			+2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Manual	0.0	* N/A *	0.0
			(All Buses are powered from EDGs.)		695.2	* N/A *	1114.3
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	280.8	* N/A *	280.8
			(RO verifies that pumps are running.)		976.0	* N/A *	1395.1
			+26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 225 psig and CCW is available.	Manual	140.2	* N/A *	0.0
			(CHARGING pump 31 started on lightest loaded Bus.)		1116.2	* N/A *	1395.1
			+13				
- 9 -	< 10 >	---	_____*** INADVERTENT SI ***_____	Manual	0.0	* N/A *	0.0
			*** EVENT IDENTIFIED - EXIT TO ES-1.1 ***		1116.2	* N/A *	1395.1
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	ES-1.1-1	---	Reset SI (Step 2 through 12 of RO-1 are completed.)	Manual	0.0 1116.2	* N/A * * N/A *	0.0 1395.1
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (MCC are reset.) +82 +83	Manual	85.8 1202.0	* N/A * * N/A *	24.8 1419.9
- 12 -	ES-1.1-3	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1202.0	* N/A * * N/A *	0.0 1419.9
- 13 -	ES-1.1-4	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (Only pump 32 running - stopped.) Stop SI pumps. (Only pumps 31 and 32 running - stopped.) -130 -121 -123	Manual	-327.2 874.8	* N/A * * N/A *	-509.2 910.7
- 14 -	ES-1.1-8	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 874.8	* N/A * * N/A *	0.0 910.7
- 15 -	ES-1.1-10	---	(No Loads Started or Tripped at this step) Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	0.0 874.8	* N/A * * N/A *	0.0 910.7
- 16 -	ES-1.1-13	---	(No Loads Started or Tripped at this step) Check BAST transfer pumps are running. (MCC 36A-E never striped.)	Manual	0.0 874.8	* N/A * * N/A *	0.0 910.7
- 17 -	ES-1.1-17	---	(No Loads Started or Tripped at this step) Energize at least one pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Group 33 energized on lightest loaded Bus.) +109	Manual	207.9 1082.7	* N/A * * N/A *	0.0 910.7
- 18 -	ES-1.1-19	---	Reset MCCs. Start CRDM Fans. (MCC are already reset. CRDM Fans started on MCC 38.) +70 +71 +72 +73	Manual	80.4 1162.1	* N/A * * N/A *	0.0 910.7

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Bus 2A/3A unavailable.) (No Loads Started or Tripped at this step)	Manual	0.0 1163.1	* N/A * * N/A *	0.0 910.7
- 20 -	ES-1.1-20	---	Stop 1 of 3 ESWPs. (ESWPs 34 and 36 running.) Shutdown Motor-driven AFWPs if desired. (Bus2A/3A not available. AFWP 33 remains running) (No Loads Started or Tripped at this step)	Manual	0.0 1163.1	* N/A * * N/A *	0.0 910.7
- 21 -	ES-1.1-26	---	Check that at least two NESWPs are running. (NESWPs 31 and 33 started.) +84 +86	Manual	280.8 1443.9	* N/A * * N/A *	280.8 1191.5
- 22 -	ES-1.1-27	---	Start a PAB Fan, Penetration Blowers and CCR ventilation. (Bus 2A/3A unavailable. PAB Fan 32 started. Blowers started. CCR ventilation is running.) +88 +66 +67	Manual	0.0 1443.9	* N/A * * N/A *	144.3 1335.8
- 23 -	ES-1.1-32	---	Go to appropriate plant operating procedure as directed by the CRS or SM. (No Loads Started or Tripped at this step)	Manual	0.0 1443.9	* N/A * * N/A *	0.0 1335.8

INADVERTENT SI



Inadvertent SI
Buses 2A and / or 3A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 33	EDG 32
CHARGING PUMP 31	EDG 33
ESWP 34	EDG 33
ESWP 36	EDG 32
FCU 31	EDG 33
FCU 33	EDG 33
FCU 35	EDG 32
MCC 36A: AUTO	EDG 33
MCC 36B: AUTO	EDG 32
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 33
MCC 37: PENT. BLOWER (#1)	EDG 32
MCC 37: PENT. BLOWER (#2)	EDG 32
MCC 38: CRDM FAN 31 (FAN#1)	EDG 33
MCC 38: CRDM FAN 32 (FAN#2)	EDG 33
MCC 38: CRDM FAN 33 (FAN#3)	EDG 33
MCC 38: CRDM FAN 34 (FAN#4)	EDG 33
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 31	EDG 33
NESWP 33	EDG 32
PAB FAN 32	EDG 32
PRESSURIZER HEATER 33	EDG 33

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STEAM GENERATOR TUBE RUPTURE
ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

LOAD LIST TRACKING NUMBER : 1015

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*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2044.4 Bus 2A = 2263.8 Bus 3A = 1997.3 Bus 6A = 1937.2 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

STEAM GENERATOR TUBE RUPTURE - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25,2009 Time : 3:54 PM [47]

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	0.0	150.1
					169.5	135.5	0.0	150.1
			+57 +50 +53 +59 +60					
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	472.4	264.5	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)					
			(RO verifies that pumps are running.)		641.9	607.9	264.5	888.6
			+117 +120 +121 +122 +123					
- 3 -	E-0-9	---	CSPs 31 and 32	Manual	0.0	0.0	0.0	0.0
			(CSPs started during Phase B only.)					
			(E-0-9 verifies that spray is not required.)		641.9	607.9	264.5	888.6
			(No Loads Started or Tripped at this step)					
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	491.9	247.2	246.0	248.0
			(RO verifies that fans are running.)		1133.8	855.1	510.5	1136.6
			+29 +31 +33 +35 +37					
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	0.0	575.4	562.9
			(RO verifies that pumps are running.)		1133.8	855.1	1085.9	1699.5
			+1 +2					
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.5	251.3	0.0	251.2
			(RO verifies that pumps are running.)		1384.3	1106.4	1085.9	1950.7
			+4 +7 +10					
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	429.8	0.0	429.0	429.8
			(RO verifies that pumps are running.)		1814.1	1106.4	1514.9	2380.5
			+26 +27 [illegible]8					
- 8 -	E-0-11	---	Start < [illegible]PARG [illegible]mp if RCS pressure	Manual	0.0	0.0	208.9	0.0
			is > thr[illegible] [illegible] p[illegible] d CCW is available.					
			(CHARGIN[illegible] mp 3. [illegible]ed on light[illegible]		1814.1	1106.4	1723.8	2380.5
			loaded Bu					
			+14					
- 9 -	< 15 >	---		Manual	0.0	0.0	0.0	0.0
			*** STEAM G[illegible] [illegible]P TU [illegible]TURE ***					
			*** EVENT I[illegible] [illegible]ND - [illegible] TO E-3 ***		1814.1	1106.4	1723.8	2380.5
			(No Loads Started or Tripped at this step)					

STEAM GENERATOR TUBE RUPTURE - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25,2009 Time : 3:54 PM [47]

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-3-9	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1814.1	0.0 1106.4	0.0 1733.8	0.0 2380.5
			(No Loads Started or Tripped at this step)					
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	659.8 2473.9	848.0 1954.4	507.6 2231.4	252.2 2632.7
			+126 +124 +125 +127					
- 12 -	E-3-11	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 2473.9	0.0 1954.4	0.0 2231.4	0.0 2632.7
			(No Loads Started or Tripped at this step)					
- 13 -	E-3-12	---	Stop RHR pumps. (RHR pumps stopped.)	Manual	0.0 2473.9	0.0 1954.4	-264.5 1966.9	-264.8 2367.9
			-117 -120					
- 14 -	E-3-14	---	Start one CHARGING pump. (CHARGING pump 32 is running.)	Manual	0.0 2473.9	0.0 1954.4	0.0 1966.9	0.0 2367.9
			(No Loads Started or Tripped at this step)					
- 15 -	E-3-24	---	Stop SI pumps. (All SI pumps stopped.)	Manual	-472.4 2001.5	-472.4 1482.0	0.0 1966.9	-473.7 1894.2
			-121 -122 -123					
- 16 -	E-3-25	---	Start one CHARGING pump. (CHARGING pump 32 is running.)	Manual	0.0 2001.5	0.0 1482.0	0.0 1966.9	0.0 1894.2
			(No Loads Started or Tripped at this step)					
- 17 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 32 started on lightest loaded Bus.)	Manual	0.0 2001.5	429.0 1911.0	0.0 1966.9	0.0 1894.2
			+65					
- 18 -	E-3-26	---	Start SI pumps if subcooling is < 40-deg F.	Manual	0.0 2001.5	0.0 1911.0	0.0 1966.9	0.0 1894.2
			(No Loads Started or Tripped at this step)					

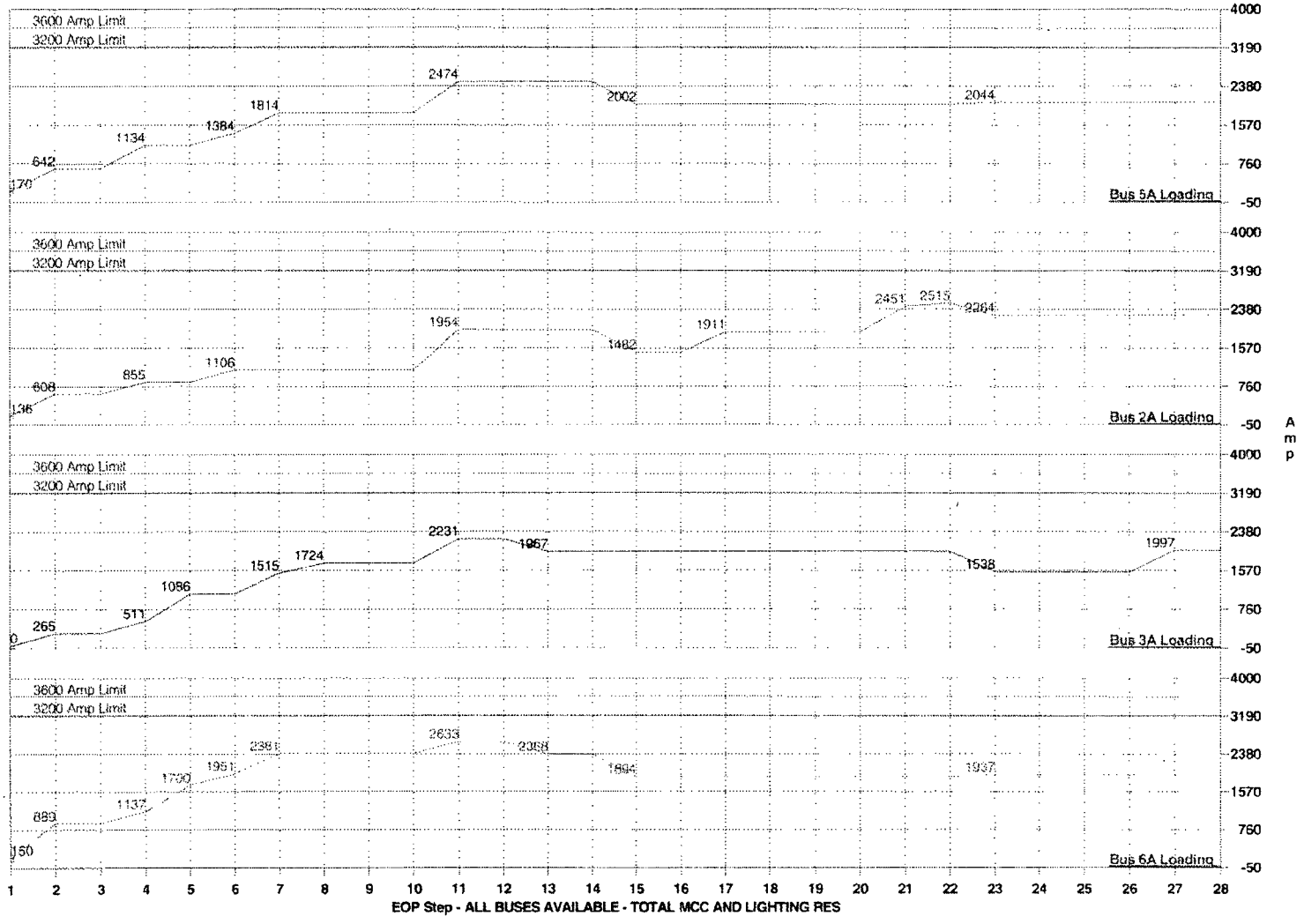
Step Number	SRO Step	RO Step	Loading Step Description	[illegible]	Step Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	E-3-28	---	Start BAST pumps and Pimary Water pump (Loads accounted for in MCC resets.)	al		0.0 / 1911.0	0.0 / 1966.9	0.0 / 1894.2
- 20 -	E-3-32	---	(No Loads Started or Tripped at this step) Stop CSPs. (Spray not actuated. No pumps are running.)		[illegible]	0.0 / 1911.0	0.0 / 1966.9	0.0 / 1894.2
- 21 -	E-3-36	---	(No Loads Started or Tripped at this step) Energize at least one Pressurizer Heater Group. (Energized Pressurizer Heater Group 32 on lightest loaded Bus.)		2001.5	540.3 / 2451.3	0.0 / 1966.9	0.0 / 1894.2
- 22 -	---	RO-1-27c	+98 START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear stared.)	Manual	0.0 / 2001.5	63.8 / 2515.1	0.0 / 1966.9	0.0 / 1894.2
- 23 -	E-3-40	---	+47 Stop 1 of 3 CCWPs. Stop 1 of 3 ESWPs and Shutdown Motor-driven AFWPs if desired. (CCWP 32 and ESWP 35 stoppped on heaviest loaded Buses. AFWPs remain running.)	Manual	42.9 / 2044.4	-251.3 / 2263.8	-429.0 / 1537.9	43.0 / 1937.2
- 24 -	< 42 >	---	+5 +11 -4 -7 -10 -27 *** GO TO POST-SGTR COOLDOWN *** *** EXIT TO ES-3.1 ***	Manual	0.0 / 2044.4	0.0 / 2263.8	0.0 / 1537.9	0.0 / 1937.2
- 25 -	ES-3.1-1	---	(No Loads Started or Tripped at this step) Operate Pressurizer Heaters as necessary. (Pressurizer Heater Group 32 is energized on lightest loaded Bus.)	Manual	0.0 / 2044.4	0.0 / 2263.8	0.0 / 1537.9	0.0 / 1937.2
- 26 -	ES-3.1-3	---	(No Loads Started or Tripped at this step) Start: BAST Htrs, Hot Pen Blowers, PWMU, SFP pump [Loads started with MCC resets] , Electrical Tunnel Fans [Started at SI Auto of MCC 36A and B] and one PAB fan [Fan 31 is running] .	Manual	0.0 / 2044.4	0.0 / 2263.8	0.0 / 1537.9	0.0 / 1937.2
- 27 -	ES-3.1-13	---	(No Loads Started or Tripped at this step) Start one RHR pump as per SOP-RHR-1. (RHR pump 31 started on lightest loaded Bus.) +115	Manual	0.0 / 2044.4	0.0 / 2263.8	459.4 / 1997.3	0.0 / 1937.2

STEAM GENERATOR TUBE RUPTURE - ALL BUSES AVAILABLE - TOTAL MCC AND LIGHTING RESET

Report Date : August 25,2009 Time : 3:54 PM [47]

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A Step/Total Load (A)	Bus 3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-1.1-16	---	Evaluate long term plant status.	Manual	0.0	0.0	0.0	0.0
					2044.4	2263.8	1997.3	1937.2
			(No Loads Started or Tripped at this step)					

STEAM GENERATOR TUBE RUPTURE



Steam Generator Tube Rupture
Total MCC and Lighting Reset
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 31	5A
CCWP 33	6A
CHARGING PUMP 32	3A
ESWP 34	5A
ESWP 36	6A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
FCU 35	6A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 32	2A
PAB FAN 31	3A
PRESSURIZER HEATER 32	2A
RHR PUMP 31	3A
TOTAL MCC & LIGHTING RESET (2A)	2A
TOTAL MCC & LIGHTING RESET (3A)	3A
TOTAL MCC & LIGHTING RESET (5A)	5A
TOTAL MCC & LIGHTING RESET (6A)	6A

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

STEAM GENERATOR TUBE RUPTURE

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:53 PM

*** BUSES 3A AND 3A TIED TOGETHER ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2191.1 Bus 2A/3A = 2605.9 Bus 6A = 2367.0 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

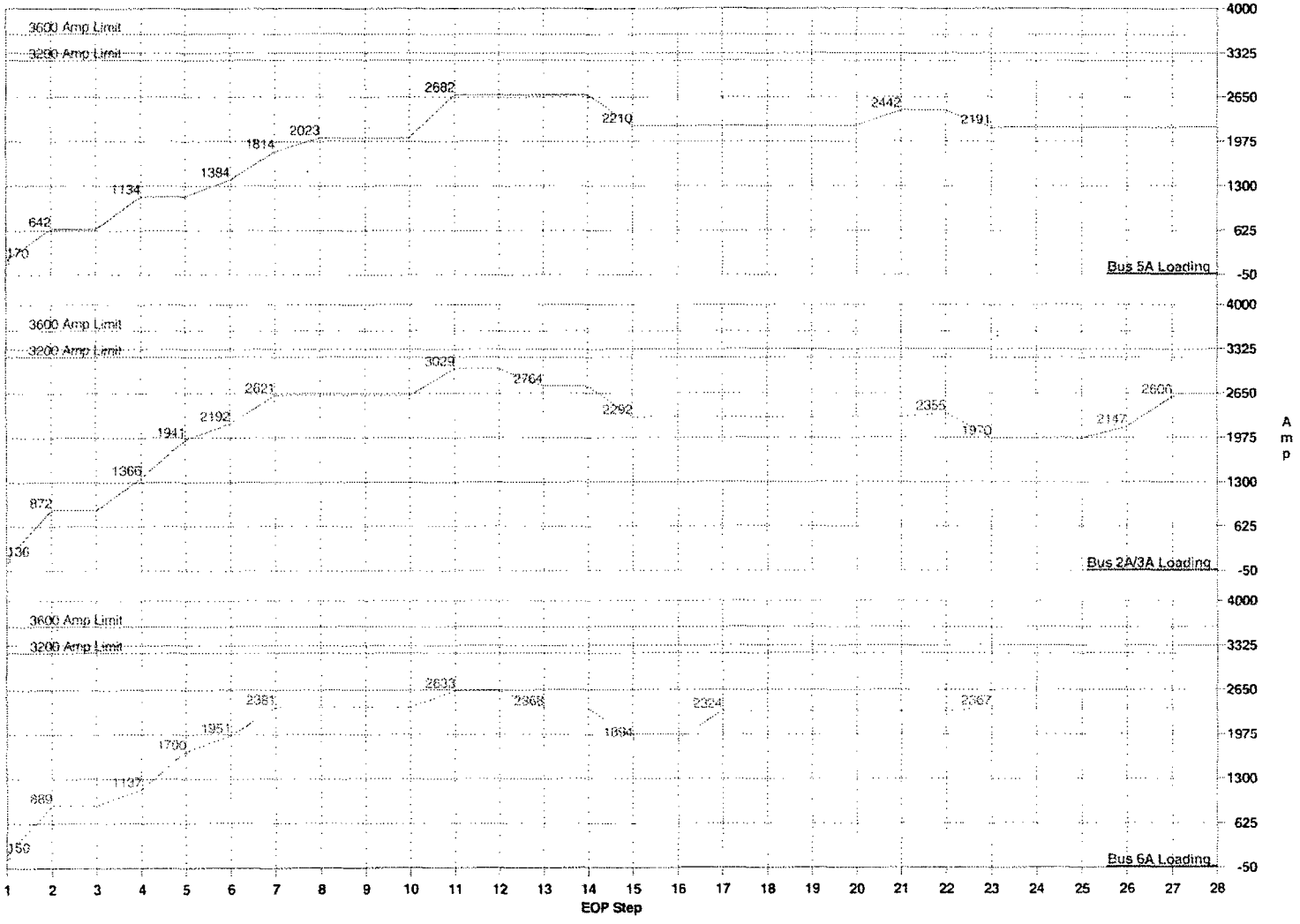
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	169.5	135.5	150.1
					169.5	135.5	150.1
			+57 +50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	472.4	736.9	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	872.4	888.6
			+117 +120 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Manual	0.0	0.0	0.0
			(CSPs started during Phase B only.)				
			(E-0-9 verifies that spray is not required.)		641.9	872.4	888.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	491.9	493.2	248.0
			(RO verifies that fans are running.)				
					1133.8	1365.6	1136.6
			+29 +31 +23 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	575.4	562.9
			(RO verifies that pumps are running.)				
					1133.8	1941.0	1699.5
			+1 +2				
- 6 -	---	RO-1-7	CCWPs 31, 32 and 33	Auto	250.5	251.3	251.2
			(RO verifies that pumps are running.)				
					1384.3	2192.3	1950.7
			+4 +7 +10				
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	429.8	429.0	429.8
			(RO verifies that pumps are running.)				
					1814.1	2621.3	3380.5
			+26 +27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	0.0	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		2022.6	2621.3	3380.5
			loaded Bus.)				
			+13				
- 9 -	< 16 >	---	*** STEAM GENERATOR TUBE RUPTURE ***	Manual	0.0	0.0	0.0
			*** EVENT IDENTIFIED - EXIT TO E-3 ***		2022.6	2621.3	3380.5
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-3-9	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2022.6	0.0 2621.3	0.0 2380.5
- 11 -	---	RO-1-19	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	659.8 2682.4	407.2 3028.5	252.2 2632.7
- 12 -	E-3-11	---	+126 +127 +3 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 2682.4	0.0 3028.5	0.0 2632.7
- 13 -	E-3-12	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (RHR pumps stopped.)	Manual	0.0 2682.4	-264.5 2764.0	-264.8 2367.9
- 14 -	E-3-14	---	-117 -120 Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2682.4	0.0 2764.0	0.0 2367.9
- 15 -	E-3-24	---	(No Loads Started or Tripped at this step) Stop SI pumps. (All SI pumps stopped.)	Manual	-472.4 2210.0	-472.4 2291.6	-473.7 1894.2
- 16 -	E-3-25	---	-121 -122 -123 Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2210.0	0.0 2291.6	0.0 1894.2
- 17 -	---	RO-1-20	(No Loads Started or Tripped at this step) CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 33 started on lightest loaded Bus.)	Manual	0.0 2210.0	0.0 2291.6	429.8 2324.0
- 18 -	E-3-26	---	+86 Start SI pumps if subcooling is < 40-deg F. (No Loads Started or Tripped at this step)	Manual	0.0 2210.0	0.0 2291.6	0.0 2324.0

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	E-3-28	---	Start BAST pumps and Primary Water pumps. (Loads accounted for in MCC resets.)	Manual	0.0 2210.0	0.0 2291.6	0.0 2324.0
			(No Loads Started or Tripped at this step)				
- 20 -	E-3-32	---	Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	0.0 2210.0	0.0 2291.6	0.0 2324.0
			(No Loads Started or Tripped at this step)				
- 21 -	E-3-36	---	Energize at least one Pressurizer Heater Group. as per SOP-EL-15. (Energized Pressurizer Heater Group 33 on lightest loaded Bus.) +109	Manual	231.6 2441.6	0.0 2291.6	0.0 2324.0
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 2441.6	63.8 2355.4	0.0 2324.0
- 23 -	E-3-40	---	Stop 1 of 3 CCWPs. Stop 1 of 3 ESWPs and Shutdown Motor-driven AFWPs if desired. (CCWP 31 and ESWP 34 stopped on Heaviest loaded Buses. AFWPs remain running.) +8 +11 -4 -7 -10 -27	Manual	-250.5 2191.1	-385.9 1969.5	43.0 2367.0
- 24 -	< 42 >	---	*** GO TO POST-SGTR COOLDOWN *** *** EXIT TO ES-3.1 ***	Manual	0.0 2191.1	0.0 1969.5	0.0 2367.0
			(No Loads Started or Tripped at this step)				
- 25 -	ES-3.1-1	---	Operate Pressurizer Heaters as necessary. (Pressurizer Heater Group 33 is energized.)	Manual	0.0 2191.1	0.0 1969.5	0.0 2367.0
			(No Loads Started or Tripped at this step)				
- 26 -	ES-3.1-3	---	Start: BAST Htrs. But Pen Blowers, PWMU and SFPP (Loads started at MCC reset), Electrical Tunnel Fans (Started at SI Auto of MCC 36A and B) and one PAB fan (Fan 31 started on lightest loaded Bus) . +87	Manual	0.0 2191.1	177.0 2146.5	0.0 2367.0
- 27 -	ES-3.1-13	---	Start one RHR pump as per SOP-RHR-1. (RHR pump 31 started on lightest loaded Bus.) +115	Manual	0.0 2191.1	459.4 2605.9	0.0 2367.0

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-3.1-16	---	Evaluate long term plant status.	Manual	0.0	0.0	0.0
					2191.1	2605.9	2367.0
			(No Loads Started or Tripped at this step)				

STEAM GENERATOR TUBE RUPTURE



Steam Generator Tube Rupture
Buses 2A/3A Tied Together, All Buses Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 32	2A
CCWP 33	6A
CHARGING PUMP 31	5A
ESWP 34	5A
ESWP 36	6A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 33	6A
PAB FAN 31	3A
PRESSURIZER HEATER 33	5A
RHR PUMP 31	3A
TOTAL MCC & LIGHTING RESET (5A)	
TOTAL MCC & LIGHTING RESET (6A)	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

STEAM GENERATOR TUBE RUPTURE

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:54 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2914.3 Bus 2A/3A = 3034.9 Bus 6A = * N/A * (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A/3A exceeds the 3200 Amp rating at EOP steps : 27
Bus 6A Not Available

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 2A/3A is below the 3600 Amp rating
Bus 6A Not Available

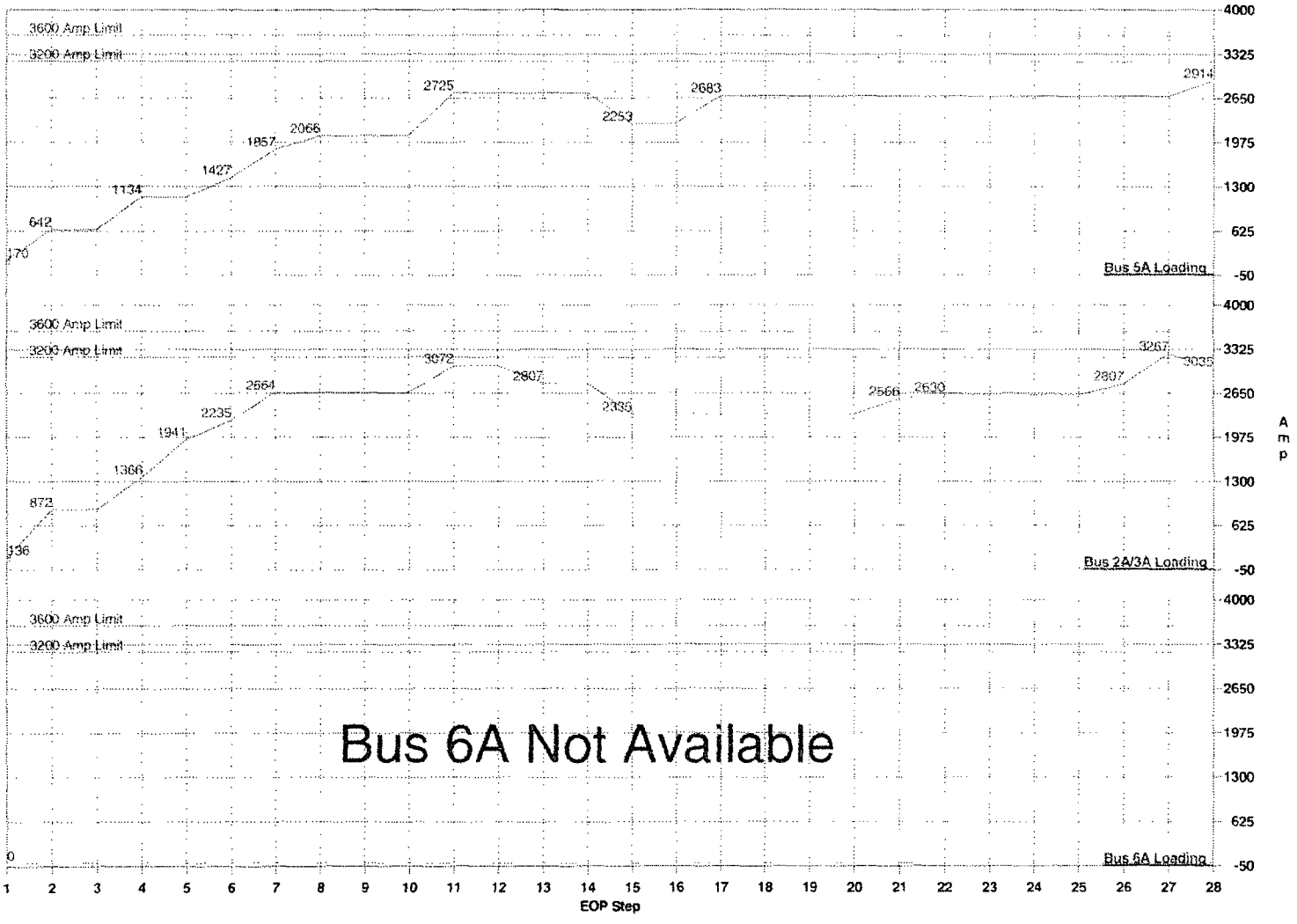
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 5A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36C and 36E	Auto	169.5	135.5	* N/A *
					169.5	135.5	* N/A *
			+57 +50 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 32	Auto	472.4	736.9	* N/A *
			RHR pump 31 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	872.4	* N/A *
			+117 +121 +122				
- 3 -	E-0-9	---	CSP 31	Manual	0.0	0.0	* N/A *
			(CSPs started during Phase B only.)				
			(E-0-9 verifies that spray is not required.)		641.9	872.4	* N/A *
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34	Auto	491.9	493.2	* N/A *
			(RO verifies that fans are running.)				
					1133.8	1365.6	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWP 31	Auto	0.0	575.4	* N/A *
			(RO verifies that pump is running.)				
					1133.8	1941.0	* N/A *
			-1				
- 6 -	---	RO-1-7	CCWPs 31 and 32	Auto	293.4	294.4	* N/A *
			(RO verifies that pumps are running.)				
					1427.2	2235.4	* N/A *
			+4 +7				
- 7 -	---	RO-1-8	ESWPs (34 and 35)	Auto	429.8	429.0	* N/A *
			(RO verifies that pumps are running.)				
					1857.0	2664.4	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	0.0	* N/A *
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		2065.5	2664.4	* N/A *
			loaded Bus.)				
			+13				
- 9 -	< 16 >	---		Manual	0.0	0.0	* N/A *
			*** STEAM GENERATOR TUBE RUPTURE ***				
			*** EVENT IDENTIFIED - EXIT TO E-3 ***		2065.5	2664.4	* N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-3-9	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 2065.5	0.0 2664.4	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	659.8 2725.3	407.2 3071.6	* N/A * * N/A *
			+126 +3				
- 12 -	E-3-13	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 2725.3	0.0 3071.6	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 13 -	E-3-12	---	Stop RHR pumps. (Only pump 31 running - stopped.)	Manual	0.0 2725.3	-264.5 2807.1	* N/A * * N/A *
			-117				
- 14 -	E-3-14	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2725.3	0.0 2807.1	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 15 -	E-3-24	---	Stop SI pumps. (Only pumps 31 and 32 running - stopped.)	Manual	-472.4 2252.9	-472.4 2334.7	* N/A * * N/A *
			-121 -122				
- 16 -	E-3-25	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2252.9	0.0 2334.7	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 17 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 31 started on lightest loaded Bus.)	Manual	429.8 2682.7	0.0 2334.7	* N/A * * N/A *
			+84				
- 18 -	E-3-26	---	Start SI pumps if subcooling is < 40-deg F.	Manual	0.0 2682.7	0.0 2334.7	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	E-3-28	---	Start BAST pumps and Primary Water pumps. (BAST pumps accounted for in MCC resets. MCC37/Bus 6A unavailable, Primary Water pumps not started.) (No Loads Started or Tripped at this step)	Manual	0.0 2682.7	0.0 2334.7	* N/A * * N/A *
- 20 -	E-3-32	---	Stop CSPs. (Spray not actuated. No pumps are running.) (No Loads Started or Tripped at this step)	Manual	0.0 2682.7	0.0 2334.7	* N/A * * N/A *
- 21 -	E-3-36	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Energized Pressurizer Heater Group 32 on lightest loaded Bus.) +101	Manual	0.0 2682.7	231.6 2566.3	* N/A * * N/A *
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 2682.7	62.8 2630.1	* N/A * * N/A *
- 23 -	E-3-40	---	Stop 1 of 3 CCWPs. (CCWPs 31 and 32 running.) Stop 1 of 3 ESWPs. (ESWPs 34 and 35 running.) Shutdown Motor-driven AFWPs if desired. (Bus 6A not available. AFWP 31 remains running) (No Loads Started or Tripped at this step)	Manual	0.0 2682.7	0.0 2630.1	* N/A * * N/A *
- 24 -	< 42 >	---	*** GO TO POST-SGTR COOLDOWN *** *** EXIT TO ES-3.1 *** (No Loads Started or Tripped at this step)	Manual	0.0 2682.7	0.0 2630.1	* N/A * * N/A *
- 25 -	ES-3.1-1	---	Operate Pressurizer Heaters as necessary. (Pressurizer Heater Group 33 is energized.) (No Loads Started or Tripped at this step)	Manual	0.0 2682.7	0.0 2630.1	* N/A * * N/A *
- 26 -	ES-3.1-3	---	Start: Bast Htrs, Hot Pen Blowers, PWMU, SFP pump [Bus 6A not available.], Electrical Tunnel Fans [Started at SI Auto of MCC 36A.] and one PAB fan (PAB fan 31 started.) . +87	Manual	0.0 2682.7	177.0 2807.1	* N/A * * N/A *
- 27 -	ES-3.1-13	---	Start one RHR pump as per SOP-RHR-1. (RHR pump 31 started.) +116	Manual	0.0 2682.7	459.4 3366.5 Over 3300	* N/A * * N/A *

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 38 -	ES-3.1-16	---	Evaluate long term plant status. (If Degraded Grid voltage is still resulting in 444V at Buses. Transfer from PRZER 32 to 33 or shutdown AFWP 31 as per FOLDOUT PAGE.) +109 -101	Manual	231.6 / 2914.3	-231.6 / 3034.9	* N/A * / * N/A *

STEAM GENERATOR TUBE RUPTURE



Bus 6A Not Available

Steam Generator Tube Rupture
Buses 2A/3A Tied Together, Bus 6A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 32	2A
CCWP 33	6A
CHARGING PUMP 31	5A
ESWP 34	5A
ESWP 36	6A
FCU 31	5A
FCU 32	2A
FCU 33	5A
FCU 34	3A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36A: AUTO	5A
MCC 36C: AUTO	2A
MCC 36E: AUTO	5A
NESWP 33	6A
PAB FAN 31	3A
PRESSURIZER HEATER 33	5A
RHR PUMP 31	3A
TOTAL MCC & LIGHTING RESET (5A)	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.3

IP3-CALC-ED-00207 REV 8

STEAM GENERATOR TUBE RUPTURE

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2000
Report Print Time : 3:54 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 3049.8 Bus 6A = 2753.6 (A)

