PA -LR

From: "Hamer, Mike" <mhamer@entergy.com>
To: "Jonathan Rowley" <JGR@nrc.gov>
Date: 06/07/2007 3:43:08 PM
Subject: Vernon Tie info

Jonathan,

Attached is a previously docketed letter that provides our commitment for LCO actions/notifications upon loss of the Vernon Tie line. Also attached is the procedure that contains a protected step to ensure this commitment is properly administered - see page 8.step 16.

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VERMONT YANKEE
NUCLEAR POWER CORPORATION

Ferry Road, Brattleboro, VT 05301-7002

RESPONSIBILITY
J.J. DUFFY - Distribution

LAI 1137 Revised

REPLY TO
ENGINEERING OFFICE
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February 19, 1997
BVY 97-25

United States Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

References: (a) License No. DPR-28 (Docket No. 50-271)
(b) Letter, VYNPC to USNRC, BVY 96-43, dated April 4, 1996
(c) Telecon, USNRC to VYNPC, dated February 12, 1997

Subject: Clarification Regarding Use of Vernon Tie for Appendix R Compliance

In Reference (b), Vermont Yankee requested an exemption from 10CFR50, Appendix R, section III.L to allow use of the Vernon Tie as a source of ac power in alternative shutdown scenarios. Vermont Yankee utilizes alternative shutdown capability in the event of a fire in the control room or cable spreading room. Currently, Vermont Yankee uses one of the two onsite emergency diesel generators in an alternate shutdown mode as a source of ac power when offsite power is not available in the event of a control room or cable spreading room fire.

This exemption was requested to facilitate the restoration of ac power to safe shutdown equipment and to reduce the operator timeline for initiating alternate shutdown systems. Use of the Vernon Tie has several significant advantages over use of an emergency diesel generator to meet alternate shutdown requirements. These advantages include: prompt restoration of power using simpler operator actions; continuous operation without dependence on support systems; and reliability of the Vernon Tie. As stated in Reference (b), the Vernon Tie is normally energized and the availability of Vernon Station has historically been well above 99%, exceeding the required alternate ac source availability of 95%. However, in the event the Vernon Tie is unavailable, a diesel generator will be available to provide backup power.

In Reference (b) Vermont Yankee stated that it would institute the following administrative limit in the event of an unplanned unavailability of the Vernon Tie:

> *Power operation may continue for no more than 15 days, unless the Vernon Tie is returned to service or a Basis for Maintaining Operability (BMO) evaluation is written and approved.*

In Reference (c), the NRC staff expressed concern that the Vernon Tie, if approved for use as Vermont Yankee's preferred source of power for alternative shutdown, may be out of service

indefinitely without NRC notification. In consideration of the NRC staff's concern, Vermont Yankee will revise, upon approval of the exemption requested in Reference (b), the administrative limit stated above to require that a special report be submitted to the NRC in the event of an unplanned unavailability of the Vernon Tie. The revised administrative limit will read:

> *Power operation may continue for no more than 15 days, unless the Vernon Tie is returned to service or a Basis for Maintaining Operability (BMO) evaluation is written and approved by the Plant Operations Review Committee.*
>
> *If the Vernon Tie cannot be returned to service within 15 days, submit a report to the Nuclear Regulatory Commission, in accordance with 10CFR50.4, within the next 24 hours outlining the reason for the unavailability, corrective actions being taken to restore the Vernon Tie, compensatory actions in place to provide ac power for Appendix R alternative shutdown fire scenarios and the time required to make the Vernon Tie available.*

We trust that this submittal provides the requested information. However, should you have questions or require additional information, please contact this office.

Sincerely,
VERMONT YANKEE NUCLEAR POWER CORPORATION

James J. Duffy
Licensing Engineer

c: USNRC Region I Administrator
USNRC Project Manager - VYNPS
USNRC Resident Inspector - VYNPS

VERMONT YANKEE NUCLEAR POWER STATION

OPERATING PROCEDURE

OP 2142

REVISION 50

4 KV ELECTRICAL SYSTEM

USE CLASSIFICATION: **REFERENCE**

RESPONSIBLE PROCEDURE OWNER: **Manager, Operations**

REQUIRED REVIEWS		Yes/No
E-Plan	10CFR50.54(q)	No
Security	10CFR50.54(p)	No
Probable Risk Analysis (PRA)		Yes
Reactivity Management		No

LPC No.	Effective Date	Affected Pages

Implementation Statement: N/A

Effective Date: 05/26/2007

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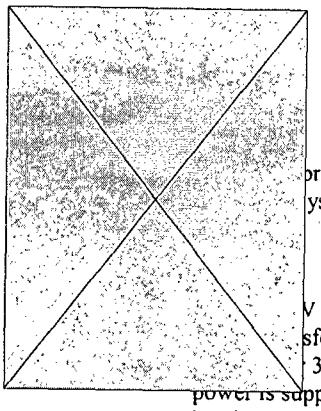


rovide a procedure for Operations Department personnel to safely operate the 4 KV
ystem.

V buses 1 and 2 carry normal station service loads. Bus 1 is initially energized from
sformer 3A through breaker 13 and bus 2 is initially energized from startup
3B through breaker 23. After the main generator has been phased to the system,
power is supplied to the buses from the auxiliary transformer through breaker 12 (bus 1) and
breaker 22 (bus 2).

4 KV buses 3 and 4 normally energized safeguard system loads and are normally energized

The following breakers are interlocked as follows:

1. 3V4 cannot be closed unless breakers 3V and 4V are open.

2. 3V cannot be closed unless 3T1 and DG-1B are open or 4V closed and 3V4 open.

3. 4V cannot be closed unless 4T2 and DG-1A are open or 3V closed and 3V4 open.

4. 3T1 cannot be closed unless 3V is open or racked down.

5. 4T2 cannot be closed unless 4V is open or racked down.

6. DG-1B can be closed manually through synchroswitch even if 3V or 3T1 are closed. When 3V or 3T1 are closed DG-1B cannot be closed automatically.

7. DG-1A can be closed manually through synchroswitch even if 4V or 4T2 are closed. When 4V or 4T2 are closed DG-1A cannot be closed automatically.

All 4 KV breakers in the switchgear room can be operated manually from inside their respective cabinets. Additionally, the breakers on buses 3 and 4 can also be operated locally using the emergency breaker control switches (positions: TRIP/CLOSE) that are mounted on the front of their cabinets. All of the emergency breaker control switches on bus 3, except for 3V4, and two of the switches on bus 4 are keylocked to prevent inadvertent local operation. The other emergency breaker control switches on bus 4 are associated with alternate shutdown and are not keylocked. These breakers are also provided with normal/emergency transfer switches which must be used in conjunction with the respective non-keylocked emergency breaker control switch to operate the breaker locally during alternate shutdown.

All 4 KV breakers in the switchgear room also contain breaker control switches (positions: TRIP/CLOSE) with L-shaped handles which are used by the Maintenance Department for breaker testing when the breaker is racked down. They are non-functional when the breaker is in the normal position.

All breakers on the 4 KV buses have red light supervision. The red indication light and the protective relay circuits are wired in series with the trip coil. Should the red light go out with the breaker closed, it may indicate an open trip coil or trip coil circuit. If the trip coil or circuit is open, the breaker will not trip even under fault conditions. If the TOC fails open, remote breaker control and indication is lost but the electrical protection will still operate for all breakers, except the diesel output breakers.

All 4 KV motors at Vermont Yankee are equipped with 50-51 relay protection (over current sensing and tripping) on each phase lead. The reactor feed pump and the recirc MG drive motors also have 87 relay protection (differential fault current tripping).

