



DIESEL GENERATOR TRANSFER JHA/WORK PERMIT

Job Name: Diesel Generator Transfer to Temporary Generator

Location: CDF Assembly Hall Building

Job Duration: October, 2008

Work to be performed by: CDF Personnel, T&M Electricians

| | | |
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DESCRIPTION OF WORK:

This hazard analysis/work plan is written for the transfer from the old generator to the temporary generator. It is intended to protect the CDF experiment and addresses the work required before, during, and after the loss of power due to the transfer of generators. The hazard analysis/work plan for the electrical work associated with the transfer is covered by the *ATS – Emergency Generator HA* prepared on 7-28-08 which has been developed by the electrical task manager and reviewed/approved by the PPD Electrical Coordinator. The electrical task manager and the T&M electricians will follow the *ATS – Emergency Generator HA* during the work period. The supervisor or designate of this HA will coordinate the work with the electrical task manager.

CDF is purchasing a new diesel generator for backup power. A 150 kW generator will replace the existing 125 kW unit. The extra capacity will allow us to provide backup power to chill the SVX coolant during outages. The new generator will also provide CDF with a more reliable backup power system.

The installation will occur in two phases. A temporary generator will be installed on the west side of the B0 Assembly Building. While CDF is backed up by the temporary generator, the old generator will be removed and the new generator set in place and new power cables, control cables and automatic transfer switch will be installed. One to two weeks will be needed for this work. The transfer to the new generator can then take place.

CDF will watch for opportunities when down-days (no beam delivered) on the order of one to two shifts are scheduled in order to complete the two transfers. We estimate that a transfer will be a 4-6 hour period during which power will not be provided from the generator or the building power source that normally keeps critical devices powered. Building power will remain on to all other power panels. Prep work and recovery work will add to the overall down-days at CDF.

Several devices will be effected. A list of these is being compiled as well as a work plan. In many cases the devices will be transferred to alternate building power. In other cases, devices will simply be off during the work.

Systems effected include Silicon, COT, Solenoid, Cryo, Gas, Rack Protection, Shunt trip, FIRUS, Fire Panel, PA System, Telephones, Cameras, Status signs, CH HVAC and ODH Ventilation, AH Pit ODH Ventilation, Sump Pumps, Air Compressors, UPS-1, UPS-2, APACS, QUADLOG, Flammable Gas and ODH Monitoring, Vesda, third floor computer room systems, etc.

Conditions for this work include that it be a day with no beam, no storms predicted, and experts and key individuals must be available.

ASSOCIATED HAZARDS:

- (1) A separate Hazard Analysis is written and will be used which addresses the electrical hazards associated with transferring generators.
- (2) Risk of a complete loss of power to CDF.
- (3) Risk of loss of HVAC equipment during the work period.
- (4) All other consequences are summarized in the tables below.

HAZARD MITIGATION:

- (1) The electricians will be responsible for performing their work according to the electrical Hazard Analysis “ATS – Emergency Generator” prepared on 7-28-08 and their established work requirements and standards.
- (2) A day will be chosen when the risk of adverse weather conditions are minimal. FESS will be notified of the work. We will request that no conflicting electrical work be performed on the equipment providing power to the CDF facility during this work period.
- (3) FESS will be requested not to perform any preventive maintenance on operating HVAC equipment during this work period.
- (4) Hazard mitigation for other consequences/hazards are summarized in the tables below.

Hazard/Consequence and Work Plan/Mitigation Table – PP-B0-7

| SYSTEM | PP-B0-7 DEVICES | HAZARD / CONSEQUENCE | WORK PLAN / MITIGATION |
|-----------------|---------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Silicon | SVX Chiller Backup Pump | No impact | Building power is available to power chiller pump |
| Silicon | SVX Vacuum Primary Pump | Pump will remain off during the work period. | Use back-up pump during this work period. |
| Silicon | SVX Vacuum Back-up Pump | Momentary loss of power to this pump | Use alternate power. |
| Silicon | ISL Chiller Backup Pump | No impact | Building power is available to power chiller pump |
| Silicon | ISL Vacuum Primary Pump | Pump will remain off during the work period. | Use back-up pump during this work period. |
| Silicon | ISL Vacuum Back-up Pump | Momentary loss of power to this pump | Use alternate power. |
| Life Safety | Status signs at entries | No visual status information at SE entry. | No messages displayed on status signs at SE door. SW and center East entry signs will use alternate power. Personnel must obey life safety audible alarms as usual. See also PP-B0-7 Cir 16 for info on Panel on 2nd floor. |
| Life Safety | Halon Closet lights | Limited vision for work in Halon closet. | No lights in Halon Cylinder closet - use flashlight if entry is required. Post sign outside of door. |
| Life Safety | Panel 535 | The disconnect switch providing 110VAC to the shunt trip circuit will be powered down to prevent false trips. | A Fire Watch will be in effect. In the case of a Flammable Gas Alarm, the disconnect switch will be manually enabled. |
| 2nd Flr Ops | Telephone UPS | Telephone communication will continue with alternate power. | The telephone UPS will be plugged into another available outlet during this work. |
| 2nd Flr Ops | Telephone UPS | Telephone communication will continue with alternate power. | The telephone UPS will be plugged into another available outlet during this work. |
| Life Safety | Fire Alarm | Alarm box operates off of system UPS | Fire Alarm System has UPS. See info on Fire Alarm Panel below. |
| Process Systems | EV-101 | EV-101 will remain open in manual control | Remove valve actuator and install a manual handle prior to transfer work |
| Misc | Wall Mounted Unit Heaters in High Bay | No heat from wall units | No power to High Bay Wall Heaters. HVAC heaters will maintain reasonable temperatures in the high bay |

| SYSTEM | PP-B0-7 DEVICES | HAZARD / CONSEQUENCE | WORK PLAN / MITIGATION |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Misc | Htrs in Noe's office | No power to Wall Heaters in Noe's office | Use portable stockroom heater if temperature is too cold |
| Life Safety | Roof Exhaust - 7 | RE-7 opens | RE-7 defaults to open position which is the required position for ODH safety |
| Process Systems | RR #7 Electronics includes: Quadlog/Apacs, AstroDaq | Loss of solenoid system control readouts. Trigger inhibit & COT Permit are lost. | Power will be lost after UPS goes down. Solenoid must be powered down. Create current backup of code for Quadlog and APACS prior to work. |
| Life Safety | FIRUS PANEL | FIRUS Panel remains powered by its UPS | FIRUS UPS will last about 8 hours per Al Legan. Notify Comm Center of work. |
| Life Safety | FIRE ALARM PANEL | FIRE ALARM Panel remains powered by its UPS | FIRE ALARM PANEL UPS is sized for 24 hours of stand-by power per Brian Petersohn. Notify Fire Techs of work a couple of days prior to work in order to check batteries. |
| 2nd Flr Ops | P.A. Amplifier | No PA announcements possible (hard-wired) | The PA System will not be available during this work. Keep megaphone available in 2nd floor control room. |
| 2 Flr Ops | CTC Chamber lights | No impact | No lights on CTC, no power to museum video, no tours |
| Misc | Battery Charger for UPS-1 | See Hazard analysis for PP-UPS-1 | Capability to charge UPS-1 batteries is lost, See PP-UPS-1 work plan list. Load on UPS is minimized to most critical devices. |
| Process Systems | RR #8 Electronics includes: Crash Button Chassis, ZeroFlux Current Transformer, NMRs, Interlock Displays, DCCT Readouts, Gauss Meter, NIM Bin PSs | Power to this RR #8 will be lost after UPS goes down. Loss of solenoid readouts. | Solenoid must be powered down prior to work. Power off crash button chassis in Cryo Control Room in order that audible alarms are not sounded. Interlocks will not make up. With solenoid powered down, this has no consequence. When crash button chassis in Cryo Control Room is down, the 2nd floor chassis will lose power as well. |
| 2nd Flr Ops | Five Camera Monitors | No cameras during this downtime | Any access into the CH during this period will require that personnel follow ODH 2 rules in addition to all established access rules. This includes the buddy rule. |
| 2nd Flr Ops | Camera Controls Module | No cameras during this downtime | Any access into the CH during this period will require that personnel follow ODH 2 rules in addition to all established access rules. This includes the buddy rule. |
| Life Safety | UPS for Ops Manager, SciCo, and Status Panel PCs | UPS remains charged while switching to alternate pwr. | Use alternate power. Power to PCs will not be interrupted. |
| Life Safety | Shunt System | The disconnect switch providing 110VAC to the shunt trip circuit will be powered down to prevent false trips. | A Fire Watch will be in effect. In the case of a Flammable Gas Alarm, the disconnect switch will be manually enabled. |

| SYSTEM | PP-B0-7 DEVICES | HAZARD / CONSEQUENCE | WORK PLAN / MITIGATION |
|-----------------|-------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Misc | Power for PP-UPS-1 Panel | See Hazard analysis for PP-UPS-1 | See PP-UPS-1 work plan list |
| Process Systems | 2nd Floor Control Room Status Panel | Momentary loss of power to this status panel | Use alternate power. Status will be displayed during work period after switching to alternate power. |
| 2nd Flr Ops | PictureTel speaker for announcing i-Fix alarms | Momentary loss of power to this speaker. | Use alternate power. i-Fix Alarm messages will be announced as usual during work period after switching to alternate power. |
| Silicon | 5V Power for Humidity Sensor | See Silicon system work plan | Use alternate power. |
| Silicon | Auto-Hocker panel | See Silicon system work plan | Off |
| Silicon | Caenet VME crate (svxinter) controls Silicon Power Supplies | See Silicon system work plan | Off |
| Silicon | Fan tray for PLC | See Silicon system work plan | Use alternate power |
| Silicon | 24V power for Silicon flow control valves (4 PS's) | See Silicon system work plan | Use alternate power |
| Silicon | Interlock for Power Supply front panel | See Silicon system work plan | Off |
| Silicon | 5V enable for SVX & ISL | See Silicon system work plan | Off |
| 2nd Flr Ops | EF-1, EF-2 | EF-1 (AH) not in operation. EF-2 (CH) will be off. | EF-2 is exhaust fan for CH. No access into CH except for ODH Class 2 personnel. No effect in AH. |
| 2nd Flr Ops | PS#10 for Rack Protection | Momentary loss of power to this power supply | Use alternate power. PS#11 remains powered while PS#10 is switched to alternate power source. |
| 2nd Flr Ops | PS#11 for Rack Protection | Momentary loss of power to this power supply | Use alternate power. PS#10 remains powered while PS#11 is switched to alternate power source. |
| COT | SVX Heater Top | Momentary loss of power to heater | Use alternate power. Controls will react to reach system set point. Limited time without power will minimize temperature fluctuation. |
| COT | SVX Heater Bottom | Momentary loss of power to heater | Use alternate power. Controls will react to reach system set point. Limited time without power will minimize temperature fluctuation. |
| COT | Time of Flight Heater | Momentary loss of power to heater | Use alternate power. Controls will react to reach system set point. Limited time without power will minimize temperature fluctuation. |