3200 Amp Overload Summary

Bus 5A Not Available
Bus 2A/3A is below the 3200 Amp rating
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A Not Available
Bus 2A/3A is below the 3600 Amp rating
Bus 6A is below the 3600 Amp rating

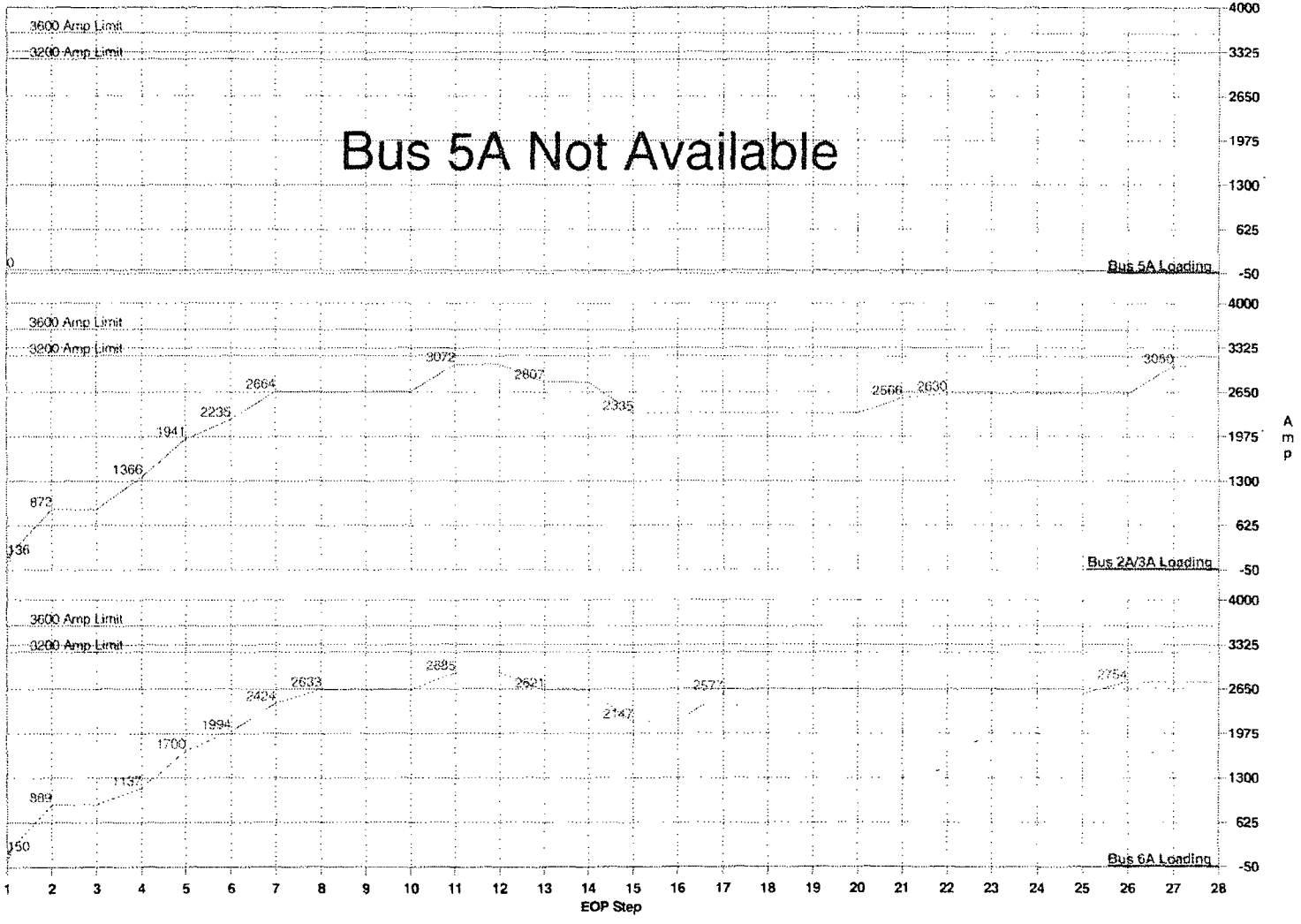
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36B, 36C and 36D	Auto	* N/A *	135.5	150.1
					* N/A *	135.5	150.1
			+57 +58 +59				
- 2 -	---	RO-1-2	SI pumps 32 and 33	Auto	* N/A *	736.9	738.5
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		* N/A *	872.4	888.6
			+117 +120 +122 +123				
- 3 -	E-0-9	---	CSP 32	Manual	* N/A *	0.0	0.0
			(CSPs started during Phase B only.)				
			(E-0-9 verifies that spray is not required.)		* N/A *	872.4	888.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 32, 34 and 39	Auto	* N/A *	493.2	248.0
			(RO verifies that fans are running.)		* N/A *	1365.6	1136.6
			+31 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	* N/A *	575.4	562.9
			(RO verifies that pumps are running.)		* N/A *	1941.0	1699.5
			+1 +2				
- 6 -	---	RO-1-7	CCWPs 32 and 33	Auto	* N/A *	294.4	294.2
			(RO verifies that pumps are running.)		* N/A *	2235.4	1993.7
			+7 +10				
- 7 -	---	RO-1-8	ESWPs (35 and 36)	Auto	* N/A *	429.0	429.8
			(RO verifies that pumps are running.)		* N/A *	2664.4	2423.5
			+27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	* N/A *	0.0	209.6
			is > than 325 psig and CCW is available.				
			(CHARGING pump 33 started on lightest		* N/A *	2664.4	2633.1
			loaded Bus.)				
			+15				
- 9 -	< 15 >	---		Manual	* N/A *	0.0	0.0
			*** STEAM GENERATOR TUBE RUPTURE ***				
			*** EVENT IDENTIFIED - EXIT TO E-3 ***		* N/A *	2664.4	2633.1
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-3-9	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	* N/A *	0.0	0.0
					* N/A *	2664.4	2633.1
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15 (Total MCC and Lighting reset.)	Manual	* N/A *	407.2	252.2
					* N/A *	3071.6	2885.3
			+127 +3				
- 12 -	E-3-11	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	* N/A *	0.0	0.0
					* N/A *	3071.6	2885.3
			(No Loads Started or Tripped at this step)				
- 13 -	E-3-12	---	Stop RHR pumps (RHR pumps stopped.)	Manual	* N/A *	-264.5	-264.8
					* N/A *	2807.1	2620.5
			-117 -120				
- 14 -	E-3-14	---	Start one CHARGING pump. (CHARGING pump 33 is running.)	Manual	* N/A *	0.0	0.0
					* N/A *	2807.1	2620.5
			(No Loads Started or Tripped at this step)				
- 15 -	E-3-24	---	Stop SI pumps. (Only pumps 32 and 33 running - stopped.)	Manual	* N/A *	-472.4	-473.7
					* N/A *	2334.7	2146.8
			-122 -123				
- 16 -	E-3-25	---	Start one CHARGING pump. (CHARGING pump 33 is running.)	Manual	* N/A *	0.0	0.0
					* N/A *	2334.7	2146.8
			(No Loads Started or Tripped at this step)				
- 17 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 33 started on lightest loaded Bus.)	Manual	* N/A *	0.0	429.8
					* N/A *	2334.7	2576.6
			+86				
- 18 -	E-3-26	---	Start SI pumps if subcooling is < 40-deg F.	Manual	* N/A *	0.0	0.0
					* N/A *	2334.7	2576.6
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	E-3-26	---	Start BAST pumps and Primary Water pumps. (Loads accounted for in MCC resets.)	Manual	* N/A *	0.0	0.0
					* N/A *	2334.7	2576.6
			(No Loads Started or Tripped at this step)				
- 20 -	E-3-32	---	Stop CSPs (Spray not actuated. No pumps are running.)	Manual	* N/A *	0.0	0.0
					* N/A *	2334.7	2576.6
			(No Loads Started or Tripped at this step)				
- 21 -	E-3-36	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Energized Pressurizer Heater Group 32. energized on lightest loaded Bus.) +101	Manual	* N/A *	231.6	0.0
					* N/A *	2566.3	2576.6
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	* N/A *	63.8	0.0
					* N/A *	2630.1	2576.6
- 23 -	E-3-40	---	Stop 1 of 3 CCWPs. (CCWPs 32 and 33 running.) Stop 1 of 3 ESWPs. (ESWPs 35 and 36 running.) Shutdown Motor-driven AFWPs if desired. (AFWPs remain running.) (No Loads Started or Tripped at this step)	Manual	* N/A *	0.0	0.0
					* N/A *	2630.1	2576.6
- 24 -	< 42 >	---	*** GO TO POST-SGTR COOLDOWN *** *** EXIT TO ES-3-1 ***	Manual	* N/A *	0.0	0.0
					* N/A *	2630.1	2576.6
			(No Loads Started or Tripped at this step)				
- 25 -	ES-3.1-1	---	Operate Pressurizer Heaters as neccessary. (Pressurizer Heater Group 32 is energized.)	Manual	* N/A *	0.0	0.0
					* N/A *	2630.1	2576.6
			(No Loads Started or Tripped at this step)				
- 26 -	ES-3.1-3	---	Start: BAST Htrs, Hot Pen Blowers, PWMU and SFPP (Loads accounted for at MCC reset.), Elec Tunnel Fans (Started at SI Auto of MCC 36B) and one PAB fan (Fan 32 started on lightest loaded Bus). +88	Manual	* N/A *	0.0	177.0
					* N/A *	2630.1	2753.6
- 27 -	ES-3.1-13	---	Start one RHR pump as per SOP-RHR-1 (RHR pump 31 started on lightest loaded Bus.)	Manual	* N/A *	419.7	0.0
					* N/A *	3049.8	2753.6
			+116				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 28 -	ES-3.1-16	---	Evaluate long term plant status.	Manual	* N/A *	0.0	0.0
					* N/A *	3049.8	2753.6
			(No Loads Started or Tripped at this step)				

STEAM GENERATOR TUBE RUPTURE



Steam Generator Tube Rupture
Buses 2A/3A Tied Together, Bus 5A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 31	3A
AFWP 33	6A
CCWP 32	2A
CCWP 33	6A
CHARGING PUMP 33	6A
ESWP 35	3A
ESWP 36	6A
FCU 32	2A
FCU 34	3A
FCU 35	6A
MCC 34: TURBINE TURNING GEAR	2A
MCC 36B: AUTO	6A
MCC 36C: AUTO	2A
MCC 36D: AUTO	6A
NESWP 33	6A
PAB FAN 32	6A
PRESSURIZER HEATER GROUP 32	2A
RHR PUMP 31	3A
TOTAL MCC & LIGHTING RESET (5A)	
MCCS RESET (2A/3A) AS PER SOP-EL-15	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

STEAM GENERATOR TUBE RUPTURE

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:54 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** OFF-SITE POWER AVAILABLE ***

End of Emergency Operating Procedure Loading

Bus 5A = 2484.5 Bus 2A/3A = * N/A * Bus 6A = 3003.9 (A)

3200 Amp Overload Summary

Bus 5A is below the 3200 Amp rating
Bus 2A and/or 3A Not Available
Bus 6A is below the 3200 Amp rating

3600 Amp Overload Summary

Bus 5A is below the 3600 Amp rating
Bus 3A and/or 3A Not Available
Bus 6A is below the 3600 Amp rating

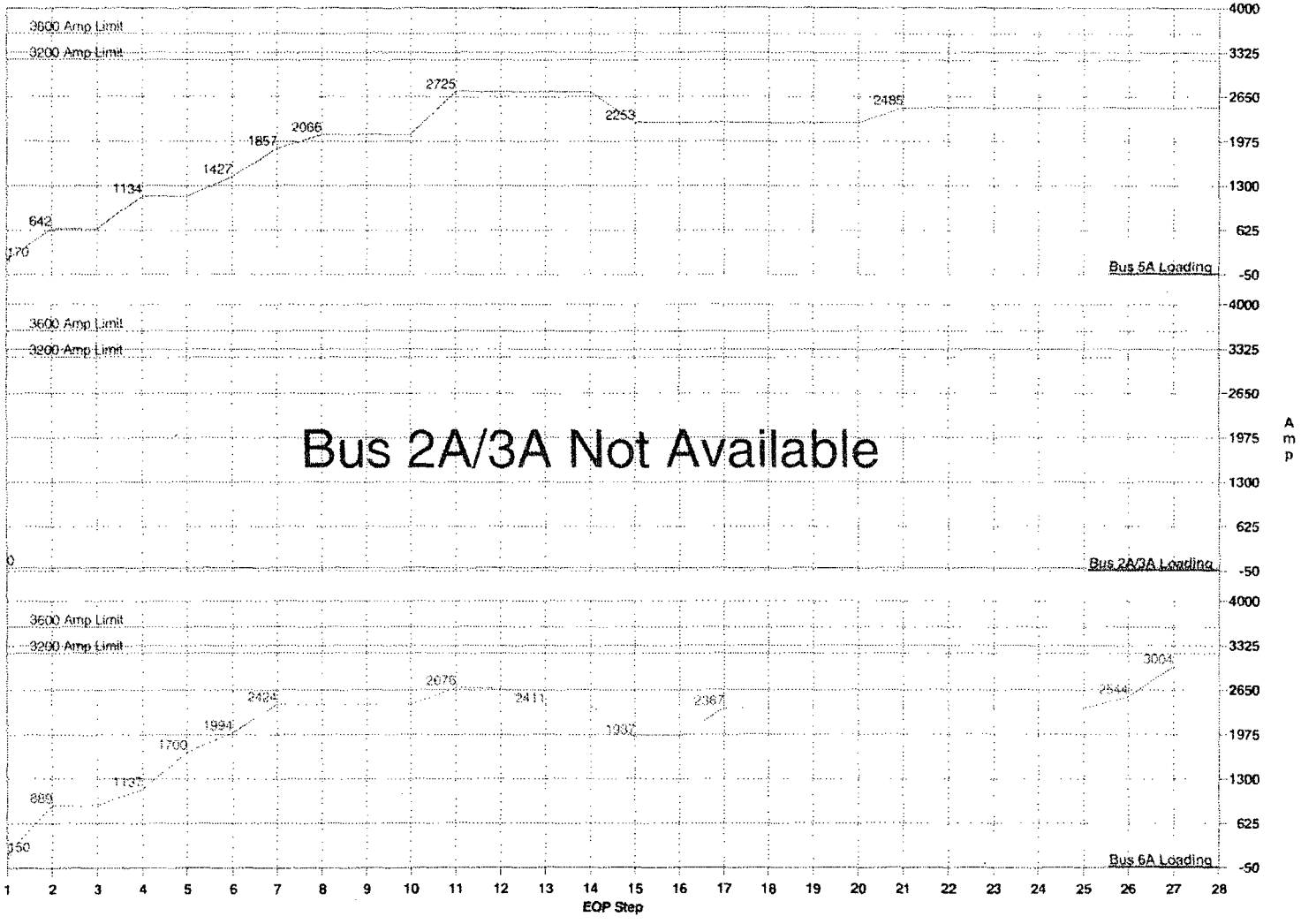
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 1 -	---	---	MCC 36A, 36B, 36D and 36E	Auto	169.5	* N/A *	150.1
					169.5	* N/A *	150.1
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 33	Auto	472.4	* N/A *	738.5
			RHR pump 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		641.9	* N/A *	888.6
			+120 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Manual	0.0	* N/A *	0.0
			(CSPs started during Phase B only.)				
			(E-0-9 verifies that spray is not required.)		641.9	* N/A *	888.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	491.9	* N/A *	248.0
			(RO verifies that fans are running.)				
					1133.8	* N/A *	1136.6
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWP 33	Auto	0.0	* N/A *	562.9
			(RO verifies that pump is running.)				
					1133.8	* N/A *	1699.5
			+2				
- 6 -	---	RO-1-7	CCWPs 31 and 33	Auto	293.4	* N/A *	294.2
			(RO verifies that pumps are running.)				
					1427.2	* N/A *	1993.7
			+4 +10				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	429.8	* N/A *	429.8
			(RO verifies that pumps are running.)				
					1857.0	* N/A *	2423.5
			+26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure	Manual	208.5	* N/A *	0.0
			is > than 325 psig and CCW is available.				
			(CHARGING pump 31 started on lightest		2065.5	* N/A *	2423.5
			loaded Bus.)				
			+13				
- 9 -	< 16 >	---		Manual	0.0	* N/A *	0.0
			*** STEAM GENERATOR TUBE RUPTURE ***				
			*** EVENT IDENTIFIED - EXIT TO E-3 ***		2065.5	* N/A *	2423.5
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 3A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 10 -	E-3-9	---	Reset SI. (Steps 5 through 12 of RO-1 are completed.)	Manual	0.0 2065.5	* N/A * * N/A *	0.0 2423.5
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (Total MCC and Lighting reset.)	Manual	659.8 2725.3	* N/A * * N/A *	253.2 2675.7
- 12 -	E-3-11	---	+126 +127 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 2725.3	* N/A * * N/A *	0.0 2675.7
- 13 -	E-3-12	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (Only RHR pump 32 running - stopped.)	Manual	0.0 2725.3	* N/A * * N/A *	-264.8 2410.9
- 14 -	E-3-14	---	-120 Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2725.3	* N/A * * N/A *	0.0 2410.9
- 15 -	E-3-24	---	(No Loads Started or Tripped at this step) Stop SI pumps. (Only pumps 31 and 33 running - stopped.)	Manual	-472.4 2252.9	* N/A * * N/A *	-473.7 1937.2
- 16 -	E-3-25	---	-121 -133 Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 1937.2
- 17 -	---	RO-1-20	(No Loads Started or Tripped at this step) CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (NESWP 33 started on lightest loaded Bus.)	Manual	0.0 2252.9	* N/A * * N/A *	429.8 2367.0
- 18 -	E-3-26	---	+86 Start SI pumps if subcooling is < 40-deg F. (No Loads Started or Tripped at this step)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2367.0

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
- 19 -	E-3-28	---	Start BAST pumps and Primary Water pumps. (Loads accounted for in MCC resets.)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2367.0
			(No Loads Started or Tripped at this step)				
- 20 -	E-3-32	---	Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	0.0 2252.9	* N/A * * N/A *	0.0 2367.0
			(No Loads Started or Tripped at this step)				
- 21 -	E-3-36	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Energized Pressurizer Heater Group 33 on lightest loaded Bus.) +109	Manual	231.6 2484.5	* N/A * * N/A *	0.0 2367.0
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Bus 2A/3A unavailable.) (No Loads Started or Tripped at this step)	Manual	0.0 2484.5	* N/A * * N/A *	0.0 2367.0
- 23 -	E-3-40	---	Stop 1 of 3 CCWPs. (CCWPs 31 and 33 running.) Stop 1 of 3 ESWPs (ESWPs 34 and 36 running.) Shutdown Motor-driven AFWPs if desired. (Bus 2A/3A not available. AFWP 33 remains running) (No Loads Started or Tripped at this step)	Manual	0.0 2484.5	* N/A * * N/A *	0.0 2367.0
- 24 -	< 42 >	---	*** GO TO POST-SGTR COOLDOWN *** *** EXIT TO ES-3.1 ***	Manual	0.0 2484.5	* N/A * * N/A *	0.0 2367.0
			(No Loads Started or Tripped at this step)				
- 25 -	ES-3.1-1	---	Operate Pressurizer Heaters as necessary. (Pressurizer Heater Group 33 is energized.)	Manual	0.0 2484.5	* N/A * * N/A *	0.0 2367.0
			(No Loads Started or Tripped at this step)				
- 26 -	ES-3.1-3	---	Start: BAST Htrs, Hot Pen Blowers, PWMU and SFPP [Loads accounted for at MCC reset]. Electrical Tunnel Fans [Started at SI Auto of MCC 36A and B] and one PAB fan [Fan 32 started]. +88	Manual	0.0 2484.5	* N/A * * N/A *	177.0 2544.0
- 27 -	ES-3.1-13	---	Start one RHR pump as per SOP-RHR-1. (RHR pump 32 started.)	Manual	0.0 2484.5	* N/A * * N/A *	459.9 3003.9
			+119				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (A)	Bus 2A/3A Step/Total Load (A)	Bus 6A Step/Total Load (A)
28	ES-7.1-16	---	Evaluate long term plant status.	Manual	0.0	* N/A *	0.0
					2484.5	* N/A *	3003.9
			(No Loads Started or Tripped at this step)				

STEAM GENERATOR TUBE RUPTURE



Steam Generator Tube Rupture
Buses 2A and / or 3A Not Available
Off-site Power Available
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM BUS
AFWP 33	6A
CCWP 31	5A
CCWP 33	6A
CHARGING PUMP 31	5A
ESWP 34	5A
ESWP 36	6A
FCU 32	2A
FCU 33	5A
FCU 35	6A
MCC 36A: AUTO	5A
MCC 36B: AUTO	6A
MCC 36D: AUTO	6A
MCC 36E: AUTO	5A
NESWP 33	6A
PAB FAN 32	6A
PRESSURIZER HEATER 33	5A
RHR PUMP 32	6A
TOTAL MCC & LIGHTING RESET (5A)	
TOTAL MCC & LIGHTING RESET (6A)	

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

STEAM GENERATOR TUBE RUPTURE

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:54 PM

*** BUSES 2A AND 3A TIED TOGETHER ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1561.6 Bus 2A/3A = 1266.4 Bus 6A = 1540.4 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

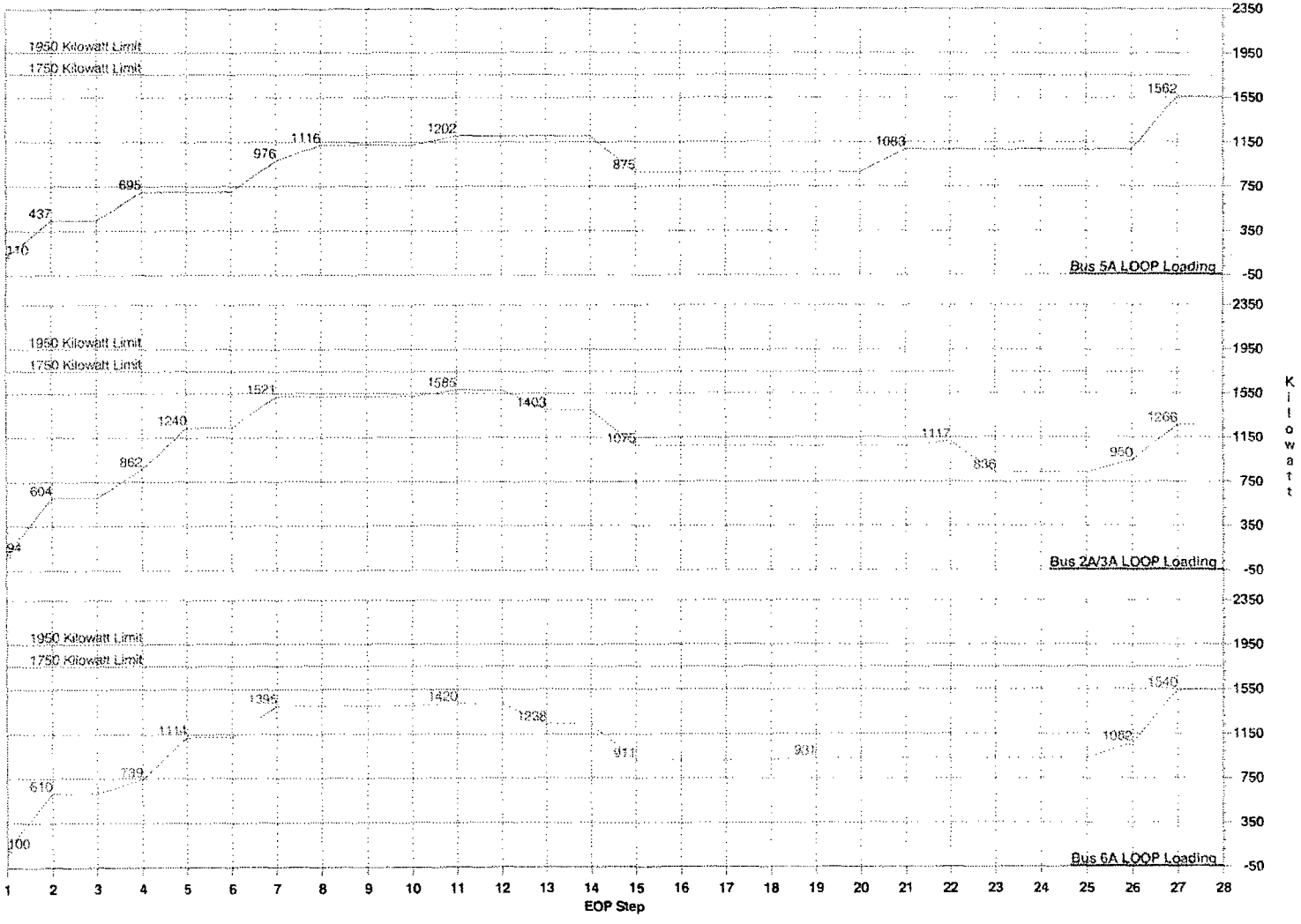
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36B, 36C, 36D and 36E	Auto	110.0	94.3	100.4
					110.0	94.3	100.4
			+57 +50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31, 32 and 33	Auto	327.2	509.2	509.2
			RHR pumps 31 and 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		437.2	603.5	609.6
			+117 +120 +121 +122 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Manual	0.0	0.0	0.0
			(CSPs started during Phase B only.)				
			(E-0-9 verifies that spray is not required.)		437.2	603.5	609.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33, 34 and 35	Auto	258.0	258.0	129.0
			(RO verifies that fans are running.)				
					695.2	861.5	738.6
			+29 +31 +33 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33	Auto	0.0	378.9	375.7
			(RO verifies that pumps are running.)				
					695.2	1240.4	1114.3
			+1 +2		-		
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP	Manual	0.0	0.0	0.0
			(All Buses are powered from EDGs.)		695.2	1240.4	1114.3
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34, 35 and 36)	Auto	280.8	280.8	280.8
			(RO verifies that pumps are running.)				
					976.0	1521.2	1395.1
			+36 +27 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	140.2	0.0	0.0
			(CHARGING pump 31 started on lightest loaded Bus.)		1116.2	1521.2	1395.1
			+13				
- 9 -	< 16 >	---		Manual	0.0	0.0	0.0
			*** STEAM GENERATOR TUBE RUPTURE ***				
			*** EVENT IDENTIFIED - EXIT TO E-3 ***		1116.2	1521.2	1395.1
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-3-9	---	Reset SI (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1116.2	0.0 1521.2	0.0 1395.1
- 11 -	---	RO-1-15	(No Loads Started or Tripped at this step) RESET MCCs as per SOP-EL-15. (MCCs are reset.)	Manual	85.8 1202.0	63.3 1584.5	24.8 1419.9
- 12 -	E-3-11	---	+82 +81 +83 ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1202.0	0.0 1584.5	0.0 1419.9
- 13 -	E-3-12	---	(No Loads Started or Tripped at this step) Stop RHR pumps. (RHR pumps stopped.)	Manual	0.0 1202.0	-182.0 1402.5	-182.0 1237.9
- 14 -	E-3-14	---	-117 -120 Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1202.0	0.0 1402.5	0.0 1237.9
- 15 -	E-3-24	---	(No Loads Started or Tripped at this step) Stop SI pumps. (All SI pumps stopped.)	Manual	-327.2 874.8	-327.2 1075.3	-327.2 910.7
- 16 -	E-3-25	---	-121 -122 -123 Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 874.8	0.0 1075.3	0.0 910.7
- 17 -	---	RO-1-20	(No Loads Started or Tripped at this step) CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (All Buses are powered from EDGs.)	Manual	0.0 874.8	0.0 1075.3	0.0 910.7
- 18 -	E-3-26	---	(No Loads Started or Tripped at this step) Start SI pumps if subcooling is < 40-deg F.	Manual	0.0 874.8	0.0 1075.3	0.0 910.7
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	E-3-28	---	Start BAST pumps and Primary Water pumps. (BAST pumps are running. MCC 36A-E never stripped. Primary Water pumps started.) +68	Manual	0.0 874.8	0.0 1075.3	20.7 931.4
- 20 -	E-3-32	---	Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	0.0 874.8	0.0 1075.3	0.0 931.4
			(No Loads Started or Tripped at this step)				
- 21 -	E-3-36	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Group 33 energized on lightest loaded Bus.) +109	Manual	207.9 1082.7	0.0 1075.3	0.0 931.4
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powerd from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 1082.7	41.5 1116.8	0.0 931.4
- 23 -	E-3-40	---	Stop 1 of 3 CCWPs. Stop 1 of 3 ESWPs and Shutdown Motor-driven AFWPs if desired. (No CCWPs are running. ESWP 35 stopped on heaviest loaded Bus. AFWPs remain running.) -27	Manual	0.0 1082.7	-280.8 836.0	0.0 931.4
- 24 -	< 42 >	---	*** GO TO POST SGTR COOLDOWN *** *** EXIT TO ES-3.1 ***	Manual	0.0 1082.7	0.0 836.0	0.0 931.4
			(No Loads Started or Tripped at this step)				
- 25 -	ES-3.1-1	---	Operate Pressurizer Heaters as neccessary. (Pressurizer Group 33 is energized.)	Manual	0.0 1082.7	0.0 836.0	0.0 931.4
			(No Loads Started or Tripped at this step)				
- 26 -	ES-3.1-3	---	Start: BAST Htrs, Hot Pen Blowers, PVMU, SFP pump [Loads started on MCC 37], Elect Tunnel Fans [Started at SI Auto of MCC 36A and B] and one PAB fan [Fan 31 started on lightest loaded Bus]. +87 +61 +66 +67 +62 +69	Manual	0.0 1082.7	114.3 950.3	130.1 1061.5
- 27 -	ES-3.1-13	---	Start one RHR pump as per SOP-RHR-1. (CCWPs 31, 33, NESWPs 31, 33 and RHR pump 31 started.) +84 +86 +5 +11 +115	Manual	478.9 1561.6	316.1 1266.4	478.9 1540.4

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 28 -	ES-3.1-16	---	Evaluate long term plant status.	Manual	0.0	0.0	0.0
					1561.6	1266.4	1540.4
			(No Loads Started or Tripped at this step)				

STEAM GENERATOR TUBE RUPTURE



Steam Generator Tube Rupture
Buses 2A/3A Tied Together, All Buses Available
Loss of Off-set Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 31	EDG 31
AFWP 33	EDG 32
CCWP 31	EDG 33
CCWP 33	EDG 32
CHARGING PUMP 31	EDG 33
ESWP 34	EDG 33
ESWP 36	EDG 32
FCU 31	EDG 33
FCU 32	EDG 31
FCU 33	EDG 33
FCU 34	EDG 31
FCU 35	EDG 32
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36A: AUTO	EDG 33
MCC 36B: AUTO	EDG 32
MCC 36C: AUTO	EDG 31
MCC 36D: AUTO	EDG 32
MCC 36E: AUTO	EDG 33
MCC 37: BAST HEATER (TANK #1)	EDG 32
MCC 37: BAST HEATER (TANK #2)	EDG 32
MCC 37: PENT. BLOWER (#1)	EDG 32
MCC 37: PENT. BLOWER (#2)	EDG 32
MCC 37: PW MU PUMP	EDG 32
MCC 37: SPENT FUEL COOLING PUMP 31	EDG 32
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 31	EDG 33
NESWP 33	EDG 32
PAB FAN 31	EDG 31
PRESSURIZER HEATER 33	EDG 33
RHR PUMP 31	EDG 31

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

STEAM GENERATOR TUBE RUPTURE

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:54 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 6A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1583.1 Bus 2A/3A = 1547.2 Bus 6A = * N/A * (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1750 kW rating
Bus 6A Not Available