The 50-51 over current relay is a combination device. One part, the 50, functions instantaneously and is indicative of fault type currents. It has a separate indicating target on the right side of the relay marked INST.

Trips of this type should be subject to the same inspection as a differential trip and should not be restarted. The second part, the 51 portion, is a time delayed function of the relay and is indicative of over currents due to high starting torques, overloading the driven unit, mechanical problems, bearings, etc. Its target is on the left side of the relays marked TIME. If a breaker trips due to a time delayed overcurrent condition, reclosure of the breaker should not be attempted until cleared by the Maintenance Department, unless the equipment is urgently needed due to an emergency condition affecting plant safety. This applies only to the 51 portion.

The Vernon Tie consists of an underground cable which runs between the hydro station switchyard and a stepdown transformer (T-Vernon-Hydro) located at the north end of the west cooling tower. The low voltage side of the transformer (4KV) ties to the inhouse electric system via breaker 3V4. The connection at the 13KV hydro station switchyard which provides relay fault protection, is from Oil Circuit Breaker (OCB) #10. This OCB will open on a system fault, and it remains open until the fault condition is cleared. At the transformer is a local fused disconnect switch on the high voltage side. The disconnect and transformer enclosure access door are key interlocked such that the disconnect must be open in order to remove the key. The key can then be used to unlock the access door.

When the main generator/turbine are off-line, the 4KV buses can be backfed through the main/auxiliary transformer if the startup transformers are not available, or are required to be removed from service for maintenance activities.

A generator "No Load" manual disconnect switch, GD-1, is installed in the 22KV isolated phase bus, inside the turbine building between the main step up transformer and the main generator, to isolate the main generator from the main transformer during 4KV bus backfeeding operations. The switch is operated via a simple hand crank. Position switches are wired into the existing primary and backup generator lockout trip circuits to automatically disable the anti-motoring protection and core spray initiation protection circuits when the disconnect is opened. The following lockouts are affected:

- Anti-motoring trip of 86/G-P
- Core spray initiation (14A-K11A,-K19A) trip of 86/G-P
- Anti-motoring trip of 86/G-B
- Core spray initiation (14A-K11B,-K19B) trip of 86/G-B

Appendix C, Energizing 4KV Buses 3 and 4 from Vernon 4160 Line is intended to be used as an operator aid at CRP 9-8 to provide a check for major actions to transfer power to the Vernon Tie. Appendix C only provides immediate actions, immediate verifications and required steps to safely perform this evolution. A review of all actions required by procedure Section F and G to validate all actions is required at the first available opportunity.

Appendix D, Normal Transfer of Station Load from Auxiliary Transformer to Startup Transformer, is intended to be used as an operator aid at CRP 9-8 to provide a check for major actions required to transfer loads from auxiliary transformer to startup transformer. Appendix D only provides immediate actions, immediate verifications and required steps to safely perform this evolution. A review of all actions required by Section D to validate all actions is required at the first available opportunity.

ATTACHMENTS

1.	Figure 1	Magne-Blast Circuit Breaker Plunger - Stationary Auxiliary Switch Adjustments
2.	Appendix A	4 KV Breaker Lineup
3.	Appendix B	Equipment Lost During Residual Voltage Transfer
4.	Appendix C	Energizing 4KV Buses 3 and 4 From Vernon 4160 Line
5.	Appendix D	Normal Transfer of Station Load From Auxiliary Transformer to Startup Transformer
6.	VYOPF 2142.01	Lining Up to Backfeed Through the Auxiliary Transformer (Opening the GD-1 Disconnect)

QA REQUIREMENTS CROSS REFERENCE

1. None

REFERENCES

1. Technical Specifications and Site Documents

   a. Sections 3.10 and 4.10

2. Codes, Standards, and Regulations

   a. Entergy Nuclear Vermont Yankee Safety Standard Manual Electrical Safety No. 302

3. Commitments

   a. ER2001-1027, P-10-1C Breaker Failure to Close On Demand, Procedure Enhancement
   b. INF93091OP1, "RE: Misadjustment Between General Electric 4.16 KV Circuit Breakers & Cubicles. Revise OP 2142 Per Rec. 2 of D. Hallonquist Memo"
   c. INF97053_01, Circuit Breakers Left Racked Out In Non-Seismically Qualified Positions
   d. VYCES94120_01, "RE: Seismic Evaluation of 480V and 4KV Switchgear, SR92-49 (vacate cubicles)"
   e. VY Letter, BVY 96-43, "Request For Exemption From 10 CFR Part 50, Appendix R, Section III.L, Alternate and Dedicated Shutdown Capability", dated April 4, 1996
   f. VY Letter, BVY 97-25, "Clarification Regarding Use of Vernon Tie for Appendix R Compliance", dated 2/19/97

4. Supplemental References

   a. CWD Sheets 306 through 311, and 317 through 322
   b. DWG G-191298, Main One Line Diagram
   c. DWG G-191299, 4 KV One Line Diagram
   d. ER 2004-1041, Installation of Remote Racking Modification
   e. Memo, B. Mathis to J. Durborow, "Review of OP 2142, 4KV Electrical System", dated November 7, 1990
   f. Memo VYE 99/031, PRJ to RGJ, "Tap Change for Vernon Tie Line Transformers"
   g. NRC Letter, NVY 83-81, "Adequacy of Station Electric Distribution System Voltages", dated April 13, 1983
   h. SOER 82-16, De-energized Breaker Charging Spring Motor
   i. VYC-1088 Rev. 1, VY Short Circuit/Voltage Study, dated 6/16/95
   j. VYC-1512 Rev. 2, Station Blackout Voltage Drop and Short Circuit Study
   k. YAEC Report 1205, "Auxiliary Power System Voltage Study for VYNPS", dated March 17, 1980
   l. EN-AD-103, Document Control and Records Management Activities
   m. AP 0140, Vermont Yankee Local Control Switching Rules
   n. AP 0155, Current System Valve and Breaker Lineup and Identification
   o. OP 2124, Residual Heat Removal System
   p. OP 2126, Diesel Generators
   q. RP 2193, Isolated Phase Bus Cooling Operation
   r. OP 3126, Shutdown Using Alternate Shutdown Methods
   s. ON 3159, Loss of DC-1
   t. ON 3160, Loss of DC-2 and DC-3
   u. ON 3162, Loss of DC-1AS
   v. ON 3163, Loss of DC-2AS
   w. OP 5299, Installing 4 KV Breakers Into the Test Position

PRECAUTIONS/LIMITATIONS

1. For the safety of personnel and equipment, observe rigid compliance with safety standards and tagging procedures.

2. Should the red "Closed Breaker" indicating light go out and the problem is not a burned out lamp, consider the breaker inoperable and that it may not trip either manually or automatically. Notify the Maintenance Department immediately.

3. If DC control power is switched from the normal to the alternate supply on 4 KV buses 1 and 2, the recirculation pumps will trip.

4. Prior to planned operation of the plant with only one startup transformer carrying all plant loads, the 115 KV tap must be changed to the 112 KV tap and the 4160/480 volt tap must be changed to 4060/480 volt tap (NRC Letter NVY 83-81).

5. Motors that trip due to operation of differential relays should never be restarted until a thorough electrical and mechanical inspection has been completed and the motor is released for restart by the Maintenance Department.

6. Exercise due caution when working near energized equipment to prevent contact with high voltage.

7. Ensure personnel protective equipment (e.g., eye protection, arc flash protection clothing, electrical safety gloves, etc.) is worn as required by Safety Standard 302 or EN-IS-123 as applicable when racking breakers (locally or remotely) in or out.