Hazard/Consequence and Work Plan/Mitigation Table – PHP-B0-13

| SYSTEM | PHP-B0-13 DEVICES | HAZARD / CONSEQUENCE | WORK PLAN / MITIGATION |
|--------------------|----------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2nd Flr Ops | AC-3 | AC-3 will be off during this work period. | AC-3 is a CH HVAC and ODH fan. The Collision Hall will be classified ODH 2 during this work period. AC-2 will operate to help maintain CH HVAC conditions. |
| 2nd Flr Ops | PF-1 | PF-1 will be off during this work period. | PF-1 is a CH HVAC and ODH fan. The Collision Hall will be classified ODH 2 during this work period. BF-1 will operate to help maintain CH HVAC conditions. |
| Misc | PHP-B0-17 circuits | See PHP-B0-17 hazard list | See PHP-B0-17 work plan/hazard mitigation list |
| Process Systems | Air Compressor #1 | Air compressor #1 will remain operational. | Use alternate power for Compressor #1. Compressed air system will remain operational. |
| Misc | Sump Pumps in AH Pit | AH Pit sump pumps not operational | OK for 1/2 day period assuming no heavy rainfall just before or during down-time |
| Process Systems | Air Compressor #2 | Air compressor #2 will remain operational. | Use alternate power for Compressor #2. Compressed air system will remain operational. |
| 2nd Flr Ops | AH-1 | ODH fan for AH Pit will not be operational. | Pit is ODH Class 2. No access into AH Pit except for ODH Class 2 personnel. |
| 2nd Flr Ops | Pit Purge Fan | ODH fan for AH Pit will not be operational. | Pit is ODH Class 2. No access into AH Pit except for ODH Class 2 personnel. |

Hazard/Consequence and Work Plan/Mitigation Table – PHP-B0-17

| SYSTEM | PHP-B0-17 DEVICES | HAZARD / CONSEQUENCE | WORK PLAN / MITIGATION |
|-----------------|----------------------|------------------------------------------------------|-------------------------------------------------------------------------------------|
| Process Systems | PP-UPS-2 | PP-UPS-2 will continue to charge via alternate power | Switch to Line power supplied from PHP-B0-11 Circuits 14/16/18 per posted procedure |
| Misc | PP-B0-21 circuits | see PP-B0-21 hazard list | see PP-B0-21 work plan/hazard mitigation list |
| Misc | PP-B0-7 circuits | see PP-B0-7 hazard list | see PP-B0-7 work plan/hazard mitigation list |
| Silicon | SVX or Spare Chiller | No hazard. Chiller will be operational | Building Power will continue to power SVX Chiller |
| Silicon | Air-Cooled Chiller | Not available during work period | CDF Chillers will remain powered |

Hazard/Consequence and Work Plan/Mitigation Table – PP-UPS-1

| SYSTEM | PP-UPS-1 DEVICES | HAZARD / CONSEQUENCE | WORK PLAN / MITIGATION |
|-----------------|-------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Process Systems | Cryo Control Room Channel 13 Monitor | Accelerator Operations Information not readily available | No power to monitor. Channel 13 info not required as work will be performed on down-day (no beam). |
| Life Safety | APACS External Power Supply, Left Rear | Momentary loss of power to this APACS PS. | Use alternate power. PS's are redundant. APACS remains powered. |
| Life Safety | APACS External Power Supply, Right Rear | Momentary loss of power to this APACS PS. | Use alternate power. PS's are redundant. APACS remains powered. |
| Life Safety | Flammable Gas Detector Power Supply, Left Rear | Momentary loss of power to this FG Detector PS. | Use alternate power. PS's are redundant. FG Sensors remain powered. |
| Life Safety | Flammable Gas Detector Power Supply, Right Rear | Momentary loss of power to this FG Detector PS. | Use alternate power. PS's are redundant. FG Sensors remain powered. |
| Life Safety | Life Safety Alarm Chassis, Top | Momentary loss of power to Top Chassis. No audible alarms in case of ODH condition for brief period. | Use alternate power. Power loss duration only occurs during period of time required to relocate power cord to alternate power. |
| Life Safety | Life Safety Alarm Chassis, Middle | Momentary loss of power to Middle Chassis. No audible alarms in case of ODH condition for brief period. | Use alternate power. Power loss duration only occurs during period of time required to relocate power cord to alternate power. |
| Life Safety | Life Safety Alarm Chassis, Bottom | Momentary loss of power to Bottom Chassis. No audible alarms in case of ODH condition for brief period. | Use alternate power. Power loss duration only occurs during period of time required to relocate power cord to alternate power. |

| SYSTEM | PP-UPS-1 DEVICES | HAZARD / CONSEQUENCE | WORK PLAN / MITIGATION |
|-----------------|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Process Systems | AMI LL Readout for Storage Dewar | Momentary upset to cryo system while LL Readout power source is switched. | Use alternate power. Solenoid will be powered off prior to switching power sources. |
| Process Systems | AMI LL Readout for Control Dewar | Momentary upset to cryo system while LL Readout power source is switched. | Use alternate power. Solenoid will be powered off prior to switching power sources. |
| 2 Flr Ops | Video Splitter | No Hazard. | Power down. Info not required during downtime. |
| 2nd Flr Ops | AD PC, Radiation Monitoring | No Hazard. | Power down. Info not required during downtime. |
| Process Systems | COT Baggy Pump | Loss of flow over a period of time will cause a flammable gas alarm. | Use alternate power. Switch will be performed with COT Safety System temporarily in bypass mode. |
| Process Systems | 24 VDC Supply for Gas Mixing Shed Safety System | Momentary Gas Mixing Shed Alarms during power source transfer. | Includes FIRUS signals for Gas Mixing Shed. Use alternate power. Notify Comm Center of work. |
| 2nd Flr Ops | Vesda Monitor | Momentary loss of Vesda monitoring. | Use alternate power. Momentary readout lost. Notify Communications Center. |
| 2nd Flr Ops | FIRUS PC | Momentary loss of FIRUS status. | Use alternate power. Momentary readout lost. Alarms are not interrupted. |
| 2nd Flr Ops | FIRUS Monitor | Momentary loss of FIRUS status. | Use alternate power. Momentary readout lost. Alarms are not interrupted. |
| 2nd Flr Ops | CH Fire Temperature Monitor | Momentary loss of Fire Temperature monitoring. | Use alternate power. Momentary readout lost. Notify Communications Center. |
| Life Safety | AH Roof Exhaust fans and Wall Mounted Heaters | No Hazard. | Controls will remain on UPS. |
| Life Safety | Main Control Panel 535 | The disconnect switch providing 110VAC to the shunt trip circuit will be powered down to prevent false trips. | A Fire Watch will be in effect. In the case of a Flammable Gas Alarm, the disconnect switch will be manually enabled. |

| SYSTEM | PP-UPS-1 DEVICES | HAZARD / CONSEQUENCE | WORK PLAN / MITIGATION |
|-----------------|-----------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Silicon | Svxiicon PC and Monitor | Temporary loss of i-Fix readouts for Silicon devices. | Use alternate power. Interlocks are uninterrupted. i-Fix readouts are restored for work period. |
| Silicon | Silicon PLC Crates | Power is uninterrupted. | Remains powered by UPS-1 |
| Silicon | Silicon PLC Network Switch | Power is uninterrupted. | Remains powered by UPS-1 |
| Process Systems | O2 Analyzer | Momentary loss of gas system O2 analysis. | Use alternate power. Switch will be performed with O2 sampling in manual with the system set to N2 purge (zeroing). |
| Process Systems | O2 Analyzer Pump | Momentary loss of gas system O2 analysis. | Use alternate power. Switch will be performed with O2 sampling in manual with the system set to N2 purge (zeroing). |
| Process Systems | +/- 15VDC PS for 720' Level | Gas System flow rates will alarm. Momentary loss of monitoring. | Use alternate power. Alarms are temporary and monitoring is restored after the alternate power is provided. |
| Process Systems | +/- 15VDC PS for 730' Level | Gas System flow rates will alarm. Momentary loss of monitoring. | Use alternate power. Alarms are temporary and monitoring is restored after the alternate power is provided. |
| Silicon | Silicon PLC Crates | Power is uninterrupted. | Remains powered by UPS-1. |