1950 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Bus 6A Not Available

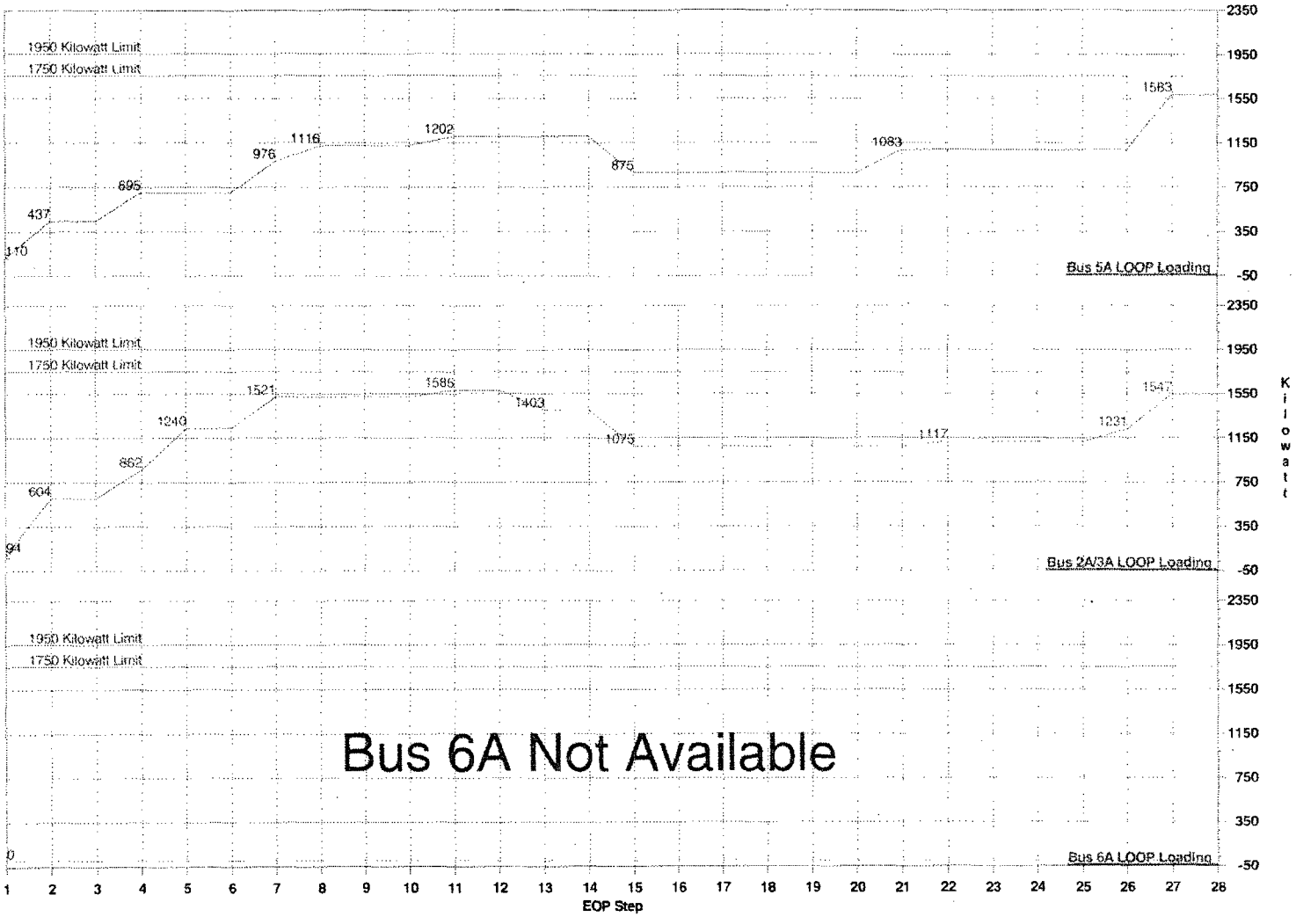
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36C and 36E	Auto	110.0	94.3	* N/A *
					110.0	94.3	* N/A *
			+57 +58 +60				
- 2 -	---	RO-1-2	SI pumps 31 and 32	Auto	327.2	509.2	* N/A *
			RHR pump 31 (mini flow, RCS press > 335)				
			(RO verifies that pumps are running.)		437.2	603.5	* N/A *
			+117 +121 +122				
- 3 -	E-0-9	---	CSP 31	Manual	0.0	0.0	* N/A *
			(CSPs started during Phase B only.)				
			(E-0-9 verifies that spray is not required.)		437.2	603.5	* N/A *
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 32, 33 and 34	Auto	258.0	258.0	* N/A *
			(RO verifies that fans are running.)		695.2	861.5	* N/A *
			+29 +31 +33 +35				
- 5 -	---	RO-1-5	AFWP 31	Auto	0.0	378.9	* N/A *
			(RO verifies that pump is running.)		695.2	1240.4	* N/A *
			+1				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Auto	0.0	0.0	* N/A *
			(All Buses are powered from EDGs.)		695.2	1240.4	* N/A *
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 35)	Auto	280.8	280.8	* N/A *
			(RO verifies that pumps are running.)		976.0	1521.2	* N/A *
			+26 +27				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	140.2	0.0	* N/A *
			(CHARGING pump 31 started on lightest loaded Bus.)		1116.2	1521.2	* N/A *
			+13				
- 9 -	< 16 >	---		Manual	0.0	0.0	* N/A *
			*** STEAM GENERATOR TUBE RUPTURE ***				
			*** EVENT IDENTIFIED - EXIT TO E-3 ***		1116.2	1521.2	* N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-3-9	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	0.0 1116.2	0.0 1521.2	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (MCCs are reset.)	Manual	85.8 1202.0	63.3 1584.5	* N/A * * N/A *
			+82 +81				
- 12 -	E-3-11	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1202.0	0.0 1584.5	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 13 -	E-3-12	---	Stop RHR pumps. (Only pump 31 running - stopped.)	Manual	0.0 1202.0	-182.0 1402.5	* N/A * * N/A *
			-117				
- 14 -	E-3-14	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1202.0	0.0 1402.5	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 15 -	E-3-24	---	Stop SI pumps. (Only pumps 31 and 32 running - stopped.)	Manual	-327.2 874.8	-327.2 1075.3	* N/A * * N/A *
			-121 -122				
- 16 -	E-3-25	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 874.8	0.0 1075.3	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 17 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (All Buses are powered from EDGs.)	Manual	0.0 874.8	0.0 1075.3	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				
- 18 -	E-3-26	---	Start SI pumps if subcooling is < 40-deg F.	Manual	0.0 874.8	0.0 1075.3	* N/A * * N/A *
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	E-3-38	---	Start BAST pumps and Primary Water pumps. (BAST pumps are running. MCC 36A-E never stripped. MCC37/Bus 6A unavailable , Primary Water pumps not started.) (No Loads Started or Tripped at this step)	Manual	0.0 874.8	0.0 1075.3	* N/A * * N/A *
- 20 -	E-3-32	---	Stop CSPs. (Spray not actuated. No pumps are running.) (No Loads Started or Tripped at this step)	Manual	0.0 874.8	0.0 1075.3	* N/A * * N/A *
- 21 -	E-3-36	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Group 33 energized on lightest loaded Bus.) +109	Manual	207.9 1082.7	0.0 1075.3	* N/A * * N/A *
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Ofisite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) +47	Manual	0.0 1082.7	41.5 1116.8	* N/A * * N/A *
- 23 -	E-3-40	---	Stop 1 of 3 CCWPs. (No CCWPs are running.) Stop 1 of 3 ESWPs. (ESWPs 34 and 35 are running.) Shutdown Motor-driven AFWPs if desired. (Bus 6A not available. AFWP 31 remains running.) (No Loads Started or Tripped at this step)	Manual	0.0 1082.7	0.0 1116.8	* N/A * * N/A *
- 24 -	< 42 >	---	*** GO TO POST SGTR COOLDOWN *** *** EXIT TO ES-3.1 *** (No Loads Started or Tripped at this step)	Manual	0.0 1082.7	0.0 1116.8	* N/A * * N/A *
- 25 -	ES-3.1-1	---	Operate Pressurizer Heaters as neccessary. (Pressurizer Heater Group 33 is energized.) (No Loads Started or Tripped at this step)	Manual	0.0 1082.7	0.0 1116.8	* N/A * * N/A *
- 26 -	ES-3.1-3	---	Start: BAST Htrs, Hot Pen Blowers, PWMU, SFP pump (Bus 6A not available.), Electrical Tunnel Fans (Started at SI Auto of MCC 36A.) and one PAB fan (PAB fan 31 started.). +87	Manual	0.0 1082.7	114.3 1231.1	* N/A * * N/A *
- 27 -	ES-3.1-13	---	Start one RHR pump as per SOP-RHR-1. (CCWP 31 and NESWP 31 started on lightest loaded Bus. RHR pump 31 started on only available Bus.) +116 +84 +6	Manual	500.4 1583.1	316.1 1547.2	* N/A * * N/A *

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 28 -	ES-3.1-16	---	Evaluate long term plant status.	Manual	0.0	0.0	* N/A *
					1583.1	1547.2	* N/A *
			(No Loads Started or Tripped at this step)				

STEAM GENERATOR TUBE RUPTURE



Bus 6A Not Available

Steam Generator Tube Rupture
Buses 2A/3A Tied Together, Bus 6A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

	EQUIPMENT RUNNING	POWER FROM EDG
1	AFWP 31	EDG 31
2	CCWP 31	EDG 33
3	CHARGING PUMP 31	EDG 33
4	ESWP 34	EDG 33
5	ESWP 35	EDG 31
6	FCU 31	EDG 33
7	FCU 32	EDG 31
8	FCU 33	EDG 33
9	FCU 34	EDG 31
15	MCC 34: TURBINE TURNING GEAR	EDG 31
16	MCC 36A: AUTO	EDG 33
17	MCC 36C: AUTO	EDG 31
18	MCC 36E: AUTO	EDG 33
19	MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
20	MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
21	NESWP 31	EDG 33
22	PAB FAN 31	EDG 31
23	PRESSURIZER HEATER 33	EDG 33
24	RHR PUMP 31	EDG 31

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IP3-CALC-ED-00207 REV 8

STEAM GENERATOR TUBE RUPTURE

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:54 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 5A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = * N/A * Bus 2A/3A = 1446.2 Bus 6A = 1632.1 (kW)

1750 kW Overload Summary

Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A exceeds the 1750 kW rating at EOP steps : 27
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

Bus 5A Not Available
Emergency Diesel Generator 31 on Bus 2A/3A is below the 1950 kW rating
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36B, 36C and 36D	Auto	* N/A *	94.3	100.4
					* N/A *	94.3	100.4
			+57 +53 +59				
- 2 -	---	RO-1-2	SI pumps 32 and 33 RHR pumps 31 and 32 (mini flow, RCS press > 325) (RO verifies that pumps are running.)	Auto	* N/A *	509.2	509.2
					* N/A *	603.5	609.6
			+117 +120 +123 +123				
- 3 -	E-0-9	---	CSP 32 (CSPs started during Phase B only.) (E-0-9 verifies that spray is not required.)	Manual	* N/A *	0.0	0.0
					* N/A *	603.5	609.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 32, 34 and 35 (RO verifies that fans are running.)	Auto	* N/A *	258.0	129.0
					* N/A *	861.5	738.6
			+31 +35 +37				
- 5 -	---	RO-1-5	AFWPs 31 and 33 (RO verifies that pumps are running.)	Auto	* N/A *	378.9	375.7
					* N/A *	1240.4	1114.3
			+1 +2				
- 6 -	---	RO-1-7	CHECK If Offsite power is available to a 480V Bus to start at least one CCWP. (All Buses are powered from EDGs.)	Auto	* N/A *	0.0	0.0
					* N/A *	1240.4	1114.3
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (35 and 36) (RO verifies that pumps are running.)	Auto	* N/A *	280.8	280.8
					* N/A *	1521.2	1395.1
			+27 +29				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available. (CHARGING pump 33 started on lightest loaded Bus.)	Manual	* N/A *	0.0	140.2
					* N/A *	1521.2	1535.3
			+15				
- 9 -	< 16 >	---	*** STEAM GENERATOR TUBE RUPTURE *** *** EVENT IDENTIFIED - EXIT TO E-3 ***	Manual	* N/A *	0.0	0.0
					* N/A *	1521.2	1535.3
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-3-9	---	Reset SI. (Steps 2 through 12 of RO-1 are completed.)	Manual	* N/A *	0.0	0.0
					* N/A *	1521.2	1535.3
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (MCC are reset.)	Manual	* N/A *	63.3	24.8
					* N/A *	1584.5	1560.1
			+61 +63				
- 12 -	E-3-11	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	* N/A *	0.0	0.0
					* N/A *	1584.5	1560.1
			(No Loads Started or Tripped at this step)				
- 13 -	E-3-12	---	Stop RHR pumps. (RHR pumps stopped.)	Manual	* N/A *	-183.0	-182.0
					* N/A *	1402.5	1378.1
			-117 -120				
- 14 -	E-3-14	---	Start one CHARGING pump. (CHARGING pump 33 is running.)	Manual	* N/A *	0.0	0.0
					* N/A *	1402.5	1378.1
			(No Loads Started or Tripped at this step)				
- 15 -	E-3-24	---	Stop SI pumps. (Only pumps 32 and 33 running - stopped.)	Manual	* N/A *	-327.2	-327.2
					* N/A *	1075.3	1050.9
			-122 -123				
- 16 -	E-3-25	---	Start one CHARGING pump. (CHARGING pump 33 is running.)	Manual	* N/A *	0.0	0.0
					* N/A *	1075.3	1050.9
			(No Loads Started or Tripped at this step)				
- 17 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (All Buses are powered from EDGs.)	Manual	* N/A *	0.0	0.0
					* N/A *	1075.3	1050.9
			(No Loads Started or Tripped at this step)				
- 18 -	E-3-26	---	Start SI pumps if subcooling is < 40-deg F.	Manual	* N/A *	0.0	0.0
					* N/A *	1075.3	1050.9
			(No Loads Started or Tripped at this step)				

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	E-3-28	---	Start BAST pumps and Primary Water pumps. (BAST pumps are running-MCC 36A-E never stripped. Primary Water pumps started.) +68	Manual	* N/A * * N/A *	0.0 1075.3	20.7 1071.6
- 20 -	E-3-32	---	Stop CSPs. (Spray not actuated. No pumps are running.)	Manual	* N/A * * N/A *	0.0 1075.3	0.0 1071.6
- 21 -	E-3-36	---	(No Loads Started or Tripped at this step) Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Group 32 energized on lightest loaded Bus.) +101	Manual	* N/A * * N/A *	207.9 1283.2	0.0 1071.6
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Gear started.) -47	Manual	* N/A * * N/A *	41.5 1324.7	0.0 1071.6
- 23 -	E-3-40	---	Stop 1 of 3 CCWPs. (No CCWPs are running.) Stop 1 of 3 ESWPs. (ESWPs 35 and 36 running.) Shutdown Motor-driven AFWPs if desired. (AFWPs remain running.) (No Loads Started or Tripped at this step)	Manual	* N/A * * N/A *	0.0 1324.7	0.0 1071.6
- 24 -	< 42 >	---	*** GO TO POST SGTR COOLDOWN *** *** EXIT TO ES-3.1 ***	Manual	* N/A * * N/A *	0.0 1324.7	0.0 1071.6
- 25 -	ES-3.1-1	---	(No Loads Started or Tripped at this step) Operate Pressurizer Heaters as necessary. (Pressurizer Heater Group 32 is energized.)	Manual	* N/A * * N/A *	0.0 1324.7	0.0 1071.6
- 26 -	ES-3.1-3	---	(No Loads Started or Tripped at this step) Start: BAST Htrs, Hot Pen Blowers, PWMU, SFP pump [Loads started on MCC 37], Elect Tunnel Fans [Started at S1 Auto of MCC 36B] and one PAB fan [Fan 32 started on lightest loaded Bus]. +88 +61 +66 +67 +62 +69	Manual	* N/A * * N/A *	0.0 1324.7	244.4 1316.0
- 27 -	ES-3.1-13	---	Start one RHR pump as per SOP-RHR-1. (CCWP 32, NESWP 32 and RHR pump 32 started on lightest loaded Bus.) +85 +118 +9	Manual	* N/A * * N/A *	500.4 1825.1 Over 1750	316.1 1632.1

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 28 -	ES-3.1-16	---	Evaluate long term plant status. (Two AFWPs are running. As per FOLDOUT page, AFWP 31 is stopped on highest loaded Bus.) -1	Manual	* N/A *	-378.9	0.0
					* N/A *	1446.2	1632.1

STEAM GENERATOR TUBE RUPTURE

Steam Generator Tube Rupture
Buses 2A/3A Tied Together, Bus 5A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

EQUIPMENT RUNNING	POWER FROM EDG
AFWP 33	EDG 32
CCWP 32	EDG 31
CCWP 33	EDG 32
CHARGING PUMP 33	EDG 32
ESWP 35	EDG 31
ESWP 36	EDG 32
FCU 32	EDG 31
FCU 34	EDG 31
FCU 35	EDG 32
MCC 34: TURBINE TURNING GEAR	EDG 31
MCC 36B: AUTO	EDG 32
MCC 36C: AUTO	EDG 31
MCC 36D: AUTO	EDG 32
MCC 37: BAST HEATER (TANK #1)	EDG 32
MCC 37: BAST HEATER (TANK #2)	EDG 32
MCC 37: PENT. BLOWERS (#1)	EDG 32
MCC 37: PENT. BLOWERS (#2)	EDG 32
MCC 37: PW MU PUMP	EDG 32
MCC 37: SPENT FUEL COOLING PUMP 31	EDG 32
MCCS RESET (2A/3A) AS PER SOP-EL-15	EDG 31
MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
NESWP 32	EDG 31
PAB FAN 32	EDG 32
PRESSURIZER HEATER 32	EDG 31
RHR PUMP 32	EDG 32

NEW YORK POWER AUTHORITY
EMERGENCY OPERATING PROCEDURES

ELECTRICAL LOADING SCENARIO MANAGEMENT SYSTEM
Version 1.1

IPJ-CALC-ED-00207 REV 8

STEAM GENERATOR TUBE RUPTURE

LOAD LIST TRACKING NUMBER : 1015

Report Print Date : August 25,2009
Report Print Time : 3:54 PM

*** BUSES 2A AND 3A TIED TOGETHER ***
*** BUS 2A AND/OR 3A NOT AVAILABLE ***

*** LOSS OF OFF-SITE POWER ***

End of Emergency Operating Procedure Loading

Bus 5A = 1583.1 Bus 2A/3A = * N/A * Bus 6A = 1491.9 (kW)

1750 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1750 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A is below the 1750 kW rating

1950 kW Overload Summary

Emergency Diesel Generator 33 on Bus 5A is below the 1950 kW rating
Bus 2A and/or 3A Not Available
Emergency Diesel Generator 32 on Bus 6A is below the 1950 kW rating

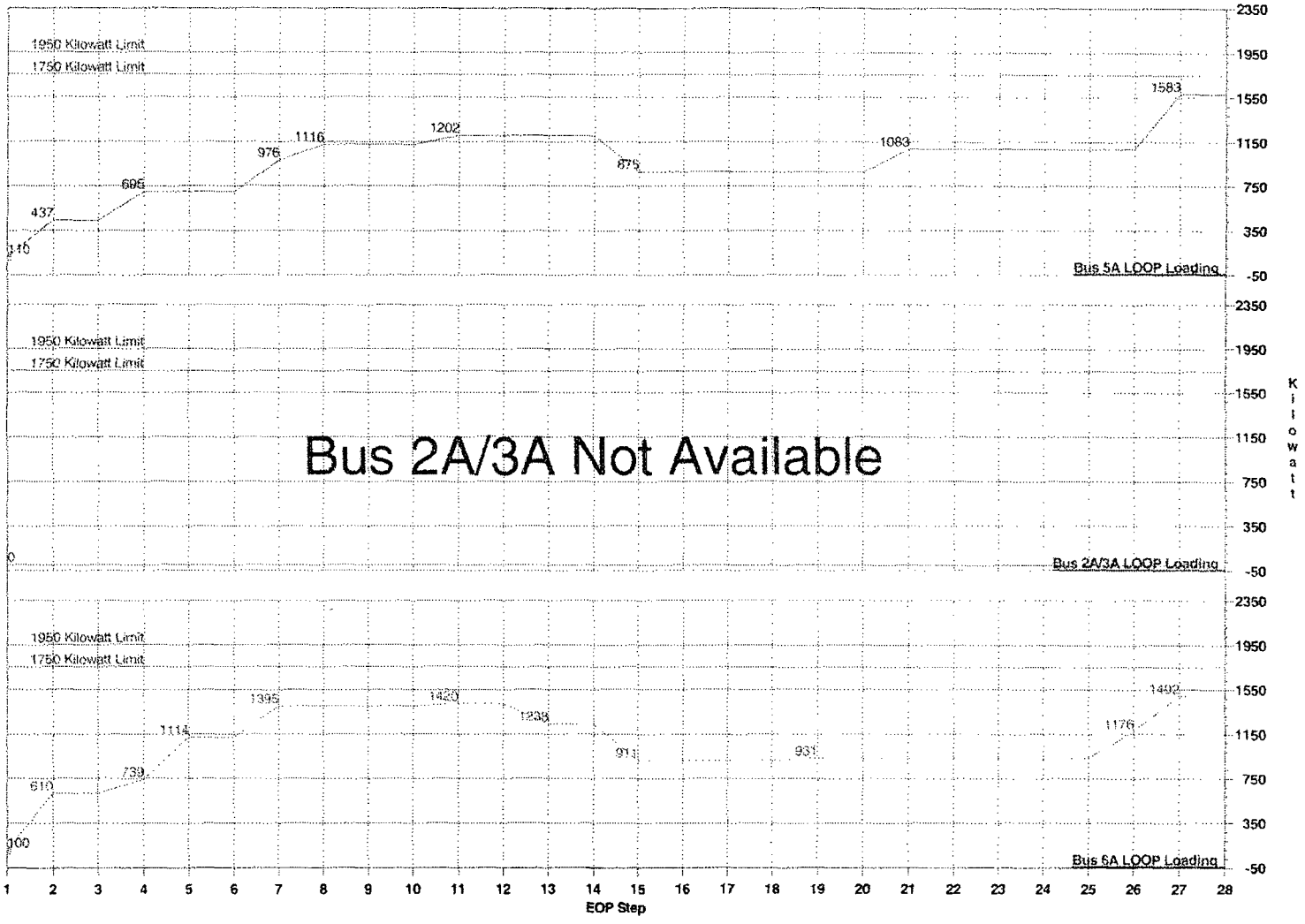
Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 1 -	---	---	MCC 36A, 36B, 36D and 36E	Auto	110.0	* N/A *	100.4
					110.0	* N/A *	100.4
			+50 +53 +59 +60				
- 2 -	---	RO-1-2	SI pumps 31and 33	Auto	327.2	* N/A *	509.2
			RHR pump 32 (mini flow, RCS press > 325)				
			(RO verifies that pumps are running.)		437.2	* N/A *	609.6
			+120 +121 +123				
- 3 -	E-0-9	---	CSPs 31 and 32	Manual	0.0	* N/A *	0.0
			(CSPs started during Phase B only.)				
			(E-0-9 verifies that spray is not required.)		437.2	* N/A *	609.6
			(No Loads Started or Tripped at this step)				
- 4 -	---	RO-1-3	FCUs 31, 33 and 35	Auto	258.0	* N/A *	129.0
			(RO verifies that fans are running.)		695.2	* N/A *	738.6
			+29 +33 +37				
- 5 -	---	RO-1-5	AFWP 33	Auto	0.0	* N/A *	375.7
			(RO verifies that pump is running.)		695.2	* N/A *	1114.3
			+2				
- 6 -	---	RO-1-7	CHECK if Offsite power is available to a 480V Bus to start at least one CCWP.	Auto	0.0	* N/A *	0.0
			(All Buses are powered from EDGs.)		695.2	* N/A *	1114.3
			(No Loads Started or Tripped at this step)				
- 7 -	---	RO-1-8	ESWPs (34 and 36)	Auto	280.8	* N/A *	280.8
			(RO verifies that pumps are running.)		976.0	* N/A *	1395.1
			+26 +28				
- 8 -	E-0-11	---	Start one CHARGING pump if RCS pressure is > than 325 psig and CCW is available.	Manual	140.2	* N/A *	0.0
			(CHARGING pump 31 started on lightest loaded Bus.)		1116.2	* N/A *	1395.1
			+13				
- 9 -	< 16 >	---		Manual	0.0	* N/A *	0.0
			*** STEAM GENERATOR TUBE RUPTURE ***				
			*** EVENT IDENTIFIED - EXIT TO E-3 ***		1116.2	* N/A *	1395.1
			(No Loads Started or Tripped at this step)				

Step Number	SPO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 10 -	E-3-9	---	Reset SI. (Step 2 through 12 of RO-1 are completed.)	Manual	0.0 1116.2	* N/A * * N/A *	0.0 1395.1
			(No Loads Started or Tripped at this step)				
- 11 -	---	RO-1-15	RESET MCCs as per SOP-EL-15. (MCCs are reset.)	Manual	85.8 1202.0	* N/A * * N/A *	24.8 1419.9
			+82 +82				
- 12 -	E-3-11	---	ESTABLISH Instrument Air to Containment. (Load accounted for in MCC reset.)	Manual	0.0 1202.0	* N/A * * N/A *	0.0 1419.9
			(No Loads Started or Tripped at this step)				
- 13 -	E-3-12	---	Stop RHR pumps. (Only RHR pump 32 running - stopped.)	Manual	0.0 1202.0	* N/A * * N/A *	-182.0 1237.9
			-130				
- 14 -	E-3-14	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 1202.0	* N/A * * N/A *	0.0 1237.9
			(No Loads Started or Tripped at this step)				
- 15 -	E-3-24	---	Stop SI pumps. (Only pumps 31 and 33 running - stopped.)	Manual	-327.2 874.8	* N/A * * N/A *	-327.2 910.7
			-121 -123				
- 16 -	E-3-25	---	Start one CHARGING pump. (CHARGING pump 31 is running.)	Manual	0.0 874.8	* N/A * * N/A *	0.0 910.7
			(No Loads Started or Tripped at this step)				
- 17 -	---	RO-1-20	CHECK if Offsite power is available to a 480V Bus to start at least one NESWP. (All Buses are powered from EDGs.)	Manual	0.0 874.8	* N/A * * N/A *	0.0 910.7
			(No Loads Started or Tripped at this step)				
- 18 -	E-3-26	---	Start SI pumps if subcooling is < 40-deg F.	Manual	0.0 874.8	* N/A * * N/A *	0.0 910.7
			(No Loads Started or Tripped at this step)				

Step Number	SPO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 19 -	E-3-28	---	Start BAST pumps and Primary Water pumps. (BAST pumps are running-MCC 36A-E never stripped. Primary Water pump started.) +68	Manual	0.0 874.8	* N/A * * N/A *	20.7 931.4
- 20 -	E-3-32	---	Stop CSPs. (Spray not actuated. No pumps are running.) (No Loads Started or Tripped at this step)	Manual	0.0 874.8	* N/A * * N/A *	0.0 931.4
- 21 -	E-3-36	---	Energize at least one Pressurizer Heater Group as per SOP-EL-15. (Pressurizer Heater Group 33 energized on lightest loaded Bus.) +109	Manual	207.9 1082.7	* N/A * * N/A *	0.0 931.4
- 22 -	---	RO-1-27c	START AC and STOP DC Oil Pumps IF 480V Buses are powered from Offsite and tie-breakers are open. Start Turb Turning Gear. (Bus 2A/3A unavailable.) (No Loads Started or Tripped at this step)	Manual	0.0 1082.7	* N/A * * N/A *	0.0 931.4
- 23 -	E-3-40	---	Stop 1of 3 CCWPs (No CCWPs are running.) Stop 1of 3 ESWPs (ESWPs 34 and 36 running.) Shutdown Motor-driven AFWPs if desired. (Bus 2A/3A not available. AFWP 33 remains running) (No Loads Started or Tripped at this step)	Manual	0.0 1082.7	* N/A * * N/A *	0.0 931.4
- 24 -	< 42 >	---	*** GO TO POST SGTR COOLDOWN *** *** EXIT TO ES-3.1 *** (No Loads Started or Tripped at this step)	Manual	0.0 1082.7	* N/A * * N/A *	0.0 931.4
- 25 -	ES-3.1-1	---	Operate Pressurizer Heaters as neccessary. (Pressurizer Heater Group 33 is energized.) (No Loads Started or Tripped at this step)	Manual	0.0 1082.7	* N/A * * N/A *	0.0 931.4
- 26 -	ES-3.1-3	---	Start: BAST Htrs, Hot Pen. Blowers, PWMU, SFP pump [Loads started on MCC 37], Electrical Tunnel Fans [Started at SI Auto of MCC 36A and B] and one PAB Fan [Fan 32 started]. +88 +61 +66 +67 +62 +69	Manual	0.0 1082.7	* N/A * * N/A *	244.4 1175.8
- 27 -	ES-3.1-13	---	Start one RHR pump as per SOP-RHR-1. (CCWP 31 and NESWP 31 started on lightest loaded Bus. RHR 32 started on only available Bus. +119 +84 +6	Manual	500.4 1583.1	* N/A * * N/A *	316.1 1491.9

Step Number	SRO Step	RO Step	Loading Step Description	Initiation	Bus 5A Step Load/ Load (kW)	Bus 2A/3A Step/Total Load (kW)	Bus 6A Step/Total Load (kW)
- 38 -	ES-1.1-16	---	Evaluate long term plant status.	Manual	0.0	* N/A *	0.0
					1583.1	* N/A *	1491.9
			(No Loads Started or Tripped at this step)				

STEAM GENERATOR TUBE RUPTURE



Steam Generator Tube Rupture
Buses 2A and / or 3A Not Available
Loss of Off-site Power
Operating Load at the End of Scenario

	EQUIPMENT RUNNING	POWER FROM EDG
1	AFWP 33	EDG 32
2	CCWP 31	EDG 33
3	CHARGING PUMP 31	EDG 33
4	ESWP 34	EDG 33
5	ESWP 36	EDG 32
6	FCU 31	EDG 33
7	FCU 33	EDG 33
8	FCU 35	EDG 32
15	MCC 36A: AUTO	EDG 33
16	MCC 36B: AUTO	EDG 32
17	MCC 36D: AUTO	EDG 32
18	MCC 36E: AUTO	EDG 33
19	MCC 37: BAST HEATER (TANK #1)	EDG 32
20	MCC 37: BAST HEATER (TANK #2)	EDG 32
21	MCC 37: PENT. BLOWER (#1)	EDG 32
22	MCC 37: PENT. BLOWER (#2)	EDG 32
23	MCC 37: PW MU PUMP	EDG 32
24	MCC 37: SPENT FUEL COOLING PUMP 31	EDG 32
26	MCCS RESET (5A) AS PER SOP-EL-15	EDG 33
27	MCCS RESET (6A) AS PER SOP-EL-15	EDG 32
28	NESWP 31	EDG 33
29	PAB FAN 32	EDG 32
30	PRESSURIZER HEATER 33	EDG 33
31	RHR PUMP 32	EDG 32

APPENDIX A

PROJECT INT-CSAPCH 1/2/3 S.O NO. 67C69216

FURNISHED BY WESTINGHOUSE ELECTRIC DATE 10/26/67 BY

MARK OR ITEM NO.

PURCHASER'S REQUIREMENTS		DATA FURNISHED BY SELLER	
SERVICE		MAKE	Westinghouse
TYPE		FRAME NO.	445TS
NO. OF UNITS	3/Plant	HORSEPOWER	200
MOUNTING		SERVICE FACTOR	1.15
ELEC. CHARACTERISTICS	460 V. 3 PH 60 CY	FULL LOAD RPM	1775
SYNCH. SPEED, RPM	1800	FULL LOAD AMP	221
HORSEPOWER	200	LOCKED ROTOR AMP	1293
SERVICE FACTOR	1.15	STARTING TORQUE, % F.L.	125
ENCLOSURE		PULL-OUT TORQUE, % F.L.	230
INSULATION CLASS	B	EFF.-FULL LOAD, %	93.1
INSULATION TREATMENT	PMR	EFF.-3/4 LOAD, %	93.1
AMBIENT TEMP-C	40°	EFF.-1/2 LOAD, %	92.3
STATOR TEMP RISE-C	90°C at 1.15 S.F.	P.F.-FULL LOAD, %	90.4
BEARING TYPE		P.F.-3/4 LOAD, %	89.4
BEARING TEMP RELAY		P.F.-1/2 LOAD, %	85.1
BEARING THERMOCOUPLE		P.F.-LOCKED ROTOR	29.8
HALF COUPL. OR SHEAVE MTD. BY		SPACE HTRS., TOTAL WATTS	-
ROTATION*		RADIAL BEARING-TYPE	-
WK² OF DRIVEN EQUIP.		THRUST BEARING-TYPE	-
BRKWY. TORQ. OF DRIVEN EQUIP.		BEARING SERVICE-HR.	-
OVERSIZE COND. BOX		NORMAL BRG. OPER. TEMP-C	-
COND. BOX LOCATION*		NET WEIGHT-LB.	-
SPACE HEATERS, VOLTAGE, PHASE		OIL COOL. SYS. REQ'D	-
SPLIT END BELLS		BRG. OIL PRESS. RANGE, PSI	-
TERMINAL LUGS, TYPE		BRG. OIL REQ'D EA. BRG. GPM	-
STATOR HIGH TEMP DEVICE		NAME PLATE CODE LETTER	G
ADJUSTABLE SLIDE RAILS		PERMISSIBLE STARTS PER HR:	-
SOLEPLATES		MOTOR AT AMBIENT TEMP	-
PROJECT ELEV., FT.		MOTOR AT RATED TOTAL TEMP	-
SHAFT (HOLLOW, SOLID)		TYPE SEALED INSUL. SYS.	-
COUPLING (SELF-RELEASE)		DESCRIPTION OF INSUL. SYS.	Class B
SOLID, NONREVERSING			P.M.R.
ADJUSTABLE, FLEXIBLE			
VERT. MAX DOWNTHRUST			
VERT. MAX UPTHRUST			
VERT. MIN UPTHRUST			
VERT. MIN DOWNTHRUST			
(WITH MOTOR RUNNING)			
SIDE THRUST			
MAX REVERSE SPEED			
DRAIN PLUG AND VENT			
AIR INTAKE SCREENS			

Calc. No. IP3-CALC-ED-00207
Rev. 8
Appendix A.1 Sheet 1 of 1

REMARKS:	REMARKS:
ALL PERFORMANCE DATA BASED ON NORMAL RATED	ALL PERFORMANCE DATA BASED ON NORMAL RATED
VOLTAGE AND FREQUENCY	VOLTAGE AND FREQUENCY
ITEMS 34-44 APPLY TO VERTICAL MOTORS ONLY	INDICATE IF DATA IS ESTIMATED

* VIEWED FROM END OPPOSITE COUPLING END

INDUCTION MOTOR DATA SHEET

WESTINGHOUSE FORM 54082

No.				
1	PROJECT	WESTINGHOUSE ELECTRIC CORP.	S.O. NO.	54E-70491-B
2	FURNISHED BY	INGERSOLL-RAND CO.	DATE	?-23-6? BY F. [illegible]
3	MARK OR ITEM NO.	INT -ACA ROOM		
4	PURCHASER'S REQUIREMENTS		DATA FURNISHED BY SELLER	
5	SERVICE	COMPONENT COOLING	MAKE	WESTINGHOUSE ELECTRIC CORPORATION
6	TYPE	8X18SE	FRAME NO.	504US
7	NO. OF UNITS	SIX (6)	HORSEPOWER	250
8	MOUNTING		SERVICE FACTOR	1.15
9	ELEC. CHARACTERISTICS V. PH CY		FULL LOAD RPM	1768
10	SYNCH. SPEED, RPM		FULL LOAD AMP	282
11	HORSEPOWER		LOCKED ROTOR AMP	1407
12	SERVICE FACTOR		STARTING TORQUE, % F.L.	120%
13	ENCLOSURE		PULL-OUT TORQUE, % F.L.	200%
14	INSULATION CLASS		EFF.-FULL LOAD, %	93.4%
15	INSULATION TREATMENT		EFF.-3/4 LOAD, %	93.7%
16	AMBIENT TEMP.-C		EFF.-1/2 LOAD, %	93.3%
17	STATOR TEMP RISE-C		P.F.-FULL LOAD, %	89.1%
18	BEARING TYPE		P.F.-3/4 LOAD, %	89.0%
19	BEARING TEMP RELAY		P.F.-1/2 LOAD, %	85.7%
20	BEARING THERMOCOUPLE		P.F.-LOCKED ROTOR	28.2
21	HALF COUPL. OR SHEAVE MTD. BY		SPACE HTRS., TOTAL WATTS	---
22	ROTATION*		RADIAL BEARING-TYPE	---
23	WK² OF DRIVEN EQUIP.		THRUST BEARING-TYPE	---
24	BRKWY. TORQ. DRVN. EQUIP.		BEARING SERVICE-HR.	---
25	OVERSIZE COND. BOX		NORMAL BRG. OPER. TEMP.-C	60 DEGREES C TOT.
26	COND. BOX LOCATION*		NET WEIGHT-LB.	1475
27	SPACE HEATERS, VOLTAGE, PHASE		OIL COOL. SYS. REQ'D	---
28	SPLIT END BELLS		BRG. OIL PRESS. RANGE, PSI	---
29	TERMINAL LUGS, TYPE		BRG. OIL REQ'D EA. BRG. GPM	---
30	STATOR HIGH TEMP DEVICE		NAME PLATE CODE LETTER	D
31	ADJUSTABLE SLIDE RAILS		PERMISSIBLE STARTS PER HR:*	
32	SOLEPLATES		* MOTOR AT AMBIENT TEMP	2 (TWO)
33	PROJECT ELEV., FT.		* MOTOR AT RATED TOTAL TEMP	1 (ONE)
34	SHAFT (HOLLOW, SOLID)		TYPE SEALED INSUL. SYS.	CLASS B
35	COUPLING (SELF-RELEASE)		DESCRIPTION OF INSUL. SYS.	PREMIUM SHIELDED
36	SOLID, NONREVERSING		CALCULATIONS ON 460 VOLTS	
37	ADJUSTABLE, FLEXIBLE			
38	VERT. MAX DOWNTHRUST			
39	VERT. MAX UPTHRUST		*SUBSEQUENT STARTS	
40	VERT. MIN UPTHRUST		MOTOR RUNNING - 15 MIN. APART	
41	VERT. MIN DOWNTHRUST		" STANDING - 45 " APART	
42	(WITH MOTOR RUNNING)			
43	SIDE THRUST			
44	MAX REVERSE SPEED			
45	DRAIN PLUG AND VENT			
46	AIR INTAKE SCREENS		Calc No. IP3-CALC-ED-00207	
47			Rev. 8	
48			Appendix A.2 Sheet 1 of 1	
49				
50				
51				
52	REMARKS:		REMARKS:	
53	ALL PERFORMANCE DATA BASED ON NORMAL RATED		ALL PERFORMANCE DATA BASED ON NORMAL RATED	
54	VOLTAGE AND FREQUENCY		VOLTAGE AND FREQUENCY	
55	ITEMS 34-44 APPLY TO VERTICAL MOTORS ONLY		INDICATE IF DATA IS ESTIMATED	CALCULATED DAT
56	I-R FACTORY ORDER NO. 037-30650			
57	ITEMS 1 & 2		INGERSOLL-RAND ORDER NO. C502453	
58			WESTINGHOUSE FACTORY NO. NY-35520	
59				
60	* VIEWED FROM END OPPOSITE COUPLING END			

Cont Recirc Fan

Cont Recirc End

WESTINGHOUSE ELECTRIC CORPORATION

MOTOR DIVISION, BUFFALO, N.Y.