8. After operation of any breaker, observe indication lights to verify proper operation where possible.

9. Breaker 53 trips open upon loss of Bus 5 voltage. Ensure Breaker 53 is open prior to performing a planned de-energization of the startup transformers.

10. For the safety of personnel and equipment, perform local manual operation of the 4 KV breakers only in an extreme emergency. Under no circumstances are the breakers to be operated CLOSED if DC control power to the breaker is unavailable.

11. Only persons qualified under local switching and tagging rules are allowed to operate breakers.

12. The 3V or 4V breakers shall not be placed in the "Full Test Position" as defined in OP 5299, with the mechanical plunger extension arm installed and the elevating platform raised, unless the plant is shutdown because the auto closure of the DG-1A or DG-1B breakers would be defeated. The SW pump C or D breakers shall not be placed in the "Full Test Position", as defined in OP 5299, (with the mechanical plunger extension arm installed and the elevating platform raised), unless the plant is shutdown because the SW pump start on a diesel start would be defeated. If testing under these conditions should be necessary when the plant is in operation, a special procedure shall be written requiring operational monitoring during the test period and a minimum time of testing in the closed position. The Shift Manager must contact the Maintenance Supervisor to determine breaker test conditions prior to authorizing test performance.

13. To be considered operable, 4 KV bus voltage must be maintained as follows:

    - Buses 1/2/3/4/5 3700-4400 volts (YAEC Report 1205 and VYC-1088)
    - Vernon voltage 3900-4500 volts (all modes) (VYC-1512 Rev. 2 and Memo VYE 99/031)

14. If a breaker trips due to a fault type current (INST. indicating target), do not attempt to reclose it until cleared by Maintenance Department.

15. If a breaker trips due to a delayed overcurrent condition (TIME indicating target), do not attempt to reclose it until cleared by Maintenance Department, unless the equipment is urgently needed due to an emergency condition affecting plant safety.

16. Because of its safety significance, following a loss of the Vernon Tie power supply, power operation may continue for no more than 15 days, unless the Vernon Tie is returned to service or a Basis for Maintaining Operability (BMO) evaluation is written and approved. (BVY96-43)

    If the Vernon Tie cannot be returned to service within 15 days, submit a report to the Nuclear Regulatory Commission, in accordance with 10CFR50.4, within the next 24 hours outlining the following:

    - reason for the unavailability,
    - corrective actions being taken to restore the Vernon Tie,
    - compensatory actions in place to provide AC power for Appendix R alternative shutdown fire scenarios, and
    - the time required to make the Vernon Tie available. (BVY97-25)

17. Operability of 3V and 4V Breakers is verified by performing testing as specified in ER 2005-0798, Post Maintenance Testing for 4KV Breakers 3V and 4V.

PREREQUISITES

1. To energize the 4 KV buses through breakers (BKR) 13 and 23, the startup transformers must be energized.

2. To energize the 4 KV buses through breakers 12 and 22, the auxiliary transformer must be energized from the main generator which is phased to the 345 KV system or backfed through the main transformer during shutdowns while the main generator no load disconnect switch GD-1 is open.

3. DC control power for the 4 KV buses must be available.

4 KV Swgr 1 normal FDR	DC-1 Ckt 13
4 KV Swgr 1 emerg FDR	DC-2 Ckt 15
4 KV Swgr 2 normal FDR	DC-2 Ckt 16
4 KV Swgr 2 emerg FDR	DC-1 Ckt 14
4 KV Swgr 3 normal FDR (except for 3V4 bkr)	DC-1 Ckt 15
4 KV Swgr 3 emerg FDR (except for 3V4 bkr)	DC-2 Ckt 17
4 KV Swgr 4 normal FDR	DC-2 Ckt 18
4 KV Swgr 4 emerg FDR	DC-2AS Ckt 7
4 KV Swgr 5A, 5B	DC-2 Ckt 19

4. DC control power for the 3V4 breaker:

normal FDR	DC-1AS Ckt 4
emerg FDR	DC-1 Ckt 15
backup FDR (to DC-1 Ckt 15 emerg FDR)	DC-2 Ckt 17

5. AC power for the 4 KV buses must be available.

4 KV Swgr 1	AC-DP-5, Ckt 13
4 KV Swgr 2	AC-DP-5, Ckt 14
4 KV Swgr 3	AC-DP-5, Ckt 15
4 KV Swgr 4	PP-6A, Ckt 31
4 KV Swgr 5A	AC-DP-5, Ckt 17
4 KV Swgr 5B	LP-1Y, Ckt 20

6. To backfeed the 4KV buses from the main transformer, the generator must be off line.

DEFINITIONS

1. ALTERNATE IMMEDIATE ACCESS SOURCE: 115 KV source (K-186 Line), via breaker K-186 and the startup transformer, capable of powering emergency buses 3 and 4 may be made available, dependent on its preloading, which must be limited by system dispatchers prior to it being declared an immediate access source. All breakers, transformers, switches, interrupting devices, cabling and controls required to transmit adequate power from the off site transmission network to the on site Emergency safeguard buses 3 and 4 must be operable.

2. QUALIFIED DELAYED ACCESS SOURCE: 345 KV source, via the main transformer and the auxiliary transformer, that is capable of powering emergency buses 3 and 4, along with all breakers, transformers, switches, interrupting devices, cabling and controls required to transmit adequate power from the off site transmission network to the on site Emergency safeguard buses 3 and 4. In this mode, the generator no load disconnect switch, GD-1, is open to isolate the main generator.

3. QUALIFIED IMMEDIATE ACCESS SOURCE: 345 KV source, via the auto transformer and the startup transformers that is capable of powering buses 3 and 4 along with all breakers, transformers, switches, interrupting devices, cabling and controls required to transmit adequate power from the off site transmission network to the on site Emergency safeguard buses 3 and 4. Either fast transfer or a residual bus transfer scheme qualifies as an immediate access source.

4. VERNON TIE: The Vernon tie is not a qualified immediate or delayed access power source. Analysis takes credit for the Vernon Tie as the power source for a station blackout analysis and Appendix R analysis.

PROCEDURE

A. Racking Up a 4 KV Breaker to Its Bus

1. Ensure Electrical Maintenance is available to check TOC switch operation when racking up 4KV breakers, if the breaker was removed from the cubical.

> **NOTE**
>
> A check of the TOC switch operation is not required if the breaker was not removed from the cubical.

2. Check breaker open by observing green OPEN flag.

3. Request Electrical Maintenance to confirm there is no visible damage to the TOC switch before installation, if the breaker was removed from the cubical.

> **NOTE**
>
> The Maintenance Department normally re-installs 4KV breakers, however it may be done by Operations personnel.

4. If the breaker was removed from the cubicle, request Maintenance to re-install the breaker into the cubicle and ensure it is fully inserted.

5. Check removed/remove breaker trip and close fuses.

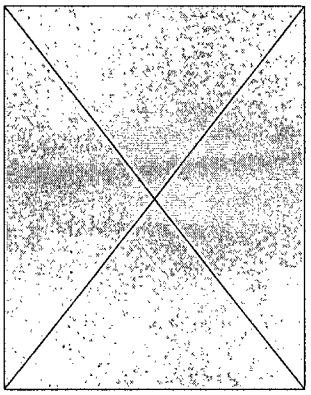
6. If removed, install elevating fuses (Device UL - ELEV).