Hazard/Consequence and Work Plan/Mitigation Table – PP-UPS-2

| SYSTEM | PP-UPS-2 DEVICES | HAZARD / CONSEQUENCE | WORK PLAN / MITIGATION |
|-----------------|--------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------|
| Process Systems | APACS Node 1 BPPS Pair 1 | APACS remains powered | One Power Supply from the pair will use alternate power during the switch of PP-UPS-2 to Sola power |
| Process Systems | APACS Node 1 BPPS Pair 2 | APACS remains powered | One Power Supply from the pair will use alternate power during the switch of PP-UPS-2 to Sola power |
| Process Systems | APACS Node 1 BPPS Pair 3 | APACS remains powered | One Power Supply from the pair will use alternate power during the switch of PP-UPS-2 to Sola power |
| Process Systems | APACS Node 1 Crate Fans | Fans will power off briefly | Open Node 1 cabinet doors during switch to Sola power to limit temperature increase |
| Process Systems | Cryo Control Room PCs | Loss of power to PCs | PCs will be powered off prior to switch and restarted when power is restored |
| Process Systems | 1RR34I, PS#12 & PS#13 HVAC Exhaust Damper Motors | Associated APACS SDM channels remain powered | One Power Supply from the pair will use alternate power during the switch of PP-UPS-2 to Sola power |
| Process Systems | 1RR34I, PS#5 & PS#6 Water & HVAC | Associated APACS SDM channels remain powered | One Power Supply from the pair will use alternate power during the switch of PP-UPS-2 to Sola power |
| Process Systems | 1RR34I, PS#16 & PS#17 Cryo & Vacuum | Associated APACS SDM channels remain powered | One Power Supply from the pair will use alternate power during the switch of PP-UPS-2 to Sola power |
| Process Systems | CCR Annex, IPA Junction Box | Loss of power to IPA J-Box | Reset IPA J-Box interlocks when power is restored |
| Process Systems | RR#13 APACS Node2 BPPS Pair 5 | APACS remains powered | One Power Supply from the pair will use alternate power during the switch of PP-UPS-2 to Sola power |
| Process Systems | RR#15 COT ±15 VDC PS | Loss of power to COT Gas System PS | Temporarily disable COT Gas supply system. Re-enable after power is restored. |
| Process Systems | APACS Node 2 Crate Fans | Fans will power off briefly | Fans will restart after a brief period with no power. |
| Process Systems | RR #13 N2 R2 SDM PS Pair | Associated APACS SDM channels remain powered | One Power Supply from the pair will use alternate power during the switch of PP-UPS-2 to Sola power |
| Process Systems | RR #13 N2 R3 SDM PS Pair | Associated APACS SDM channels remain | One Power Supply from the pair will use alternate power during the switch of PP-UPS-2 to Sola power |
| Process Systems | RR #13 N2 R1 SDM PS Pair | Associated APACS SDM channels remain | One Power Supply from the pair will use alternate power during the switch of PP-UPS-2 to Sola power |

Hazard/Consequence and Work Plan/Mitigation Table – PP-B0-21

3rd Floor Computer Room

| PHP-B0-21 DEVICES | CONSEQUENCE | MITIGATION |
|-------------------|----------------------------------------------------------------|----------------------------------------|
| 3RR08E | | |
| Minilibrary | No power | Power down device |
| dsg-b0-con1 | No power | Power down device |
| monitor | No power | Power down device |
| bzora1 | No DAQ activities (needed for many DAQ programs) | none needed - redundant ps on panel 20 |
| bzora1 disk | see above for bzora1 | none needed - redundant ps on panel 20 |
| 3RR08F | | |
| b0dau36 | No power | Power down device |
| b0dau36 disk | No power | Power down device |
| Matrix A UPS | No power | Power down device |
| 3RR08G | | |
| i-krb-6 | no Kerberos security if online network isolated from lab | see Matrix B UPS |
| fnsrvcdf2 | no DNS services if online network isolated from lab | see Matrix B UPS |
| 3RR08H | | |
| PDU 2 | | Move to PP-B0-20 (2), tile 9H |
| PDU 3 | No power | Power down device |
| Rack fan | No power | Power down device |
| s-cdf-online | all online computers lose network connections | none needed - redundant ps on panel 20 |
| Powerware 9125 | no status panel, all iFix computers in local mode | see PDU 2 |
| s-cdf-online-4 | alarm will go to network group if switch is off | see Matrix B UPS |
| s-cdf-online-2 | no status panel, all iFix computers in local mode | see Powerware 9125 |
| s-cdf-cdf3cr-2 | no keylogger | see Matrix B UPS |

| PHP-B0-21 DEVICES | CONSEQUENCE | MITIGATION |
|---------------------|---------------------------------------------------------|---------------------------------------------------|
| 3RR08H cont. | | |
| s-cdf-cdf3cr | all offline (office) computers lose network connections | see Matrix B UPS |
| media converters | no network to gas shed, clean rooms, tech areas | see Matrix B UPS |
| EVB BOOT | No DAQ activities (needed for L3/HEVB) | move to PDU2 (see PDU 2) |
| 3RR11J | | |
| Matrix B UPS | no network to any computers | Move to PP-B0-14A1 (19-21), tile 10F |
| 3RR15E | | |
| b0l2cntl00 | No DAQ activities (needed for trigger) | Move 2nd ps to powerstrip A, circuit PP-B0-20 (8) |
| b0l2cntl01 | No power | Power down device |
| killerinstinct | No power | Power down device |
| l2node02 | No power | Power down device |
| b0clifford | No power | Power down device |
| b0felix | No power | Power down device |
| Cyberview KVM | No power | Power down device |
| TEG-S160TX | No DAQ activities (needed for trigger) | Move 2nd ps to powerstrip A, circuit PP-B0-20 (8) |
| 3000XL-15E-B | No power | Power down device |
| 3RR15F | | |
| rack fan | No power | Power down device |
| b0server11 | No power | Power down device |
| b0server10 | No power | Power down device |
| b0server09 | No power | Power down device |
| b0sili03 | No power | Power down device |
| b0build | No power | Power down device |
| KVM | No power | Power down device |
| 3000XL-15F-T | No power | Power down device |
| 3000XL-15F-B | No power | Power down device |

| PHP-B0-21 DEVICES | CONSEQUENCE | MITIGATION |
|-------------------|---------------------------------------|----------------------------------------------------|
| 3RR15G | | |
| rack fan | No power | Power down device |
| b0server08 | No power | Power down device |
| b0server07 | No power | Power down device |
| b0server06 | No power | Power down device |
| b0server05 | No DAQ activities | Move 2nd ps to powerstrip A, circuit PP-B0-20 (8) |
| b0server04 | No DAQ activities | Move 2nd ps to powerstrip A, circuit PP-B0-20 (8) |
| b0server03 | No DAQ activities | Move 2nd ps to powerstrip A, circuit PP-B0-20 (8) |
| b0server02 | No DAQ activities | Move 2nd ps to powerstrip A, circuit PP-B0-20 (8) |
| b0server01 | No DAQ activities | Move 2nd ps to powerstrip B, circuit PP-B0-20 (12) |
| b0server00 | No DAQ activities | Move 2nd ps to powerstrip A, circuit PP-B0-20 (8) |
| b0www00 | No DAQ activities | Move 2nd ps to powerstrip B, circuit PP-B0-20 (12) |
| b0www | No power | Power down device |
| KVM | No power | Power down device |
| 3000XL-15G-T | No power | Power down device |
| 3000XL-15G-B | No power | Power down device |
| 3RR15H | | |
| b0spool | No online computer | Move 2nd ps to powerstrip B, circuit PP-B0-20 (12) |
| b0home | No online computer use | Move 2nd ps to powerstrip B, circuit PP-B0-20 (12) |
| Linksys EF4116 | No power | Power down device |
| CentreCom 3012SL | No power | Power down device |
| 3000XL-15H-T | No power | Power down device |
| 3000XL-15H-B | No power | Power down device |
| 3RR15I | | |
| rack fan | No power | Power down device |
| b0vxworks | No power | Power down device |
| b0backup | No daily backup of online computers | Move 2nd ps to powerstrip C, circuit PP-B0-3 (14) |
| b0gateway | No outside access to online computers | Move 2nd ps to powerstrip C, circuit PP-B0-3 (14) |
| b0doorway | No outside access to online computers | Move 2nd ps to powerstrip C, circuit PP-B0-3 (14) |
| b0admin | No logins allowed to online computers | Move 2nd ps to powerstrip C, circuit PP-B0-3 (14) |

| PHP-B0-21 DEVICES | CONSEQUENCE | MITIGATION |
|---------------------|------------------------------------------------------------|-------------------------------------------|
| 3RR15I cont. | | |
| b0console | No power | Power down device |
| KVM | No power | Power down device |
| 3000XL-15I-T | No power | Power down device |
| 3000XL-15I-B | No power | Power down device |
| SE corner | | |
| Powerware 9125-SE | fs1 and fs2 go down (see next) | Move to PP-B0-3 (11), east wall 32G |
| newcdf-fs1 | no common iFix disks, no status panel | Use alternate power for Powerware 9125-SE |
| newcdf-fs2 | no ability to plot iFix, no process system tech help | Use alternate power for Powerware 9125-SE |

PRIMARY WORK PROCEDURE:

The following checklist is required for this work. The JHA supervisor or designate must approve (initial) each step of the work. Deviations from this procedure are not allowed without consent of a CDF Operations Head.

- ___ (1) Notify the following groups that their preparatory work is to begin:
 - a. Life Safety
 - b. Second Floor Operations
 - c. Process Systems
 - d. COT
 - e. Silicon
 - f. Third Floor Computer Room
- ___ (2) Verify that the prep work is complete:
 - a. Life Safety
 - b. Second Floor Operations
 - c. Process Systems
 - d. COT
 - e. Silicon
 - f. Third Floor Computer Room
- ___ (3) Notify the Electrician Task Manager that the ATS-Generator transfer work may begin.
- ___ (4) When the ATS-Generator transfer work is complete, notify the following groups that recovery work may begin:
 - a. Life Safety
 - b. Second Floor Operations
 - c. Process Systems
 - d. COT
 - e. Silicon
 - f. Third Floor Computer Room
- ___ (5) Verify that all recovery work is complete:
 - a. Life Safety
 - b. Second Floor Operations
 - c. Process Systems
 - d. COT
 - e. Silicon
 - f. Third Floor Computer Room

LIFE SAFETY WORK PROCEDURE:

The following checklist is required for this work. The Life Safety expert must approve (initial) each step of the work at the appropriate time. Deviations from this checklist are not allowed without consent of a CDF Operations Head.