Calc No. IP3-CALC-ED-00207, Rev. 8

Appendix A.3 Sheet 1 of 4

225 HP, 440 V, 30

REPORT OF COMMERCIAL TESTS - INDUCTION MOTOR

DATE	STYLE NO.	S.O.NO.	C.O.NO.	PURCHASER'S ORDER NO.
11/5/70		69F97009	NY-78526-AR6-L7-1	

PURCHASER

Westinghouse Nuclear Energy Systems-Indian Point #3 Spin # Int. RCMOCF1-5

NAME PLATE DATA

H.P.	SPEED	PHASE	FREQ.	VOLTS	AMPS.	TYPE	FRAME	TEMP. RISE	TIME RATING	DESIGN (LETTER)	LOCKED KVA CODE LETTER
225	699	3	60	440	312	USP	588.5S	70°C	Cont.	B	E

TEST CHARACTERISTICS

4.75×

SERIAL NO.	NO LOAD					LOCKED ROTOR				OPEN CIRCUIT VOLTAGE (ROUND ROTOR)	DIELECTRIC TEST
	VOLTS	FREQ.	SPEED	AMPS.	Watts	VOLTS	FREQ.	AMPS.	Vibration		
1	440	60	720	148.5	5200				F-.00019		2500
				145.5					R-.0008		
				148.5					A-.0004		
Heater	120			2.01		Rot. per NP55853					1300
						Submerged in water - -					500
2	440	60	720	147	4800				F-.0003		2500
				148					R-.0003		
				147					A-.0002		
Heater	120			2.1		Rot. per NP55853					1300
						Submerged in Water - -					500
3	440	60	720	143.6	5280				F-.00013		2500
				142					R-.00021		
				145.4					A-.00012		
Heater	120			2.04		Rot. per NP55853					1300
						Submerged in Water					500

TESTS ON THIS MOTOR DUPLICATE

APPROVED BY _____ ENGINEER

DATE _____

Calc. No. – IP3-CALC-ED-00207, Rev. 8, Appendix A.3 sheet 2 of 4

WESTINGHOUSE ELECTRIC CORPORATION

MOTOR DIVISION, BUFFALO, N.Y.

REPORT OF COMMERCIAL TESTS – INDUCTION MOTOR

DATE	STYLE NO.	S.O.NO.	O.O.NO.	PURCHASER'S ORDER NO.
		69F97009		

PURCHASER

NAME PLATE DATA

H.P.	SPEED	PHASE	FREQ.	VOLTS	AMPS.	TYPE	FRAME	TEMP. RISE	TIME RATING	DESIGN (LETTER)	LOCK CODE

TEST CHARACTERISTICS

SERIAL NO.	NO LOAD					LOCKED ROTOR				OPEN CIRCUIT VOLTAGE (FOUND ROTOR)	DIELECTR TEST
	VOLTS	FREQ.	SPEED	AMPS.	Watts	VOLTS	FREQ.	AMPS.	Vibration		
4	440	60	720	143.8	5120				F-.00041		.2500
				144.2					R-.00024		
				144.6					A-.00016		
Heater	120			2.02			Rot. per NP		55853		1300
									Submerged in Water -		500
5	440	60	720	141.6	5200				F-.00026		2500
				146.6					R-.00031		
				141.4					A-.00011		
Heater	120			2.02			Rot. per NP		55853		13
									Submerged in Water -		500

TESTS ON 115 MOTOR

WESTINGHOUSE ELECTRIC CORPORATION
STURTEVANT DIVISION
ORDER NO. PHY 2027-5

BHP

SP

8560D S.W.S. FAN
712 R.P.M. - DENSITY 0.0750 LBS/CU/FT.
OUTLET AREA 20.71 SQ.FT.

FOR
WESTINGHOUSE NUCLEAR
ENERGY SYSTEMS INT

LABORATORY TEST PERFORMANCE

20 30 40 50 60 70 80 90 100

VOLUME (C.F.M. X 1000)

Calc. No. IP3-CALC-ED-00207
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Appendix 4.3
Sheet 3 of 4

PROGRAM MET137 [illegible] [illegible] [illegible] [illegible] DATE-690918 [illegible] PAGE 2

TYPE	FRAME	H.P.	[illegible]	FREQ	[illegible]	[illegible]	S.F.	TIME	DESIGN	VOLTAGE	[illegible] CLASS
[illegible]	500.5	[illegible]	[illegible]	60.	3P	70.	1.15	20.00	[illegible]	2300.	[illegible]

PHASE	LINE VOLTAGE	WIRE TYP.	[illegible]	WIRE WEIGHT	PHASE VOLTS	TOTAL (CORE LENGTH)	STATOR	ROTOR	STATOR I.D.	ROTOR O.D.	SINGLE AIR-GAP
3.	440.	[illegible]	[illegible]	0.970	[illegible]	18.000	16.125	16.125	17.970	17.912	0.0310

	ASSEMBLY	PUNCHING	VENTS	SLOTS	IRON	THICK		IDENT.		
STATOR	2743D52G10	[illegible]	5X0.375	120.	1050ZPP	0.018	2743D44002	UPPER	[illegible]
ROTOR	2743D40G10	[illegible]	5X0.375	86.	1C502PP	0.018	2743D44002	LOWER	[illegible]

NOISE	LOCKING	[illegible]	[illegible]	SHAFT	[illegible]	SKEW	RING COND	COND	BAR LENGTH	WIDTH	BAR DEPTH
				N	234.	0.0	0.400	1.090	22.990	.188	0.750

UNIT P	UNIT E	UNIT I	UNIT Z	UNIT T	UNIT N
155160.	440.0	117.551	1.749	1517.20	120.

LB-CU	THROW	BALANCE	[illegible]	PAR	TPC	MCL	VCUI	VR	VB	LOET
259.00	12.	YES	3	5.	0.	32.923	777.316	100.000	203.490	30.440

W1	W2	TK1	P1	TK2	P2	A	SPACE-W	SPACE-D	[illegible]	KVAR	[illegible]
.162	.6	.081	1	.8	0	I	0.032	0.110	0.00135	74.4	92.4

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0.0317	0.0432	192.771	4027.	1.24032	0.01911	42.45	113.55	79.79	77.07	34.08	176.80

		SLIP	RPM	EFF	P.F.	[illegible]	[illegible]	INPUT	LOSSES	[illegible]	CUI/LB
LOCKED	ROTOR	100.00	0.	0.0	33.3	0.0	2290.50	363372.	363372.	1432.279	476.38
BREAK	DOWN	13.74	621.	75.5	67.4	470.66	4009.01	477650.	115076.	919.908	109.58
1-1/4	LOAD	3.45	695.	90.7	79.2	259.90	1963.53	213655.	19898.	353.905	29.09
1.15	LOAD	3.11	698.	91.1	78.2	239.14	1800.39	193747.	17470.	328.325	25.03
FULL	LOAD	2.64	701.	91.6	76.09	207.93	1557.86	164338.	14323.	292.311	19.86
3/4	LOAD	1.91	706.	92.0	69.5	156.93	1160.36	124558.	10233.	238.904	13.29
1/2	LOAD	1.24	711.	91.4	57.1	104.03	760.37	84905.	7350.	194.957	8.83

		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] LOSSES	[illegible]	O/O SAT
LOCKED	ROTOR	0.01612	0.03100	0.08704	0.04026	0.0	1.90974	2.34193	2.34180	7.03459	83.6
BREAK	DOWN	0.01612	0.02031	0.08850	0.06388	2.30113	2.06914	3.04605	0.74679	4.51810	94.1
1-1/4	LOAD	0.01612	0.02031	0.08922	0.07269	1.24954	1.29418	1.37693	0.12824	1.73019	100.0
1.15	LOAD	0.01612	0.02031	0.08922	0.07269	1.14970	1.18665	1.26151	0.11258	1.61250	100.0
FULL	LOAD	0.01612	0.02031	0.08922	0.07269	0.99968	1.02679	1.09192	0.09231	1.43567	100.0
3/4	LOAD	0.01612	0.02031	0.08922	0.07269	0.75017	0.76481	0.81562	0.06595	1.17337	100.0
1/2	LOAD	0.01612	0.02031	0.08922	0.07269	0.50015	0.50044	0.54718	0.04737	0.95753	100.0

LOSSES(WATTS)	CORE	[illegible]	[illegible]	FCW	S.L.	TOTAL		[illegible]	[illegible]	[illegible]	[illegible]
1.15-LOAD	2965.	6505.	5741.	231.	2028.	17470.	X NO KVAR	1.334	0.14301	0.17	0.0101
FULL-LOAD	2965.	5150.	4213.	234.	1755.	14323.	X WITH KVAR	3.079	0.15393	0.44	

	CUI/LB	[illegible]	[illegible]	[illegible]	CUB/LB	[illegible]
LOCKED ROTOR	476.38	2.44	176.16	1.01	2467.43	14.06

PERFORMANCE	PUT/FLT	[illegible]	[illegible]	[illegible]	TS/FLT	[illegible]	[illegible]	[illegible]
SPECIFIED	2.00	0.0- 2.5	92.1	79.0	1.20	5.80		70.
CALCULATED	2.00	2.[illegible]	91.0	76.0	1.47	5.23	-5	61.

[illegible] INDICATES THE PER UNIT VALUE BASED ON 155.17 KVA [illegible] FILE [illegible] 69-09-15, PROGRAM REVISION DATE 69-04-23

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Appendix A.3
Sheet 4 of 4

INDUCTION MOTOR DATA SHEET Recirculation Pumps
WESTINGHOUSE FORM 54082

PROJECT WESTINGHOUSE ELECTRIC CORP. S.O. NO. 67F63897
FURNISHED BY INGERSOLL-RAND CO. DATE 2-12-68 BY F. CAMPBELL
MARK OR ITEM NO. INT PLANT

PURCHASER'S REQUIREMENTS	DATA FURNISHED BY SELLER
SERVICE VERTICAL, SAFETY INJECTION RECIRCULATION	WESTINGHOUSE ELEC. CORP.
TYPE 2E APS-3	FRAME NO. 5S8.5 PH
NO. OF UNITS FOUR (4) (2 ea. PLANT)	HORSEPOWER 350
MOUNTING	SERVICE FACTOR 1.15
ELEC. CHARACTERISTICS V. PH CY	FULL LOAD RPM 1183
SYNCH. SPEED, RPM	FULL LOAD AMP 418
HORSEPOWER	LOCKED ROTOR AMP 2425
SERVICE FACTOR	STARTING TORQUE, % F.L. 125%
ENCLOSURE	PULL-OUT TORQUE, % F.L. 220%
INSULATION CLASS	EFF.-FULL LOAD, % 93.7%
INSULATION TREATMENT	EFF.-3/4 LOAD, % 93.9%
AMBIENT TEMP.-C	EFF.-1/2 LOAD, % 93.4%
STATOR TEMP RISE-C	P.F.-FULL LOAD, % 87.4%
BEARING TYPE	P.F.-3/4 LOAD, % 85.0%
BEARING TEMP RELAY	P.F.-1/2 LOAD, % 77.9%
BEARING THERMOCOUPLE	P.F.-LOCKED ROTOR 32.8%
HALF COUPL. OR SHEAVE MTD. BY	SPACE HTRS., TOTAL WATTS ---
ROTATION*	RADIAL BEARING-TYPE BALL
WK² OF DRIVEN EQUIP.	THRUST BEARING-TYPE BALL
BRKWY. TORQ. DRVN. EQUIP.	BEARING SERVICE-HR. B-10 LIFE 1000 HR.
OVERSIZE COND. BOX	NORMAL BRG. OPER. TEMP-C 40 DEGREES C
COND. BOX LOCATION*	NET WEIGHT-LB. 4200 LBS
SPACE HEATERS, VOLTAGE, PHASE	OIL COOL. SYS. REQ'D YES
SPLIT END BELLS	BRG. OIL PRESS. RANGE, PSI ----
TERMINAL LUGS, TYPE	BRG. OIL REQ'D EA. BRG. GPM STAMPED ON NAMEPLATE
STATOR HIGH TEMP DEVICE	NAME PLATE CODE LETTER F
ADJUSTABLE SLIDE RAILS	PERMISSIBLE STARTS PER HR: ---
SOLE PLATES	MOTOR AT AMBIENT TEMP 3
PROJECT ELEV., FT.	MOTOR AT RATED TOTAL TEMP 2
SHAFT (HOLLOW, SOLID)	TYPE SEALED INSUL. SYS.
COUPLING (SELF-RELEASE)	DESCRIPTION OF INSUL. SYS. THERMALASTIC EPOXY
SOLID, NONREVERSING	WITH HAND LAID MICA FOR 2300
ADJUSTABLE, FLEXIBLE	VOLT CLASS
VERT. MAX DOWNTHRUST	
VERT. MAX UPTHRUST	
VERT. MIN UPTHRUST	
VERT. MIN DOWNTHRUST	
(WITH MOTOR RUNNING)	
SIDE THRUST	
MAX REVERSE SPEED	
DRAIN PLUG AND VENT	Calc. No. IP3-CALC-ED-00207
AIR INTAKE SCREENS	Rev. B
	Appendix A.4
	Sheet 1 of 3
REMARKS:	REMARKS:
ALL PERFORMANCE DATA BASED ON NORMAL RATED	ALL PERFORMANCE DATA BASED ON NORMAL RATED
VOLTAGE AND FREQUENCY	VOLTAGE AND FREQUENCY
ITEMS 34-44 APPLY TO VERTICAL MOTORS ONLY	INDICATE IF DATA IS ESTIMATED ALL INFO CALCULATED
I-R FACTORY ORDER NO. 037-30600	
	INGERSOLL-RAND ORDER NO. C592270
	WESTINGHOUSE FACTORY NO. NY 35573-L7
* VIEWED FROM END OPPOSITE COUPLING END	

MOTOR DATA

Calc No IP3-CALC-ED-00207
Rev. 0
Appendix A.4
Sheet 2 of 3

UNIT: Indian Point Unit Nos. 2 and 3

COMPONENT: Recirculation Pumps

MOTOR MANUFACTURER: Westinghouse Large Motor Division, Buffalo, New York

MOTOR SHOP ORDER NUMBER AND/OR SERIAL NUMBER: 67F63897-1S through 4S-67

MOTOR H.P. RATING: 350 @ 1181 RPM MOTOR FRAME SIZE: 588.5

MOTOR WRR = 313 LB-FT^2

LINE VOLTAGE: 440 (100%)

SLIP (PERCENT)	MOTOR SPEED (RPM)	MOTOR TORQUE (LB-FT)
100.00	0	2067.47
95.00	60	2092.84
90.00	120	2120.03
85.00	180	2149.27
80.00	240	2180.79
75.00	300	2201.22
70.00	360	2219.39
65.00	420	2242.09
60.00	480	2270.12
55.00	540	2304.55
50.00	600	2346.76
45.00	660	2315.83
40.00	720	2386.40
35.00	780	2473.89
30.00	840	2583.64
25.00	900	2723.22
20.00	960	2903.66
15.00	1020	3157.02
10.00	1080	3517.62
9.50	1086	3555.48
9.00	1092	3592.23
8.50	1098	3610.73
8.00	1104	3658.74
7.50	1110	3698.61
7.00	1116	3727.61
6.50	1122	3742.37
6.00	1128	3738.79
5.50	1134	3711.89
5.00	1140	3655.77
4.50	1146	3563.58
4.00	1152	3427.60
3.50	1158	3239.44
3.00	1164	2999.32
2.50	1170	2690.21
2.00	1176	2301.36
1.50	1182	1828.88
1.24	1185	1551.96

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APPENDIX A.4
SHEET 3 OF 3

of using motor efficiency and power factor.

5.0 EVALUATION (continued)

The matrix of values for FLOW, BHP, CURRENT (MOTOR RATING) AND CURRENT (DEGRADED GRID) is the following:

FLOW(GPM)	BHP	CURRENT (AMPS) MOTOR RATING 440 VAC (BUS NOMINAL VOLTAGE 480 VAC)	CURRENT (AMPS) DEG GRID 422 VAC (BUS NOMINAL VOLTAGE 480 VAC)
3000	335	440	458
3250	348	457	476
3500	352	462	482
3530*	354	465	484
3750	365	479	499
4000	368	483	503

* flow limit based on mechanical / hydraulic restrictions

6.0 SUMMARY:

Considering the nominal amptector setting of 540 amps and a maximum realistic amptector variance on the low side to 486 amps, it can be seen that even under DEGRADED GRID conditions, the pump would not be expected to trip below 3530 gpm. This expectation is conservative given the method of calculating ampere loading via the BPH conversion formula being used in Section 5.0. Additionally, operator remedial action for re-establishing normal bus voltage will be annunciated prior to voltage falling to the motor's rated voltage of 440 Vac. It can therefore be concluded that the Recirculation Pumps can be expected to run without a motor overcurrent trip for all flow values covered by the Recirc Pump curve as long as the pump rated voltage of 440 volts is being supplied to its terminals. Additionally, it can be concluded that a single Recirc pump will be capable of supplying the NPSH limited flow of 3530 gpm even under degraded grid conditions.

PROJECT WESTINGHOUSE ELECTRIC CORPORATION S.O. No. 54E70491-B

FURNISHED BY INGERSOLL-RAND CO. DATE 2/23/68 BY F. CAMPBELL

MARK OR ITEM NO INT - S1APCS4

PURCHASER'S REQUIREMENTS	DATA FURNISHED BY SELLER
SERVICE CONTAINMENT SPRAY	MAKE WESTINGHOUSE ELECTRIC CORP.
TYPE 8X21A	FRAME NO. 5090
NO. OF UNITS FOUR (4) (TWO EA. PLANT)	HORSEPOWER 400
MOUNTING	SERVICE FACTOR 1.15
ELEC. CHARACTERISTICS V. PH CY	FULL LOAD RPM 1776
SYNCH. SPEED. RPM	FULL LOAD AMP 438
HORSEPOWER	LOCKED ROTOR AMP 2487
SERVICE FACTOR	STARTING TORQUE, % F.L. 130%
ENCLOSURE	PULL-OUT TORQUE, % F.L. 240%
INSULATION CLASS	EFF.-FULL LOAD, % 94.4%
INSULATION TREATMENT	EFF.-3/4 LOAD, % 94.7%
AMBIENT TEMP-C	EFF.-1/2 LOAD, % 94.4%
STATOR TEMP RISE-C	P.F.-FULL LOAD, % 90.6%
BEARING TYPE	P.F.-3/4 LOAD, % 90.0%
BEARING TEMP RELAY	P.F.-1/2 LOAD, % 86.3%
BEARING THERMOCOUPLE	P.F.-LOCKED ROTOR 29.7
HALF COUPL. OR SHEAVE MTD. BY	SPACE HTRS., TOTAL WATTS ---
ROTATION*	RADIAL BEARING-TYPE ----
WK^2 OF DRIVEN EQUIP. 35 LB. - FT.^{2}	THRUST BEARING-TYPE ---
BRKWY. TORQ. DRVN. EQUIP. 11.0 LB. - FT.	BEARING SERVICE-HR. ---
OVERSIZE COND. BOX	NORMAL BRG. OPER. TEMP-C 60 DEGREES TOTAL
COND. BOX LOCATION*	NET WEIGHT-LB. 2860 LBS.
SPACE HEATERS, VOLTAGE, PHASE	OIL COOL. SYS. REQ'D ---
SPLIT END BELLS	BRG. OIL PRESS. RANGE, PSI ---
TERMINAL LUGS, TYPE	BRG. OIL REQ'D EA. BRG. GPM ---
STATOR HIGH TEMP DEVICE	NAME PLATE CODE LETTER E
ADJUSTABLE SLIDE RAILS	PERMISSIBLE STARTS PER HR: *
SOLEPLATES	**MOTOR AT AMBIENT TEMP 2 (TWO)
PROJECT ELEV., FT.	*MOTOR AT RATED TOTAL TEMP 1 (ONE)
SHAFT (HOLLOW, SOLID)	TYPE SEALED INSUL. SYS. CLASS B
COUPLING (SELF-RELEASE)	DESCRIPTION OF INSUL. SYS. THERMALASTIC EPOXY
SOLID, NONREVERSING	
ADJUSTABLE, FLEXIBLE	CALCULATIONS BASED ON 460V
VERT. MAX DOWNTHRUST	
VERT. MAX UPTHRUST	
VERT. MIN UPTHRUST	*SUBSEQUENT STARTS
VERT. MIN DOWNTHRUST	MOTOR RUNNING - 15 MIN. APART
(WITH MOTOR RUNNING)	MOTOR STANDING - 45 MIN. APART
SIDE THRUST	
MAX REVERSE SPEED	
DRAIN PLUG AND VENT	Calc. No IP3-CALC-ED-00207
AIR INTAKE SCREENS	Rev. 8
	Appendix A.5
	Sheet 1 of 1
REMARKS:	REMARKS:
ALL PERFORMANCE DATA BASED ON NORMAL RATED	ALL PERFORMANCE DATA BASED ON NORMAL RATED
VOLTAGE AND FREQUENCY	VOLTAGE AND FREQUENCY
ITEMS 34-44 APPLY TO VERTICAL MOTORS ONLY	INDICATE IF DATA IS ESTIMATED
I-R FACTORY ORDER NO. 037-30650	
ITEMS 9 & 8	INGERSOLL-RAND ORDER NO. C-592453
	WESTINGHOUSE FACTORY N. N.Y. 35820
* VIEWED FROM END OPPOSITE COUPLING END	

Coat Spray Pump — BUFFALO, N.Y.

Date 11/2/81

POWER AUTHORITY STATE OF NEW YORK — Stock Order No. 81F32506

NY 30084 — H.P. 400 — Volts 460 — Phase 3 — Class B — Insulation

5009SZ HSDP — Poles 4 — R.P.M. 1761 — Cycles 60

	1	2	3	COMMENTS
				Stator Res. @ 24°C
Amperes Per Terminal at no load 460 Volts	112			T_1 T_2 - .01416
Watts input at no load	6400			T_1 T_3 - .01416
Rotor Res. (T-T) at 75° C - ohms	.017			T_2 T_3 - .01430
Starting Winding Res. at 75° C - ohms				
Rotor Res. (bot rings) at 75° C - ohms				Phase Rotation per MP55853
LOSSES IN WATTS AT FULL LOAD				
Stray Load Loss				
Stator I^2R Loss				Vibration with 1/2 Key
Rotor I^2R Loss				Front / Rear
Core Loss				Horz. .00024 / .0002
Friction and Windage Loss				Vert. .00011 / .0001
Efficiency - Full Load	93.4			Axial .00055 / .00011
- ¾ Load	93.9			
- ½ Load	93.7			
Power Factor Full Load	89.5			
- ¾ Load	88.2			
- ½ Load	83.3			
Amps Full Load	1764			
Amps Per Term. at full load	448.5			
Watts at full load	319.6			
Amps per Term-Rotor Locked 460 V	2327			
Watts input-Rotor locked	584			
Rotor Sec. Volts between rings				
Rotor Amps per ring at full load				
Full Load Torque (F.L.T.) in lb. ft.	1190.5			
Max. Torque in % of F.L.T.	239			
Starting Torque in % of F.L.T.	139			
End Play Tested	OK			
Balance Tested	OK			
Stator Ins Tested 2000 V 60 Sec.	OK			
Rotor Ins Tested V Sec.				
TEMPERATURE TESTS				
Length of Test in hours	4.50			
Volts	460			
Normal Full Load Amp.	115			
Temp. Rise - Stator Copper by Res.	59			
degrees C - Stator Iron	63.5			
Total Temp. - Rotor Copper Bearing Front	29	Total		
Rotor Iron Rear	33	Temp.		
Room temperature in °C	26			

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Sheet 1 of 3

Nos.

The above is a true and correct record of data obtained from tests made at the works of Westinghouse Electric Corporation.

EPORT OF TESTS ON INDUCTION MOTORS
orm 2958K

Signed R. P. Simpson 12-9-81 Engin

P.O.# 80-IP-1985 REQ# 50621 PASNY PART#

(W) MOTOR 400 H.P. (WAREHOUSE) LIFELINE A MOTOR 01-09-250
RPM 1776, FRAME 5006S
PREVIOUS S.O. 68F15104

(W) MOTOR 400 H.P LIFE LINE A MOTOR 01-44-585
3559 RPM FRAME 509-US

(W) MOTOR 400 H.P.
RPM 1761, FRAME 5009SZ HSDP
S.O. 81F32506

NYPA MEMOS
REQUISITION # 50621
MEMO - CONTAINMENT SPRAY PUMP MOTOR
ORIGINAL FRAME # 509US
REPLACE WITH FRAME # 5006-S

REQUISITION # 50603
AUX BOILER FEED PUMP MOTOR
REQUISITION # 50621
CONTAINMENT SPRAY PUMP MOTOR
REQUISITION # 50029
COMPONENT COOLING PUMP MOTOR

(W) MEMOS MARCH 5, 1980
P.O. 78-IP-3536

(W) MOTOR 438 HP

MEMO JULY 15, 1981
P.O. 80-IP-1985
CALLS FOR 400 H.P. FRAME 5006S MOTOR
WILL FURNISH A 5009SZ FRAME MOTOR
INPLACE OF 509US FRAME MOTOR
THE 5009SZ WILL BE FURNISHED WITH SPECIAL SHAFT
EXTENSION TO MATCH THE 509US FRAME SHAFT

MEMO NO DATE (SOMETIME IN 1979)
PREVIOUS S.O. 68F15104
FRAME 5006S (W) MOTOR
REQUEST IN ENTIRE INFO

LEGEND

P.O. 80-IP-1985 FEB. 26, 1982
RPM PROBLEM (W) RESPONSE
IS NOT A CONCERN

NYPA Q.C. ACCEPTANCE OF P.O.# 80-IP-1985
CONT. SPRAY PUMP
(W) MOTOR
400 HP, 460V, 500 9SZ FRAME
STYLE 81-F32506
1761 RPM MODEL WSDP 35R# 15-81
S.O NO. 81F32506
DRAWING 2400D03 REV 1 - SHOULD BE FOR 500982
DRAWING 8933D45 SUB 1 - FOR 5009S - 5006S

(W)
MEMO
4D INT 5245 REQ 50621 S.O. 68F15104
QUESTIONS SHAFT LENGTH - SPECIAL SHAFT EXT.
STATES FRAME/MOUNTING (500982) WOULD MATCH 509US
NOTE: WOULD HAVE MATCHED MOUNTING DIM.

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AFWP 31

AC MOTOR PERFORMANCE DATA
(AS TESTED VALUES)

Rel SO	Frame	Hp	Type	Ph/Hz	RPM	Volts
FNA 7704	E5008S	400	PB	3/60	3574	440
Amps	Duty	Amb/Insul.	S.F.	KVA/Hp	Encl.	Stator Res.
460	Continuous	40° C / F	1.15	F	PROT	0.01064

TYPICAL PERFORMANCE

Load	Hp	Amperes	RPM	% P. F.	% Efficiency
NO LOAD	———	120	3600	6.1 %	———
1/4	100	165	3593	64.4 %	92.3 %
1/2	200	251	3585	82.1 %	94.9 %
3/4	300	355	3577	87.0 %	95.4 %
FULL LOAD	400	468	3568	88.1 %	95.1 %
S. F.	460	542	3562	87.8 %	94.8 %

SPEED TORQUE

	RPM	Torque (% FLT)	Torque (ft.-lb.)	Torque (N-m)	Amperes
Locked Rotor	0	110 %	644	873	2512
Breakdown	3408	235 %	1382	1874	1645
Full Load	3568	100 %	588	797	468

802 - 7704.002

RELIANCE ELECTRIC	DR. BY: Abel Ramos	DATE	
	APP. BY:	DATE 3-14-97	
DOCUMENT NUMBER: 7704.009		REVISION #: 0	

CALC. No IP3-CALC-ED-00207 REV. 8
APPENDIX A.7 SHEET 1 OF 2

AFWP 31

Facsimile
Reliance Electric
Motors Group
678 Erie Street
Stratford, Ontario N5A 6W1

Rockwell Automation
Reliance Electric

To : Joe Raffaele **Date:** May 5, 1997

Company: NYPA

Fax No.: 1 914 681 6482

Subject:. Rotor WK square

Copy:

Total Pages: 1
(including cover)

From: *R. W. (BOB) DALLY* Phone: **519-271-3630** Fax: **519-271-1643**
Internet: **rwdally@re.ra.rockwell.com**

Joe engineering informs me that the WK sq. is 61 lb./ft/sq. on this unit FNA-7704 .

REGARDS:
5/06/97

CALC. No. IP3-CALC-ED-00207 REV. 8
APPENDIX A.7 SHEET 2 OF 2

AFWP 33

RELIANCE ELECTRIC

64999

24701 Euclid Avenue, Cleveland, Ohio 44117

Calc. No. IP3-CALC-ED-00207
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REPORT OF TEST
For Induction Motor

Purchaser: CONSOLIDATED EDISON CO.
P.O. BOX 799 COOPER STATION
NEW YORK, NEW YORK 10276-0799

Date of Test: 6/15/89
Purchaser's Order No.: 6-696017
Serial No.: VH883732 A2

P.O. # 6696017
SERIAL # VH883732 A1/A2
STATION: PEEKSKILL
APPLICATION: "SAFETY INJECTION PUMP MOTOR"
"AUXILIARY FEEDWATER PUMP MOTOR"

Nameplate Rating

Rated HP	Service Factor	Rated Speed r/min	Phase	Frequency Hz	Volts	Amperes	Type	Frame
400	1.16	3874	3	60	440	480	P	E50083

Temperature Rise

Conditions of Test				Temperature Rise °C					
				Stator		Rotor			
				Windings			Windings		
Hours Run	Line Volts	Line Amperes	Cooling Air, °C	*By RES. Method	*By --- Method	---	*By --- Method		
3.5	440	466	28.6	75.0		----------		1.15SF	

Characteristics

Rated Slip, Percent	No-Load Line Current, amperes	Secondary Volts at Standstill	Secondary Amperes per Ring at Rated Load	Resistance at 25°C (between lines) ohms
.76	126	---------	------	Prim. .01100
				Sec. -------

Torque and Starting Current

Break-Down Torque in LB.-FT. ** with 50% volts applied	Locked-Rotor Torque in LB.-FT. ** with 61% volts applied	Starting Current Amperes (locked rotor) with 61% volts applied
341	228	1509.1

High Potential Tests

Volts a-c for 60 Sec Stator	Rotor
2000	---

Efficiencies and Power Factor

Efficiency, Percent			Power Factor, Percent		
Rated Load	75 Percent Load	50 Percent Load	Rated Load	75 Percent Load	50 Percent Load
94.72	94.88	94.40	87.3	85.5	79.8

Notes: DATA BY ..J.N. ACHOB... CHECKED BY R.H.M. McCarty...

Data from test on THIS (this or duplicate) motor.

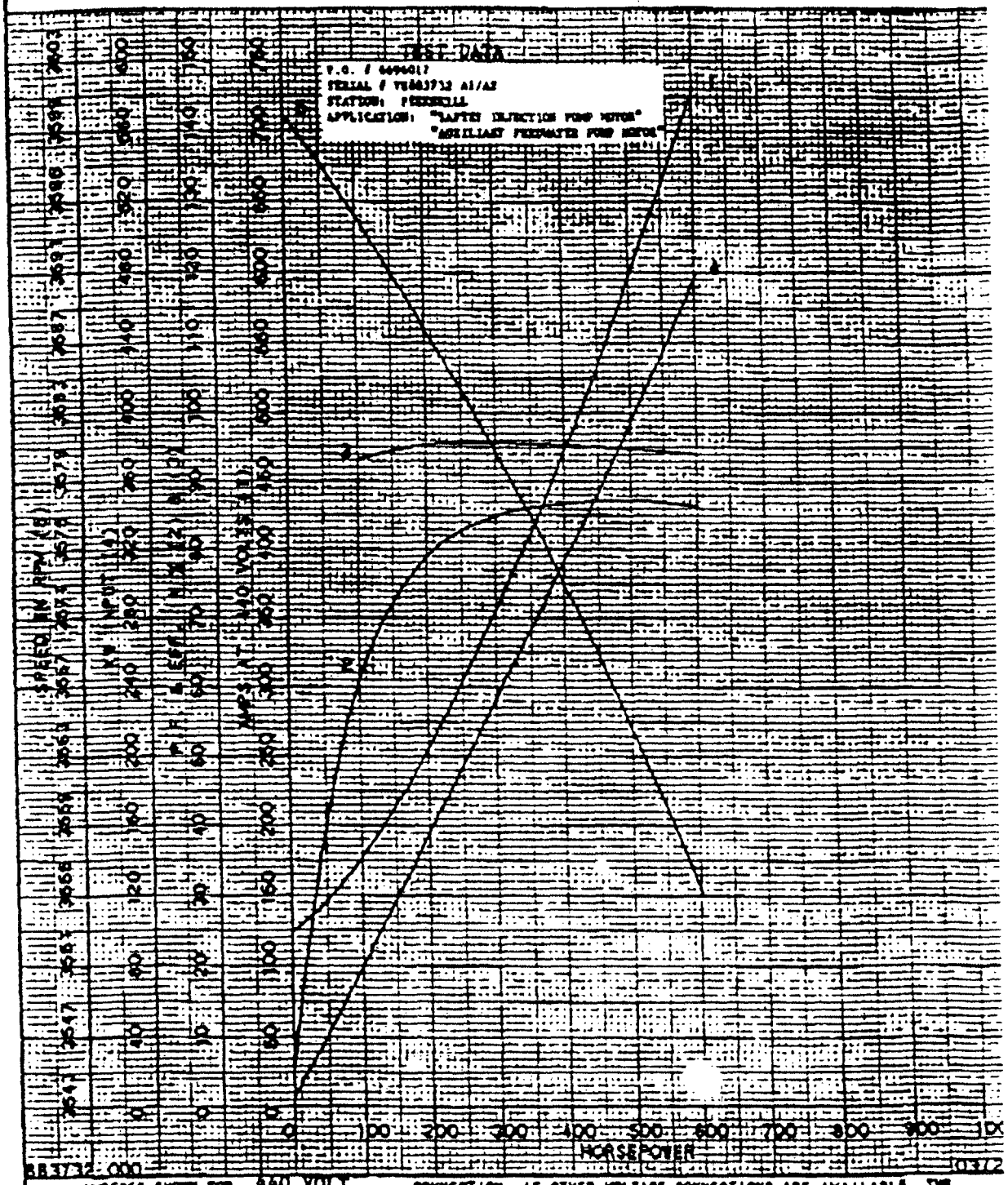
*Indicate method as:
Thermometer
Thermocouple
Resistance
Embedded Detector

Approved by Frank Hueber Date 6-21-89

AFWP 33

Calc. No. IP3-CALC-ED-00207

REL S.O. YH-863732	RPM 3674	S.F. 1.15	MOTOR —
FRAME E5008S	VOLTS 440	NEMA DESIGN B	TEST S.O. YH-863732 - A1
HP 400	AMPS 460	CODE LETTER F	TEST DATE 3-28-89
TYPE P	DUTY CONT	ENCLOSURE PROT	STATOR RES.@ 25°C .01089
PHASE/HERTZ 3/60	AMBIENT/RISE 40/F	S/S --	OHMS (BETWEEN LINES)



863732.000 0372

AMPERES SHOWN FOR 440 VOLT CONNECTION. IF OTHER VOLTAGE CONNECTIONS ARE AVAILABLE, THE AMPERES WILL VARY INVERSELY WITH THE RATED VOLTAGE.