> **NOTES**
>
> - There are specific racking motors labeled for use on specific 4KV buses. Contact Electrical Maintenance before using a racking motor not specific to the bus, should a motor fail.
> - The racking motors used for remotely racking up a breaker are larger than those used for locally racking up a breaker.

7. For locally racking up a breaker perform the following, if remotely racking up a breaker skip to Step 13.

8. Select the proper sized racking motor for the breaker.

   a. Install the bus specific racking (elevating) motor.



Place selector switch on motor in the RAISE position and check alignment of drive to clutch.

Pull clutch lever to engage drive and automatically start motor of the elevating

j. Install the amphenal control cable into the receptacle on the cubicle door.

k. Install the pendant controller into the control box.

l. Verify that the circuit breaker on the control box is in the ON position.

1) Verify that the digi-tilt display illuminates and the top green LED on the cubicle receptacle.

m. From a suitable distance away hold the raise button on the pendant controller until limit switch opens the motor circuit as breaker reaches the fully elevated position.

n. Release raise button on the pendant.

o. Request Electrical Maintenance to confirm there is no visible damage to the TOC switch after racking up, if the breaker was removed from the cubicle.

CAUTION

The fuses must be firmly seated in the fuse block to ensure proper contact is made.

p. Install DC trip fuses.

q. If applicable, check installed/install Appendix R close fuse (RUC).

NOTE

If springs were previously discharged, the following step results in considerable noise as the springs charge.

r. Installation of DC close fuses.

1) Install DC close fuses.

2) If applicable, check installed/install Appendix R trip fuse (RUT).

3) Release the clutch lever by depressing the green illuminated button on the pendant controller.

4) Check that breaker springs are charged.

5) If breaker springs are not charged, breaker is inoperable.

s. Remove the digi-tilt assembly or shorting plug.

t. Remove the amphenol connector from the cubicle door.

u. Remove elevating motor.

v. Proceed to procedure step 18.

14. Request Electrical Maintenance to confirm there is no visible damage to the TOC switch after racking up, if the breaker was removed from the cubical.

NOTE

If motor or power for it is not available, breaker may be raised or lowered in an emergency by use of a hand crank placed in the clutch drive.

CAUTION

The fuses must be firmly seated in the fuse block to ensure proper contact is made.

15. Install DC trip fuses.

16. If applicable, check installed/install Appendix R close fuse (RUC).

NOTE

If springs were previously discharged, the following step results in considerable noise as the springs charge.

17. Installation of DC close fuses.

a. Pull and hold clutch lever engaged.

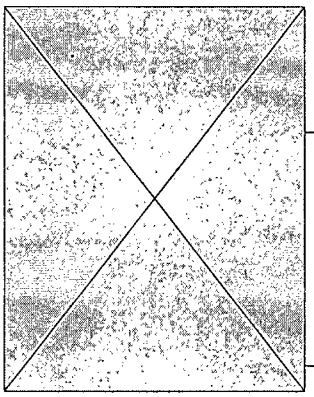
b. Install DC close fuses.

c. If applicable, check installed/install Appendix R trip fuse (RUT).

d. Release clutch lever.

e. Check that breaker springs are charged.

f. If breaker springs are not charged, breaker is inoperable.



NOTES

When the green indicator(s) is energized with normal brilliance it verifies that control power is on, breaker is open, and the cell switch is properly engaged.

A check of the TOC switch operation is not required if the breaker was not removed from the cubical.

18. Before closing the breaker, request Electrical Maintenance to confirm that the voltage measured across the TOC is less than 250 mV and that the Control Room green indicating light is bright, if the breaker was removed from the cubical.

19. If the green light is dim, or the voltage measured across the TOC is greater than 250 mV or the breaker closing springs are not charged:

    a. Do not attempt to operate breaker.

    b. Notify Electrical Maintenance Department.

NOTE

The cubicle mounted stationary auxiliary switch is located inside, on the

NOTE

When the interlock cam roller is in the correct position, the interlock switch paddle on the left hand side of the breaker will connect with and close the interlock switch.

21. Verify the following:

    a. The interlock cam roller on the right hand side of the breaker:

    - is in the "V" notch of the interlock cam, can spin freely and is not touching the cam, and
    - is approximately 1/16" to 1/8" above the interference block on the cam, and
    - the switch paddle on the left hand side is connected with and closing the interlock switch.

    b. If the interlock cam roller can not spin freely due to contact with the cam or if the interlock switch paddle is not connecting with the interlock switch, notify Electrical Maintenance Department. (ER2001-1027)

22. If plant conditions support breaker closure, proceed as follows. Otherwise, proceed to Step 23:

    a. Close the breaker.

NOTE

A check of the TOC switch operation is not required if the breaker was not removed from the cubical or if the breaker does not have remote operation capability.

    b. Request Electrical Maintenance to confirm that the voltage measured across the TOC is less than 250 mV and the Control Room red indicating light is bright, if the breaker was removed from the cubical.

    c. If the red light is dim, or the voltage measured across the TOC is greater than 250 mV:

        1) Do not attempt to operate the breaker.

        2) Request Electrical Maintenance to determine and correct the cause of the problem.

        3) Support Electrical Maintenance as necessary to determine and correct the cause of the problem.

d. If the breaker operation is satisfactory, position the breaker open/closed as required for plant conditions.

23. If plant conditions do not support breaker closure, caution tag the equipment to require Electrical Maintenance perform OP 2142, Section A, Step 22 when the breaker is closed, if the breaker was removed from the cubical.

a. For breakers 3V or 4V, request Electrical Maintenance remove breaker front cover and perform resistance measurements across secondary disconnect pins 4, 9, and 10 in lieu of breaker cycling as follows:

1) Verify voltage drop from terminal #A16 to terminal #4 of 52 I/S switch is <250 mV for breaker secondary disconnect 4.

a) Check resistance is <1 ohm.

2) Verify voltage drop from terminal #A17 to terminal #2C of 52 AUX switch is <250 mV for breaker secondary disconnect 9.

a) Check resistance is <1 ohm.

3) Verify voltage drop from terminal #G6 to terminal #4C of 52 AUX switch is <250 mV for breaker secondary disconnect 10.

a) Check resistance is <21.5 ohm (reading includes trip coil resistance at 20.5 ohms).

B. Racking Down a 4 KV Breaker from Its Bus

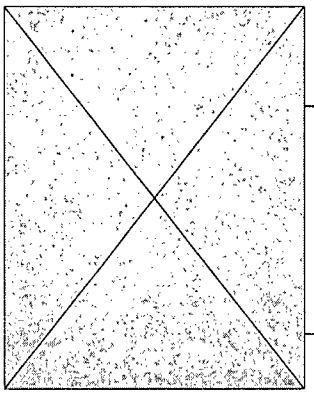
1. Check breaker open:

a. Open indicating light (green) should be energized.

b. Mechanical indicator on breaker should read OPEN.

c. If either condition is not satisfied, notify Electrical Maintenance Department before continuing.

2. Remove fuses from the close and trip circuits.



NOTES

Any one of the three (3) racking motors may be utilized to rack down a breaker.

The racking motors used for remotely racking down a breaker are larger than those used for locally racking down a breaker.

3. For locally racking down a breaker perform the following, if remotely racking down a breaker skip to Step 9.

4. Select the proper sized racking motor for the breaker.

   a. Install the racking (elevating) motor and place selector switch in the LOWER position.

5. Align drive to the clutch.

NOTE

The following step will automatically open the breaker if it is not already open.

6. Pull clutch lever to engage drive and hold until limit switch opens the motor

e. If digi-tilt sensor is available, install digi-tilt sensor on breaker, otherwise proceed to 9.f.

f. If digi-tilt sensor is not available, install a shorting plug.