____ Notify Brian Petersohn, Al Legan, Bill Flaherty, and Fire Department of generator work in advance (~ 2 days).

Before Work

- ____ (1) Prior to the Generator transfer work, switch the following devices to alternate power sources or disconnect from power as indicated. When switching redundant power supplies, verify that power is restored to the first power supply before switching the second power supply. Notify Communications Center at x3414 as appropriate. Initial each row as it is completed.

| INITIAL | DEVICE | NORMALLY POWERED FROM | NORMAL POWER SOURCE | ALTERNATE POWER |
|---------|--------------------------------------------------|-----------------------|-------------------------------------|------------------------------------------------------------------|
| | Status Sign at SW Entry | PP-B0-7, CIR 6 | Receptacle | PP-B0-1 CIR 1 Recept on Column B4 |
| | Status Sign at East Entry | PP-B0-7, CIR 6 | Receptacle | PP-B0-5 CIR 30 Recept |
| | UPS for Ops Manager, SciCo, and Status Panel PCs | PP-B0-7, CIR 14 | 2RR07B | PP-B0-4B CIR 12 in 2RR06B |
| | 2nd Floor Control Room Status Panel | PP-B0-7, CIR 16 | Receptacle above 2RR10C | PP-B0-4B CIR 22 in 2RR10C, use power strip |
| | APACS External Power Supply, Left Rear | PP-UPS-1, CIR 1 | Cryo Control Room RR #1 Power Strip | PP-B0-5 CIR 19 Recept on south wall under clock, use power strip |
| | APACS External Power Supply, Right Rear | PP-UPS-1, CIR 1 | Cryo Control Room RR #1 Power Strip | PP-B0-5 CIR 19 Recept on south wall under clock, use power strip |
| | Flammable Gas Detector Power Supply, Left Rear | PP-UPS-1, CIR 1 | Cryo Control Room RR #1 Power Strip | PP-B0-5 CIR 19 Recept on south wall under clock, use power strip |
| | Flammable Gas Detector Power Supply, Right Rear | PP-UPS-1, CIR 1 | Cryo Control Room RR #1 Power Strip | PP-B0-5 CIR 19 Recept on south wall under clock, use power strip |
| | Life Safety Alarm Chassis, Top | PP-UPS-1, CIR 1 | Cryo Control Room RR #1 Power Strip | PP-B0-5 CIR 21 Recept on south wall under clock, use power strip |
| | Life Safety Alarm Chassis, Middle | PP-UPS-1, CIR 1 | Cryo Control Room RR #1 Power Strip | PP-B0-5 CIR 21 Recept on south wall under clock, use power strip |
| | Life Safety Alarm Chassis, Bottom | PP-UPS-1, CIR 1 | Cryo Control Room RR #1 Power Strip | PP-B0-5 CIR 21 Recept on south wall under clock, use power strip |

- ____ (2) There will be no lights in the Halon Cylinder closet. Use a flashlight if entry is required. Post a sign outside of the closet door.

- ____ (3) Post a sign at each CDF B0 entry with notification of the Generator transfer work and that all alarms are to be responded to.

- ___ (4) The 2nd floor Control Room Fire Alarm Box near West door on North Wall will remain active as the Fire Alarm Box has its own 24 hour UPS system.
- ___ (5) Power down the disconnect switch providing 110VAC to the shunt trip circuit. Attach a tag indicating that the switch is off for the Generator Transfer work. A Fire Watch will be in effect. In the case of a Flammable Gas Alarm, enable the disconnect switch.
- ___ (6) The FIRUS Panel remains powered by its own 8 hour UPS system.
- ___ (7) Notify the Comm Center at the point in time that the RRG02 devices are switched to alternate power. Coordinate with Process Systems expert.
- ___ (8) Notify Communications Center at x3414 of alarms associated with loss of generator power just prior to loss of generator power.

During Work

- ___ (1) After the generator powered circuits have been powered off, verify that all devices addressed above remain in the state desired.
- ___ (2) A Fire Watch is in effect. In the case of a Flammable Gas Alarm, enable the shunt trip disconnect switch and immediately call x3131 to notify Dispatch of the alarm.
- ___ (3) In the case of a problem with FIRUS, notify Al Legan at x4074. Notify Communications Center at x3414 that the problem exists and that a Fire Watch is in effect at CDF.
- ___ (4) In the case of a problem with the Fire Panel, notify Brian Petersohn at x2924. Notify Communications Center at x3414 that the problem exists and that a Fire Watch is in effect at CDF.
- ___ (5) Call x3131 in any emergency.
- ___ (6) Notify the second floor control room of any safety system issues.

After Work

___ (1) After the hazard analysis supervisor has confirmed that the transfer work is complete, return the devices indicated below to their original power source and verify operation. When switching redundant power supplies, verify that power is restored to the first power supply before switching the second power supply. Initial each row as it is completed.

| INITIAL | DEVICE | NORMALLY POWERED FROM | NORMAL POWER SOURCE | ALTERNATE POWER |
|---------|--------------------------------------------------|-----------------------|-------------------------------------|------------------------------------------------------------------|
| | Status Sign at SW Entry | PP-B0-7, CIR 6 | Receptacle | PP-B0-1 CIR 1 Recept on Column B4 |
| | Status Sign at SW Entry | PP-B0-7, CIR 6 | Receptacle | PP-B0-5 CIR 30 Recept |
| | UPS for Ops Manager, SciCo, and Status Panel PCs | PP-B0-7, CIR 14 | 2RR07B | PP-B0-4B CIR 12 in 2RR06B |
| | 2nd Floor Control Room Status Panel | PP-B0-7, CIR 16 | Receptacle above 2RR10C | PP-B0-4B CIR 22 in 2RR10C, use power strip |
| | APACS External Power Supply, Left Rear | PP-UPS-1, CIR 1 | Cryo Control Room RR #1 Power Strip | PP-B0-5 CIR 19 Recept on south wall under clock, use power strip |
| | APACS External Power Supply, Right Rear | PP-UPS-1, CIR 1 | Cryo Control Room RR #1 Power Strip | PP-B0-5 CIR 19 Recept on south wall under clock, use power strip |
| | Flammable Gas Detector Power Supply, Left Rear | PP-UPS-1, CIR 1 | Cryo Control Room RR #1 Power Strip | PP-B0-5 CIR 19 Recept on south wall under clock, use power strip |
| | Flammable Gas Detector Power Supply, Right Rear | PP-UPS-1, CIR 1 | Cryo Control Room RR #1 Power Strip | PP-B0-5 CIR 19 Recept on south wall under clock, use power strip |
| | Life Safety Alarm Chassis, Top | PP-UPS-1, CIR 1 | Cryo Control Room RR #1 Power Strip | PP-B0-5 CIR 21 Recept on south wall under clock, use power strip |
| | Life Safety Alarm Chassis, Middle | PP-UPS-1, CIR 1 | Cryo Control Room RR #1 Power Strip | PP-B0-5 CIR 21 Recept on south wall under clock, use power strip |
| | Life Safety Alarm Chassis, Bottom | PP-UPS-1, CIR 1 | Cryo Control Room RR #1 Power Strip | PP-B0-5 CIR 21 Recept on south wall under clock, use power strip |

- ___ (2) Remove the sign posted on the Halon Cylinder closet door.
- ___ (3) Remove the signs posted at the CDF entries.
- ___ (4) Power the disconnect switch providing 110VAC to the shunt trip circuit. Remove the tag indicating that the switch is off for the Generator Transfer work.
- ___ (5) Notify the Comm Center at the point in time that the RRG02 devices are switched back to PP-UPS-1 power. Coordinate with Process Systems expert.
- ___ (6) Notify Comm Center at x3414 that the work is complete.

SECOND FLOOR OPERATIONS WORK PROCEDURE:

The following checklist is required for this work. The 2nd Floor Operations expert must approve (initial) each step of the work at the appropriate time. Deviations from this checklist are not allowed without consent of a CDF Operations Head.

Before Work

- ___ (1) Prior to the Generator transfer work, switch the following devices to alternate power sources or disconnect from power as indicated. When switching redundant power supplies, verify that power is restored to the first power supply before switching the second power supply. Initial each row as it is completed.

| INITIAL | DEVICE | NORMALLY POWERED FROM | NORMAL POWER SOURCE | ALTERNATE POWER |
|---------|------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------|--------------------------------------------|
| | Telephone UPS | PP-B0-7, CIR 6 | Receptacle in Rm 305 | PP-B0-3 CIR 26 |
| | PictureTel speaker for announcing i-Fix alarms | PP-B0-7, CIR 16 | Receptacle above 2RR10C in 2nd floor control room | PP-B0-4B CIR 22 in 2RR10C, use power strip |
| | PS#10 for Rack Protection | PP-B0-7, CIR 20 | Outlet Strip in 1RR34I | PP-B0-15F CIR 18 in 1RR34H |
| | PS#11 for Rack Protection | PP-B0-7, CIR 20 | Outlet Strip in 1RR34I | PP-B0-15F CIR 18 in 1RR34H |
| | CH Fire Temperature Monitor, Notify Comm Center before switching! | PP-UPS-1, CIR 7 | 2RR08C Power Strip | PP-B0-4B CIR 18 & CIR 20 in 2RR08C |
| | Vesda Monitor, Notify Comm Center before switching! Switch channels to reset while switching to alternate power. | PP-UPS-1, CIR 7 | 2RR08C Power Strip | PP-B0-4B CIR 18 & CIR 20 in 2RR08C |
| | FIRUS PC | PP-UPS-1, CIR 7 | 2RR08C Power Strip | PP-B0-4B CIR 18 & CIR 20 in 2RR08C |
| | FIRUS Monitor | PP-UPS-1, CIR 7 | 2RR08C Power Strip | PP-B0-4B CIR 18 & CIR 20 in 2RR08C |

- ___ (2) The PA System will not be available during this work. Keep megaphone available in 2nd floor control room.
- ___ (3) No tours will be allowed during this work.
- ___ (4) Cameras will not be available during this work period.
- ___ (5) Post signs at 710' level alerting personnel that the AH Pit is ODH Class 2 during this work period.
- ___ (6) Obtain PPE required for personnel who will enter AH Pit or CH during work period.
- ___ (7) Power down Radiation Monitoring PC in Rack 1RR09C.
- ___ (8) Turn off high voltage to COT, Silicon, TOF, Muon Chambers, CPR, and Calorimeter.