RELIANCE ELECTRIC
CLEVELAND, OHIO 44117 U.S.A.

DR. BY [signature] 3/29/89
CK. BY [signature]
APP. BY [signature] 3-29-89
DATE

A-C MOTOR PERFORMANCE CURVES

V54999.TST1

ISSUE DATE 3-29-89

INDUCTION MOTOR SPECIFICATION
Westinghouse Form 54082

PROJECT Westinghouse Electric Corp. S.O. NO. 54-E-70491-B
FURNISHED BY Ingersoll-Rand Company DATE 2-22-68 BY F. Campbell
MARK OR ITEM NO. INT-1CA P211-4

PURCHASER'S REQUIREMENTS	DATA FURNISHED BY SELLER
SERVICE Residual Heat Removal	MAKE Westinghouse Electric Corporati
TYPE 8X2Cd	FRAME NO. 509 HPZ
NO. OF UNITS Four (4) (two each plant)	HORSEPOWER 400
MOUNTING	SERVICE FACTOR 1.15
ELEC. CHARACTERISTICS V. PH CY	FULL LOAD RPM 1776
SYNCH. SPEED, RPM	FULL LOAD AMP 438
HORSEPOWER	LOCKED ROTOR AMP 2487
SERVICE FACTOR	STARTING TORQUE, % F.L. 130%
ENCLOSURE	PULL-OUT TORQUE, % F.L. 240%
INSULATION CLASS	EFF.-FULL LOAD, % 94.47
INSULATION TREATMENT	EFF.-3/4 LOAD, % 94.77
AMBIENT TEMP.-C	EFF.-1/2 LOAD, % 94.47
STATOR TEMP RISE-C	P.F.-FULL LOAD, % 90.67
BEARING TYPE	P.F.-3/4 LOAD, % 90.07
BEARING TEMP RELAY	P.F.-1/2 LOAD, % 86.3%
BEARING THERMOCOUPLE	P.F.-LOCKED ROTOR 29.7
HALF COUPL. OR SHEAVE MTD. BY	SPACE HTRS., TOTAL WATTS
ROTATION*	RADIAL BEARING-TYPE
WK² OF DRIVEN EQUIP. 48 lb - ft.²	THRUST BEARING-TYPE
PRKWY. TORQ. DRVN. EQUIP. 10.6 lb ft	BEARING SERVICE-HR.
OVERSIZE COND. BOX	NORMAL BRG. OPER. TEMP.-C 60°C
COND. BOX LOCATION*	NET WEIGHT-LB. 3400
SPACE HEATERS, VOLTAGE, PHASE	OIL COOL. SYS. REQ'D
SPLIT END BELLS	BRG. OIL PRESS. RANGE, PSI
TERMINAL LUGS, TYPE	BRG. OIL REQ'D EA. BRG. GPM
STATOR HIGH TEMP DEVICE	NAME PLATE CODE LETTER F
ADJUSTABLE SLIDE RAILS	PERMISSIBLE STARTS PER HR: *
SOLEPLATES	* MOTOR AT AMBIENT TEMP 2 (two)
PROJECT ELEV., FT.	* MOTOR AT RATED TOTAL TEMP 1 (one)
SHAFT (HOLLOW, SOLID)	TYPE SEALED INSUL. SYS. WPI
COUPLING (SELF-RELEASE)	DESCRIPTION OF INSUL. SYS. Class B Thermalast
SOLID, NONREVERSING	Epoxy
ADJUSTABLE, FLEXIBLE	
VERT. MAX DOWNTHRUST	
VERT. MAX UPTHRUST	* Subsequent Starts:
VERT. MIN UPTHRUST	Motor running - 15 minure apart
VERT. MIN DOWNTHRUST	Motor standing - 45 minure apar
(WITH MOTOR RUNNING)	
SIDE THRUST	
MAX REVERSE SPEED	Calculations based on 400V
DRAIN PLUG AND VENT	
AIR INTAKE SCREENS	

Calc. No. IP3-CALC-ED-00209
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Appendix A.9
Sheet 1 of 1

REMARKS:	REMARKS:
ALL PERFORMANCE DATA BASED ON NORMAL RATED	ALL PERFORMANCE DATA BASED ON NORMAL RATED
VOLTAGE AND FREQUENCY	VOLTAGE AND FREQUENCY
ITEMS 34-44 APPLY TO VERTICAL MOTORS ONLY	INDICATE IF DATA IS ESTIMATED calculated dat
I-R Factory order No. 037-30650	
Items 10 & 11	Ingersoll-Rand order No. C-592453
	Westinghouse Factory No. NY-35820
* VIEWED FROM END OPPOSITE COUPLING END	

Calc. No. IP3-CALC-ED-00207
Rev. 8
Appendix A.10 Sheet 1 of 1

INDUCTION MOTOR DATA SHEET

WESTINGHOUSE FORM 54082

PROJECT: WESTINGHOUSE ELECTRIC — S.O. NO. 205

FURNISHED BY: Pacific Pumps — DATE 4/5/62 BY R. A. Spiegel

MARK OR ITEM NO.: INT SIAPSI 1, 2, 3

PURCHASER'S REQUIREMENTS		DATA FURNISHED BY SELLER	
SERVICE	Safety Injection	MAKE	Westinghouse
TYPE	Squirrel Cage	FRAME NO.	509 US
NO. OF UNITS		HORSEPOWER	400 HP
MOUNTING		SERVICE FACTOR	1.15
ELEC. CHARACTERISTICS	440 V. 3 PH 60 CY	FULL LOAD RPM	3570
SYNCH. SPEED, RPM		FULL LOAD AMP	458
HORSEPOWER		LOCKED ROTOR AMP	2530
SERVICE FACTOR		STARTING TORQUE, % F.L.	108%
ENCLOSURE	WP-1	PULL-OUT TORQUE, % F.L.	219% min. torque
INSULATION CLASS		EFF.-FULL LOAD, %	94.4
INSULATION TREATMENT		EFF.-3/4 LOAD, %	94.3
AMBIENT TEMP.-C		EFF.-1/2 LOAD, %	93.5
STATOR TEMP RISE-C	60°C	P.F.-FULL LOAD, %	91.0
BEARING TYPE		P.F.-3/4 LOAD, %	90.8
BEARING TEMP RELAY		P.F.-1/2 LOAD, %	88.0
BEARING THERMOCOUPLE		P.F.-LOCKED ROTOR	23%
HALF COUPL. OR SHEAVE MTD. BY		SPACE HTRS., TOTAL WATTS	200
ROTATION*	CCW	RADIAL BEARING-TYPE	
WK² OF DRIVEN EQUIP.	13.0 #/ft²	THRUST BEARING-TYPE	
DRIVEN TORQUE OF DRIVEN EQUIP.	59 #/ft²	BEARING SERVICE-MIL.	
OVERSIZE COND. BOX		NORMAL BRG. OPER. TEMP.-C	
COND. BOX LOCATION*		NET WEIGHT-LB.	
SPACE HEATERS, VOLTAGE, PHASE	440V	OIL COOL. SYS. REQ'D	
SPLIT END BELLS		BRG. OIL PRESS. RANGE, PSI	
TERMINAL LUGS, TYPE		BRG. OIL REQ'D EA. BRG. GPM	
STATOR HIGH TEMP DEVICE		NAME PLATE CODE LETTER	
ADJUSTABLE SLIDE RAILS		PERMISSIBLE STARTS PER MIN.	
SOLEPLATES		MOTOR AT AMBIENT TEMP	
PROJECT ELEV., FT.		MOTOR AT RATED TOTAL TEMP	
SHAFT HOLLOW, SOLID		TYPE SEALED INSUL. SYS.	
LOCKNUT SELF-RELEASED		DESCRIPTION OF INSUL. SYS.	Thermalastic Epoxy
SOLID, KEYSEATED		Full Load Torque:	588 #/ft²
ADJUSTABLE, FLEXIBLE		Motor Shaft Inertia:	315 #/ft²
VERT. MAX DOWNTHRUST			
VERT. MAX UPTHRUST		Cold Motor:	Two consecutive starts
VERT. MIN UPTHRUST			
VERT. MIN DOWNTHRUST			
(WITH MOTOR RUNNING)		Motor at operating temp:	one consecutive start
SIDE THRUST			
MAX REVERSE SPEED			
DRAIN PLUG AND VENT		Time between starts for normal slowdown and	
AIR INTAKE SCREENS		motor running:	15 min.
		Starts with motor idle after fast slowdown	
		60 min. apart.	
REMARKS:		REMARKS:	
ALL PERFORMANCE DATA BASED ON NORMAL RATED		ALL PERFORMANCE DATA BASED ON NORMAL RATED	
VOLTAGE AND FREQUENCY		VOLTAGE AND FREQUENCY	
ITEMS 34-44 APPLY TO VERTICAL MOTORS ONLY		INDICATE IF DATA IS ESTIMATED	
* VIEWED FROM END OPPOSITE COUPLING END			

CWBS-C-195 Pg 96A2/96A10 of

SW Pump Motor - IPP

440

Ⓦ

Value	Item
509UPH	FRAME NO.
350	HORSEPOWER
1.15	SERVICE FACTOR
1780	FULL LOAD RPM
416	FULL LOAD AMP
2560	LOCKED ROTOR AMP
100%	STARTING TORQUE, % F.L.
200%	PULL-OUT TORQUE, % F.L.
93%	EFF.-FULL LOAD, %
92.8%	EFF.-3/4 LOAD, %
90%	EFF.-1/2 LOAD, %
87.5	P.F.-FULL LOAD, %
86.0	P.F.-3/4 LOAD, %
	P.F.-1/2 LOAD, %
26% !	P.F.-LOCKED ROTOR
	SPACE HTRS., TOTAL WATTS
	RADIAL BEARING-TYPE
	THRUST BEARING-TYPE
	BEARING SERVICE-HR.
	NORMAL BRG. OPER. TEMP
	NET WEIGHT-LB.
	OIL COOL. SYS. REQ'D
	[illegible]
	[illegible]
	NAME PLATE CODE LETTER
	[illegible] STARTS PER HR
	MOTOR AT AMBIENT TEMP
	MOTOR AT RATED TOTAL TEMP
	TYPE SEALED INSUL. SYS.
	DESCRIPTION OF INSUL. SYS.

PER DON
DURKOSH Ⓦ
11/17/89
[signature]

Calc. No. IP3-CALC-ED-00207
Rev 8
Appendix A.11
Sheet 1 of 2

[illegible]

PERFORMANCE DATA BASED ON NORMAL RATED VOLTAGE AND FREQUENCY

UNITED ENGINEERS & CONSTRUCTORS INC

SPECIFICATION FOR PUMPS

SERVICE WATER PUMPS

CLIENT WESTINGHOUSE - CONED — JOB NO. 9321.05

PLANT LOCATION INDIAN POINT - UNIT No. 3 — DATE 1 MARCH 68

INQUIRY NO. WEC 46-9321-05-238-B — EQUIP. NO. 31 to 36

TYPE	ITEM NO.	NO. REQ'D.	SERVICE		CATALOG NO.
			INTERMITTENT	CONTINUOUS	
VERTICAL TURBINE	1	6		X	LAYNE - BOWLER 350 SW 20 K 2

NO. STAGES 2 — RPM 1770 — TYPE IMPELLER ENCLOSED

HP 350 (MAX.) — BHP 335 — EFFICIENCY % 87

SUCTION SIZE 20-7/8 INCHES — FLANGE FACING BELL MOUTH — NOZZLE SERIES -- LBS

DISCHARGE SIZE 14 INCHES — FLANGE FACING FLAT FACE — NOZZLE SERIES 150 LBS

TYPE MOTOR VSS — MOTOR MFG. WESTINGHOUSE — MOTOR FRAME 509 UPH

OPERATING CONDITIONS

FLUID PUMPED RIVER WATER — PUMPING TEMP. 35 to 85 °F

SP.GR. @ 60°F. --- — SP. GR. @ P.T.°F. --- — pH 6.6 to 7.6

VISCOSITY @ P.T. --- — PERCENT SOLIDS --- %

VAPOR PRESSURE --- — ROTATION (FACING COUPLING END)

NORMAL CAPACITY --- GPM — MAXIMUM CAPACITY --- GPM — DESIGN CAPACITY 5000 GPM

DISCHARGE HEAD --- FT. — SUCTION HEAD 16 FT. MIN. SUBMERGENCE FT.

TOTAL DYNAMIC HEAD - NORMAL --- FT. — TOTAL DYNAMIC HEAD - DESIGN 220 FT.

NET POSITIVE SUCTION HEAD AVAILABLE REQUIRED 28 in H_2O MIN. SUBMERGENCE FT.

MOTOR HP 950 — VOLTS 440 — PHASE 3 — CYCLES 60

MATERIALS & CONSTRUCTION

CASING MATERIAL A 48-60, CL 35 BOWLS — CASING SPLIT ---

IMPELLER MATERIAL BRONZE B145-61-4A — IMPELLER SIZE 12-15/16 IN.

SHAFT MATERIAL A 276-67 TYPE 410 SS (LINE), A 276-63 TYPE 416 SS (PUMP) — SHAFT SIZE PUMP 2-7/16 IN, LINE 1-15/16 IN

TYPE PACKING JOHN CRANE 5811 — NO. PACKING RINGS ---

TYPE COUPLING --- — COUPLING GUARD ---

BASEPLATE MATERIAL STEEL - ASTM A7

TOTAL WEIGHT (PUMP, BASE & MOTOR) 9400 lbs

MECHANICAL SEALS --

COLUMN PIPE A 53 GRB SEAMLESS

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Appendix A.11
Sheet 2 of 2

PUMP DWG. D-21369 (FP-9321-05-2078)

NEW YORK POWER AUTHORITY

INDIAN POINT 3 NUCLEAR POWER PLANT

REPORT NO. : IP3-ANAL-ED-01636

REVISION	DATE
1	9-24-99

ADJUSTING ADEQUATE AUXILIARY FEEDWATER FLOW WITHOUT AUX FEED PUMP TRIP ON OVERLOAD

FI-1200, - 1201, - 1202, - 1203

FCV-406A, - 406B, - 406C, -406D

PREPARED BY: 9/23/99
S. D'AURIA / Date

REVIEWED BY: 9/23/99
A. VAI / Date

APPROVED BY: 9/24/99
S. PETROSI / Date

CALC No. IP3-CALC-ED-00207 REV 8
APPENDIX A.7 1 OF 1

TABLE OF CONTENTS

I. PREFACE / INTRODUCTION

Revision 0 of this analysis evaluated the Auxiliary Feedwater Flow Indication loop accuracy to ensure adequate flow without pump runout motor trip during the EOP postulated scenarios. These scenarios required a minimum of 365 gpm flow rate from 1 Aux Feedwater pump to 2 Steam Generators (to support an analytical limit of not less than 340 gpm).

Revision 1, presented herein, re-evaluates the #31 and #33 Aux Boiler Feed Pump (ABFP) motor characteristics. This is necessary to confirm that the new minimum AFW flow analytical limit requirement of 345 gpm (see reference 4.) can be supported while at the same time maintaining the existing 10 gpm wide acceptance band in Surveillance Test 3PT-R007A (reference 5.) which sets the cutback controllers PC-406A and PC-406B. Additionally, this revision will re-confirm that the EOP Setpoint SP1-S.02 (minimum of 365 gpm as read on Control Room Aux Feedwater flow indicators) provides confirmation of delivering not less than the new Aux Feed flow analytical limit of 345 gpm.

This re-evaluation specifically addresses the fact that ABFP #31 has been fitted with a Reliance motor as replacement for the previous Westinghouse motor.

The equipment and components within the scope of this evaluation are QA Category I.

II. DISCUSSION

In support of performing 3PT-R007A during R09, Calculation IP3-CALC-AFW-01805 Rev 0 was prepared and calculation IP3-CALC-AFW-1801 was revised to Rev 1 to estimate loop uncertainties for the AFW cutback control loops and the AFW flow indicator loops respectively. AFW flow requirements are dictated by the Loss of Normal Feedwater (LONF) event which requires sufficient secondary side heat sink availability. That heat sink is provided by the AFW pumps drawing water from the Condensate Storage Tank (CST). The Westinghouse analyses of record prior to R09 dictated the need for a minimum of 340 gpm AFW flow from one ABFP to two Steam Generators. AFW indication uncertainty was estimated at +/-20 gpm per AFW pump and thus the EOP setpoint for operator confirmation of minimum AFW flow of 365 gpm was determined to be sufficient with available margin.

In addition to the concern for delivering sufficient secondary side cooling, a second issue required analysis, that being the confirmation of adequate pump runout protection thereby not challenging the ABFP motor amptectors. In this regard loop uncertainty for the runout protection control loops was estimated at +/- 30 gpm. This uncertainty required that the lower limit for setting the cutback controllers be equal to or greater than 370 gpm thereby protecting the analytical limit of 340 gpm and maximizing the probability that upon initiation of pumping the indicated flow would be at least the required 365 gpm. However, the cutback controller setting could not be allowed to be arbitrarily high due to the concern surrounding challenge to the motor's overcurrent protection (amptectors). It is unacceptable to allow a condition whereby a significant probability exists that the pump motor may be tripped, in this case by overcurrent.

To ensure that this significant probability did not exist, this analysis (revision 0 version) was prepared to determine the value of ABFP flow that represented the lowest value that could conceivably cause an amptector trip of the ABFP motors. A flow of 410 gpm was calculated as the maximum flow that could be allowed while maintaining the condition of insignificant probability of pump/motor trip on amptector sensed overcurrent. (Note: The 410 gpm value was based on the ABFP #31 motor, which was the original Westinghouse supplied motor. ABFP #33 motor had been replaced with a Reliance motor which has better capacity characteristics, but since this motor was not the limiting case, the #31 motor was used for the analysis.)

With an upper limit of 410 gpm having been established for acceptable maximum pump flow, we were then able to establish the upper end of the cutback controller setting band which became 380 gpm (410 gpm – 30 gpm = 380 gpm). The combination of this maximum flow and the previously described minimum flow yielded the present 10 gpm wide controller setting acceptance band. This test window of 10 gpm is considered the narrowest target that can be practically pursued in executing the 3PT - R007A surveillance procedure

For plant restart from R10, however, a number of conditions have changed relative to the requirements for AFW and the configuration of the AFW system:

1) the minimum required AFW flow rate for the LONF event has changed from the original 340 gpm to 343 gpm. Accounting for an additional 1 gpm of Blowdown Sampling flow per steam generator, we have a total required minimum makeup rate of 345 gpm (see NSE 96-3-224-AFW Rev. 3 for establishment of this new analytical limit).

2) the #31 ABFP has had its motor changed out during R10; the replacement motor (also Reliance) is almost identical in characteristics to the existing motor on ABFP #33.

3) the long term amptector settings for the 2 pump motors are now set at the same 660 amp nominal value.

4) EDG bus loading calculations have continued to evolve from R09 to the present. It is required that any new estimated load conditions (e.g. increases in pump flows) be confirmed as acceptable relative to diesel loading margins.

Given that the analytical limit for minimum AFW delivery has changed from 340 to 345 gpm as described in 1) above, it becomes necessary to investigate the possibility of increasing the allowable ABFP flow by 5 gpm to maintain the existing 10 gpm setting window in 3PT-R007A (i.e. confirm that a cutback controller setting window of between 375 and 385 gpm is acceptable).

The evaluation of motor loading and amptector action will therefore be focused on the potential for a new upper flow limit for each ABFP of 415 gpm (i.e. 385 gpm + 30 gpm cutback uncertainty = 415 gpm). Also, AFW flow indication uncertainties will also be investigated to confirm that we can still utilize the existing EOP minimum AFW flow of 365 gpm from one AFW pump and subsequently 730 gpm from two AFW pumps.

III EVALUATION

This evaluation is performed by investigating the following technical conditions:

1) AFW Pump Motor maximum electrical loading / current draw given worst case conditions of pump flow and motor terminal voltage (bus voltage corrected for cable voltage drop)

2) Amptector trip characteristics at nominal settings

3) Cutback Controller system uncertainty

4) EDG bus loading conditions and existing margin

5) Analytical Limit for AFW Flow in LONF event

6) AFW flow indication system uncertainty

Items 1) thru 5) above will be evaluated to establish the new Cutback Controller acceptable setting band. Items 5) and 6) will be evaluated to assess the continued acceptability of the existing EOP setpoints relative to AFW requirements.

1) AFW Pump Motor

In this application, the pump is considered driven at constant speed for the purposes of flow determination versus horsepower, the motor slip speed is considered negligible. Therefore, from the vendor pump curve, the required horsepower is: 400 gpm - 466 HP (rated), 410 gpm - 470 HP (intermediary), 415 gpm - 472 HP (final). An increase of 6.23 HP X 0.746 kW/HP / 0.953 eff. puts an additional 4.87 kW load on associated EDG.

The motor efficiencies, power factors @ 472 HP output are as follows:

Motor	31	33
eff	0.945	0.953
pf	0.87	0.89

Using the formula for kva = ((HP X 0.746) / (pf X eff)

31 AFWP kva @ 472 HP = 426 kva or 563.2 amps @ 440 volts
33 AFWP kva @ 472 HP = 414 kva or 545.9 amps @ 440 volts

31 AFWP kva @ 472 HP = 426 kva or 567.0 amps @ 437 volts
33 AFWP kva @ 472 HP = 414 kva or 554.7 amps @ 433 volts

From the current EDS model calculations, the calculated lowest 480V bus voltages on BUS 3A (31ABFP) and BUS 6A (33ABFP) with offsite power available and the 138kV grid @ 136kV during an accident scenario that has the AFWP's running are: BUS 3A @ 473 volts and Bus 6A @ 458 volts. With the voltage drop from the 480V buses to their respected ABFP motors, the motor terminal voltages are above their nameplate rating of 440 V. Thus the calculated amperage draws listed above are greater than the anticipated current draw for this scenario. For scenarios that involve loss of offsite power, the 480 V buses are powered from their respected EDG's that will also maintain voltage at the ABFP motors above their nameplate ratings.

Using the design basis minimum 480V bus degraded grid voltage of 414 volts and subtract the voltage drops from the bus to the motors of (31 ABFP – 7 volts, 33 AFWP – 11 volts) yields motor terminal voltages of 407 volts @ 31 ABFP and 403 volts @ 33 ABFP. These motor terminal voltages are not probable based on the EDS model results. At these extreme low motor terminal voltages the motor currents would be 608.9 amps for 31 ABFP and 596 amps for 33 ABFP. At these extreme conditions, the amptectors may trip. This is not considered a feasible voltage scenario. It is addressed here since the 480V bus degraded grid design low voltage is 414 volts. The DGV relays will trip the 480V bus supply breakers at this point and start the EDG's.

Each of the 480V buses is equipped with a low voltage alarm. These alarms actuate at 448.8 volts decreasing. ARP-5 directs the operators to manual trip the 480V bus supply breakers if there is a SI and voltage cannot be maintained above 446 volts. Starting with 446 volts at the bus, allowing 2 volts for alarm relay tolerance and subtracting the voltage drops from the bus to the motors yields motor terminal voltages of 437 volts at 31 ABFP and 433 volts at 33 ABFP. At these voltages the motor current is 567.0 amps for 31 ABFP and 554.7 amps for 33 ABFP. Both of these values are below the minimum amptector trip point (See 2) below) .

Environmental Consideration:

The motor has a design life of 40 years +4 year margin at 460 HP. The only challenge that needs to be considered in this evaluation is thermal degradation of winding insulation due to increased temperature rise during operation above 460 HP. Seismic, radiation and aging effects were not applicable to this evaluation. Operation at elevated temperatures is comparable to operating at overload. After review of the Con Edison records of an essentially identical Reliance motor as installed at IP3, it is judged that any possible short run time at 472 HP will have an immeasurable effect on the qualification of these Reliance motors. Considered in this review were the credit taken for periods at full load, periods at elevated temperature, and design life versus remaining license duration. The service time margin for this motor is in the order of 25 years.

It is concluded that the effect of any short term operation of this motor at 472 HP can be neglected.

2) Amptector

The AFWP 480V supply breakers are equipped with amptector trip units. Each breaker has a long time trip set at 1.1 times sensor or 660 amps. These amptectors have a manufacturers specified tolerance of +/- 10%. Thus the trip unit could trip as low as 660 – (0.1 x 660) = 594 amps. Thus the two ABFP motors will not trip on overload at a pump output of 415 gpm. Additionally, at the minimum amptector trip of 594 amps, the amptector will not trip until the current is (slightly) greater than 594 amps for greater than 600 seconds.

3) Cutback Controller

NYPA calculation IP3-CALC-AFW-1805 Rev 0 established the uncertainty in the action of the ABFP Cutback Control system which limits AFW flow to ensure prevention of pump runout while at the same time ensuring that the ABFP accident mitigation flow rates are achieved. This runout protection is necessary to a) ensure that the ABFP does not assume an operating point on the pump curve that could overload the EDGs in the event of a loss of offsite power and to b) prevent the ABFP motor from tripping on overcurrent (amptector action). The estimated uncertainty in this calculation is documented as +/- 30 gpm. This uncertainty magnitude imposes the condition that the controller Proportional Band (PB) setting be not less than 33% due to the amplifying effects of this setting (Gain goes up as PB goes down) on pump discharge pressure uncertainties (this pressure being used as the controlling parameter for the cutback protection). An additional high side PB limit of not greater than 50% will now also be imposed to limit the effect of Proportional Offset which is inherent in the controller action and increases with increasing PB percentage.

4) EDG Bus Loading

NYPA calculation IP3-CALC-ED-207, Rev 6 establishes and maintains the sequence of loading and the magnitudes of the safeguards loads that the EDGs must carry during conditions of Loss of Offsite Power (LOOP). The loading margins that exist on these emergency busses are configuration controlled by this calculation. Based on 1) above, it has been determined that the ABFP electrical loading condition results in an increase as follows. The increase kW load for pump 31 motor bus is 4.87 kW. For pump 33, this load increase is offset by the more efficient motor, Westinghouse, efficiency 0.939, replaced by Reliance, efficiency 0.953 – a decrease of 3.52 kW. This is a net increase kW load for pump 33 motor bus of 1.35 kW. Calculation IP3-CALC-ED-207, Rev 6 shows that there is adequate margin for the EDGs to carry the ABFPs at the higher flow rate of 415 gpm.

5) Analytical Limit for AFW Flow

NSE 96-3-224-AFW addresses the NYPA accepted re-analysis of minimum required AFW flow for the LONF event performed by Westinghouse. A new total flow from one ABFP of 343 gpm is documented in this NSE. Additionally, the continuous flow through the Steam Generator Blowdown system is identified and conservatively estimated at 1 gpm per SG thereby increasing the required AFW flow from 343 to 345 gpm. This 345 gpm value represents the lower flow limit to which instrument and control system uncertainties are added for setting the lower end of the cutback controller range and establishing required minimum indicated flow values for EOP support.

6) AFW Flow Indication

NYPA calculation IP3-CALC-AFW-1801 Rev 1 established the uncertainty inherent in reading 2 AFW flow indicators to estimate a total flow from one AFW pump. The total uncertainty in the combined reading is documented as a worst case variation of +/- 20 gpm. This value was the result of analyzing uncertainty in differential pressure as it translates to uncertainty in gpm using the previous 340 gpm analytical limit and 410 gpm pump flow limit. This condition of the uncertainty analysis is important to consider because uncertainty in terms of gpm becomes less as the flowing conditions of interest increase (given the same percentage error in DP). This occurs due to the square root relationship between the delta-p generated across the orifice plate by the system flow. This being the case, the use of the +/- 20 gpm flow uncertainty at the 5 gpm higher conditions is conservative. Even without considering this conservatism, the existing EOP setpoints of 365 gpm (setpoint ID# SP1-S.02) and 730 gpm (setpoint ID# SP1-S.06) remain valid.

IV CONCLUSIONS

As stated in the EVALUATION section of this analysis, evaluation items 1 thru 5 will be considered together in order to arrive at a new acceptable setting band for the ABFP Cutback Controller settings:

> If the ABFPs operate at a flow of 415 gpm, evaluations from 1) and 4) show that with Reliance motors driving both pumps, the conditions impose an increase of 4.87 kW on Bus 2A/3A and an increase of 1.35 kW on Bus 6A. This yields predicted bus loadings for the new 415 gpm flow of 1558.1 kW on Bus 2A/3A (ABFP#31) and 1481.1 kW on Bus 6A (ABFP#33). Diesel maximum capacity is documented as 1750 kW.

Therefore 415 gpm is an acceptable flow for the ABFPs relative to their additional electrical load imposed on the safeguards busses.

From the evaluation in item 2) we see that given an amptector nominal setting of 660 amps (i.e. 1.1 X Sensor) we have a minimum possible amptector trip current of 594 amps. Given that evaluation item 1) established that ABFP #31 motor draws 567 amps at 415 gpm which is the higher current of the 2 motors at the lowest expected voltage; we have no credible condition for amptector trip of either pump motor. Therefore 415 gpm is an acceptable flow for the ABFPs relative to the potential for loss of a pump due to electrical overload (motor amptector trip).

From the item 3) evaluation we get a cutback control system uncertainty of +/- 30 gpm. To maximize the probability that this control system will protect the 415 gpm ABFP flow limit from being exceeded, we must establish an upper limit for the cutback controller setting band of 385 gpm (i.e. 415 gpm – 30 gpm = 385 gpm).

From the item 5) evaluation we get an Analytical Limit condition for minimum AFW flow of 345 gpm. To maximize the probability that the cutback control system will ensure the 345 gpm AFW flow minimum, we must establish a lower limit for the control system setting band of 375 gpm (345 gpm + 30 gpm = 375 gpm).

Given the above, the new Cutback Controller setting band is herein defined as:

$\geq$ 375 gpm to $\leq$ 385 gpm

As stated in the EVALUATION section of this analysis, evaluation items 5) and 6) will be considered together in order to assess the continued acceptability of the existing EOP setpoints relative to AFW requirements:

As stated above, the item 5) evaluation establishes an Analytical Limit condition for minimum AFW flow of 345 gpm. From the item 6) evaluation we get an AFW flow indication uncertainty for delivery of AFW to 2 Steam Generators (from 1 ABFP) of +/- 20 gpm. Therefore to maximize the probability that the minimum AFW flow of 345 gpm is correctly being confirmed (by operator observation of the AFW flow indicators), we must establish a minimum observed flow of 365 gpm (i.e. 345 gpm + 20 gpm = 365 gpm).

Given the above, we therefore have confirmed that the existing EOP setpoint SP1-S.02 of not less than 365 gpm is still acceptable. It then follows directly the the EOP setpoint SP1-S.06 of not less than 730 gpm is also still acceptable.

Note: All resulting GPM values in this analysis are converted to equivalent mvDC values for test and calibration via the conversion method presented in calculation "-AFW-1801" (reference 1.), Section 9.0.