NOTES

- Lights will not illuminate until all connections are made and the circuit breaker on the control box is in the ON position.
- Digi-tilt sensor will also be powered up when all connections are made and the circuit breaker power on.

g. Verify that the upper light on the J-box is illuminated.

h. Close the cubicle door.

i. At the wall mounted control box install the amphenal extension cord into the control box.

j. Install the amphenal control cable into the receptacle on the cubicle door.

k. Install the pendant controller into the control box.

l. Verify that the circuit breaker on the control box is in the ON position.

1) Verify that the digi-tilt display illuminates and the bottom green LED on the cubicle receptacle illuminates.

m. From a suitable distance away hold the lower button on the pendant controller until limit switch opens the motor circuit as breaker reaches the fully lowered position.

n. Release lower button on the pendant.

o. Release the clutch lever by depressing the green illuminated button on the pendant controller.

p. Remove the digi-tilt assembly or shorting plug.

q. Remove racking motor plug from cubicle receptacle.

r. Remove remote racking (elevating) motor.

NOTES

- For bus 1 and 2 breakers, a racked down breaker may be left on the floor of the cubicle without any seismic concerns.
- The Maintenance Department normally performs removal of 4KV breakers from the cubicle, however it may be done by Operations personnel.

CAUTION

To maintain seismic requirements, Bus 3 and 4 breakers must be removed from the cubicle after being racked down when the bus is required to be operable. (VYCES94120_01)

10. For buses 3 and 4, if the bus is required to be operable per Technical Specifications: (VYCES94120_01)

    a. Remove the breaker from the cubicle.

    b. Check the breaker DISCHGD.

NOTE

It is preferable to secure the breaker by tying off to the breaker frame; do not tie off to operating components of the breaker. (INF97053_01)

    c. Secure the breaker with approved tie downs.

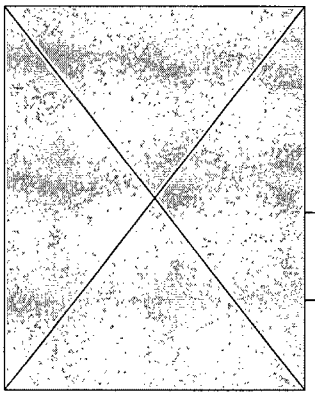
NOTE

VYOPF 2142.01 must be completed to satisfy the requirements to prepare for backfeeding the 4KV buses from the main/auxiliary transformer when the main generator/turbine is off-line.

C. Transfer of Station Load from Startup Transformer to Auxiliary Transformer

1. Check auxiliary transformer energized from main generator (which must be phased to the 345 KV system) or being backfed through main transformer from 345 KV system.

2. Insert sync check handle in BKR 12 socket and turn sync switch on.



Verify bus 1 in phase with auxiliary transformer (synchroscope at 12 o'clock position).

CAUTION

If they are not In Phase, do not transfer.

Close BKR 12.

5. Check that BKR 13 trips open when BKR 12 switch is released.
6. Reset BKR 13 amber light.
7. Turn sync check handle off and remove it.
8. Insert sync check handle in BKR 22 socket and turn sync switch on.
9. Verify bus 2 in phase with auxiliary transformer (synchroscope at 12 o'clock

D. Transfer of Station Load from Auxiliary Transformer to Startup Transformer

1. Verify that startup transformers are powered from 115 KV yard.

   a. If auto transformer is not supplying the 115 KV yard:

      1) Notify system load dispatcher.

      2) Ensure K-186 line is capable of carrying the plant load.

      3) Request VELCO suspend 30 MVAR Cap Bank operations and notify VY of 15MVAR Cap Bank operation.

NOTE

Steps 2 through 7 only apply if Bus 1 is available and is to be place in service.

2. Insert sync check handle in BKR 13 socket and turn sync switch on.

3. Verify bus 1 in phase with startup transformer (synchroscope at 12 o'clock position).

CAUTION

If they are not In Phase, do not transfer.

4. Close BKR 13.

5. Check that BKR 12 trips open when BKR 13 switch is released.

6. Reset BKR 12 amber light.

7. Turn sync check handle to off and remove it from the socket.

NOTE

Steps 8 through 13 only apply if Bus 2 is available and is to be place in service.

8. Insert sync check handle in BKR 23 socket and turn sync switch on.

9. Verify bus 2 in phase with startup transformer (synchroscope at 12 o'clock position).

CAUTION

If they are not In Phase, do not transfer.

10. Close BKR 23.

11. Check that BKR 22 trips open when BKR 23 switch is released.

12. Reset BKR 22 amber light.

13. Turn sync check handle off and remove it from the socket.

    a. Place sync check handle on CRP 9-8.

14. If required, perform Section P to secure the 4KV bus backfeeding lineup from the main/auxiliary transformers.

E. Manually Phasing Diesel Generators to Buses 3 or 4

1. Refer to OP 2126.

F. Energizing of 4 KV Bus 3 from Vernon 4160 V Line

1. Open/check open BKR 3V.

2. Open/check open BKR 4V.

3. Close BKR 3V4.

4. To energize 4 KV bus 3:

    a. Check open BKR 3T1.

    b. Check open BKR DG-B.

    c. Close BKR 3V.

5. Check 3 phase voltage for bus 3 (3700 – 4500 V).

6. Check Vernon Tie ammeter.

G. Energizing of 4 KV Bus 4 from Vernon 4160 V Line

1. Open/check open BKR 3V.

2. Open/check open BKR 4V.

3. Close BKR 3V4.

4. To energize 4KV bus 4:

   a. Check open BKR 4T2.

   b. Check open BKR DG-A.

   c. Close BKR 4V.

5. Check 3 phase voltage for bus 4 (3700 – 4500 V).

6. Check Vernon Tie ammeter.

H. Vernon Tie Supply OCB #10 Auto Trip at Vernon Hydro

1. Initiate corrective action to recover the Vernon Tie Supply.

I. Loss of DC Control Power to a 4 KV Bus

NOTE

Loss of DC control power could result from loss of DC-1 or DC-2 or result from a problem in the switchgear.

CAUTION

When DC control power to 4 KV Buses 1 or 2 is switched to the alternate supply, the recirc pump will trip.

1. If loss of DC control power is the result of the loss of DC-1 or DC-2, refer to ON 3159 or ON 3160.

2. If reason for loss of DC control power cannot be determined:

   a. Notify Electrical Maintenance Department immediately before switching to alternate supply.

   b. Monitor all running equipment for normal current and voltage.

J. Local Operation of a 4 KV Bus 3 or 4 Breaker

CAUTION

Local manual operation of a 4 KV breaker will only be performed in an extreme emergency and then only with permission of the Shift Manager. Under no circumstances will the breakers be operated to closed if DC control power for the breaker is unavailable.

1. DC Control Power Available

   a. Obtain Shift Manager's permission to perform local operation of the desired 4 KV breaker.

   b. If the 4 KV breaker to be operated is not an alternate shutdown equipped breaker, insert local ACB emergency breaker control key and operate key to desired position.

   c. If the 4 KV breaker to be operated is an alternate shutdown equipped breaker:

      1) Place alternate shutdown transfer switch to the emergency position.

      2) Place emergency breaker control switch to desired position.

   d. Verify that breaker changes position by observing local position lights and mechanical indicator.

   e. Report breaker status to Control Room.

2. DC Control Power Unavailable

NOTE

The below listed steps are for tripping the breaker only.

a. Obtain Shift Manager's permission to perform local tripping of the desired 4 KV breaker.