During Work

- ___ (1) After the generator powered circuits have been powered off, verify that all devices addressed above remain in the state desired.
- ___ (2) Access is not allowed into CH except for ODH Class 2 personnel. The 2nd Floor Control Room crew will control access to CH and assure that personnel entering are ODH trained / qualified. The 2nd floor control room will supply the necessary PPE to properly trained individuals for entry during this work period.
- ___ (3) Access is not allowed into AH Pit except for ODH Class 2 personnel. The 2nd Floor Control Room crew will control access to AH Pit and assure that personnel entering are ODH

trained/qualified. The 2nd floor control room will supply the necessary PPE to properly trained individuals for entry during this work period. Notify the PPD ESH Dept in advance of personnel entering the ODH Class 2 areas.

- ___ (4) If the VESDA or the Fire Temperature Monitor goes into the alarm state, immediately call x3131 to notify Dispatch of the alarm.
- ___ (5) If any life safety system issues arise during this work period, coordinate with the assigned Life Safety Experts for this work period.
- ___ (6) Call x3131 in any emergency.
- ___ (7) Assure that personnel in B0 building obey all alarms via presence of emergency wardens.

After Work

- ___ (1) After the hazard analysis supervisor has confirmed that the transfer work is complete, return the devices indicated below to their original power source and verify operation. When switching redundant power supplies, verify that power is restored to the first power supply before switching the second power supply. Initial each row as it is completed.

| INITIAL | DEVICE | NORMALLY POWERED FROM | NORMAL POWER SOURCE | ALTERNATE POWER |
|---------|------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------|--------------------------------------------|
| | Telephone UPS | PP-B0-7, CIR 6 | Receptacle in Rm 305 | PP-B0-3 CIR 26 |
| | PictureTel speaker for announcing i-Fix alarms | PP-B0-7, CIR 16 | Receptacle above 2RR10C in 2nd floor control room | PP-B0-4B CIR 22 in 2RR10C, use power strip |
| | PS#10 for Rack Protection | PP-B0-7, CIR 20 | Outlet Strip in 1RR34I | PP-B0-15F CIR 18 in 1RR34H |
| | PS#11 for Rack Protection | PP-B0-7, CIR 20 | Outlet Strip in 1RR34I | PP-B0-15F CIR 18 in 1RR34H |
| | CH Fire Temperature Monitor, Notify Comm Center before switching! | PP-UPS-1, CIR 7 | 2RR08C Power Strip | PP-B0-4B CIR 18 & CIR 20 in 2RR08C |
| | Vesda Monitor, Notify Comm Center before switching! Switch channels to reset while switching to alternate power. | PP-UPS-1, CIR 7 | 2RR08C Power Strip | PP-B0-4B CIR 18 & CIR 20 in 2RR08C |
| | FIRUS PC | PP-UPS-1, CIR 7 | 2RR08C Power Strip | PP-B0-4B CIR 18 & CIR 20 in 2RR08C |
| | FIRUS Monitor | PP-UPS-1, CIR 7 | 2RR08C Power Strip | PP-B0-4B CIR 18 & CIR 20 in 2RR08C |

- ___ (2) Verify operation of PA system.
- ___ (3) Verify operation of the Camera system.
- ___ (4) Remove the ODH posted signs at the AH Pit entries.
- ___ (5) Assure all ODH PPE has been returned.
- ___ (6) Power on the Radiation Monitoring PC in Rack 1RR09C.
- ___ (7) Turn on high voltage to COT, Silicon, TOF, Muon Chambers, CPR, and Calorimeter as needed.
- ___ (8) Request solenoid to be powered on as needed.

PROCESS SYSTEMS WORK PROCEDURE:

The following checklist is required for this work. The Process Systems expert must approve (initial) each step of the work at the appropriate time. Deviations from this checklist are not allowed without consent of a CDF Operations Head.

Before Work

- ___ (1) Power down the Solenoid. Solenoid must be off before generator transfer work. COT High Voltage must be off during this procedure. Check with 2nd floor control room.
- ___ (2) Prior to the Generator transfer work, switch the following devices to alternate power sources. Silence alarms as required. Initial each row as it is completed. Note that PDP = Power Distribution Panel.

| INITIAL | DEVICE | NORMALLY POWERED FROM | NORMAL POWER SOURCE | ALTERNATE POWER |
|---------|-------------------------------------------------------|--------------------------|---------------------|-------------------------------------------------------------|
| | APACS Node 1 BPPS Pair 1 | PP-UPS-2, CIR 2 & 4 | Receptacle | Plug one PS into PDP power prior to switching to Sola power |
| | APACS Node 1 BPPS Pair 2 | PP-UPS-2, CIR 2 & 4 | Receptacle | Plug one PS into PDP power prior to switching to Sola power |
| | APACS Node 1 BPPS Pair 3 | PP-UPS-2, CIR 2 & 4 | Receptacle | Plug one PS into PDP power prior to switching to Sola power |
| | APACS Node 1 Crate Fans | PP-UPS-2, CIR 2 & 4 | Din Rail | No alternate power; see Step 3 |
| | Cryo Control Room PCs | PP-UPS-2, CIR 5, 6, & 13 | Power Strips | No alternate power; see Step 5 |
| | 1RR34I, PS #12 & PS #13 HVAC Exhaust Damper Motors | PP-UPS-2, CIR 8 | Receptacle | Plug one PS into PP-B0-15F CIR 18 in 1RR34H |
| | 1RR34I, PS #5 & PS #6 Water & HVAC | PP-UPS-2, CIR 8 | Receptacle | Plug one PS into PP-B0-15F CIR 18 in 1RR34H |
| | 1RR34I, PS #16 & PS #17 Cryo & Vacuum | PP-UPS-2, CIR 8 | Receptacle | Plug one PS into PP-B0-15F CIR 18 in 1RR34H |
| | CCR Annex, IPA Junction Box | PP-UPS-2, CIR 9 | Receptacle | No alternate power; see Step 11 |
| | RR#13 APACS Node2 BPPS Pair 5 | PP-UPS-2, CIR 10 & 12 | Receptacle | Plug one PS into PDP power prior to switching to Sola power |
| | RR#15 COT ±15 VDC PS | PP-UPS-2, CIR 11 & 15 | Receptacle | No alternate power; see Step 4 |
| | APACS Node 2 Crate Fans | PP-UPS-2, CIR 11 & 15 | Receptacles | No alternate power |
| | RR #13 N2 R2 SDM PS Pair | PP-UPS-2, CIR 14 | Receptacle | Plug one PS into PDP power prior to switching to Sola power |
| | RR #13 N2 R3 SDM PS Pair | PP-UPS-2, CIR 14 | Receptacle | Plug one PS into PDP power prior to switching to Sola power |
| | RR #13 N2 R1 SDM PS Pair | PP-UPS-2, CIR 15 | Receptacle | Plug one PS into PDP power prior to switching to Sola power |

- ___ (3) Open the doors to Node 1 Racks during the switching from UPS/Generator power to Sola power. This is to prevent overheating of the controller and I/O modules.
- ___ (4) Temporarily disable the gas supply flow to the COT chamber.
- ___ (5) Power down all of the Cryo Control Room PCs. Notify 2nd floor control room.
- ___ (6) Verify that the devices in the above chart are switched to alternate power as indicated.
- ___ (7) Switch from UPS/Generator power to Sola power per procedure Situation 6 as posted at UPS-2.
- ___ (8) Close the Node 1 Rack doors.
- ___ (9) Restore power to the PCs.
- ___ (10) Re-establish flow to the COT chamber.
- ___ (11) Reset interlocks and alarms on the IPA system. This includes the hardwired reset on the IPA junction box.
- ___ (12) Provide alternate power to devices as indicated in the following chart.

| INITIAL | DEVICE | NORMALLY POWERED FROM | NORMAL POWER SOURCE | ALTERNATE POWER |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------------------------|------------------------------------------|
| | Air Compressor #1 | PHP-B0-13, CIR 8/10/12 | Mechanical Room | PHP-B0-1 CIR 10 |
| | Air Compressor #2 | PHP-B0-13, CIR 14/16/18 | Mechanical Room | PHP-B0-1 CIR 10 |
| | AMI LL Readout for Storage Dewar, after Solenoid is down | PP-UPS-1, CIR 1 | Power Strip to RR #3 | PP-B0-9 CIR 9 in receptacle above RR #3 |
| | AMI LL Readout for Control Dewar, after Solenoid is down | PP-UPS-1, CIR 1 | Power Strip to RR #3 | PP-B0-9 CIR 9 in receptacle above RR #3 |
| | COT Baggy Pump: Place COT Safety Switch temporarily in bypass and Coordinate call to Comm Ctr w/ HA Life Safety experts during switch. | PP-UPS-1, CIR 5 | RRG02, Gas Systems Rack | PP-B0-9 CIR 5 in RRG03 |
| | 24 VDC Supply for Gas Mixing Shed Safety System: Place Gas Safety Switch temporarily in bypass and Coordinate call to Comm Ctr w/ HA Life Safety experts. | PP-UPS-1, CIR 5 | RRG02, Gas Systems Rack | PP-B0-9 CIR 5 in RRG03 |
| | O2 Analyzer, Set system to manual zero N2 flow | PP-UPS-1, CIR 10 | RRG01, Plug Strip via JB on top of rack | PP-B0-9 CIR 33 in RRG02, use power strip |
| | O2 Analyzer Pump, Set system to manual zero N2 flow | PP-UPS-1, CIR 10 | RRG01, Plug Strip via JB on top of rack | PP-B0-9 CIR 33 in RRG02, use power strip |
| | +/- 15VDC PS for 720' Level, Silence Gas alarms | PP-UPS-1, CIR 10 | RRG01, Plug Strip via JB on top of rack | PP-B0-9 CIR 33 in RRG02, use power strip |
| | +/- 15VDC PS for 730' Level, Silence Gas alarms | PP-UPS-1, CIR 10 | RRG01, Plug Strip via JB on top of rack | PP-B0-9 CIR 33 in RRG02, use power strip |