V REFERENCES

1. NYPA Calculation # IP3-CALC-AFW-1801 Rev 1 : " Flow/Pressure Uncertainty for AFW Pump Cut-Back Control (F-1200, F-1201, F-1202 & F-1203) Indication"
2. NYPA Calculation # IP3-CALC-AFW-1805 Rev 0 : "AFW Pump Cutback – Pressure Instrument Loop Uncertainty for PC-406A & PC-406B"
3. NYPA Calculation # IP3-CALC-ED-207 Rev 6 : "480V Bus 2A, 3A, 5A & 6A and EDGs 31, 32, 33 Accident Loading"
4. NSE 96-3-224-AFW Rev 3 : "Auxiliary Feedwater System Purge Volume and Temperature Effects"
5. Surveillance Procedure 3PT-R007A : "31 & 33 Auxiliary Boiler Feed Water Pumps Full Flow Test"
6. NYPA Calculation # IP3-CALC-EL-01969, Rev 2: Load Flow Study
7. NYPA Calculation # IP3-CALC-EL-01967, Cable Impedance Calculation
8. Reliance Electric Report of Test, S.N. VH883732 A2 (33 Motor)
9. Reliance Electric Report of Test, S.O. FNA 7704 (31 Motor)
10. IP3-ECAF-Bus3A-6 (31 Motor, old)
11. IP3-ECAF-Bus6A-11D (33 Motor)
12. IP3-ECAF-584 (31 Motor, new)

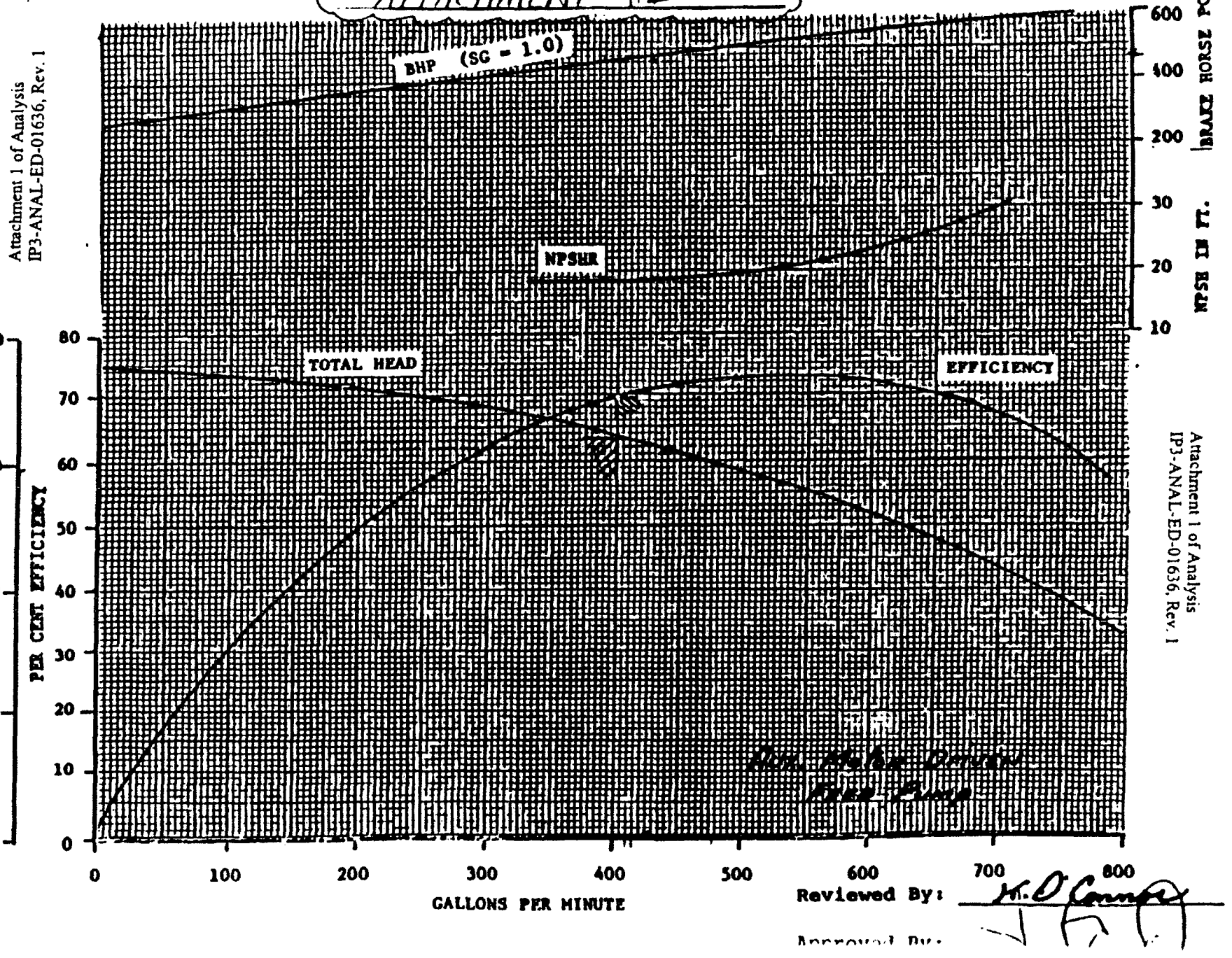
VI ATTACHMENTS

1. Aux Motor Driven Feed Pump Curve
2. Voltage Conversion Table – Flow (gpm) to Transmitter (mVdc)
3. Graph of Acceptable DVM Millivolt Values for Cutback Controllers PC-406A & B

INDIAN POINT UNIT 3

REV. 0

ATTACHMENT 1



Attachment 1 of Analysis
IP3-ANAL-ED-01636, Rev. 1

Attachment 1 of Analysis
IP3-ANAL-ED-01636, Rev. 1

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Section 9
REV. 0

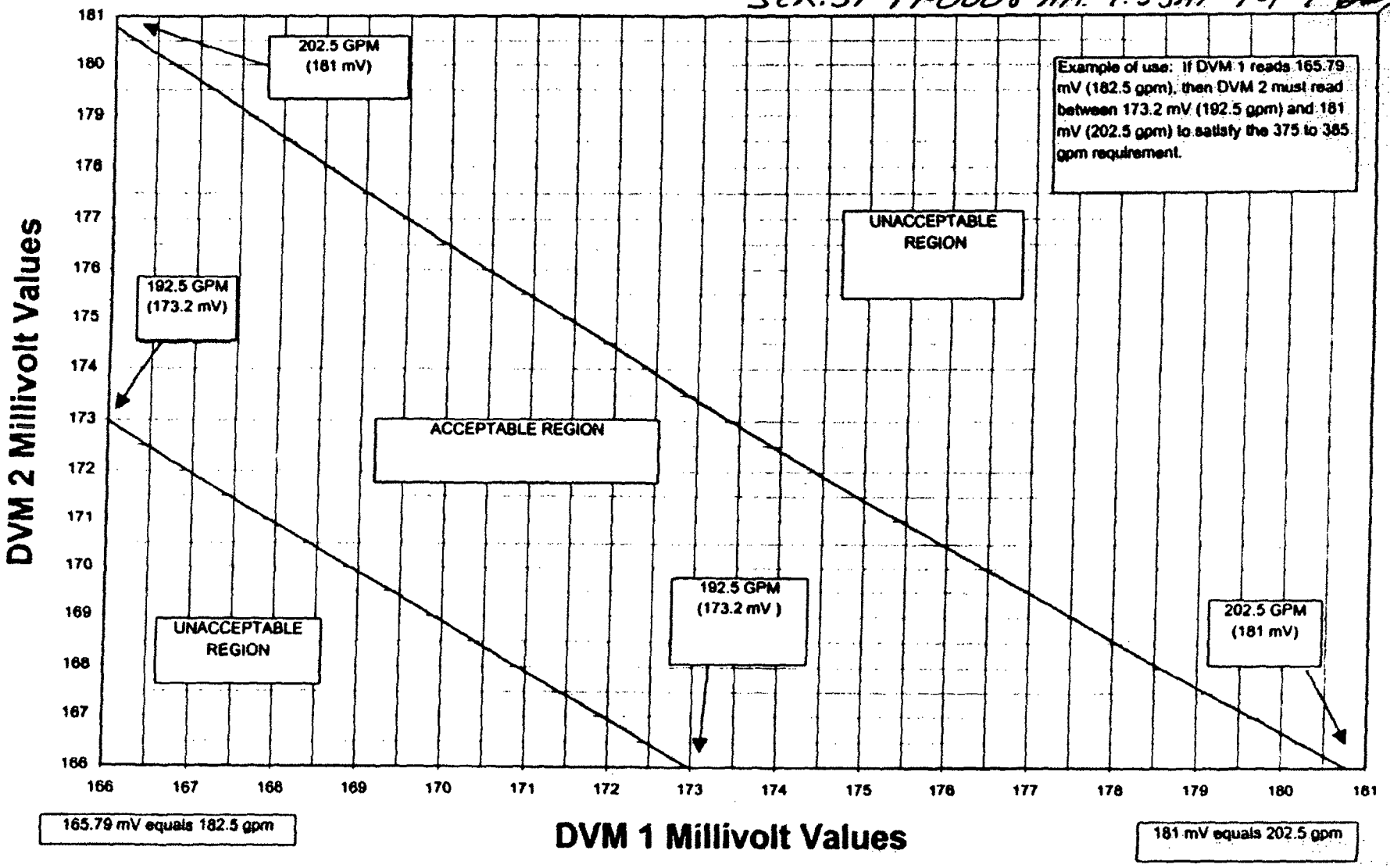
Reviewed By: M. O'Connor

Approved By:

AUXILIARY FEEDWATER FLOW (GPM) TO TRANSMITTER OUTPUT (mVdC)	
SCR S1-99-0008 (ATTACHMENT 4.3 SHT 3 of 4)	
VOLTAGE CONVERSION TABLE	
GPM (VALUE)	MVDC (VALUE)
180	164.00
181	164.71
182	165.43
182.5	165.79
183	166.15
184	166.88
185	167.60
186	168.34
187	169.07
188	169.82
189	170.56
190	171.31
191	172.06
192	172.82
192.5	173.20
193	173.58
194	174.34
195	175.11
196	175.88
197	176.66
198	177.44
199	178.22
200	179.01
201	179.80
202	180.60
202.5	181.00
203	181.40
204	182.20
205	183.01

Graph of Acceptable DVM Millivolt Values for Cutback Controllers PC-406A & PC-406B (Limiting Value of 375 to 385 GPM)

SCR:S1-99-0008 Att. 4.3 Sht 4 of 4



Appendix A.12

Extrapolated Motor Power Factor and Efficiency

1. Objective

To extrapolate motor power factor and efficiency values based on motor data sheets and to determine the corresponding motor kW and Ampere values.

2. Solution Outline

2.1 Obtain brake horsepowers for selected 480V motor loads and the corresponding motor terminal voltage.

2.2 Obtain a minimum of two motor power factors at various motor loads (in horsepower) and a minimum of two motor efficiency values at various motor loads.

2.3 Use the following equations to determine the slopes (M) for the motor power factor and efficiency.

$$M\{PF\} = (PF2 - PF1) / (HP2 - HP1) \quad (1)$$

$$M\{EFF\} = (EFF2 - EFF1) / (HP2 - HP1) \quad (2)$$

Where:

M{PF} = Slope for motor power factor
M{EFF} = Slope for motor efficiency
PF = Power factor
EFF = Efficiency
HP = Horsepower

2.4 Use the following equations to extrapolate power factor and efficiency (See Note 1 below).

$$[CALC\ PF] = M\{PF\} * (BHP - HP1) + PF1 \quad (3)$$

$$[CALC\ EFF] = M\{EFF\} * (BHP - HP1) + EFF1 \quad (4)$$

Where:

[CALC PF] = Calculated motor power factor (extrapolated)
[CALC EFF] = Calculated motor efficiency (extrapolated)
M{PF} = Slope for motor power factor
M{EFF} = Slope for motor efficiency
PF = Power factor
EFF = Efficiency
HP = Horsepower
BHP = Brake Horsepower

Note 1. Where no manufacturer's data was obtained above motor rated load, power factor and efficiency are assumed the same as at 100% load. Calculating these parameters by extrapolation using data below 100% load would assume the same trend above 100% load (i.e., parameter values are increasing or decreasing with load). This may not be the case. Assuming the same values as at 100% load is considered reasonable as the difference in the results between the two methods is insignificant.

2.5 Use the following equations to determine the motor kW and Ampere values.

[CALC KW] = BHP * 0.746 / [CALC EFF] (5)

[CALC KVA] = [CALC KW] / [CALC PF] (6)

[CALC AMP] = [CALC KVA] * 1000/([MTR VOLT] * SQRT(3)) (7)

Where:

[CALC KW] = Calculated KW
[CALC KVA] = Calculated kVA
[CALC AMP] = Calculated Ampere value
[CALC PF] = Calculated motor power factor (extrapolated)
[CALC EFF] = Calculated motor efficiency (extrapolated)
[MTR VOLT] = Motor terminal voltage in voltsSQRT(3) = Square root of 3
BHP = Brake Horsepower

3. Computation

The computation is shown in sheets 3 to 10 of this Appendix.

GENERAL EQUATIONS:

M{PF} = (PF2 - PF1) / (HP2 - HP1)
M{EFF} = (EFF2 - EFF1) / (HP2 - HP1)
[CALC PF] = M{PF} * (BHP - HP1) + PF1
[CALC EFF] = M{EFF} * (BHP - HP1) + EFF1
[CALC KW] = BHP * 0.746 / [CALC EFF]
[CALC KVA] = KW / [CALC PF]
[CALC AMP] = KVA * 1000 / ([MTR VOLT] * SQRT(3))

CONTAINMENT RECIRCULATING FAN

MOTOR DATA

BASE HP = 207.93 HP RATED VOLTAGE = 440 V

LOAD	HP	PF	EFF
100.00%	207.93	0.760	0.916
75.00%	156.03	0.695	0.920
50%	104.03	0.571	0.914

BETWEEN	M(PF)	M(EFF)
100% & 75%	0.00125241	-7.71E-05
75% & 50%	0.00238462	1.154E-04

CONTAINMENT RECIRCULATING FAN 31

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
159.0	0.699	0.920	**129.0**	184.6	434.6	**245.2**	All 5 fans are running
159.0	0.699	0.920	**129.0**	184.6	434.6	**245.2**	4 fans are running
159.0	0.699	0.920	**129.0**	184.6	434.6	**245.2**	3 fans are running

CONTAINMENT RECIRCULATING FAN 32

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
159.0	0.699	0.920	**129.0**	184.6	431.1	**247.2**	All 5 fans are running
159.0	0.699	0.920	**129.0**	184.6	431.1	**247.2**	4 fans are running
159.0	0.699	0.920	**129.0**	184.6	431.1	**247.2**	3 fans are running

CONTAINMENT RECIRCULATING FAN 33

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
159.0	0.699	0.920	**129.0**	184.6	432.0	**246.7**	All 5 fans are running
159.0	0.699	0.920	**129.0**	184.6	432.0	**246.7**	4 fans are running
159.0	0.699	0.920	**129.0**	184.6	432.0	**246.7**	3 fans are running

CONTAINMENT RECIRCULATING FAN 34

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
159.0	0.699	0.920	**129.0**	184.6	433.2	**246.0**	All 5 fans are running
159.0	0.699	0.920	**129.0**	184.6	433.2	**246.0**	4 fans are running
159.0	0.699	0.920	**129.0**	184.6	433.2	**246.0**	3 fans are running

CONTAINMENT RECIRCULATING FAN 35

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
159.0	0.699	0.920	**129.0**	184.6	429.6	**248.0**	All 5 fans are running
159.0	0.699	0.920	**129.0**	184.6	429.6	**248.0**	4 fans are running
159.0	0.699	0.920	**129.0**	184.6	429.6	**248.0**	3 fans are running

COMPONENT COOLING WATER PUMP

MOTOR DATA

BASE HP = 250 HP RATED VOLTAGE = 460 V

LOAD	HP	PF	EFF
100.00%	250.0	0.891	0.934
75.00%	187.5	0.890	0.937
50%	125.0	0.857	0.933

BETWEEN	M(PF)	M(EFF)
100% & 75%	1.600E-05	-4.80E-05
75% & 50%	5.280E-04	6.400E-05

COMPONENT COOLING WATER PUMP 31

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
212	0.890	0.936	**169.0**	189.8	437.4	**250.5**	
248	0.891	0.934	**198.1**	222.3	437.4	**293.4**	USED FULL LOAD PF & EFF
275	0.891	0.934	**219.6**	246.5	437.4	**325.4**	USED FULL LOAD PF & EFF

COMPONENT COOLING WATER PUMP 32

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
212	0.890	0.936	**169.0**	189.8	436.0	**251.3**	
248	0.891	0.934	**198.1**	222.3	436.0	**294.4**	USED FULL LOAD PF & EFF
275	0.891	0.934	**219.6**	246.5	436.0	**326.4**	USED FULL LOAD PF & EFF

COMPONENT COOLING WATER PUMP 33

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
212	0.890	0.936	**169.0**	189.8	436.3	**251.2**	
248	0.891	0.934	**198.1**	222.3	436.3	**294.2**	USED FULL LOAD PF & EFF
275	0.891	0.934	**219.6**	246.5	436.3	**326.2**	USED FULL LOAD PF & EFF

SAFETY INJECTION PUMP

MOTOR DATA

BASE HP = 400 HP RATED VOLTAGE = 440 V

LOAD	HP	PF	EFF
100.00%	400	0.910	0.944
75.00%	300	0.908	0.943
50%	200	0.880	0.935

BETWEEN	M(PF)	M(EFF)
100% & 75%	2.000E-05	1.000E-05
75% & 50%	2.800E-04	8.000E-05

SAFETY INJECTION PUMP 31

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
403	0.910	0.944	**318.5**	350.0	439.4	**459.8**	USED FULL LOAD PF & EFF
414	0.910	0.944	**327.2**	359.5	439.4	**472.4**	USED FULL LOAD PF & EFF

SAFETY INJECTION PUMP 32

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
403	0.910	0.944	**318.5**	350.0	438.6	**460.7**	USED FULL LOAD PF & EFF
414	0.910	0.944	**327.1**	359.4	438.6	**473.0**	USED FULL LOAD PF & EFF

SAFETY INJECTION PUMP 33

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
403	0.910	0.944	**318.5**	350.0	438.2	**461.1**	USED FULL LOAD PF & EFF
414	0.910	0.944	**327.2**	359.5	438.2	**473.7**	USED FULL LOAD PF & EFF

SERVICE WATER PUMP

MOTOR DATA

BASE HP = 350 HP RATED VOLTAGE = 440 V

LOAD	HP	PF	EFF
100.00%	350	0.875	0.930
75.00%	262.5	0.860	0.928

BETWEEN	M(PF)	M(EFF)
100% & 75%	1.714E-04	2.286E-05

SERVICE WATER PUMP 31

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
350	0.875	0.930	**280.8**	320.9	431.0	**429.8**	PF BASED ON EDG STUDY

SERVICE WATER PUMP 32

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
350	0.875	0.930	**280.8**	320.9	431.8	**429.0**	PF BASED ON EDG STUDY

SERVICE WATER PUMP 33

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
350	0.875	0.930	**280.8**	320.9	431.0	**429.8**	PF BASED ON EDG STUDY

SERVICE WATER PUMP 34

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
350	0.875	0.930	**280.8**	320.9	431.0	**429.8**	PF BASED ON EDG STUDY

SERVICE WATER PUMP 35

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
350	0.875	0.930	**280.8**	320.9	431.8	**429.0**	PF BASED ON EDG STUDY

SERVICE WATER PUMP 36

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
350	0.875	0.930	**280.8**	320.9	431.0	**429.8**	PF BASED ON EDG STUDY

RESIDUAL HEAT REMOVAL PUMP

MOTOR DATA

BASE HP = 400 HP RATED VOLTAGE = 460 V

LOAD	HP	PF	EFF
100.00%	400	0.906	0.944
75.00%	300	0.900	0.947
50%	200	0.863	0.944

BETWEEN	M(PF)	M(EFF)
100% & 75%	6.000E-05	-3.00E-05
75% & 50%	3.700E-04	3.000E-05

RESIDUAL HEAT REMOVAL PUMP 31

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
365	0.904	0.945	**288.1**	318.8	438.5	**419.7**	
400	0.906	0.944	**316.1**	348.9	438.5	**459.4**	USED FULL LOAD PF & EFF

RESIDUAL HEAT REMOVAL PUMP 32

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
365	0.904	0.945	**288.1**	318.8	438.0	**420.2**	
400	0.906	0.944	**316.1**	348.9	438.0	**459.9**	USED FULL LOAD PF & EFF

CONTAINMENT SPRAY PUMP (NEW MOTOR)

MOTOR DATA

BASE HP = 400 HP RATED VOLTAGE = 460 V

LOAD	HP	PF	EFF
100.00%	400	0.895	0.934
75.00%	300	0.882	0.939
50%	200	0.833	0.937

BETWEEN	M(PF)	M(EFF)
100% & 75%	1.300E-04	-5.00E-05
75% & 50%	4.900E-04	2.000E-05

CONTAINMENT SPRAY PUMP 31

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
385	0.893	0.935	**307.3**	344.1	437.9	**453.6**	USED FULL LOAD PF & EFF

CONTAINMENT SPRAY PUMP 32

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
400	0.895	0.934	**319.5**	357.0	437.5	**471.1**	USED FULL LOAD PF & EFF

AUXILIARY FEED WATER PUMP (BASED ON MOTOR DATA SHEETS)

MOTOR DATA

BASE HP = 400 HP RATED VOLTAGE = 440 V

LOAD	HP	PF	EFF	
120.00%	480	0.870	0.945	(AFWP 31 - BASED ON IP3-ANAL-ED-01636, REV.2)
120.00%	480	0.890	0.953	(AFWP 33 - BASED ON IP3-ANAL-ED-01636, REV.2)

AUXILIARY FEED WATER PUMP 31 (BASED ON RELIANCE MOTOR CURVE)

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
480	0.870	0.945	**378.9**	435.5	437.0	**575.4**	

AUXILIARY FEED WATER PUMP 33 (BASED ON RELIANCE MOTOR CURVE)

BHP	CALC PF	CALC EFF	CALC KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
480	0.890	0.953	**375.7**	422.2	433.0	**562.9**	

CHARGING PUMP

MOTOR DATA

BASE HP = 200 HP RATED VOLTAGE = 460 V

LOAD	HP	PF	EFF
100.00%	200	0.904	0.931
87.50%	175	0.899	0.931
75.00%	150	0.894	0.931
50%	100	0.851	0.923

CHARGING PUMP 31

BHP	CALC PF	CALC EFF	KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
175	0.899	0.931	**140.2**	156.0	432.0	**208.5**	IP3-CALC-MULT-00365, Rev. 0

CHARGING PUMP 32

BHP	CALC PF	CALC EFF	KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
175	0.899	0.931	**140.2**	156.0	431.1	**208.9**	IP3-CALC-MULT-00365, Rev. 0

CHARGING PUMP 33

BHP	CALC PF	CALC EFF	KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
175	0.899	0.931	**140.2**	156.0	429.6	**209.6**	IP3-CALC-MULT-00365, Rev. 0

CONTAINMENT RECIRCULATION PUMP

MOTOR DATA

BASE HP = 350 HP RATED VOLTAGE = 440 V

LOAD	HP	PF	EFF
100.00%	350.0	0.874	0.937
75.00%	262.5	0.850	0.939
50%	175.0	0.779	0.934

CONTAINMENT RECIRCULATION PUMP 31

BHP	CALC PF	CALC EFF	KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
388.1	0.874	0.937	**309.0**	353.5	432.0	**472.5**	LBLOCA Cold Legs&Rec. Spray
259.5	0.850	0.939	**206.2**	242.5	432.0	**324.2**	LBLOCA post recirc spray
384.7	0.874	0.937	**306.3**	350.4	432.0	**468.3**	SBLOCA recirc spray
257.5	0.850	0.939	**204.6**	240.7	432.0	**321.7**	SBLOCA post recirc spray

CONTAINMENT RECIRCULATION PUMP 32

BHP	CALC PF	CALC EFF	KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
388.1	0.874	0.937	**309.0**	353.5	432.0	**472.5**	LBLOCA Cold Legs&Rec. Spray
259.5	0.850	0.939	**206.2**	242.5	432.0	**324.2**	LBLOCA post recirc spray
384.7	0.874	0.937	**306.3**	350.4	432.0	**468.3**	SBLOCA recirc spray
257.5	0.850	0.939	**204.6**	240.7	432.0	**321.7**	SBLOCA post recirc spray

PAB EXHAUST FAN

PAB EXHAUST FAN 31

BHP	CALC PF	CALC EFF	KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
137.9	0.850	0.900	**114.3**	134.5	438.7	**177.0**	ASSUMED PF & EFF

PAB EXHAUST FAN 32

BHP	CALC PF	CALC EFF	KW	CALC KVA	MTR VOLT	CALC AMP	NOTE
137.9	0.850	0.900	**114.3**	134.5	438.7	**177.0**	ASSUMED PF & EFF

APPENDIX B

```
BEGIN NEW DATA CASE
C                                                    JULY 31, 1997
C
C FILE NAME : REL_60.DAT= REL_57.DAT = MTR_57.DAT CSCP.DAT (A7)
C
C     Reliance Electric Serial No. FA7704 Frame E5008S Type P8
C      use as Aux Feed Pump WK^2 = 14.3 lb-ft^2
C      different source frequency = 60 HZ for IP3 use
C
C
C      Use UM Type 40
C
C
C      Aux Feed Pump 400 HP, 2 poles, full load current = 468 amp, 440 V,
C      running speed = 3568 rpm
C      Motor running @ name plate rating:  load = 400 * 0.746 = 298.4 kW
C
C
C
C ... Miscelaneous data for time step, duration, print & plotting frequency...
C
C DeltaT<---TMax<---XOpt<---COpt<-Epsiln<-TolMat<-TStart
  .25E-3    10.0      0.      0.      0.      0.      0.
C .50E-3     7.5      0.      0.      0.      0.      0.
C Second Miscellaneous Data Card
C -Iprnt<--Iplot<-Idoubl<-KssOut<-MaxOut<---Ipun<-Memsav<---Icat<-Nenerg<-Iprsup
C     18       18       18       18       18       18       18       18       18      18
      1        10        1        1        1       -1        0        2        0       0
      1        20        0        0        0        0        0        0        0       0
C
TACS HYBRID        1
C
C
90BUSA2           0.
90BUSMG           0.
90SWAR            0.
91SWTCHA          0.
91SWGFLA          0.
88M_AIO   = SWTCHA - SWGFLA
C
C alpha for 60 Hz = 0.00572
C
88LOAD    =-0.00572*BUSMG*BUSMG
C
88GF_AI 66+SWGFLA                                    60.
88M_AI  66+M_AIO                                     60.
88M_AV  66+BUSA2                                     60.
88BUS_V266+SWAR                                      60.
C
C PHASE A MOTOR TERMINAL RMS CURRENT
C
88IPHA  66+SWTCHA                                    60.
C
C PHASE A MOTOR RMS VOLTAGE
```

Calc. No. IP3-CALC-ED-00207
Rev. 8
Appendix B.1 Sheet 1 of 12

```
SBVTA   66*BUSA2                                    60.
C
C Convert the parameter to pu
C
C 1 full load = 468 A
C Volgate PU for line to gnd = 440/sqrt(3) = 254.03
C
SBLNBASE  = 254.03
SBN_VPU   = VTA / LNBASE
SBNTR_V   = VTA * 1.73205
SBNTR_I   = IPHA/468.0
C
C POWER METER CALCULATIONS
C
C Generator Power Meter Calculation, Reference to EPRI Workbook IV page 2-10
C
C Instantaneous Power in MW
C
SBPINSTA  = (BUSA2 * SWTCHA) / 1.E+3
C
C S_block
 1PB      +PINSTA                                   120.
        1.
        0.       1.
C
C Trans_Delay
C
C <OUtN|xxS<In1-|xS<In2-|xS<In3-|xS<In4-|xS<In5-|x<Gain|<FLow|<FHi-|<NLow|<NHi-|
  DEL  53*PB                                              .00833

C Avg Power
C
  PA      +PB     -PDEL
C
C -- MOTOR VOLT-AMPERE FOR 3 PHASES IN KVA
C
SBVA      = 3.0 * IPHA * VTA / 1.E+3
C
C -- MOTOR AVERAGE POWER FOR 3 PHASES
C
SBPAVG    = 3.0 * PA
C
C
C --  MOTOR VAR CALCULATION
C
C     VAR CALCULATION STARTS WHEN THE SYSTEM HAS LOAD
C
C    If VARP0 < 0 then VARP1 = 0 Else VARP1 = VARP0
C
SBVARP0   = (VA*VA) - (PAVG*PAVG)
SBVARP1   = ((VARP0 .LE. 0) * 0.0) + ((VARP0 .GT. 0) * VARP0)
SBVAR     = SQRT(VARP1)
C
```

Calc. No IP3-CALC-ED-00207
Rev. 8
Appendix B.1 Sheet 2 of 12

```
TACS Output
C Type (col 1-2) = 01 (all var), 33 (Some var)
C
C <Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|
C   A6    A6    A6    A6    A6    A6    A6    A6    A6    A6  A6    A6    A6
33PAVG  VAR   VA    IPNA  VTA   MTR_V M_VPU MTR_I
C 33M_AI  BUS_V M_AV  OF_AI
77LOAD          8.0
BLANK Card Ending TACS Data Component
C
C NETWORK
C
$VINTAGE, 1
C 345678901234567890123456789012345678901234567890123456789012345678901234567890123456789
C
C  Cable Impedance
C
00SWTCHABUSASG                 0.0001          0.0001            0.     0
00SWTCHBBUSBSGSWTCHABUSASG
00SWTCHCBUSCSGSWTCHABUSASG
C
C  Motor Entries
C
00BUSA2 SWAR                    1.E-6             0.             0.     0
00BUSB2 SWBR   BUSA2 SWAR
00BUSC2 SWCR   BUSA2 SWAR
00BUSA2 BUSAG                    1.E5             0.             0.     0
00BUSB2 BUSBG                    1.E5             0.             0.     0
00BUSC2 BUSCG                    1.E5             0.             0.     0
  LOAD  BUSMG                   1.E-6             0.             0.     0
  BUSMG                        23.815             0.             0.     0
00SWAR  SWGFLA                  1.E-6             0.             0.     0
00SWBR  SWGFLBSWAR  SWGFLA
00SWCR  SWGFLCSWAR  SWGFLA
00SWGFA                         1.E-6             0.             0.     0
00SWGFB                         1.E-6             0.             0.     0
00SWGFC                         1.E-6             0.             0.     0
$VINTAGE, 0
BLANK Card Ending Branch Data Component
C
C Switch
C
00SWTCHASWAR      0.0    10000.      0.                                 1
00SWTCHBSWBR      0.0    10000.      0.                                 0
00SWTCHCSWCR      0.0    10000.      0.                                 0
00SWGFLASWGFA   999.0     9999.      0.                                 1
00SWGFLBSWGFB   999.0     9999.      0.                                 0
00SWGFLCSWGFC   999.0     9999.      0.                                 0
BLANK Card Ending Switch Data Component
C
C Source: Motor @ 440 V
C
C 440 / SQRT(3)  *  SQRT(2) = 359.258
C
```

Calc. No. FP3-CALC-ED-C0207
Rev. 8
Appendix B.1 Sheet 3 of 12

```
14BUSASG 1   359.258      60.      0.0       0.                -1.     9999.
14BUSBSG 1   359.258      60.     -120.      0.                -1.     9999.
14BUSCSG 1   359.258      60.      120.      0.                -1.     9999.
C
14BUSAG  1        1.0     60.      0.0       0.                -1.     9999.
14BUSBG  1        1.0     60.     -120.      0.                -1.     9999.
14BUSCG  1        1.0     60.      120.      0.                -1.     9999.
60LOAD  -1
C
C ---- Induction Machine
C
C line 1: HP, Voltage, Power factor, Efficiency, Operating Slip
C      2: Istart, Tqstart, Vreduced, Istart@Vreduced
C      3: Istaturate, Tqmax
C      4: No. of poles, Moment Inertia, Mechanical Node Name
C      5: Output request, see rule book for detail
C
19
            1
BLANK Card Ending Class 1 UM Data
C
C     AFP - Aux Feed Water Pump (Reliance FNA 7704)
C
C           400 HP, 2 poles, full load current = 468 amp, 440 V,
C           running speed = 3568 rpm
C           Motor running @ name plate rating:  load = 400 * 0.746 = 298.4 kW
C
C           WK^2 = (61+14.3)/23.73 = 3.173 kg-m^2
C
40BUSA2         100.       60.
40BUSB2
40BUSC2
DESIGN RATIO            0.55
      -400.      440.    0.881     0.951     0.009
     3.368      1.09     0.75     3.918
        2.0      2.35
  2          3.173BUSMG
 3 0 0 1 1 0 1
       1.0
BLANK Card Ending Universal Machine Data
BLANK Card Ending Source Data Component
 2SWTCHA       359.258            0.            60.
BLANK Card Ending Initial Conditions Component
BLANK Card Ending Output Specifications Component
BLANK Card Ending Plot Specifications Component
BEGIN NEW DATA CASE
BLANK Card to End EMTP Input
```

Calc. No. IP3-CALC-ED-00207
Rev. 8
Appendix B.1 Sheet 4 of 12

END

```
BEGIN NEW DATA CASE
C                                                    8/5/97
C
C FILE NAME : REL_603N.DAT = REL_57.DAT = MTR_57.DAT CSCP.DAT (A7)
C
C     Reliance Electric Serial No. FA7704 Frame E5008S Type P6
C      use as Aux Feed Pump WK^2 = 14.3 lb-ft^2
C      different source frequency = 60.3 HZ for IP3 use
C
C
C      Use UM Type 40
C
C
C      Aux Feed Pump 400 HP, 2 poles, full load current = 468 amp, 440 V,
C      running speed = 3568 rpm
C      Motor running @ name plate rating:  load = 400 * 0.746 = 298.4 kW
C
C
C
C ... Miscelaneous data for time step, duration, print & plotting frequency...
C
C DeltaT<---TMax<---XOpt<---COpt<-Epsilm<-TolMat<-TStart
  .25E-3    10.0      0.      0.      0.      0.      0.
C .50E-3     7.5      0.      0.      0.      0.      0.
C Second Miscellaneous Data Card
C -Iprnt<--Iplot<-Idoubl<-KssOut<-MaxOut<---Ipun<-Nomsav<---Icat<-Nenerg<-Iprsup
C     I8      I8      I8      I8      I8      I8      I8      I8      I8      I8
       1      10       1       1       1      -1       0       2       0       0
       1      20       0       0       0       0       0       0       0       0

TACS HYBRID        1
C
C
90BUSA2          0.
90BUSNG          0.
90SWAR           0.
91SWTCHA         0.
91SUGFLA         0.
88N_AIO   = SWTCHA - SUGFLA
C
88LOAD    =-0.00572*BUSNG*BUSNG
C
88GF_AI 66+SUGFLA                                60.3
88N_AI  66+N_AIO                                 60.3
88N_AV  66+BUSA2                                 60.3
88SUB_V266+SWAR                                  60.3
C
C PHASE A MOTOR TERMINAL RMS CURRENT
C
88IPHA  66+SWTCHA                                60.3
C
C PHASE A MOTOR BUS VOLTAGE
C
88VTA   66+BUSA2                                 60.3
```

Calc. No. IP3-CALC-ED-00207
Rev. 8
Appendix B.1 Sheet 5 of 12

```
C
C Convert the parameter to pu
C
C I full load = 468 A
C Volgate PU for line to gnd = 440/sqrt(3) = 254.03
C
BBLNBASE  = 254.03
BBR_VPU   = VTA / LNBASE
BBNTR_V   = VTA * 1.73205
BBNTR_I   = IPHA/468.0
C
C POWER METER CALCULATIONS
C
C Generator Power Meter Calculation, Reference to EPRI Workbook IV page 2-10
C
C Instantaneous Power in MW
C
BBPINSTA  = (BUSA2 * SWTCHA) / 1.E+3
C
C B_block
 1PB      +PINSTA                                  120.6
        1.
        0.        1.
C
C Trans_Delay
C
C <OutN|xxB<In1-|xB<In2-|xB<In3-|xB<In4-|xB<In5-|x<Gain|<PLow|<PH1-|<HLow|<NH1-|
BBPDEL  53+PB                                          .00829

  Avg Power
C
  PA      +PB     -PDEL
C
C -- MOTOR VOLT-AMPERE FOR 3 PHASES IN KVA
C
BBVA      = 3.0 * IPHA * VTA / 1.E+3
C
C -- MOTOR AVERAGE POWER FOR 3 PHASES
C
BBPAVG    = 3.0 * PA
C
C
C --  MOTOR VAR CALCULATION
C
C     VAR CALCULATION STARTS WHEN THE SYSTEM HAS LOAD
C
C    If VARP0 < 0 then VARP1 = 0 Else VARP1 = VARP0
C
BBVARP0   = (VA*VA) - (PAVG*PAVG)
BBVARP1   = ((VARP0 .LE. 0) * 0.0) + ((VARP0 .GT. 0) * VARP0)
BBVAR     = SQRT(VARP1)
C
C TACS Output
C Type (col 1-2) = 01 (all var), 33 (Some var)
```

Calc. No. IP3-CALC-ED-00207
Rev. 8
Appendix B.1 Sheet 6 of 12

```
C
C <Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|
C   A6     A6     A6     A6     A6     A6     A6     A6     A6     A6  A6     A6     A6
33PAVG  VAR    VA     IPHA   VTA    NTR_V N_VPU NTR_I
C 33N_AI  BUS_V N_AV  GF_AI
77LOAD            0.0
BLANK Card Ending TACS Data Component
C
C NETWORK
C
SVINTAGE, 1
C 345678901234567890123456789012345678901234567890123456789012345678901234567890123456789
C
C  Cable Impedance
C
00SWTCHABUSASG                    0.0001          0.0001              0.     0
00SWTCHBBUSBSGSWTCHABUSASG
00SWTCHCBUSCSGSWTCHABUSASG
C
C  Motor Entries
C
00BUSA2 SWAR                       1.E-6             0.                0.     0
00BUSB2 SWBR  BUSA2 SWAR
00BUSC2 SWCR  BUSA2 SWAR
00BUSA2 BUSAG                       1.E5             0.                0.     0
00BUSB2 BUSBG                       1.E5             0.                0.     0
00BUSC2 BUSCG                       1.E5             0.                0.     0
00LOAD  BUSNG                      1.E-6             0.                0.     0
  BUSNG                           25.815             0.                0.     0
  SWAR  SWGFLA                     1.E-6             0.                0.     0
00SWBR  SWGFLBSWAR  SWGFLA
00SWCR  SWGFLCSWAR  SWGFLA
00SWGFA                            1.E-6             0.                0.     0
00SWGFB                            1.E-6             0.                0.     0
00SWGFC                            1.E-6             0.                0.     0
SVINTAGE, 0
BLANK Card Ending Branch Data Component
C
C Switch
C
00SWTCHASWAR        0.0     10000.        0.                              1
00SWTCHBSWBR        0.0     10000.        0.                              0
00SWTCHCSWCR        0.0     10000.        0.                              0
00SWGFLASWGFA     999.0      9999.        0.                              1
00SWGFLBSWGFB     999.0      9999.        0.                              0
00SWGFLCSWGFC     999.0      9999.        0.                              0
BLANK Card Ending Switch Data Component
C
C Source: Motor @ 440 V
C
C 440 / SQRT(3)  *  SQRT(2) = 359.258
C
14BUSASG 1   359.258      60.3       0.        0.                -1.     9999.
14BUSBSG 1   359.258      60.3     -120.       0.                -1.     9999.
```