CAUTION

If the remote switch is left in an AUTO or ON position, the 4 KV breaker associated with that switch would close when DC control power is restored, therefore, it is essential that the remote switch remain in the PULL-TO-LOCK or OFF position.

b. Check that remote switch for that breaker is positioned to PULL-TO-LOCK or OFF.

c. Open door to the desired 4 KV breaker and depress local mechanical TRIP button.

d. Verify that breaker has tripped by observing local mechanical position indicator.

e. Report breaker status to Control Room.

K. Local Operation of a 4 KV Bus 1 or 2 or 5 Breaker

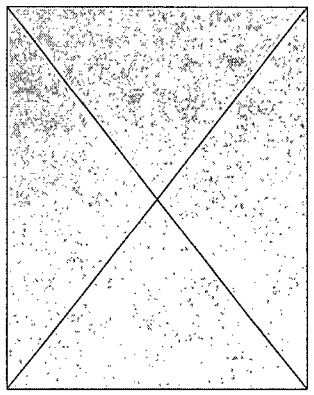
NOTE

Breaker 55 can only be opened and closed locally

CAUTION

Local manual operation of a 4 KV breaker (except BKR 55) will only be performed in an extreme emergency and then only with permission of the Shift Manager. Under no circumstances will the breakers be operated to closed if DC control power for the breaker is unavailable.

1. Obtain Shift Manager's permission to perform local operation of the desired 4 KV breaker.



For Breaker 55:

- use control switch on front door (preferable), or
- use trip/close pushbutton

Except for Breaker 55, open door to the desired 4 KV breaker and depress local TRIP or CLOSE button, whichever position is desired.

Verify that breaker changes position by observing local position lights and mechanical indicator.

5. Report breaker status to Control Room.

L. Loss of Fast Transfer Synch-Check Relays

NOTE

25/1 and 25/2 computer inputs are:

N. Energizing of 4 KV Bus

NOTE

If energizing 4 KV Bus 3 or 4 from Vernon 4160 V Line refer to Section E or F.

1. Insert sync check handle in appropriate breaker socket and turn sync switch on.
2. If bus to be energized is not dead, verify incoming and running buses are in phase (synchroscope at 12 o'clock position).
3. If bus to be energized is dead, verify the synchroscope stayed as it was, and either the running or incoming source light will be lit with the other light out.
4. Close appropriate breaker.
5. Turn sync check handle off and remove it.
   a. Place sync check handle on CRP 9-8.

O. Lining Up to Backfeed Through the Auxiliary Transformer (Opening the GD-1 Disconnect)

1. Perform VYOPF 2142.01.

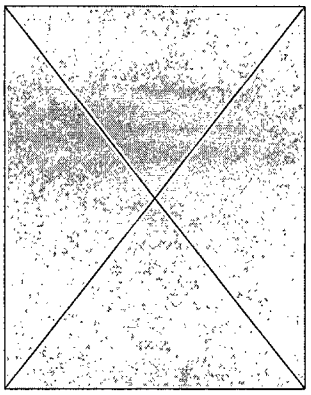
P. Securing from Backfeeding Through the Auxiliary Transformer (Closing the GD-1 Disconnect)

1. Shift Manager permission obtained.
2. Notify VELCO of the planned evolution.
3. Transfer 4KV buses 1 and 2 to the Startup transformers per Section D.

NOTE

After re-closing the Generator No Load Disconnect (GD-1), the T-1 MOD must remain open, until the order is given to connect the generator to the grid.

4. Check open, rack down and Danger tag Breaker 12 (Unit Auxiliary Transf. T-2-1A) per Section B.



14. For restoration of 4KV breakers 12 and 22:

    a. Remove Danger tags,

    b. Rack up breakers 12 and 22 per Section A of this procedure.

NOTE
The iso-phase bus cooling system and heaters should be maintained in operation to keep the duct pressurized and keep the system clean and dry.

15. If available, check in operation/place in operation the iso-phase bus cooling system fan and heater per RP 2193.

Q. Auxiliary Transformer Operation With Degraded Cooling System

NOTE
The Auxiliary Transformer coolers are operated with Group 1(2) selected for continuous operation and Group 2(1) selected for standby operation. A cooler consists of one oil pump and 3 fans. In this mode of operation, the cooling group selected for standby operation cycles on and off based upon temperature.

1. Upon loss of or degraded cooling, reduce the Transformer output to within the limits below to clear any temperature alarms, or to be within the limits for planned maintenance on the fans/coolers.

    a. Allowed Auxiliary Transformer Continuous Load Under Degraded Cooling Conditions:

Coolers Operating	Continuous Load (Meter Data Sheet or ERFIS C094)
One cooler with 2 fans running. (One pump with 2 fans running on the same cooler. This corresponds to 33.3% of cooling capability.)	15MW
One cooler in service. (One pump with 3 fans running on the same cooler. This corresponds to 50% of cooling capability.)	21MW
Two coolers in service with 4 fans available. (This corresponds to 66.7% of cooling capability.)	25MW

b. Auxiliary Transformer Operational Limitations With Loss Of Cooling:

Condition	Cooling Equipment Out of Service	Previous Transformer Condition	Allowed Operating Time From Loss of Cooling
Normal Operation at Rated Load	All	Rated Load	1 Hour
Rated Voltage No Load	All	Rated Load	6 Hours
Normal Operation at Rated Load	All	No Load (At Ambient Condition)	2 Hours
Rated Voltage No Load	All	No Load (At Ambient Condition)	12 Hours

c. Notify System Engineering.

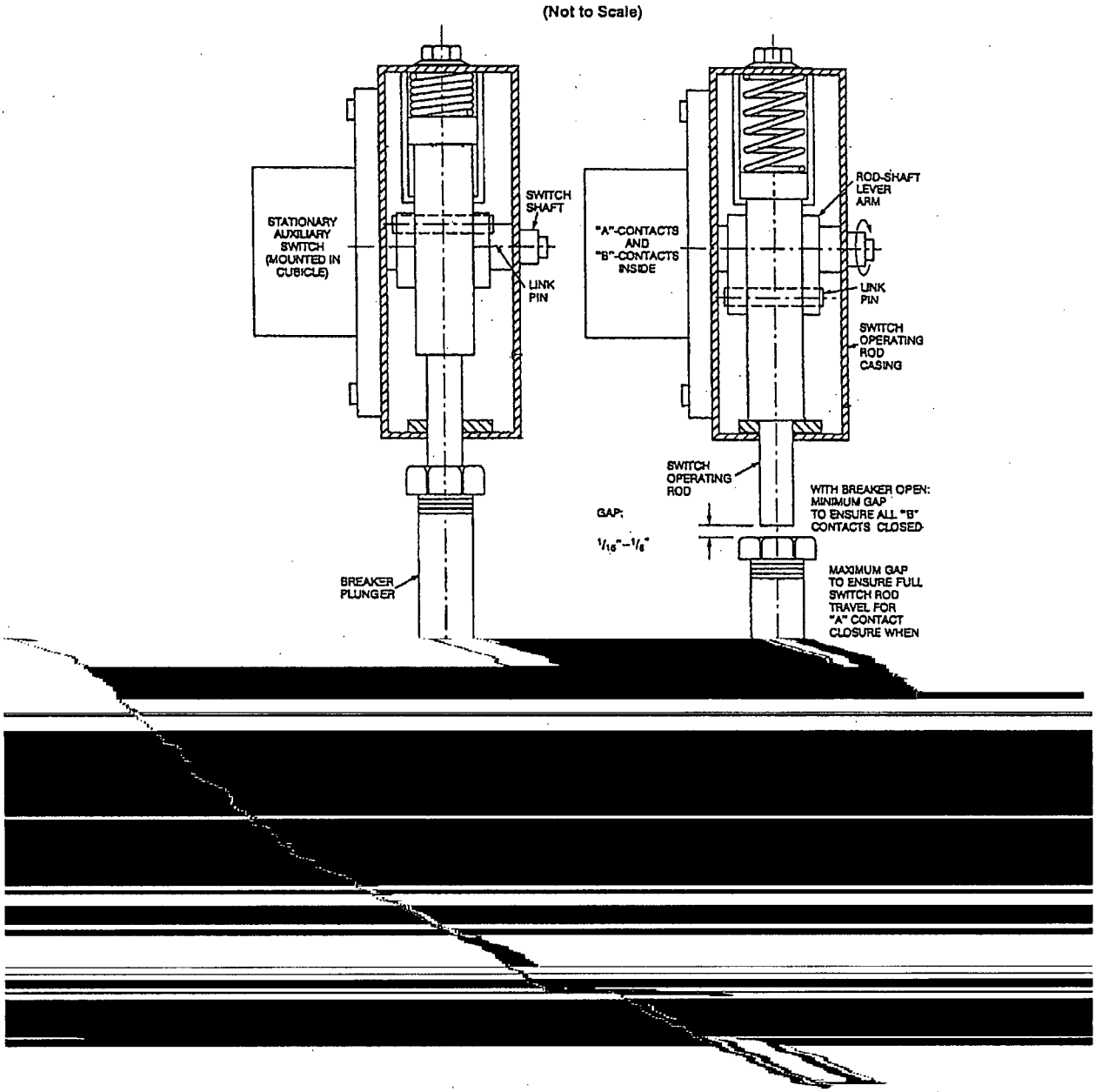
d. Initiate a Condition Report.