- ___ (13) Remove valve actuator and install a manual handle on Helium Discharge Supply Valve EV-101 in the cryo-control room. EV-101 will remain open in manual control during the work period.
- ___ (14) Verify that a current backup of the Solenoid Quadlog and APACS controller code exists prior to generator work.
- ___ (15) Power will be lost to RR-7 after its UPS goes down. Request that the Cryo Operator monitor the UPS in RR-7 and record the time period from when the generator power goes down to the time that this UPS no longer backs-up RR-7.

- ___ (16) Power will be lost to RR-8 after its UPS goes down. Request that the Cryo Operator monitor the UPS in RR-8 and record the time period from when the generator power goes down to the time that this UPS no longer backs-up RR-8. If needed, power off crash button chassis in Cryo Control Room in order that audible alarms are not sounded.
- ___ (17) Power off and unplug the Cryo Control Room Channel 13 Monitor.

During Work

- ___ (1) After the generator powered circuits have been powered off, verify that all devices addressed above remain in the state desired.
- ___ (2) If any life safety system issues arise during this work period, coordinate with the assigned Life Safety Experts for this work period. The HA Life Safety Experts must be notified immediately of any Flammable Gas Detector Alarms (not warnings) in order to power the shunt trip system circuit.
- ___ (3) Call x3131 in any emergency.
- ___ (4) Monitor the UPS in RR-7 and RR-8 and record the time period from when the generator power goes down to the time that this UPS no longer backs-up the equipment in the racks.

After Work

- ___ (1) Verify via the hazard analysis supervisor that the transfer work is complete.
- ___ (2) Open the doors to Node 1 Racks during the switching from UPS/Generator power to Sola power. This is to prevent overheating of the controller and I/O modules.
- ___ (3) Temporarily disable the gas supply flow to the COT chamber.
- ___ (4) Power down all of the Cryo Control Room PCs. Notify 2nd floor control room.
- ___ (5) Switch from Sola power back to UPS/Generator power per procedure Situation 6 as posted at UPS-2.
- ___ (6) Close the Node 1 Rack doors.
- ___ (7) Restore power to the PCs.
- ___ (8) Return the devices indicated below to their original power source and verify operation. Initial each row as it is completed.

| INITIAL | DEVICE | NORMALLY POWERED FROM | NORMAL POWER SOURCE | ALTERNATE POWER |
|---------|-------------------------------------------------------|--------------------------|---------------------|-------------------------------------------------------------|
| | APACS Node 1 BPPS Pair 1 | PP-UPS-2, CIR 2 & 4 | Receptacle | Plug one PS into PDP power prior to switching to Sola power |
| | APACS Node 1 BPPS Pair 2 | PP-UPS-2, CIR 2 & 4 | Receptacle | Plug one PS into PDP power prior to switching to Sola power |
| | APACS Node 1 BPPS Pair 3 | PP-UPS-2, CIR 2 & 4 | Receptacle | Plug one PS into PDP power prior to switching to Sola power |
| | APACS Node 1 Crate Fans | PP-UPS-2, CIR 2 & 4 | Din Rail | No alternate power; see Step 2 |
| | Cryo Control Room PCs | PP-UPS-2, CIR 5, 6, & 13 | Power Strips | No alternate power; see Step 4 |
| | 1RR34I, PS #12 & PS #13 HVAC Exhaust Damper Motors | PP-UPS-2, CIR 8 | Receptacle | Plug one PS into PP-B0-15F CIR 18 in 1RR34H |
| | 1RR34I, PS #5 & PS #6 Water & HVAC | PP-UPS-2, CIR 8 | Receptacle | Plug one PS into PP-B0-15F CIR 18 in 1RR34H |
| | 1RR34I, PS #16 & PS #17 Cryo & Vacuum | PP-UPS-2, CIR 8 | Receptacle | Plug one PS into PP-B0-15F CIR 18 in 1RR34H |
| | CCR Annex, IPA Junction Box | PP-UPS-2, CIR 9 | Receptacle | No alternate power; see Step 10 |
| | RR#13 APACS Node2 BPPS Pair 5 | PP-UPS-2, CIR 10 & 12 | Receptacle | Plug one PS into PDP power prior to switching to Sola power |
| | RR#15 COT ±15 VDC PS | PP-UPS-2, CIR 11 & 15 | Receptacle | No alternate power; see Step 3 |
| | APACS Node 2 Crate Fans | PP-UPS-2, CIR 11 & 15 | Receptacles | No alternate power |
| | RR #13 N2 R2 SDM PS Pair | PP-UPS-2, CIR 14 | Receptacle | Plug one PS into PDP power prior to switching to Sola power |
| | RR #13 N2 R3 SDM PS Pair | PP-UPS-2, CIR 14 | Receptacle | Plug one PS into PDP power prior to switching to Sola power |
| | RR #13 N2 R1 SDM PS Pair | PP-UPS-2, CIR 15 | Receptacle | Plug one PS into PDP power prior to switching to Sola power |

- ___ (9) Re-establish flow to the COT chamber.
- ___ (10) Reset interlocks and alarms on the IPA system. This includes the hardwired reset on the IPA junction box.
- ___ (11) Return the devices indicated below to their original power source and verify operation. Initial each row as it is completed.

| INITIAL | DEVICE | NORMALLY POWERED FROM | NORMAL POWER SOURCE | ALTERNATE POWER |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------------------------|------------------------------------------|
| | Air Compressor #1 | PHP-B0-13, CIR 8/10/12 | Mechanical Room | PHP-B0-1 CIR 10 |
| | Air Compressor #2 | PHP-B0-13, CIR 14/16/18 | Mechanical Room | PHP-B0-1 CIR 10 |
| | AMI LL Readout for Storage Dewar, after Solenoid is down | PP-UPS-1, CIR 1 | Power Strip to RR #3 | PP-B0-9 CIR 9 in receptacle above RR #3 |
| | AMI LL Readout for Control Dewar, after Solenoid is down | PP-UPS-1, CIR 1 | Power Strip to RR #3 | PP-B0-9 CIR 9 in receptacle above RR #3 |
| | COT Baggy Pump: Place COT Safety Switch temporarily in bypass and Coordinate call to Comm Ctr w/ HA Life Safety experts during switch. | PP-UPS-1, CIR 5 | RRG02, Gas Systems Rack | PP-B0-9 CIR 5 in RRG03 |
| | 24 VDC Supply for Gas Mixing Shed Safety System: Place Gas Safety Switch temporarily in bypass and Coordinate call to Comm Ctr w/ HA Life Safety experts. | PP-UPS-1, CIR 5 | RRG02, Gas Systems Rack | PP-B0-9 CIR 5 in RRG03 |
| | O2 Analyzer, Set system to manual zero N2 flow | PP-UPS-1, CIR 10 | RRG01, Plug Strip via JB on top of rack | PP-B0-9 CIR 33 in RRG02, use power strip |
| | O2 Analyzer Pump, Set system to manual zero N2 flow | PP-UPS-1, CIR 10 | RRG01, Plug Strip via JB on top of rack | PP-B0-9 CIR 33 in RRG02, use power strip |
| | +/- 15VDC PS for 720' Level, Silence Gas alarms | PP-UPS-1, CIR 10 | RRG01, Plug Strip via JB on top of rack | PP-B0-9 CIR 33 in RRG02, use power strip |
| | +/- 15VDC PS for 730' Level, Silence Gas alarms | PP-UPS-1, CIR 10 | RRG01, Plug Strip via JB on top of rack | PP-B0-9 CIR 33 in RRG02, use power strip |

- ___ (12) Remove the manual handle and reinstall valve actuator on Helium Discharge Supply Valve EV-101 in the cryo-control room.
- ___ (13) Verify operation of devices in RR-7 and RR-8. If the crash button chassis has been switched off, turn it on again.
- ___ (14) Assure that Solenoid Quadlog and APACS controllers reinitialize properly. Contact Bob Sanders if assistance is needed.
- ___ (15) Plug in the Cryo Control Room Channel 13 Monitor and turn on.
- ___ (16) Power up the solenoid as requested by the 2nd floor control room.

COT WORK PROCEDURE:

The following checklist is required for this work. The COT expert must approve (initial) each step of the work at the appropriate time. Deviations from this checklist are not allowed without consent of a CDF Operations Head.

Before Work

- ___ (1) Prior to the Generator transfer work, switch the following devices to alternate power sources or disconnect from power as indicated. Initial each row as it is completed.

| INITIAL | DEVICE | NORMALLY POWERED FROM | NORMAL POWER SOURCE | ALTERNATE POWER |
|---------|-----------------------|-----------------------|------------------------|----------------------------|
| | SVX Heater Top | PP-B0-7, CIR 20 | Outlet Strip in 1RR34I | PP-B0-15F CIR 18 in 1RR34H |
| | SVX Heater Bottom | PP-B0-7, CIR 20 | Outlet Strip in 1RR34I | PP-B0-15F CIR 18 in 1RR34H |
| | Time of Flight Heater | PP-B0-7, CIR 20 | Outlet Strip in 1RR34I | PP-B0-15F CIR 18 in 1RR34H |

- ___ (2) Power off COT high voltage.