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Appendix B.1 Sheet 74 of 12

```
14BUSC88 1   359.258      60.3      120.        0.              -1.     9999.
C
14BUSA8  1       1.0      60.3       0.0       0.              -1.     9999.
14BUSB6  1       1.0      60.3     -120.       0.              -1.     9999.
14BUSC8  1       1.0      60.3      120.       0.              -1.     9999.
60LOAD  -1
C
C ---- Induction Machine
C
C Line 1: HP, Voltage, Power factor, Efficiency, Operating Slip
C      2: Istart, Tqstart, Vreduced, Istart@Vreduced
C      3: Isaturate, Tqmax
C      4: No. of poles, Moment Inertia, Mechanical Node Name
C      5: Output request, see rule book for detail
C
19
             1
BLANK Card Ending Class 1 UM Data
C
C     AFP - Aux Feed Water Pump (Reliance FNA 7704)
C
C          400 HP, 2 poles, full load current = 468 amp, 440 V,
C          running speed = 3568 rpm
C          Motor running @ name plate rating:  load = 400 * 0.746 = 298.4 kW
C
C          WK^2 = (61+14.3)/23.73 = 3.173 kg-m^2
C
40BUSA2          100.      60.3
40BUSB2
40BUSC2
DESIGN RATIO              0.55
     -400.       440.      0.881     0.951     0.009
     5.368       1.09       0.75     3.918
       2.0       2.35
  2              3.173BUSNG
  0 0 0 1 1 0 1
        1.0
BLANK Card Ending Universal Machine Data
BLANK Card Ending Source Data Component
  2SWTCHA        359.258             0.           60.3
BLANK Card Ending Initial Conditions Component
BLANK Card Ending Output Specifications Component
BLANK Card Ending Plot Specifications Component
BEGIN NEW DATA CASE
BLANK Card to End EMTP Input
```

Calc No. IP3-CALC-ED-00207
Rev. 8
Appendix D.1 Sheet 8 of 12

END

```
BEGIN NEW DATA CASE
C
C                                                    8/5/97
C
C FILE NAME : REL_597N.DAT + REL_605.DAT + MTR_57.DAT + CSCP.DAT (A7)
C
C     Reliance Electric Serial No. FA7704 Frame E5008S Type PB
C      Use as Aux Feed Pump WK^2 = 16.3 lb-ft^2
C      different source frequency = 59.7 HZ for IP3 use
C
C
C      Use UK Type 40
C
C
C      Aux Feed Pump 400 HP, 2 poles, full load current = 468 amp, 440 V,
C      running speed = 3568 rpm
C      Motor running @ name plate rating:  load = 400 * 0.746 = 298.4 kW
C
C
C
C ... Miscellaneous data for time step, duration, print & plotting frequency...
C
C DeltaT<---TMax<---XOpt<---COpt<-Epslln<-TolMat<-TStart
  .25E-3    10.0      0.      0.      0.      0.      0.
C .50E-3     7.5      0.      0.      0.      0.      0.
C Second Miscellaneous Data Card
C -Iprnt<--Iplot<-Idoubl<-KssOut<-MaxOut<---Ipun<-Memsav<---Icat<-Nenerg<-Iprsup
C      10      10      10      10      10      10      10      10      10      10
       1      10       1       1       1      -1       0       2       0       0
       1      20       0       0       0       0       0       0       0       0

.ACS HYBRID        1
C
C
90BUSA2          0.
90BUSMG          0.
90BMAR           0.
91BVTCHA         0.
91BVGFLA         0.
88N_AI0   = BVTCHA - BVGFLA
C
C
88LOAD    =-0.00572*BUSMG*BUSMG
C
88BF_AI 66+BVGFLA                                  59.7
88N_AI  66+N_AI0                                   59.7
88N_AV  66+BUSA2                                   59.7
88BUS_V266+BMAR                                    59.7
C
C PHASE A MOTOR TERMINAL RMS CURRENT
C
88IPHA  66+BVTCHA
C                                                  59.7
C PHASE A MOTOR RMS VOLTAGE
C
```

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Appendix B.1 Sheet 9 of 12

Post-it® Fax Note 7671	Date 10/16/97	# of pages ▶ 8
To ✓ Raffaele	From K Sue	
Co./Dept. IP3	Co. Raytheon E&C	
Phone #	Phone # 201-460-6078	
Fax # 914-788-2344	Fax # 201-460-6317	

```
BSVTA   44+BUSA2                                59.7
C
C Convert the parameter to pu
C
C 1 full load = 468 A
C Volgate PU for line to gnd = 440/sqrt(3) = 254.03
C
BSLNBASE  = 254.03
BSM_VPU   = VTA / LNBASE
BSNTR_V   = VTA * 1.73205
BSNTR_I   = IPHA/468.0
C
C POWER METER CALCULATIONS
C
C Generator Power Meter Calculation, Reference to EPRI Workbook IV page 2-10
C
C Instantaneous Power in MW
C
BSPINSTA  = (BUSA2 * SWTCHA) / 1.E+3
C
C S_block
 1PB      +PINSTA                               119.4
       1.
       0.       1.
C
C Trans_Delay
C
C <OutN|xx8<In1-|x8<In2-|x8<In3-|x8<In4-|x8<In5-|x<Gain|<FLow|<FHi-|<NLow|<NHi-|
 PDEL  53+PB                                          .00838

C Avg Power
C
  PA      +PB     -PDEL
C
C -- MOTOR VOLT-AMPERE FOR 3 PHASES IN KVA
C
BSVA      = 3.0 * IPHA * VTA / 1.E+3
C
C -- MOTOR AVERAGE POWER FOR 3 PHASES
C
BSPAVG    = 3.0 * PA
C
C
C --  MOTOR VAR CALCULATION
C
C     VAR CALCULATION STARTS WHEN THE SYSTEM HAS LOAD
C
C    If VARP0 < 0 then VARP1 = 0 Else VARP1 = VARP0
C
BSVARP0   = (VA*VA) - (PAVG*PAVG)
BSVARP1   = ((VARP0 .LE. 0) * 0.0) + ((VARP0 .GT. 0) * VARP0)
BSVAR     = SQRT(VARP1)
C
C TACS Output
```

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```
C Type (col 1-2) = 01 (all var), 33 (Some var)
C
C <Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|<Name|
C   A6     A6     A6     A6     A6     A6     A6     A6     A6     A6  A6     A6     A6
33PAVG  VAR   VA    IPHA  VTA   MTR_V M_VPU MTR_I
C 33M_AI  BUS_V M_AV  GF_AI
77LOAD          0.0
BLANK Card Ending TACS Data Component
C
C NETWORK
C
SVINTAGE, 1
C 345678901234567890123456789012345678901234567890123456789012345678901234567890123456789
C
C  Cable Impedance
C
OOSWTCHABUSASG                      0.0001          0.0001          0.     0
OOSWTCHBBUSBSGSWTCHABUSASG
OOSWTCHCBUSCSGSWTCHABUSASG
C
C  Motor Entries
C
OOBUSA2 SWAR                         1.E-6           0.              0.     0
OOBUSB2 SWBR  BUSA2 SWAR
OOBUSC2 SWCR  BUSA2 SWAR
OOBUSA2 BUSAG                        1.E5            0.              0.     0
OOBUSB2 BUSBG                        1.E5            0.              0.     0
OOBUSC2 BUSCG                        1.E5            0.              0.     0
   GND  BUSNG                        1.E-6           0.              0.     0
   USNG                             23.815           0.              0.     0
OOSWAR  SWGFLA                       1.E-6           0.              0.     0
OOSWBR  SWBFLBSWAR  SWGFLA
OOSWCR  SWGFLCSWAR  SWGFLA
OOSWGFA                              1.E-6           0.              0.     0
OOSWGFB                              1.E-6           0.              0.     0
OOSWGFC                              1.E-6           0.              0.     0
SVINTAGE, 0
BLANK Card Ending Branch Data Component
C
C Switch
C
OOSWTCHASWAR        0.0     10000.        0.                              1
OOSWTCHBSWBR        0.0     10000.        0.                              0
OOSWTCHCSWCR        0.0     10000.        0.                              0
OOSWGFLASWGFA     999.0      9999.        0.                              1
OOSWGFLBSWGFB     999.0      9999.        0.                              0
OOSWGFLCSWGFC     999.0      9999.        0.                              0
BLANK Card Ending Switch Data Component
C
C Source: Motor @ 440 V
C
C 440 / SQRT(3) * SQRT(2) = 359.258
C
14BUSASG 1   359.258      59.7       0.0        0.              -1.     9999.
```

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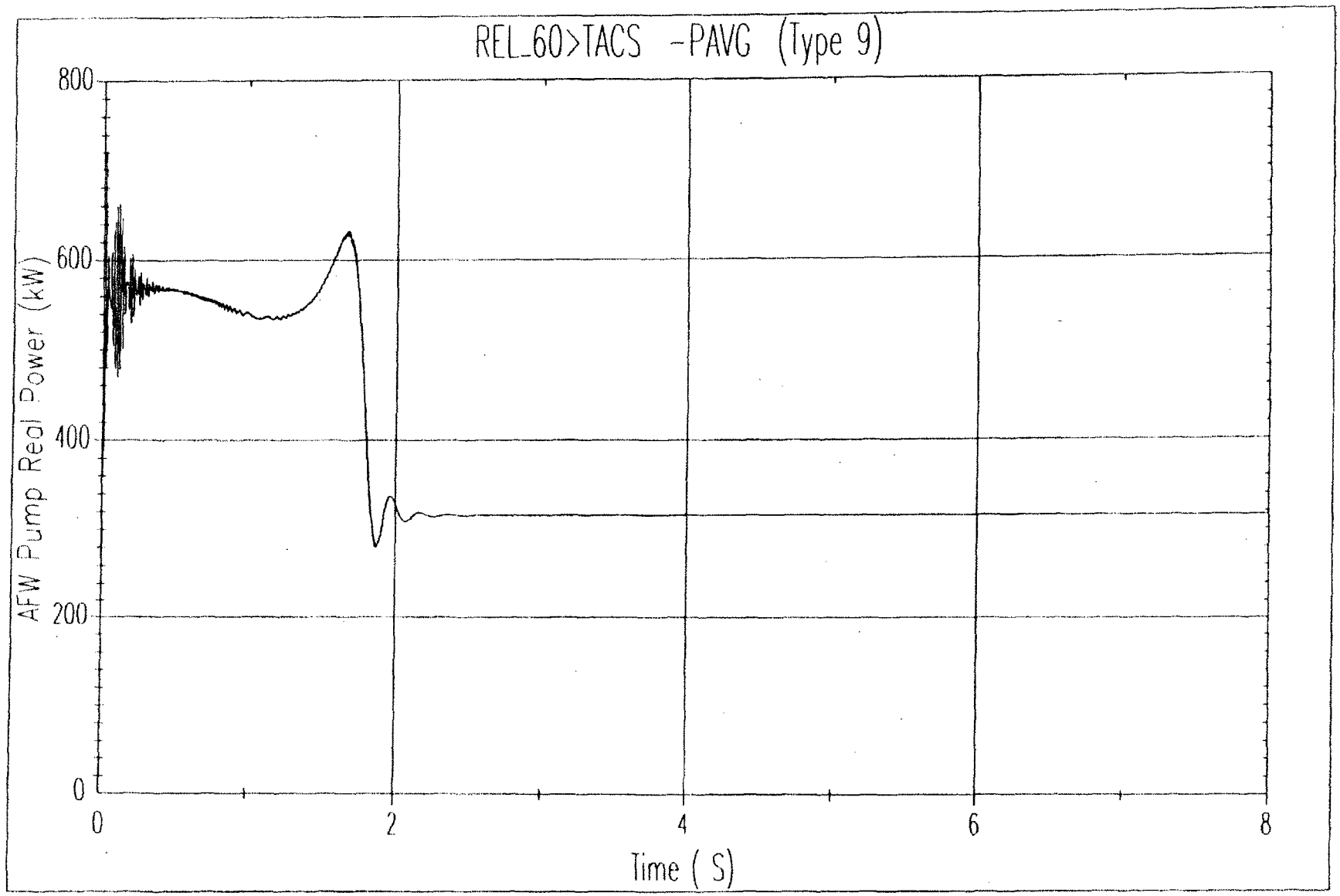
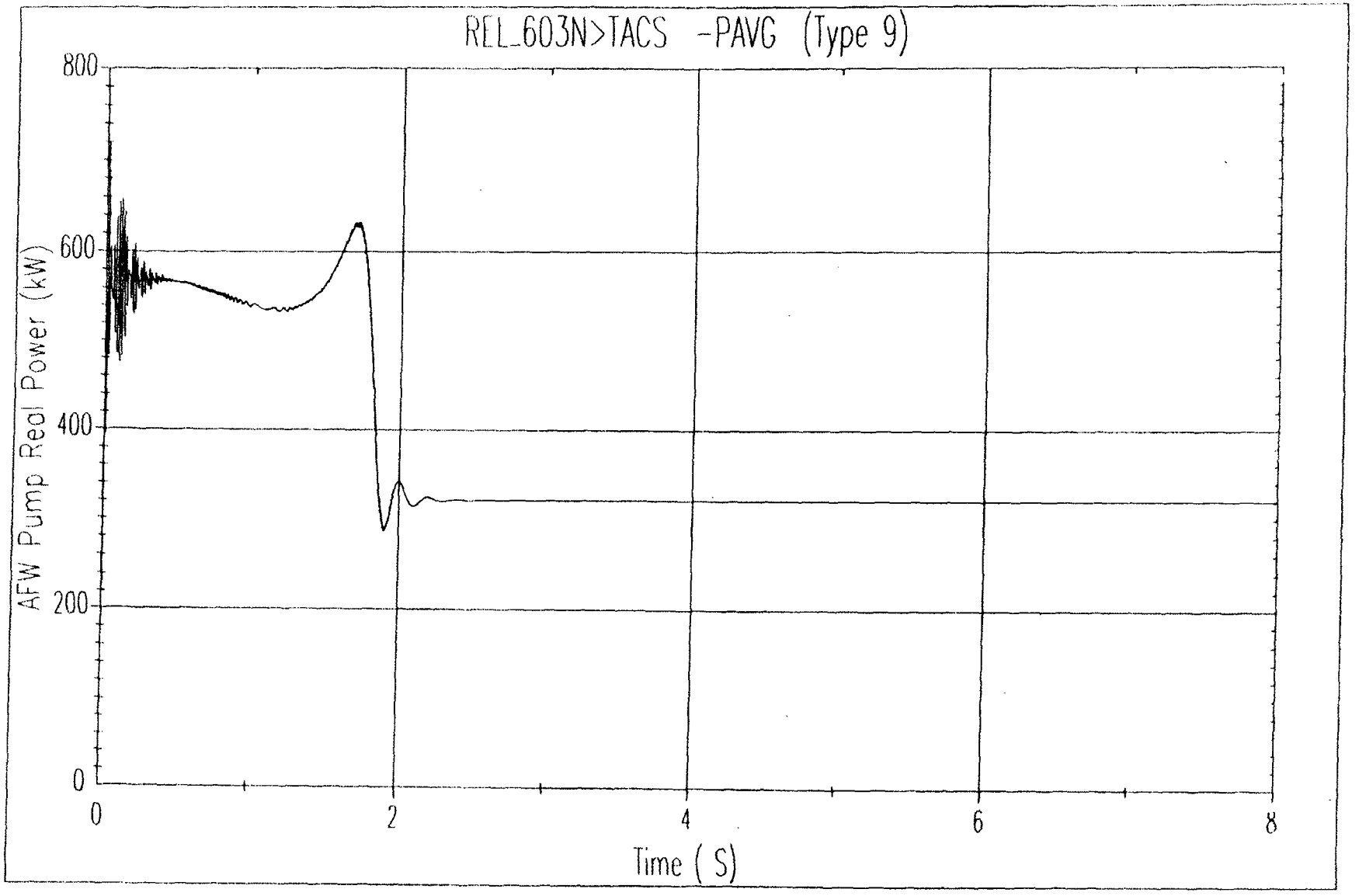
Appendix B | Sheet 11 of 12