FINAL CONDITIONS

1. All appendices and forms completed and returned to Operations Office for filing per EN-AD-103, Document Control and Records Management Activities.

FIGURE 1

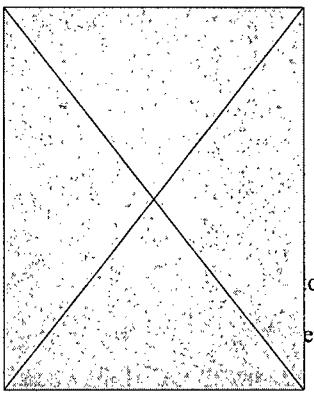
MAGNE-BLAST CIRCUIT BREAKER PLUNGER - STATIONARY
AUXILIARY SWITCH ADJUSTMENTS (ADAPTED FROM GE
MVSD FIELD INSTALLATION DRAWING 0172C7558)



APPENDIX A
4 KV BREAKER LINEUP

Breaker Number	Description	Position	Initial
	BUS 1		
12	Unit Auxiliary Transformer T-2-1A	RACKED UP	_____
13	Startup Transformer T-3-1A	RACKED UP	_____
P-1-1A	Reactor Feedwater Pump 1A	RACKED UP	_____
MG-1-1A	Reactor Recirc MG Set 1A Drive Motor	RACKED UP	_____
P-1-1B	Reactor Feedwater Pump 1B	RACKED UP	_____
P-2-1A	Condensate Pump 1A	RACKED UP	_____
P-5-1A	Circ Water Pump 1A	RACKED UP	_____
16	Station Service Transformer T-6-1A/T-12-1A	RACKED UP	_____
111	Station Service Transformer T-11-1A	RACKED UP	_____
BUS 1 Gnd Det Bkr	BUS 1 Ground Detection Breaker (Note 2)	CLOSED KIRK KEY INSTALLED	_____
	BUS 2		
22	Unit Auxiliary Transformer T-2-1A	RACKED UP	_____

ription	Position	Initial	Breaker Number	Desc
BUS 1				
rmer T-2-1A	RACKED UP	_____	12	Unit Auxiliary Transfo
T-3-1A	RACKED UP	_____	13	Startup Transformer
Pump 1A	RACKED UP	_____	P-1-1A	Reactor Feedwater
MG Set 1A Drive Motor	RACKED UP	_____	MG-1-1A	Reactor Recirc M
water Pump 1B	RACKED UP	_____	P-1-1B	Reactor Feed
Pump 1A	RACKED UP	_____	P-2-1A	Condensate
Pump 1A	RACKED UP	_____	P-5-1A	Circ Water
ervice Transformer T-6-1A/T-12-1A	RACKED UP	_____	16	Station S
Service Transformer T-11-1A	RACKED UP		111	Station



APPENDIX A (Continued)

	Description	Position	Initial
		BUS 3	
	o 4 KV Bus 4	RACKED UP	_____
	ernon Hydro Transformer	RACKED UP AND ALT SHTDN SWITCH IN NORMAL POSITION	_____
P-7-1D	Service Water Pump 1D	RACKED UP	_____
P-46-1B	Core Spray Pump 1B	RACKED UP	_____
P-10-1C	RHR Pump 1C	RACKED UP	_____
P-10-1D	RHR Pump 1D	RACKED UP	_____
38	Station Service Transformer T-8-1A	RACKED UP	_____
P-8-1D	RHR Service Water Pump 1D	RACKED UP	_____
3T1	Tie from 4 KV Bus 1	RACKED UP	_____
DG-1-1B	Diesel Generator 1B	RACKED UP	_____
P-8-1B	RHR Service Water Pump 1B	RACKED UP	_____

APPENDIX A (Continued)

Breaker Number	Description	Position	Initial
P-10-1A	RHR Pump 1A	RACKED UP AND ALT SHTDN SWITCH IN NORMAL POSITION	_____
10-1B	RHR Pump 1B	RACKED UP AND ALT SHTDN SWITCH IN NORMAL POSITION	_____
P-8-1C	RHR Service Water Pump 1C	RACKED UP AND ALT SHTDN SWITCH IN NORMAL POSITION	_____
DG-1-1A	Diesel Generator 1A	RACKED UP AND ALT SHTDN SWITCH IN NORMAL POSITION	_____
4V	Tie from 4 KV Bus 3	RACKED UP AND ALT SHTDN SWITCH IN NORMAL POSITION (NOTE 1)	_____
P-7-1A	Service Water Pump 1A	RACKED UP AND ALT SHTDN SWITCH IN NORMAL POSITION (NOTE 1)	_____
P-8-1A	RHR Service Water Pump 1A	RACKED UP AND ALT SHTDN SWITCH IN NORMAL POSITION	_____

APPENDIX A (Continued)

Breaker Number	Description	Position	Initial
	BUS 5A		
53	Startup Transformer T-3-1B	RACKED UP	_____
BUS 5A Gnd Det BKR	BUS 5A Ground Detection Breaker (Note 2)	CLOSED KIRK KEY INSTALLED	_____
	BUS 5B (Shed by East Clg Twr)		
55	Station Service Transformer T-5-B1-1A and 1B	RACKED UP	_____
P-6-1A	Circ Water Booster Pump 1A	RACKED UP	_____
P-6-1B	Circ Water Booster Pump 1B	RACKED UP	_____
P-6-1C	Circ Water Booster Pump 1C	RACKED UP	_____
	T-VERNON-HYDRO (Transformer by West Clg Twr)		
Disc. Sw.	Transformer Supply Disconnect Switch	CLOSED	_____

NOTE 1: There is only one Alternate Shutdown switch (SS-425) for both Breakers 4V and P-7-1A.