During Work

- ___ (1) Verify heaters remain powered as expected. Monitor system temperature distribution.

After Work

- ___ (1) After the hazard analysis supervisor has confirmed that the transfer work is complete, return the devices indicated below to their original power source and verify operation. When switching redundant power supplies, verify that power is restored to the first power supply before switching the second power supply. Initial each row as it is completed.

| INITIAL | DEVICE | NORMALLY POWERED FROM | NORMAL POWER SOURCE | ALTERNATE POWER |
|---------|-----------------------|-----------------------|------------------------|----------------------------|
| | SVX Heater Top | PP-B0-7, CIR 20 | Outlet Strip in 1RR34I | PP-B0-15F CIR 18 in 1RR34H |
| | SVX Heater Bottom | PP-B0-7, CIR 20 | Outlet Strip in 1RR34I | PP-B0-15F CIR 18 in 1RR34H |
| | Time of Flight Heater | PP-B0-7, CIR 20 | Outlet Strip in 1RR34I | PP-B0-15F CIR 18 in 1RR34H |

- ___ (2) Power on COT high voltage as required.

SILICON WORK PROCEDURE:

The following checklist is required for this work. The Silicon expert must approve (initial) each step of the work at the appropriate time. Deviations from this checklist are not allowed without consent of a CDF Operations Head.

Before Work – 1.5 hours lead-time required

- ___ (1) Backup the Silicon PLC code. Be sure the hardware key for SoftShop is connected to the PC. Connect to the PLC and save the running program to hard disk.
- ___ (2) The following Silicon system devices will be switched to the alternate power sources indicated or disconnected from power for this work period. Devices are to be switched when indicated in the steps below.

| DEVICE | NORMALLY POWERED FROM | NORMAL POWER SOURCE | ALTERNATE POWER |
|-------------------------------------------------------------|-----------------------|-----------------------------|--------------------------------------------------------------|
| SVX Vacuum Back-up Pump | PP-B0-7, CIR 2 | SVX Pumps in AH West Alcove | PP-B0-4 CIR 42 in west alcove, use designated extension cord |
| ISL Vacuum Back-up Pump | PP-B0-7, CIR 4 | ISL Pumps in AH West Alcove | PP-B0-4 CIR 31 in west alcove, use designated extension cord |
| 5V Power for Humidity Sensor | PP-B0-7, CIR 16 | Outlet Strip in 1RR34F | PP-B0-15F CIR 2 |
| Auto-Hocker panel | PP-B0-7, CIR 16 | Outlet Strip in 1RR34F | Power off |
| Caenet VME crate (svxinter) controls Silicon Power Supplies | PP-B0-7, CIR 16 | Outlet Strip in 1RR34F | Power off |
| Fan tray for PLC | PP-B0-7, CIR 16 | Outlet Strip in 1RR34F | PP-B0-15F CIR 2 |
| 24V power for Silicon flow control valves (4 PS's) | PP-B0-7, CIR 18 | Outlet Strip in 1RR34G | PP-B0-15F CIR 10 & CIR 21 |
| Interlock for Power Supply front panel | PP-B0-7, CIR 18 | Outlet Strip in 1RR34G | Power off |
| 5V enable for SVX & ISL | PP-B0-7, CIR 18 | Outlet Strip in 1RR34G | Power off |
| Svxiicon PC | PP-UPS-1, CIR 9 | 1RR34F Receptacle | PP-B0-15F CIR 2 in 1RR34F |
| Svxiicon Monitor | PP-UPS-1, CIR 9 | 1RR34F Receptacle | PP-B0-15F CIR 2 in 1RR34F |
| Silicon PLC Crates | PP-UPS-1, CIR 9 | 1RR34F Receptacle | Remains powered by UPS-1 |
| Silicon PLC Network Switch | PP-UPS-1, CIR 9 | 1RR34F Receptacle | Remains powered by UPS-1 |
| Silicon PLC Crates | PP-UPS-1, CIR 12 | 1RR34G Receptacle | Remains powered by UPS-1 |

- ___ (3) Power down the Silicon detectors. DAQ racks must remain on until this step is complete. Confirm powered down state with JHA supervisor in order that DAQ racks can be powered down.
- ___ (4) Swap power of SVXIICON to building power. Follow reboot procedure to shut it down, swap both computer and monitor plugs, and reboot. Disable PS Logging alarm and stop PSMon.
- ___ (5) Change chiller set point temperatures: Set the SVX chiller set point to -6 °C and the ISL chiller set point to 10 °C. The silicon interlock system must be monitored carefully to detect trips of the flow to SVX as soon as possible. The temperature of the chillers is to be changed in the following steps: -10 °C → -6 °C for SVX, and 6 °C → 10 °C for the ISL chiller. Set alarm/warning limits as appropriate. This procedure takes approximately one hour to stabilize at final temperatures.

- ___ (6) Unplug CAEN power supply control logic from UPS plugs: AutoHocker panel, 5V enable supply, SVXINTER crate.
- ___ (7) Move the PLC fan tray plug to building power receptacle.
- ___ (8) In the west alcove, second floor – move the non-lead vacuum pump power cords to building power. After this step, all four vacuum pumps should be running, but the valves to the air separators should be open only for the lead pumps.
- ___ (9) In i-Fix – exchange the roles of both SVX and ISL lead pumps. This will shut off the lead pumps and change the valve positions.
- ___ (10) Check vacuum pumps: Make sure the vacuum pumps are still operational and that the state of the electrovalves between the pumps and the air separators is correct. If not, switch them to "AUTO" and click "REQUEST VACUUM" (both in i-Fix). Check the vacuum level in both air separators – they should both be below 2.0 PSIA before continuing.
- ___ (11) Silence silicon cooling sono-alarms in control room.
- ___ (12) Turn off coolant flows to SVX, ISL, L00 and port-cards using the flow control electro-valves in i-Fix.
- ___ (13) On the first floor, move power plugs for the 24V power supplies to building power. Move the RH sensor supply cords to building power.
- ___ (14) Re-establish flow: Acknowledge trips in this order: ISL → SVX → L00 and reopen the supply electro-valves using i-Fix.
- ___ (15) Re-enable sono-alarms in control room.

During Work

- ___ (1) Monitor that the UPS is continuing to supply sufficient current to the PLC crates – check on UPS battery charge for evidence of rapid draining. Monitor flows, temperatures, and humidity. Coordinate with COT and monitor COT temperatures.

After Work

- ___ (1) Coordinate with COT – cool silicon back down, reversing the chiller set-point temperature order on warm-up.
- ___ (2) Move SVXIICON back to generator power – requires a reboot as described above, except that all four monitoring programs should be allowed to start up and run.
- ___ (3) Restore power to the CAEN control logic (AutoHocker Panel, 5V enable panel, SVXINTER) to the UPS circuits where they were originally plugged in. Check communication between PSGUI and SVXINTER.
- ___ (4) In i-Fix: exchange the roles of the lead and non-leading vacuum pumps. Check that the vacuum is stable.
- ___ (5) In the west alcove, second floor: Move the non-lead vacuum pump power cords back to their generator circuit receptacles for both SVX and ISL.
- ___ (6) Disable sono-alarms in control room.
- ___ (7) Stop detector flows using the electro-valve controls in i-Fix.
- ___ (8) Move 24V supplies and RH sensors back to generator power.
- ___ (9) Re-establish flows, clear interlocks and re-enable sono-alarms.
- ___ (10) Once the silicon is cold, proceed with checkout. Rebalance flows if some cooling loops are not cooling sufficiently when detector power is restored.

___ (11) The following table is attached for reference.

| DEVICE | NORMALLY POWERED FROM | NORMAL POWER SOURCE | ALTERNATE POWER |
|-------------------------------------------------------------|-----------------------|-----------------------------|--------------------------------------------------------------|
| SVX Vacuum Back-up Pump | PP-B0-7, CIR 2 | SVX Pumps in AH West Alcove | PP-B0-4 CIR 42 in west alcove, use designated extension cord |
| ISL Vacuum Back-up Pump | PP-B0-7, CIR 4 | ISL Pumps in AH West Alcove | PP-B0-4 CIR 31 in west alcove, use designated extension cord |
| 5V Power for Humidity Sensor | PP-B0-7, CIR 16 | Outlet Strip in 1RR34F | PP-B0-15F CIR 2 |
| Auto-Hocker panel | PP-B0-7, CIR 16 | Outlet Strip in 1RR34F | Power off |
| Caenet VME crate (svxinter) controls Silicon Power Supplies | PP-B0-7, CIR 16 | Outlet Strip in 1RR34F | Power off |
| Fan tray for PLC | PP-B0-7, CIR 16 | Outlet Strip in 1RR34F | PP-B0-15F CIR 2 |
| 24V power for Silicon flow control valves (4 PS's) | PP-B0-7, CIR 18 | Outlet Strip in 1RR34G | PP-B0-15F CIR 10 & CIR 21 |
| Interlock for Power Supply front panel | PP-B0-7, CIR 18 | Outlet Strip in 1RR34G | Power off |
| 5V enable for SVX & ISL | PP-B0-7, CIR 18 | Outlet Strip in 1RR34G | Power off |
| Svxiicon PC | PP-UPS-1, CIR 9 | 1RR34F Receptacle | PP-B0-15F CIR 2 in 1RR34F |
| Svxiicon Monitor | PP-UPS-1, CIR 9 | 1RR34F Receptacle | PP-B0-15F CIR 2 in 1RR34F |
| Silicon PLC Crates | PP-UPS-1, CIR 9 | 1RR34F Receptacle | Remains powered by UPS-1 |
| Silicon PLC Network Switch | PP-UPS-1, CIR 9 | 1RR34F Receptacle | Remains powered by UPS-1 |
| Silicon PLC Crates | PP-UPS-1, CIR 12 | 1RR34G Receptacle | Remains powered by UPS-1 |

THIRD FLOOR COMPUTER ROOM PROCEDURE:

The following checklist is required for this work. The 3rd floor computer room experts must approve (initial) each step of the work at the appropriate time. Deviations from this checklist are not allowed without consent of a CDF Operations Head.