```
14BUSBSG 1   359.258     59.7    -120.       0.                 -1.     9999.
14BUSCSG 1   359.258     59.7     120.       0.                 -1.     9999.
C
14BUSAG  1       1.0     59.7      0.0       0.                 -1.     9999.
14BUSBG  1       1.0     59.7    -120.       0.                 -1.     9999.
14BUSCG  1       1.0     59.7     120.       0.                 -1.     9999.
60LOAD  -1
C
C ---- Induction Machine
C
C line 1: HP, Voltage, Power factor, Efficiency, Operating Slip
C      2: Istart, Tqstart, Vreduced, Istart@Vreduced
C      3: Istaturate, Tqmax
C      4: No. of poles, Moment Inertia, Mechanical Node Name
C      5: Output request, see rule book for detail
C
 19
            1
 BLANK Card Ending Class 1 UM Data
 C
 C     AFP - Aux Feed Water Pump (Reliance FNA 7704)
 C
 C          400 HP, 2 poles, full load current = 468 amp, 440 V,
 C          running speed = 3568 rpm
 C          Motor running @ name plate rating:  load = 400 * 0.746 = 298.4 kW
 C
 C          WK^2 = (61+14.3)/23.73 = 3.173 kg-m^2
 C
    USA2        100.      59.7
    USB2
 40BUSC2
 DESIGN RATIO          0.55
     -400.       440.     0.881     0.951     0.009
     5.368       1.09     0.75      3.918
       2.0       2.33
  2           3.173BUSMG
  0 0 0 1 1 0 1
       1.0
  BLANK Card Ending Universal Machine Data
  BLANK Card Ending Source Data Component
   2SWTCHA       359.258         0.          59.7
  BLANK Card Ending Initial Conditions Component
  BLANK Card Ending Output Specifications Component
  BLANK Card Ending Plot Specifications Component
  BEGIN NEW DATA CASE
  BLANK Card to End EMTP Input
```

Calc. No IP3-CALC-ED-00207
Rev. 8
Appendix B.1 Sheet 12 of 12



Calc. No. IP3-CALC-ED-00207
Rev. 8
Appendix B.2 Sheet 1 of 3



Calc. No. IP3-CALC-ED-00207
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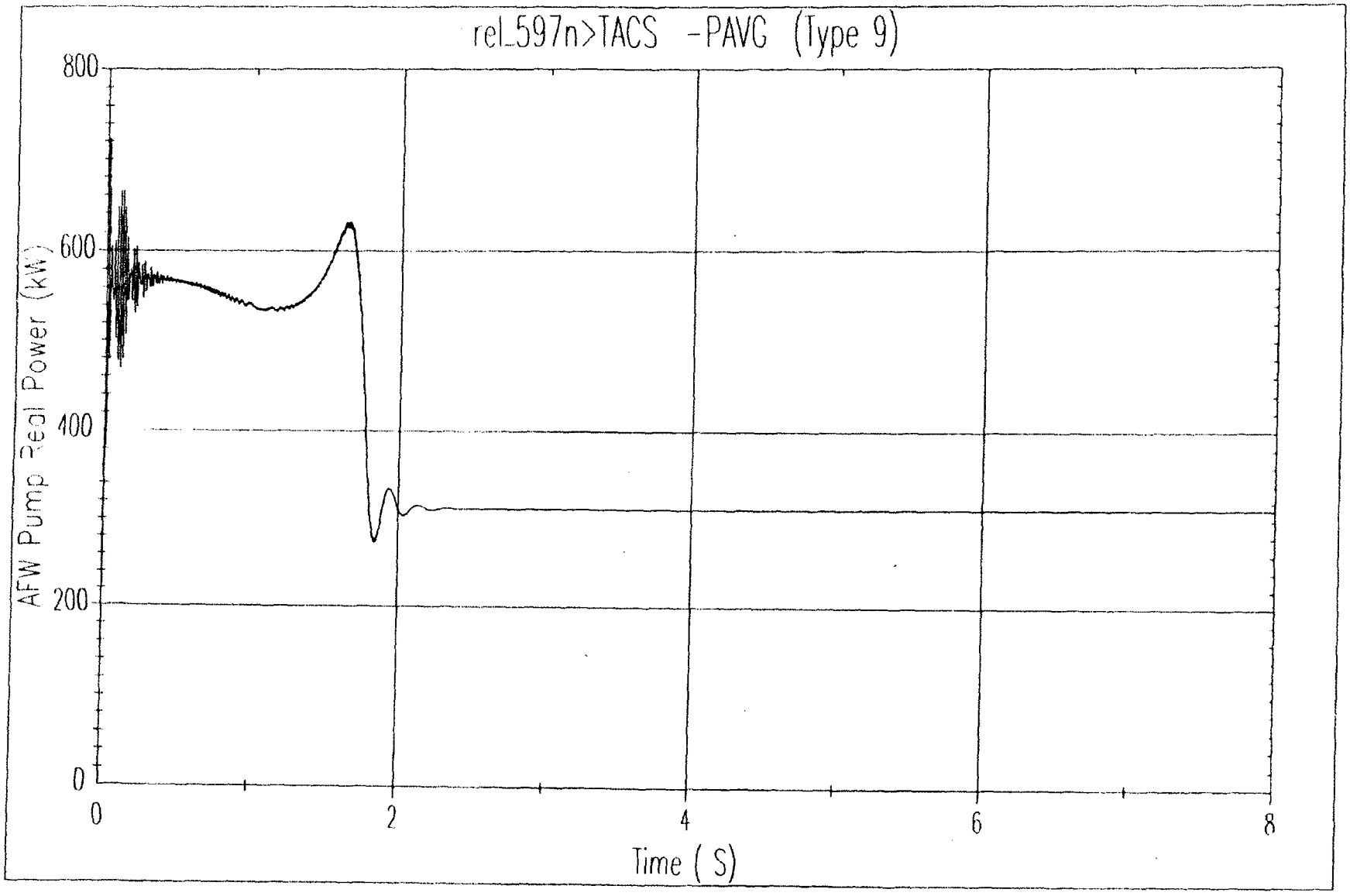
Appendix B.2 Sheet 2 of 3



Calc. No. IP3-CALC-ED-00207
Rev. 8
Appendix B.2 Sheet 3 of 3

Raytheon Nuclear Inc
160 Chubb Avenue
Lyndhurst, NJ 07071-3502
Tel 201 460 1900
Fax 201 460 0355

Raytheon Engineers & Constructors

September 15, 1997

Mr. Fred Weinert
New York Power Authority
Indian Point No. 3 Nulcear Power Plant
Con-Edison Broadway Bleakly Gate
Buchanan, NY 10511

Calc. No. IP3-CALC-ED-00207
Rev. 8
Appendix B.3 Sheet 1 of 2

Subject: EDGs Performance Testing and Evaluation

Dear Mr. Weinert:

Attached for your review is one copy of the preliminary report on Indian Point 3 EDGs performance testing and evluation. Based on the test results and evaluation, it is concluded that the EDGs have sufficient capability to support the loads required during an accident condition. Also, the EDGs capabilities have not degraded beyond the capabilities verified in Report 9780.001, Rev 3 dated August 1995.

If you have any questions on the attached report, please contact Ibrahim Hassan at (201)460-5980.

Very truly yours,

John Simon/IH

John Simon
Project Manager

Attach

bcc: I Hassan
G Pan w/o attach
R Weronick w/o attach
K Swe

Calc. No. IP3-CALC-ED-00207
Rev. 8
Appendix B.3 Sheet 2 of 2

APPENDIX C

WORTHINGTON CORPORATION

11 Union Avenue, Bala-Cynwyd, Pennsylvania 19004 Tele: 839-6900 Area 215

December 24, 1968

United Engineers & Constructors, Inc.
1401 Arch Street
Philadelphia, Pa. 19105

Attention: Mr. W. P. Robinson

Subject: Your P.O. #9321-01-102-1
Phila. 13-70850; DE-35211
Alco Diesel Engine Generators

Gentlemen:

This will confirm our conversation on 12/24/68. The following ratings apply to the (3) three engine generators previously shipped and the proposed modified units:

	PRESENT	PROPOSED
Continuous rating	1750 KW	2000 KW
2000 HR rating	1950 KW	2250 KW
1/2 HR rating	2000 KW	same

We also advises that the stall rating of the V-16 engine would be about 2395 KW and this would be due to the end of the fuel rack.

If you have any questions, please contact me.

Sincerely yours,

WORTHINGTON CORPORATION

R. E. Murphy
Sales Representative
Philadelphia Sales Office

REMurph

cc: Mr. E. M. Halligan

Calc No. IP3-CALC-ED-0027
Rev. 8
Appendix C

APPENDIX D

CNB
TECHNOLOGIES

FAX TO: OSMAN AHMED
New York Power Authority

FROM: Jed Reinhard
Manager of Process Engineering and Quality Assurance
Fort Smith Plant

DATE: October 22, 1997

SUBJECT: Normal Float Current for MCX-11 Cells in 60 cell configuration at 131.10 string voltage.

Upon review of the Taffel curves for the MCX product, the ideal float current for MCX-11 cells at 2.18 volts per cell, 1.215 specific gravity electrolyte, and 25 °C is 0.136 amps. Under normal equilibrium conditions, and taking into consideration variations in temperature and specific gravity, currents as high as 0.25 amps may be seen.

The original data I sent you was for cells that were not fully charged and not at equilibrium conditions. Equilibrium conditions are typically seen after 72 hours on float, after an equalizing charge per the instructions listed in the installation and operation manual provided with the product.

Calc. No IP3-CALC-ED-00207
Rev. 8
Appendix D.1

CNB Technologies
4115 South Zero Street
Fort Smith, AR 72903
U.S.A.
Telephone: 1.501.646.8361
Facsimile: 1.501.646.6797

A Pacific Dunlop Company

NEW YORK POWER AUTHORITY
NUCLEAR ENGINEERING & DESIGN SECTION
TELEPHONE DISCUSSION DOCUMENTATION FORM

CALL DATE 2/3/92 TIME 1135 OUTGOING X
INCOMING

BETWEEN K.J. Nazal OF THE AUTHORITY

AND CHARLIE REICHERT OF EVIDE

AND _____ OF _____

REFERENCE (215) 378-0328

SUBJECT BATTERY CHARGER EFFICIENCIES

DISCUSSION/ACTION:

I REQUESTED THE EFFICIENCIES OF IP3 BATTERY CHARGERS 31-34, 2-MODELS SCRF 130-3-400, 1-SCRF 130-3-200 AND 1 SCRF 130-3-150, RESPECTIVELY. HE QUOTED ME THE EFFICIENCIES THAT APPLY FOR ANY LOADING (NOT JUST AT FULL LOAD) AS FOLLOWS:

130-3-400 : 92%
130-3-200 : 91%
130-3-150 : 91%

Calc. No. IP3-CALC-ED-00207
Rev 8
Appendix D.2

DISTRIBUTION:
B. Sergi

NUC GEN FILES NO. _____

MOD FILE NO. _____

K. J. Nazal 2/3/92
SIGNATURE DATE

APPENDIX E

APPENDIX E-1

WORST CASE PEAK LOAD – EDG 32 (BUS 6A) – CABLE LOSSES
(LARGE BREAK LOCA – EDG 31 – BUS 2A/3A NOT AVAILABLE)

EQUIPMENT	LENGTH (ft)	CABLE (Per Phase)	RESISTANCE (Ω)/1000 (ft) (Per Cable)
SI PUMP 33	299	2/C-500MCM	.0299
ESWP 36	530	2/C-350MCM	.0413
RHR 32	318	2/C-500MCM	.0299
CSP 32	327	2/C-500MCM	.0299
FCU 35	335	1/C-500MCM	.0299
(PEN H32→ FCU 35)	201	1/C-350MCM	.0413
MCC 36B	238	1/C-350MCM	.0413
MCC 36D	76	1/C-350MCM	.0214
AFWP 33	451	2/C-500MCM	.0299
MCC 37	241	3/C-750MCM	.0214

SUMMARY

EQUIPMENT	CABLE LOSSES (Watts)
SI PUMP 33	2486.5
ESWP 36	5192.9
RHR 32	2669.3
CSP 32	2892.1
FCU 35	2884.3
MCC 36B	376.3
MCC 36D	7.6
MCC 37	6.7
AFWP 33	5555.9
TOTAL:	22071.6

APPENDIX E-1

WORST CASE PEAK LOAD CABLE LOSSES

ECU 35

KVA = 184.6

335ft @ 3-1/C – 500 MCM
201ft @ 3-1/C – 350 MCM

$I = \frac{(184.6)\ 1000}{(466)\ (1.73)} = 229.0\ A$

$R_{500} = (335)\ (3)^*\ \frac{(.0299)}{1000} = .03\Omega$

$R_{350} = (201)\ (3)^*\ \frac{(.0413)}{1000} = .025\Omega$

$W_{500} = (229.0)^2\ (.03) = 1573.23$

$W_{350} = (229.0)^2\ (.025) = 1311.03$

$W_{TOTAL} = W_{500} + W_{350} = 2884.26$

SI PUMP 33

KVA = 359.5

2- 1/C – 500 MCM Per Phase

$I = \frac{(359.5)\ (1000)}{(466)\ (1.73)} = 445.9A$

$\frac{445.9}{2\ (\text{Cable per Phase})} = 223A$

299 ft

$R = (299)\ \frac{(.0299)}{1000}\ (6)^* = .05\Omega$

$W = (223)^2\ (.05) = 2486.5$

APPENDIX E-1

WORST CASE PEAK LOAD CABLE LOSSES

CSP 32

KVA = 357.0 2- 1/C – 500 MCM Per Phase

$I = \frac{(357.0)(1000)}{(466)(1.73)} = 442.8$ A $\qquad \frac{442.8}{2 \text{ (Cable per Phase)}} = 221.4$ A

327 ft

$R = \frac{(327)(.0299)(6)^*}{1000} = .059\Omega$

$W = (221.4)^2 (.059) = 2892.1$

RHR 32

KVA = 348.9 2- 1/C – 500 MCM Per Phase

$I = \frac{(348.9)(1000)}{(466)(1.73)} = 432.8$A $\qquad \frac{432.8}{2 \text{ (Cable per Phase)}} = 216.4$A

318 ft

$R = \frac{(318)(.0299)(6)^*}{1000} = .057\Omega$

$W = (216.4)^2 (.057) = 2669.3$

AFWP 33

KVA = 422.2 2- 1/C – 500 MCM Per Phase

APPENDIX E-1

WORST CASE PEAK LOAD CABLE LOSSES

$I = \frac{(422.2)(1000)}{(466)(1.73)} = 523.7\ A$ $\qquad \frac{523.7}{2\ (Cable\ per\ Phase)} = 261.9\ A$

451 ft

$R = \frac{(451)(.0299)}{1000}(6)^* = .081\Omega$

$W = (261.9)^2 (.081) = 5555.9$

ESWP 36

KVA = 320.9 2- 1/C – 350 MCM Per Phase

$I = \frac{(320.9)(1000)}{(466)(1.73)} = 398.1\ A$ $\qquad \frac{398.1}{2\ (Cable\ per\ Phase)} = 199.1\ A$

530 ft

$R = \frac{(530)(.0413)}{1000}(6)^* = .131\Omega$

$W = (199.1)^2 (.131) = 5192.9$

MCC 36B

KVA = 90.3 3- 1/C – 350 MCM

$I = \frac{(90.3)(1000)}{(466)(1.73)} = 112.0\ A$

WORST CASE PEAK LOAD CABLE LOSSES

238 ft

$R = (238)\ \frac{(.0413)}{1000}\ (3)^* = .030\Omega$

$W = (112.0)^2\ (.030) = 376.3$

MCC 36D

KVA = 23.43 3- 1/C – 350 MCM

$I = \frac{(23.43)\ (1000)}{(466)\ (1.73)} = 29.1A$

76 ft

$R = (76)\ \frac{(.0413)}{1000}\ (3)^* = .009\Omega$

$W = (29.1)^2\ (.009) = 7.62$

APPENDIX E-1

WORST CASE PEAK LOAD CABLE LOSSES

MCC 37

Total kW from section 6.0 (pg.38) of this calculation = 24.77 kW.
Assuming a power factor of 0.85, the total kVA = kW / p.f = 24.77 / 0.85 = 29.2 kVA

*KVA = 29.2 3- 1/C – 350 MCM Per Phase

$I = \frac{(29.2)(1000)}{(466)(1.73)} = 36.2$ A $\qquad \frac{36.2}{3 \text{ (Cable per Phase)}} = 12.1$ A

241 ft

$R = \frac{(241)(.0214)}{1000}(9)^* = .046\Omega$

$W = (12.1)^2 (.046) = 6.7$

NOTES

KVA = Data from Section 6.0 of this Calculation

Cable Size and Length = Data from Calculation IP3-CALC-EL-01967, Rev. 0

I = Amps
(Based on Voltage Drop and Load Flow Analysis from Calculation IP3-CALC-EL-01967, Rev. 0, a conservative voltage drop of 3% is assumed for all cases.)

R = Circuit Resistance

* = Total number of conductors used in Circuit Resistance Tabulation

ft = Circuit Length

W = Watts

APPENDIX E-2

WORST CASE STEADY STATE LOAD CABLE LOSSES

WORST CASE STEADY STATE LOAD – EDG 33 (BUS 5A) – CABLE LOSSES
(LARGE BREAK LOCA – EDG 32/BUS 6A NOT AVAILABLE)

EQUIPMENT	LENGTH (ft)	CABLE (Per Phase)	RESISTANCE (Ω)/1000 (ft) (Per Cable)
RECIRC. PUMP 31	334	2/C-350MCM	.0413
(PEN H50 → RP 31)	152	2/C-350MCM	.0413
SI PUMP 31	242	2/C-500MCM	.0299
ESWP 34	540	2/C-350MCM	.0413
NESWP 31	500	2/C-350MCM	.0413
FCU 31	329	1/C-500MCM	.0299
(PEN H37(1)→ FCU 31)	47	1/C-350MCM	.0413
FCU 33	333	1/C-500MCM	.0299
(PEN H37(2)→ FCU 33)	127	1/C-350MCM	.0413
MCC 36A	233	1/C-350MCM	.0413
MCC 36E	32	1/C-350MCM	.0413

SUMMARY

EQUIPMENT	CABLE LOSSES (Watts)
RECIRC. PUMP 31	5771.1
SI PUMP 31	2138.3
ESWP 34	5311.9
NESWP 31	4915.5
FCU 31	1861.6
FCU 33	2622.2
MCC 36A	486.3
MCC 36E	3.4
TOTAL:	23110.3

WORST CASE STEADY STATE LOAD CABLE LOSSES

RECIRCULATION PUMP 31

KVA = 353.5 2- 1/C – 350 MCM Per Phase

$$I = \frac{(353.5)(1000)}{(466)(1.73)} = 438.5\ A = \frac{438.5}{2\ (\text{Cables per Phase})} = 219.3\ A$$

334 ft

$$R = \frac{(334 + 152)\ (.0413)\ (6)}{1000} = .12\ \Omega$$

$$W = (219.3)^2\ (.12) = 5771.1$$

MCC 36A

KVA = 104.4 3- 1/C – 350 MCM

$$I = \frac{(104.4)(1000)}{(466)(1.73)} = 129.5\ A$$

233 ft

$$R = \frac{(233)\ (.0413)\ (3)}{1000} = .029\Omega$$

$$W = (129.5)^2\ (.029) = 486.3$$

APPENDIX E-2

WORST CASE STEADY STATE LOAD CABLE LOSSES

MCC 36E

KVA = 23.43 3- 1/C – 350 MCM

$I = \frac{(23.43)(1000)}{(466)(1.73)} = 29.1A$

32 ft

$R = (32)\ \frac{(.0413)}{1000}\ (3) = .004\Omega$

$W = (29.1)^2\ (.004) = 3.4$

FCU 33

KVA = 184.6

333 ft @ 3-1/C – 500 MCM
127 ft @ 3-1/C – 350 MCM

$I = \frac{(184.6)\ 1000}{(466)(1.73)} = 229.0\ A$

$R_{500} = (333)\ (3)\ \frac{(.0299)}{1000} = .03\Omega$

$R_{350} = (127)\ (3)\ \frac{(.0413)}{1000} = .02\Omega$

$W_{500} = (229.0)^2\ (.03) = 1573.2$

$W_{350} = (229.0)^2\ (.02) = 1049.0$

$W_{TOTAL} = W_{500} + W_{350} = 2622.2$

APPENDIX E-2

WORST CASE STEADY STATE LOAD CABLE LOSSES

FCU 31

KVA = 184.6

329ft @ 3-1/C – 500 MCM
47ft @ 3-1/C – 350 MCM

$I = \frac{(184.6)\,1000}{(466)\,(1.73)} = 229.0\ A$

$R_{500} = (329)\,(3)\,\frac{(.0299)}{1000} = .0295\Omega$

$R_{350} = (47)\,(3)\,\frac{(.0413)}{1000} = .006\Omega$

$W_{500} = (229.0)^2\,(.0295) = 1547.0$

$W_{350} = (229.0)^2\,(.006) = 314.6$

$W_{TOTAL} = W_{500} + W_{350} = 1861.6$

SI PUMP 31

KVA = 359.5 2 - 1/C – 500 MCM Per Phase

$I = \frac{(359.5)\,(1000)}{(466)\,(1.73)} = 445.9\ A$ $\frac{445.9}{2\ (\text{Cable per Phase})} = 223.0\ A$

242 ft

$R = (242)\,\frac{(.0299)}{1000}\,(6) = .043\ \Omega$

$W = (223.0)^2\,(.043) = 2138.3$

APPENDIX E-2

WORST CASE STEADY STATE LOAD CABLE LOSSES

ESWP 34

KVA = 320.9 2- 1/C – 350 MCM Per Phase

$I = \frac{(320.9)(1000)}{(466)(1.73)} = 398.1\ A$ $\frac{398.1}{2\ (Cable\ per\ Phase)} = 199.1\ A$

540 ft

$R = (540)\ \frac{(.0413)}{1000}\ (6) = .134\Omega$

$W = (199.1)^2\ (.134) = 5311.9$

NESWP 31

KVA = 320.9 2- 1/C – 350 MCM Per Phase

$I = \frac{(320.9)(1000)}{(466)(1.73)} = 398.1\ A$ $\frac{398.1}{2\ (Cable\ per\ Phase)} = 199.1\ A$

500 ft

$R = (500)\ \frac{(.0413)}{1000}\ (6) = .124\Omega$

$W = (199.1)^2\ (.124) = 4915.5$

APPENDIX E-2

WORST CASE STEADY STATE LOAD CABLE LOSSES

NOTES

KVA = Data from Section 6.0 of this Calculation

Cable Size and Length = Data from Calculation IP3-CALC-EL-01967, Rev. 0 except for MCC 36E, where ECRIS was used to determine the cable length and size.

I = Amps
(Based on Voltage Drop and Load Flow Analysis from Calculation IP3-CALC-EL-01967, Rev. 0, a conservative voltage drop of 3% is assumed for all cases.)

R = Circuit Resistance

* = Total number of conductors used in Circuit Resistance Tabulation

ft = Circuit Length

W = Watts

APPENDIX E-3

WORST CASE PEAK LOAD FOR EDG 31 (BUS 2A/3A) – CABLE LOSSES
(LARGE BREAK EDG 33/BUS 5A NOT AVAILABLE)

EQUIPMENT	LENGTH (ft)	CABLE (Per Phase)	RESISTANCE (Ω)/1000 (ft) (Per Cable)
AFWP 31	31	2/C-500MCM	.0299
(JBXD8→ AFWP 31)	250	2/C-500MCM	.0299
ESWP 35	520	2/C-350MCM	.0413
FCU 32	321	1/C-500MCM	.0299
(PEN H57→ FCU 32)	182	1/C-350MCM	.0413
FCU 34	311	1/C-500MCM	.0299
(PEN H53→ FCU 34)	116	1/C-350MCM	.0413
MCC 36C	48	1/C-350MCM	.0413
MCC 32	373	1/C-750MCM	.0214
MCC 34	244	2/C-750MCM	.0214
RHR 31	304	2/C-500MCM	.0299
SI 32	291	2/C-500MCM	.0299
CHARGING PUMP 32	324	1/C-500MCM	.0299
(TRSW K1B1→ SPLCBX W1E)	5	1/C-500MCM	.0299
(SPLCBX W1E→ CHRG PP 32)	10	1/C-500MCM	.0299

SUMMARY

EQUIPMENT	CABLE LOSSES (Watts)
AFWP 31	3647.7
ESWP 35	5108.5
CHARGING PUMP 32	1134.9
SI PUMP 32	2585.9
RHR PUMP 31	2151.9
FCU 32	2726.9
FCU 34	2097.6
MCC 36C	100.3
MCC 32	5.8
MCC 34	44.8
TOTAL	19604.3

APPENDIX E-3

WORST CASE PEAK LOAD FOR EDG 31 (BUS 2A/3A) – CABLE LOSSES
(LARGE BREAK EDG 33/BUS 5A NOT AVAILABLE)

AFWP 31

KVA = 435.5 2- 1/C – 500 MCM Per Phase

$I = \frac{(435.5)(1000)}{(466)(1.73)} = 540.2A$ $\frac{540.2}{2 \text{ (Cable per Phase)}} = 270.1A$

281 ft

$R = \frac{(251+30)(.0299)(6)^*}{1000} = .050\ \Omega$

$W = (270.1)^2 (.05) = 3647.7$

ESWP 35

KVA = 320.9 2- 1/C – 350 MCM Per Phase

$I = \frac{(320.9)(1000)}{(466)(1.73)} = 398.0\ A$ $\frac{398.0}{2 \text{ (Cable per Phase)}} = 199.0\ A$

520 ft

$R = \frac{(520)(.0413)}{1000} (6) = .129\Omega$

$W = (199)^2 (.129) = 5108.5$

APPENDIX E-3

WORST CASE PEAK LOAD FOR EDG 31 (BUS 2A/3A) – CABLE LOSSES
(LARGE BREAK EDG 33/BUS 5A NOT AVAILABLE)

RHR PUMP 31

KVA = 318.8 2- 1/C – 500 MCM Per Phase

$I = \frac{(318.8)(1000)}{(466)(1.73)} = 395.5A$ $\frac{395.5}{2 \text{ (Cable per Phase)}} = 197.8A$

304 ft

$R = \frac{(304)(.0299)(6)^*}{1000} = .055\ \Omega$

$W = (197.8)^2 (.055) = 2151.9$

SI PUMP 32

KVA = 359.5 2- 1/C – 500 MCM Per Phase

$I = \frac{(359.5)(1000)}{(466)(1.73)} = 445.9\ A$ $\frac{445.9}{2 \text{ (Cable per Phase)}} = 223.0\ A$

291 ft

$R = \frac{(291)(.0299)}{1000} (6) = .052\Omega$

$W = (223)^2 (.052) = 2585.9$

APPENDIX E-3

WORST CASE PEAK LOAD FOR EDG 31 (BUS 2A/3A) – CABLE LOSSES
(LARGE BREAK EDG 33/BUS 5A NOT AVAILABLE)

FCU 32

KVA = 184.6

321ft @ 1/C – 500 MCM
182ft @ 1/C – 350 MCM

$I = \frac{(184.6)\ 1000}{(466)\ (1.73)} = 229.0\ A$

$R_{500} = (321)\ (3)^*\ \frac{(.0299)}{1000} = .029\Omega$

$R_{350} = (182)\ (3)\ \frac{(.0413)}{1000} = .023\Omega$

$W_{500} = (229.0)^2\ (.029) = 1520.8$

$W_{350} = (229.0)^2\ (.023) = 1206.1$

$W_{TOTAL} = W_{500} + W_{350} = 2726.9$

FCU 34

KVA = 184.6

311 ft @ 1/C – 500 MCM
116 ft @ 1/C – 350 MCM

$I = \frac{(184.6)\ 1000}{(466)\ (1.73)} = 229.0\ A$

$R_{500} = \frac{(311)\ (3)^*\ (.0299)}{1000} = .03\Omega$

$R_{350} = \frac{(116)\ (3)^*\ (.0413)}{1000} = .01\Omega$

$W_{500} = (229.0)^2\ (.03) = 1573.2$

$W_{350} = (229.0)^2\ (.01) = 524.4$

$W_{TOTAL} = W_{500} + W_{350} = 2097.6$

APPENDIX E-3

WORST CASE PEAK LOAD FOR EDG 31 (BUS 2A/3A) – CABLE LOSSES
(LARGE BREAK EDG 33/BUS 5A NOT AVAILABLE)

MCC 34

2- 1/C – 750 MCM Per Phase

KVA = 51.3 kW/0.85 = 60.3

$$I = \frac{(60.3)(1000)}{(466)(1.73)} = 74.8 \qquad \frac{74.8}{2 \text{ (cables per phase)}} = 37.4$$

244 ft

$$R = \frac{(244)(.0214)(6)^*}{1000} = .031\Omega$$

$$W = (37.4)^2 (.031) = 44.8$$

MCC 32
(Battery Charger 34) KVA = 12kW/0.95 = 12.6 1/C – 750 MCM

$$I = \frac{(12.6)(1000)}{(466)(1.73)} = 15.6A$$

373 ft

$$R = \frac{(373)(.0214)(3)^*}{1000} = .024\Omega$$

$$W = (15.6)^2 (.024) = 5.8$$

APPENDIX E-3

WORST CASE PEAK LOAD FOR EDG 31 (BUS 2A/3A) – CABLE LOSSES
(LARGE BREAK EDG 33/BUS 5A NOT AVAILABLE)

MCC 36C

KVA = 104.2 1/C – 350 MCM

$$I = \frac{(104.2)(1000)}{(466)(1.73)} = 129.3A$$

48 ft

$$R = (48)\ \frac{(.0413)}{1000}\ (3)^* = .006\Omega$$

$$W = (129.3)^2\ (.006) = 100.5$$

CHARGING PUMP 32

KVA = 156.8 1/C – 500 MCM

$$I = \frac{(156.8)(1000)}{(466)(1.73)} = 194.5\ A$$

339 ft

$$R = \frac{(339)\ (.0299)}{1000}\ (3) = .030\Omega$$

$$W = (194.5)^2\ (.030) = 1134.9$$

APPENDIX E-3

WORST CASE PEAK LOAD FOR EDG 31 (BUS 2A/3A) – CABLE LOSSES
(LARGE BREAK EDG 33/BUS 5A NOT AVAILABLE)

NOTES

KVA = Data from Section 6.0 of this Calculation

Cable Size and Length = Data from Calculation IP3-CALC-EL-01967, Rev. 0

I = Amps
(Based on Voltage Drop and Load Flow Analysis from Calculation IP3-CALC-EL-01967, Rev. 0, a conservative voltage drop of 3% is assumed for all cases.)

R = Circuit Resistance

* = Total number of conductors used in Circuit Resistance Tabulation

ft = Circuit Length

W = Watts

APPENDIX F

APPENDIX F

COMPARTMENT	VALVE	DESCRIPTION	HP	KW**
MCC-36A-1FH	536	PRZR PWR RELIEF BLK	0.7	1.72
* MCC-36A-1FM	822A	RESID HT XCH CCW SHUTOFF	1.6	2.99
MCC-36A-2FD	745B	RHR ISO	1.9	2.62
MCC-36A-2FH	746	RHR DISCH STOP	20.7	22.12
MCC-36A-2FM	730	RHR INLET STOP	2.6	4.63
* MCC-36A-3FD	797	RCP CCW SUP ISO	0.3	.62
* MCC-36A-3FH	784	RCP BEAR CCW ISO	1.3	1.79
* MCC-36A-3FM	625	RCP THERM BARR ISO	1.6	2.54
MCC-36A-4FD	744	RHR LOOP ISO	3.3	3.89
* MCC-36A-4FH	866A	CS PP DISCH STOP	1.9	2.62
MCC-36A-4FM	856G	HIGH HEAD INJ STOP	1.6	2.99
MCC-36A-5FD	880A	FILTER DOUSING	1.6	2.99
MCC-36A-5FH	880C	FILTER DOUSING	1.6	2.99
MCC-36A-5FM	880E	FILTER DOUSING	1.6	2.99
MCC-36A-6FM	887A	SI PP 32 SUCTION ISO	0.3	.75
MCC-36A-7FH	1869A	HI HEAD RECIRC STOP	1.0	2.10
MCC-36A-7FM	842	MIN FLOW ISO	1.0	2.10
MCC-36A-8FD	1810	REFUELING WTR STOR TK DISCH	1.0	2.10
MCC-36A-8FH	1835	BORON INJECTION TK ISO	1.6	2.99
MCC-36A-9FJ	226	CHARGING LINE CONTAINMENT ISO	0.7	1.72
MCC-35A-9FM	990A	RECIRC P SAMPLE CONTAINMENT ISO	0.1	.34
MCC-36A-10FC	441	31 RCP SEAL INJ CONTAINMENT ISO	0.7	1.72
MCC-36A-10FF	442	32 RCP SEAL INJ CONTAINMENT ISO	0.7	1.72
MCC-36A-10FJ	443	33 RCP SEAL INJ CONTAINMENT ISO	0.7	1.72
MCC-36A-11FF	444	34 RCP SEAL INJ CONTAINMENT ISO	0.7	1.72
MCC-36A-11FJ	850C	31 SI P DISCHARGE ISO	1.0	2.10
MCC-36A-1RD	1852A	BORON INJ TK ISO	1.6	2.99
MCC-36A-1RH	LCV-112C	VOLUME CONT TK DISCH	0.3	.75
* MCC-36A-1RM	222	SEAL WTR RTN ISO	1.3	1.79
MCC-36A-2RD	894C	ACCUM DISCH STOP	7.9	8.52
MCC-36A-1RM	222	SEAL WTR RTN ISO	1.3	1.79
MCC-36A-2RD	894C	ACCUM DISCH STOP	7.9	8.52
MCC-36A-2RM	856C	HIGH HEAD INJ STOP	1.6	2.99
MCC-36A-3RD	1802A	RECIRC SUMP STOP	1.6	2.99
MCC-36A-3RH	885A	VC SUMP	3.2	3.89
MCC-36A-3RM	894A	ACCUMULATOR DISCH STOP	7.9	8.52
MCC-36A-4RD	851A	HIGH HEAD SI PP 32 STOP	1.0	2.10
MCC-36A-4RH	888A	HIGH HEAD RECIRC STOP	0.7	1.72
MCC-36A-4RM	889A	SPRAY RECIRC STOP	1.9	2.62
MCC-35A-5RD	880G	FILTER DOUSING	1.6	2.99
MCC-36A-5RH	880J	FILTER DOUSING	1.6	2.99
MCC-36A-6RM	747	RHR LOOP DISCH STOP	10.5	10.31
MCC-36A-7RM	743	RHR LOOP OUTLET	1.0	2.10
* MCC-36A-8RD	BFD-2-31	BFP 31 DISCHARGE VALVE	5.3	6.73
MCC-36A-8RG	856E	HIGH HEAD INJ STOP	1.6	2.99
MCC-36A-8RM	640	RHR LOOP FLOW CTL	0.7	1.72

* MOV's that operate automatically upon initiation of an SI signal. Ref 4-3-(8)

** Ref. IP3-CALC-EDG-02897 Rev.0

APPENDIX F

COMPARTMENT	VALVE	DESCRIPTION	HP	KW**
MCC-36B-1FH	535	PRESSURIZER PWR RELIEF	0.7	1.72
* MCC-36B-1FM	822B	RHR HX CCW SHUTOFF	1.6	2.99
MCC-36B-2FD	745A	RHR LOOP ISO	1.9	2.62
MCC-36B-2FH	899A	RHR LOOP DISCHARGE STOP	10.3	15.1
MCC-36B-2FM	731	RHR LOOP INLET STOP	2.6	4.63
* MCC-36B-3FD	769	RCP CCW SUPPLY ISO	0.3	.62
* MCC-36B-3FH	786	RCP BEARING CCW ISO	1.3	1.79
* MCC-36B-3FM	789	RCP THERM BARRIER CCW RTN	1.6	2.62
MCC-36B-4FD	882	RHR PUMP SUCTION STOP	1.9	2.62
* MCC-36B-4FH	866B	SPRAY PUMP DISCHARGE	1.9	2.62
MCC-36B-4FM	856H	HIGH HEAD INJ LINE STOP	1.6	2.99
MCC-36B-5FD	880B	FILTER DOUSING	1.6	2.99
MCC-36B-5FH	880D	FILTER DOUSING	1.6	2.99
MCC-36B-5FM	880F	FILTER DOUSING	1.6	2.99
MCC-36B-6FM	887B	S.I. PUMP SUCTION ISO	0.3	.75
MCC-36B-7FH	1869B	HIGH HEAD RECIRC STOP	1.0	2.10
MCC-36B-7FM	843	MIN FLOW ISO	1.6	2.99
MCC-36B-8FD	883	RHR PP RECIRC TO REFUEL TK	2.6	4.30
MCC-36B-8FH	1835B	BORON INJ TK ISO	1.6	2.99
MCC-36B-8FM	856J	HIGH HEAD INJ STOP	1.6	2.99
MCC-36B-9FJ	205	CHARGING LINE CONTAINMENT ISO	0.7	1.72
MCC-36B-9FM	250C	33 RCP SEAL INJ CONTAINMENT ISO	0.7	1.72
MCC-36B-10FC	990B	RECIRC P SAMPLE CONTAINMENT ISO	0.1	.34
MCC-36B-10FJ	250B	32 RCP SEAL INJ CONTAINMENT ISO	0.7	1.72
MCC-36B-11FC	250A	31 RCP SEAL INJ CONTAINMENT ISO	0.7	1.72
MCC-36B-11FF	250D	34 RCP SEAL INJ CONTAINMENT ISO	0.7	1.72
MCC-36B-11FJ	850A	31 SI P DISCHARGE ISO	1.0	2.10
MCC-36B-1RD	1852B	BORON INJ TK ISO	1.6	2.99
MCC-36B-1RH	LCV-112B	REACTOR MAKEUP WTR	0.3	.75
MCC-36B-1RM	333	EMERGENCY BORATION	0.3	.75
MCC-36B-2RD	894D	ACCUMULATOR DISCHARGE	7.9	8.52
MCC-36B-2RH	856B	HIGH HEAD INJ STOP	1.6	2.99
MCC-36B-3RD	1802B	RECIRC SUMP STOP	1.6	2.99
MCC-36B-3RH	885B	CONTAINMENT SUMP STOP	3.2	3.89
MCC-36B-3RM	894B	ACCUMULATOR DISCH STOP	7.9	8.52
MCC-36B-4RD	851B	HIGH HEAD SI PUMP 32 STOP	1.0	2.10
MCC-36B-4RH	888B	HIGH HEAD RECIRC STOP	0.7	1.72
MCC-36B-4RM	889B	SPRAY RECIRC STOP	1.9	2.62
MCC-36B-5RD	880H	FILTER DOUSING	1.6	2.99
MCC-36B-5RH	880K	FILTER DOUSING	1.6	2.99
MCC-36B-6RM	899B	RHR LOOP DISCH STOP	20.7	22.12
MCC-36B-7RM	1870	RHR LOOP OUTLET	1.6	2.99
* MCC-36B-8RD	BFD-2-32	DISCHARGE	5.3	6.73
MCC-36B-8RM	638	RHR LOOP FLOW CTL	0.7	1.72
MCC-36B-10RJ	994A	BFP 32	0.7	1.72

* MOV's that operate automatically upon initiation of an SI signal. Ref. 4-3-(8)

APPENDIX G

COMPARSION OF 1991 DGV STUDY TO 1997 STUDY

BUS/MCC	Case 31 Data of 1991 DGV Study			Case 31SK Data of 1997 DGV Study			Delta kV (1)	% Delta kV (2)
	VOLTS	VD	kV (3)	VOLTS	VD	kV (3)		
BUS 2A	415.10	--	0.4440	415.00	--	0.4440	0	0.00%
MCC 31	412.10	3.00	0.4410	411.00	4.00	0.4400	0.001	0.23%
MCC 33	408.10	7.00	0.4370	406.00	9.00	0.4350	0.002	0.46%
MCC 34	412.70	2.40	0.4416	412.00	3.00	0.4410	0.0006	0.14%
MCC 36C	415.00	0.10	0.4439	414.00	1.00	0.4430	0.0009	0.20%
BUS 3A	408.90	--	0.4440	404.00	--	0.4440	0	0.00%
MCC 32	402.80	6.10	0.4379	397.00	7.00	0.4370	0.0009	0.21%
MCC 35	403.90	5.00	0.4390	398.00	6.00	0.4380	0.001	0.23%
BUS 5A	401.80	--	0.4440	398.00	--	0.4440	0	0.00%
MCC 36A	494.40	7.40	0.4366	389.00	9.00	0.4350	0.0016	0.37%
MCC 38	395.10	6.70	0.4373	389.00	9.00	0.4350	0.0023	0.53% <--Max
MCC 39	401.20	0.60	0.4434	398.00	0.00	0.4440	0.0006	0.14%
BUS 6A	395.50	--	0.4440	392.00	--	0.4440	0	0.00%
MCC 36B	389.80	5.70	0.4383	385.00	7.00	0.4370	0.0013	0.30%
MCC 37	393.30	2.20	0.4418	389.00	3.00	0.4410	0.0008	0.18%
						Largest Deviation (Max Delta kV) =	0.0023	0.53%

Notes:

1 - Delta kV = ABS((New 207 kV) - (Existing 207 kV))

2 - %Delta kV = (Delta kV) / (New 207 kV)

3 - kV = 444.0 - VD / 1000

APPENDIX H

IP3-CALC-ED-00207 REV.8 APPENDIX H-1
IP3 EDG Loading Input Clarification

Backround / Purpose

The current IP3 EDG loading calculation IP3-CALC-ED-00207 Rev 7, "Electrical Load Study – 480V Bus 2A, 3A, 5A and 6A and EDG's 31, 32 and 33 Accident Loading", is to be revised to include load changes that have accumulated over the past several years. The purpose of this document is to clarify the use of certain brake horsepower (BHp) values for specific components in this forthcoming revision. The components within its scope are the Containment Recirculation Pumps (CRPs), the Containment Spray Pumps (CSPs), the High Head Safety Injection Pumps (HHSIPs), and the Fan Cooler Units (FCUs).

IPEC Design Engineering Mechanical Group issued IP-CALC-04-00809 Revision 2, "Brake Horsepower Values Related to Certain Pumps and Fans for EDG Electrical Loading", on 2/17/09 in which some BHp values were changed from the Revision 1 version of the calculation. Furthermore, in response to IP3 NRC Component Design Basis Inspection (CDBI) questions, Fan Cooler Unit post-LOCA loads were also re-evaluated and resulted in modified FCU BHp's. Westinghouse calculation CN-CRA-08-11 Rev 0, "IP3 Fan Cooler Unit (FCU) Horsepower Under LOCA Conditions", containing this evaluation was issued on 5/7/08.

Containment Recirculation Pump Input

One of the mechanical loads (BHp's) that have been changed in Rev 2 of IP-CALC-04-00809 is that of the Containment Recirculation Pumps. The ongoing GSI-191 (Generic Letter 2004-02) effort has affected certain analytical flow configurations of the CRPs and hence their associated BHp's. Calculation IP-CALC-07-00054 Rev 2 (Westinghouse CN-SEE-05-107 Rev 2) has presented GSI-191 cases that have resulted in new CRP flow rates (and BHp's). The following scenarios and BHPs involving the CRPs are now found in IP-CALC-04-00809 Rev 2 [See Note 3] that should be included in the updated IP3 EDG loading study:

1. **LB LOCA – Cold Legs & Recirculation Spray, 2 RHR HX: 388.1 Hp**
2. **LBLOCA - Cold Legs & Recirculation Spray, 1 RHR HX: 385.2 Hp**
3. **LB LOCA – Post Recirc Spray, Hot Leg Recirc, 1 RHR HX: 259.5 Hp**
4. **SB LOCA – High Head SI & Recirculation Spray, 1 RHR HX: 384.7 Hp**
5. **SB LOCA – High Head SI, post Recirc Spray, 1 RHR HX: 257.5 Hp**

Note 1: The operating configurations of Items 1 and 4 will not be permitted by a future revision of the EOPs to meet GSI-191 requirements. However, from an analytical perspective, these configurations and the associated BHp values are valid and should be included in the revised IP3-CALC-ED-00207.

Note 2: For conservatism, calculation IP-CALC-04-00809 Rev 2 did not ascertain a CRP BHp for the LB LOCA case where one CRP is supplying only the cold legs through one or two RHR HXs. This situation can exist for anywhere between about 10 and 30 minutes in the LB LOCA scenario depending upon actual RWST level at switchover and safeguard equipment availability. The CRP flow rate here would be lower and the Sump fluid temperature higher (ie, less dense water) than when Recirc Spray is in service; thus the BHp would be less than the 388.1 Hp cited above. To include this case in the updated

IP3-CALC-ED-00207 REV.8 APPENDIX H-1
IP3 EDG Loading Input Clarification

IP3-CALC-ED-00207 would require both a revision to IP-CALC-04-00809 and a general change of methodology in determining IP3 EDG loading to somewhat mimic the IP2 analytical approach.

Note 3: Item 5 above includes the Hot Leg Recirculation mode. The flow rates for High Head SI cold leg only recirculation and High Head SI cold leg / hot leg combined recirculation are essentially identical for the purposes of EDG loading. Therefore, the CRP BHp during SB LOCA Hot Leg Recirculation can be taken to be 257.5 Hp.

Containment Spray Pump Input

The Containment Spray Pump BHp values currently stated in IP3-CALC-ED-00207 Rev 7 are 400 Hp when both pumps are running and 410 Hp when only one pump is operating. The evaluation in IP-CALC-04-00809 Rev 2 provides alternate results. Because of the separate and parallel arrangement of the CS Pump discharge headers, and the minimal difference in suction losses whether one or two pumps are in operation, the -00809 calculation justified not considering the number of running CS Pumps in determining BHps. What the calculation did utilize was RWST temperature, relative performance of each CS Pump, and Containment (VC) back pressure. All the necessary information comes from Westinghouse calculation SEE-03-128 Rev 1, "IP3 Containment Spray RWST Alignment Minimum and Maximum Flow Calculation". BHp results were obtained for three VC back pressures, 0 psig, 42.07 psig, and 47 psig, at a RWST temperature of 70°F. (Note: The BHp curves were developed at a Specific Gravity of 1.0 for water at 60°F. The difference in water density between 70°F and 60°F is 0.1% [(62.371 – 62.305) / 62.371], which is regarded as insignificant to BHp determination.)

Containment Pressure (psig)	CS Pump 31 (BHp)	CS Pump 32 (BHp)
0	410	420
42.07	377	387
47	375	385

The difficulty with these results for EDG loading is that they are either overly conservative or not conservative enough depending on the chosen VC back pressure. What needs to be ascertained with respect to CS Pump BHp for EDG loading purposes is what VC pressure is most appropriate and justifiable to use to obtain applicable pump flow rates.

According to Westinghouse calculation CRA-02-50 R1 "IP3 Long Term LOCA Mass & Energy and VC Integrity", and WCAP-16212 "IP3 SPU NSSS and BOP Licensing Report" Table 6.5-31, during a LB LOCA with Minimum Safeguards VC pressure would climb to a value of ~42 psig within about 18 minutes. This pressure would then slowly decline to ~19.5 psig at about 5 hours into the accident. During a LB LOCA with Maximum Safeguards, according to WCAP-16212 Table 6.5-32, VC pressure peaks at ~38 psig at about 3 minutes and slowly decreases to ~20 psig at about 3 hours into the event. The nominal Containment Spray actuation setpoint is 22 psig [from IP3-CALC-ESS-00244 Rev 1]. Containment Spray duration for a LB LOCA at IP3 is one hour at

most based on maximum RWST volume and minimum components taking suction on it. Therefore, it is obvious that VC pressure remains above 20 psig essentially throughout the entire Containment Spray period, and hence 20 psig can be safely used for EDG loading evaluation.

BHp values at 20 psig VC pressure can be obtained. This action is deemed to be a clarification to and not a revision of the -00809 calc since CS Pump flow rates at this back pressure come directly from SEE-03-128 Rev 1 Table 2 (conservatively applicable to maximum enhanced pumps) and BHp's corresponding to these flows are read directly from the pump curves (Curve #46511 for CSP 31, Curve #46510 for CSP 32). For CS Pump 31, maximum flow at 20 psig VC pressure is taken to be 2858 gpm, which is the average of the 70°F and 110°F values found in Table 2 of SEE-03-128 R1. The BHp at this flow rate is conservatively read as 385 Hp off of Curve #46511. For CS Pump 32, maximum flow at 20 psig VC pressure is taken to be 2989 gpm, again the average of the 70°F and 110°F values found in Table 2 of SEE-03-128 R1. The BHp at this flow rate is conservatively read as 400 Hp off of Curve #46510.

For a LB LOCA, it is concluded that based on the fact that VC pressure during the time that Containment Spray is occurring remains above 20 psig, the following BHp values can be used in EDG loading analysis:

LB LOCA CS Pump 31 – 385 Hp
LB LOCA CS Pump 32 – 400 Hp

Westinghouse does not perform official Containment integrity analyses for SB LOCA scenarios since the SB LOCA is bounded by the LB LOCA in terms of mass and energy release. In other words, VC pressure and temperature profiles versus time are not formally available from Westinghouse for SB LOCA. For the smallest SB LOCA in which Containment Spray is actuated (approximately 3" break size according to Westinghouse calculations LIS-03-190 Rev 1 "IP3 SB LOCA Analysis" and CRA-04-83 Rev 1 "IP3 SB LOCA Evaluation of VC Spray Flow") the VC pressure would generally not stay elevated for as long as in a LB LOCA nor would the peak pressure be as high. Basically, for RCS breaks of 3" or larger VC ambient pressures remain above 15 psig for all of injection phase [Ref: Westinghouse verbal input]. The enhanced CS Pump flow rates at this pressure, according SEE-03-128 R1 Table 2, would be approximately 1.4% greater than at 20 psig. The BHp change due to this incremental increase in flow cannot be ascertained from the certified curves. In fact, since the LB LOCA CS Pump 31 and 32 BHp values at 20 psig of 385 Hp and 400 Hp, respectively, were conservatively read from these curves, it is deemed valid to consider them also applicable for the SB LOCA.

SB LOCA CS Pump 31 – 385 Hp
SB LOCA CS Pump 32 – 400 Hp

High Head Safety Injection Pump Input
After reviewing the analyzed configurations involving the HHSI Pumps, it is deemed that the BHp values currently cited in IP3-CALC-ED-00207 Rev 7 (**414 Hp**) are

conservative and acceptable for use in all LOCA scenarios. Additional formal analysis of HHSI System operation would be required to obtain BHp's corresponding to specific aspects of these scenarios.

Containment Recirculation Fan (Fan Cooler Unit) Input

In the current revision of IP3-CALC-ED-00207, the FCU BHp values are provided based on whether 3, 4, or 5 FCUs are running: for 5 FCUs the load per FCU is 149.0 Hp, for 4 FCUs the load per FCU is 172.4 Hp, and for 3 FCUs the load per FCU is 193.4 Hp. These values were changed by calculation IP-CALC-ED-00293 Rev 1 on 2/7/2002 to 155 Hp, 170 Hp, and 201 Hp, respectively.

In 2008, due to findings of the IP3 NRC CDBI, FCU brake horsepower was re-visited. For normal plant operation (non-accident), the results of IP-CALC-04-00809 continued to be germane to EDG loading evaluation. However, for the post-accident case, Westinghouse analysis (documented in calculation CN-CRA-08-11 Rev 0, "IP3 Fan Cooler Unit (FCU) Horsepower Under LOCA Conditions") concluded that the BHp quantities differed from those in IP3-CALC-ED-00293 Rev 1. At the worst conditions for FCU motor power draw and for the case of 3 FCUs operating, Westinghouse determined that the BHp per FCU was 159 Hp. Westinghouse did not evaluate the loading situations of 4 and 5 operating FCUs in CN-CRA-08-11.

Due to recent conversations with the Westinghouse author of CN-CRA-08-11 and a re-assessment of information pertaining to post-LOCA FCU function (including data from Table 2 of Westinghouse Letter IPP-03-187, "IP2 SPU Project EDG Loading Study Reconciliation"), it has been concluded that 159 Hp is an appropriate input to EDG loading for 3, 4, and 5 operating FCUs. The Westinghouse analyst's expert opinion and IPEC engineering's concurring judgment are that 159 Hp would be the highest load obtained no matter what combination of FCU air flows and VC post-accident atmospheric conditions exist. In other words, whether the air flow per Unit is related to 3 (maximum flow rate), 4 (medium flow rate), or 5 (minimum flow rate) FCUs running or whether the Service Water temperature to the FCUs is as low as 28° F or as high as 95° F, the maximum BHp of a FCU would not exceed 159 Hp.

Based on the above, the following FCU loading values should hence be employed in the revision of IP3-CALC-ED-00207:

a) When all 5 FCUs are running: 159 Hp
b) When 4 FCUs are running: 159 Hp
c) When 3 FCUs are running: 159 Hp

Conclusion

The Design Engineering Electrical Group requested clarification of some of the mechanical loads to use in a forthcoming revision to the IP3 EDG Loading Study calculation IP3-CALC-ED-00207. The loads pertained to the Containment Recirculation

Pumps, the Containment Spray Pumps, the High Head Safety Injection Pumps, and the Fan Cooler Units. The Design Engineering Mechanical Group has reviewed applicable BHp documents (IP-CALC-04-00809 Rev 2, CN-CRA-08-11 Rev 0, and IP3-CALC-ED-00293 Rev 1) and has provided the necessary input.

ATTACHMENT 1

Raffaele, Joseph

From: Vehstedt, Ken
Sent: Saturday, June 10, 2000 9:45 AM
To: Raffaele, Joseph
Subject: Design Basis SGTR Assumptions

Joe,

Sorry for the delay.

The design basis SGTR is described in SAR section 14.2.4 and AABD module 13.0. The SGTR event does not involve adverse containment conditions as there would be no mass/energy release to the VC. Therefore, consideration of a SGTR with Phase B actuation is not within the scope of the plant design basis.

The design basis MSLB is described in SAR section 14.2.5 and AABD module 17.0 (current being revised). By design, a MSLB would not result in a SGTR (as the static and dynamic differential pressures across the tubes following a large MSLB are factored into the tube design). Refer to the discussion beginning on SAR page 4.3-13 for details.

Based on the above, there is no need to consider simultaneous SGTR and CS actuation in any analysis of design basis events.

Ken V

CALC. No. IP3-CALC-ED-00207 Rev. 8
ATTACHMENT 1 1 OF 1