NOTE 2: BUS 1, 2, and 5A Aux Comp PT Fuses are removed and installed by Maintenance, Kirk Keys operated and controlled by Maintenance.

Remarks:

Reviewed By_____/_____
Shift Manager (Print/Sign) Date

APPENDIX B

EQUIPMENT LOST DURING RESIDUAL VOLTAGE TRANSFER

The following equipment will drop out during a residual voltage transfer and will not be picked up when voltage is restored. Manual restart is required:

Turbine Lube Oil Transfer Pumps P-43-1A, P-43-1B
Turning Gear Oil Pump P-73-1A
Turbine Lube Oil Filter Pumps P-42-1A, P-42-1B
Turbine Building Cooling Water Pumps P-58-1A, P-58-1B
Cond. Demin. Body Feed Tank/Precoat Tank Agitator M-28, M-29
Condensate Transfer Pumps P-4-1A, P-4-1B
Main Condenser Vacuum Pump P-53-1A
Heater Drain Pumps P-3-1A, P-3-1B
Station/Instrument Air Compressor C-1-1A, -1B, -1C, -1D
Cleanup Recirculation Pump P-49-1A
Cleanup Demineralizer Precoat Tank Agitator
Waste Sample Pump P-21-1A, 1B
Filter Decant Pump P-101-1A
Floor Drain Sample Pump P-29-1A
Condensate Backwash Transfer Pump P-30-1A
Condensate Sludge Mixing Pump P-31-1A
Condensate Decant Pump P-32-1A
Cleanup Sludge Discharge Mixing Pump P-33-1A
Cleanup Decant Pump P-34-1A
Waste Sludge Discharge Mixing Pump P-35-1A
Chemical Waste Pump P-36-1A
Spent Resin Pump P-67-1A,
Reactor Feed Pumps P-1-1A, 1B, 1C

APPENDIX C

ENERGIZING 4KV BUSES 3 AND 4 FROM VERNON 4160 LINE

		Initial
A.	**ENERGIZING 4KV BUS 3 FROM VERNON 4160 V TIE LINE**	
1.	Verify that power is available at **4KV VERNON TIE.**	_____
2.	OPEN/check open **BKR NO. 3V.**	_____
3.	OPEN/check open **BKR NO. 4V.**	_____
4.	CLOSE **BKR NO. 3V4.**	_____
5.	OPEN/check open **BKR NO. 3T1.**	_____
6.	OPEN/check open **BKR NO. DG-B.**	_____
7.	CLOSE **BKR NO. 3V.**	_____
8.	Check 3 phase voltage for **4KV BUS NO. 3** (3700 – 4500 V).	_____
9.	Check **4KV VERNON TIE** ammeter.	_____
B.	**ENERGIZING 4KV BUS 4 FROM VERNON 4160 V TIE LINE**	
1.	Verify that power is available at **4KV VERNON TIE.**	_____
2.	OPEN/check open **BKR NO. 3V.**	_____
3.	OPEN/check open **BKR NO. 4V.**	_____
4.	CLOSE **BKR NO. 3V4.**	_____
5.	OPEN/check open **BKR NO. 4T2.**	_____
6.	OPEN/check open **BKR NO. DG-A.**	_____
7.	CLOSE **BKR NO. 4V.**	_____
8.	Check 3 phase voltage for **4KV BUS NO. 4** (3700 - 4500 V).	_____
9.	Check **4KV VERNON TIE** ammeter.	_____

Completed by: _____ / _____
(Print/Sign) Date

Reviewed by: _____ / _____
(Print/Sign) Date

APPENDIX D

NORMAL TRANSFER OF STATION LOAD FROM AUXILIARY TRANSFORMER TO STARTUP TRANSFORMER

1. Verify that startup transformers are powered from 115KV yard. _____
2. Insert sync check handle in **BKR NO. 13** socket and turn ON. _____
3. Verify **4KV BUS NO. 1** is in phase with startup transformer. _____

CAUTION

If bus and startup transformer are not In Phase, do not transfer.

4. CLOSE **BKR NO. 13**. _____
5. Check that **BKR NO. 12** trips open when **BKR NO. 13** switch is released. _____
6. Reset **BKR NO. 12** amber light. _____
7. Turn sync check handle OFF and remove from socket. _____
8. Insert sync check handle in **BKR NO. 23** socket and turn ON. _____
9. Verify **4KV BUS NO. 2** is in phase with startup transformer. _____

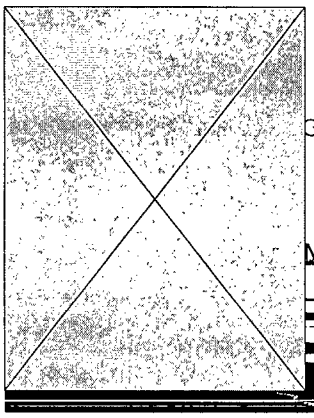
CAUTION

If bus and startup transformer are not In Phase, do not transfer.

10. CLOSE **BKR NO. 23**. _____
11. Check that **BKR NO. 22** trips open when **BKR NO. 23** switch is released. _____
12. Reset **BKR NO. 22** amber light. _____
13. Turn sync check handle OFF and remove from socket. _____
    a. Place sync check handle on CRP 9-8. _____

Completed by: _____ / _____
(Print/Sign) Date

Reviewed by: _____ / _____
(Print/Sign) Date



G UP TO BACKFEED THROUGH THE AUXILIARY TRANSFORMER
(OPENING THE GD-1 DISCONNECT)

Manager's permission to perform test

LINING UP TO BACKFEED THROUGH THE AUXILIARY TRANSFORMER
(OPENING THE GD-1 DISCONNECT) (Continued)

> NOTE
>
> The GD-1 Disconnect takes approximately 25 turns of the hand crank to open.

		Perf. Init	Ver. Init
9.	Locally, unlock and open the GD-1 Disconnect.		
10.	Locally, lock open the GD-1 Disconnect manual operator.		

> **NOTE**
>
> Additional lighting may be required to visually verify the GD-1 Disconnect Contacts open.

11.	Locally, visually verify the contacts are open on all three phases of the GD-1 Disconnect.		
12.	Reset/verify reset the following primary and backup generator lockout relays:		
	• 86/G-P		
	• 86/G-B		
13.	With concurrence from VELCO, perform the following:		
	a. Close the T-1 MOD Motor Supply Switch		
	b. On CRP 9-7, Close T-1 MOD.		
	c. Locally verify all three T-1 MOD blades closed.		
	d. Restore the ring bus per VELCO specified sequence. The following is provided as a guide:		
	1) Close 81-1T ATB.		
	2) Close 1T ATB.		
	3) Place the recloser switch for 81-1T to SYNC. CHECK.		
	4) Place the recloser switch for 1T to INST.		
14.	When directed by the Shift Manager, energize Bus 1 (2) from the Auxiliary Transformer per OP 2142, Sect. C.		

LINING UP TO BACKFEED THROUGH THE AUXILIARY TRANSFORMER
(OPENING THE GD-1 DISCONNECT) (Continued)

15. If desired, Danger tag open the GD-1 Disconnect switch.

16. If available, check in operation/place in operation the iso-phase bus cooling system fan and heater per RP 2193.

FINAL CONDITIONS

1. Buses 1 and 2 are in service and being backfed from the main and auxiliary transformers with the generator no load disconnect switch, GD-1 open.

REMARKS:

Performed by:_____ / _____

Operators (Print/Sign) Date

Reviewed by:_____ / _____

Shift Manager (Print/Sign) Date