Before Work

- ___ (1) Contact the experts of the following systems to notify them of the generator work:
 - a. L3 Expert (Pasha Murat)
 - b. L2 Expert (Pedro Movilla Fernandez)
 - c. CSL Expert (Willis Sakumoto)
 - d. Offline Computing (Rick Snider)
 - e. CD/data handling (Angela Bellavance, bellavan@fnal.gov)
 - f. DAQ Expert (Bill Badgett)
 - g. FNAL ATOM cluster expert (Stephen Lammel, Rich Krull)
 - h. System administrators (Ling Ho ling@fnal.gov and Maureen Mihalek mmihalek@fnal.gov)
- ___ (2) The following computers will be powered during the work period:
 - a. bzora1 (database server)
 - b. 3RR15E- b0l2cntl00
 - c. 3RR15G - b0www00, b0server00-05
 - d. 3RR15H - b0home, b0spool
 - e. 3RR15I - b0doorway, b0gateway, b0admin, b0backup
 - f. newcdf-fs1, newcdf-fs2
- ___ (3) The following machines will be shutdown:
 - a. b0l2cntl01
 - b. b0server06-11
 - c. b0build
 - d. b0sili03
 - e. b0vxworks
 - f. b0dau36 (database)
- ___ (4) Two Hours before the outage, connect one power supply from each machine to the alternate power source. See table below.
- ___ (5) One hour before outage, sysadmins shutdown machines that will not be powered during the outage. See table below.
- ___ (6) One hour before outage, sysadmins shutdown UPS monitoring software on machines that remain powered. See table below.
- ___ (7) Connect the computers to the designated alternate power. See table below.
- ___ (8) Connect the network switches to the designated alternate power. See table below.
- ___ (9) Switch off the following UPSs: Matrix A, 3000XL-15E-B, 3000XL-15F-T, 3000XL-15F-B, 3000XL-15G-T, 3000XL-15G-B, 3000XL-15H-T, 3000XL-15H-B, 3000XL-15I-T, 3000XL-15I-B.

___ (10) The following table is attached for reference.

| INITIAL | DEVICE | NORMALLY POWERED FROM | ALTERNATE POWER |
|---------|------------------|-----------------------|-------------------------------------------------------------------|
| | 3RR08E | | |
| | Minilibrary | Matrix UPS A | Power down device |
| | dsg-b0-con1 | Matrix UPS A | Power down device |
| | monitor | Matrix UPS A | Power down device |
| | bzora1 | Matrix UPS A | none needed - redundant ps on panel 20 |
| | bzora1 disk | Matrix UPS A | none needed - redundant ps on panel 20 |
| | 3RR08F | | |
| | b0dau36 | Matrix UPS A | Power down device |
| | b0dau36 disk | Matrix UPS A | Power down device |
| | Matrix A UPS | PP-B0-21 1-3 | Power down device |
| | 3RR08G | | |
| | i-krb-6 | Matrix UPS B-PDU5 | see Matrix B UPS |
| | fnsrvcdf2 | Matrix UPS B-PDU5 | see Matrix B UPS |
| | 3RR08H | | |
| | PDU 2 | PP-B0-21 11 | Move to PP-B0-20 (2), tile 9H |
| | PDU 3 | PP-B0-21 9 | Power down device |
| | Rack fan | PDU 3 | Power down device |
| | s-cdf-online | Matrix UPS B-PDU4 | none needed - redundant ps on panel 20 |
| | Powerware 9125 | PDU 2 | see PDU 2 |
| | s-cdf-online-4 | Matrix UPS B-PDU5 | see Matrix B UPS |
| | s-cdf-online-2 | Powerware 9125 | see Powerware 9125 |
| | s-cdf-cdf3cr-2 | Matrix UPS B-PDU5 | see Matrix B UPS |
| | s-cdf-cdf3cr | Matrix UPS B-PDU5 | see Matrix B UPS |
| | media converters | Matrix UPS B-PDU5 | see Matrix B UPS |
| | EVB BOOT | PDU 3 | move to PDU2 (see PDU 2) |
| | 3RR11J | | |
| | Matrix B UPS | PP-B0-21 22-24 | Move to PP-B0-14A1 (19-21), tile 10F (<i>check cord length</i>) |
| | 3RR15E | | |
| | b0l2cntl00 | 3000XL-15E-B | Move 2nd ps to powerstrip A, circuit PP-B0-20 (8) |
| | b0l2cntl01 | 3000XL-15E-B | Power down device |
| | killerinstinct | 3000XL-15E-B | Power down device |
| | l2node02 | 3000XL-15E-B | Power down device |
| | b0clifford | not powered | Power down device |
| | b0felix | not powered | Power down device |
| | Cyberview KVM | 3000XL-15E-B | Power down device |
| | TEG-S160TX | 3000XL-15E-B | Move 2nd ps to powerstrip A, circuit PP-B0-20 (8) |
| | 3000XL-15E-B | PP-B0-21 2 | Power down device |
| | 3RR15F | | |
| | rack fan | 3000XL-15F-T | Power down device |
| | b0server11 | 3000XL-15F-B | Power down device |
| | b0server10 | 3000XL-15F-B | Power down device |
| | b0server09 | 3000XL-15F-B | Power down device |
| | b0sili03 | 3000XL-15F-T | Power down device |
| | b0build | 3000XL-15F-B | Power down device |
| | KVM | 3000XL-15F-B | Power down device |
| | 3000XL-15F-T | PP-B0-21 4 | Power down device |
| | 3000XL-15F-B | PP-B0-21 6 | Power down device |

| INITIAL | DEVICE | NORMALLY POWERED FROM | ALTERNATE POWER |
|---------|-------------------|-----------------------|----------------------------------------------------|
| | 3RR15G | | |
| | rack fan | 3000XL-15G-B | Power down device |
| | b0server08 | 3000XL-15G-T | Power down device |
| | b0server07 | 3000XL-15G-T | Power down device |
| | b0server06 | 3000XL-15G-T | Power down device |
| | b0server05 | 3000XL-15G-B | Move 2nd ps to powerstrip A, circuit PP-B0-20 (8) |
| | b0server04 | 3000XL-15G-B | Move 2nd ps to powerstrip A, circuit PP-B0-20 (8) |
| | b0server03 | 3000XL-15G-B | Move 2nd ps to powerstrip A, circuit PP-B0-20 (8) |
| | b0server02 | 3000XL-15G-T | Move 2nd ps to powerstrip A, circuit PP-B0-20 (8) |
| | b0server01 | 3000XL-15G-T | Move 2nd ps to powerstrip B, circuit PP-B0-20 (12) |
| | b0server00 | 3000XL-15G-T | Move 2nd ps to powerstrip A, circuit PP-B0-20 (8) |
| | b0www00 | 3000XL-15G-T | Move 2nd ps to powerstrip B, circuit PP-B0-20 (12) |
| | b0www | 3000XL-15G-B | Power down device |
| | KVM | 3000XL-15G-B | Power down device |
| | 3000XL-15G-T | PP-B0-21 10 | Power down device |
| | 3000XL-15G-B | PP-B0-21 12 | Power down device |
| | 3RR15H | | |
| | b0spool | 3000XL-15I-B | Move 2nd ps to powerstrip B, circuit PP-B0-20 (12) |
| | spare | 3000XL-15I-B | |
| | b0home | 3000XL-15H-T | Move 2nd ps to powerstrip B, circuit PP-B0-20 (12) |
| | Linksys EF4116 | 3000XL-15I-B | Power down device |
| | CentreCom 3012SL | 3000XL-15H-T | Power down device |
| | 3000XL-15H-T | PP-B0-21 14 | Power down device |
| | 3000XL-15H-B | PP-B0-21 16 | Power down device |
| | 3RR15I | | |
| | rack fan | 3000XL-15I-T | Power down device |
| | b0vxworks | 3000XL-15I-T | Power down device |
| | b0backup | 3000XL-15I-T | Move 2nd ps to powerstrip C, circuit PP-B0-3 (14) |
| | b0gateway | 3000XL-15I-T | Move 2nd ps to powerstrip C, circuit PP-B0-3 (14) |
| | b0doorway | 3000XL-15I-B | Move 2nd ps to powerstrip C, circuit PP-B0-3 (14) |
| | b0admin | 3000XL-15I-B | Move 2nd ps to powerstrip C, circuit PP-B0-3 (14) |
| | b0console | 3000XL-15I-B | Power down device |
| | KVM | 3000XL-15I-B | Power down device |
| | 3000XL-15I-T | PP-B0-21 18 | Power down device |
| | 3000XL-15I-B | PP-B0-21 20 | Power down device |
| | SE corner | | |
| | Powerware 9125-SE | PP-B0-21 19, tile 31C | Move to PP-B0-3 (11), east wall 32G |
| | newcdf-fs1 | Powerware 9125-SE | |
| | newcdf-fs2 | Powerware 9125-SE | |

During Work

- ___ (1) After the generator powered circuits have been powered off, verify that all devices addressed above remain in the state desired.

After Work

- ___ (1) Referencing table above:
 - a. Restore power to UPS powered outlets.
 - b. Restore UPS monitoring.
 - c. Remove cords from plug strips and return power supplies to generator power.
 - d. Boot up switched off nodes.

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Date: 10-2-08

Approved by: _____ **Date:** _____
CDF Department Head

_____ **Date:** _____
CDF Detector Operations Head

_____ **Date:** _____
CDF Operations Engineer

