



CONSTRUCTION AND
MAINTENANCE DIVISION

STANDARD OPERATING PROCEDURE

GENERAL HIGH VOLTAGE SHORE CONNECTION (HVSC)*

(DIVISION 147)

*Also known as Alternative Maritime Power (AMP)

Revision Date: 10/18/2016

Revision #: 7

Document #: Safety_Electrical
SOP HV-01

Page 1 of 4

Notes and Clarifications:

- POLA Person In Charge (PIC) shall verify there is no active AMP system protection trip faults on any of the substation protective relays screens.
- POLA PIC shall cancel the AMP connection if the ship connection resulted in a fault causing any of the relays to register phase or ground fault which caused any of the substation breakers to trip. POLA PIC shall notify first level supervisor and evaluate the situation.
- The Shore AMP system is designed to prevent significant reverse power flow during ship power transfer. In case any of the substation breakers opens due to reverse power and the protection relays register a reverse power condition, then POLA PIC shall request from the ship a second attempt to sync to the shore power system after phasing out the load transfer.
- If after the second attempt fails due to power synchronization. The PIC shall contact the first level supervisor and evaluate the situation.
- Minimum one QEW and one QP observer are required for the following tasks:**
- 1- Racking the substation breaker in and out as needed.
- 2- Troubleshooting.

1. POLA HVSC Safety check at TERMINAL - POLA

- POLA PIC shall be a QP (Qualified Person) and is the designated person for operating switches and opening and closing breakers using the automatic 60 seconds timer or the remote actuator.
- Except as specifically noted in these procedures, POLA PIC may initiate activities prior to all members being present and the order of numbered items can be modified as appropriate to the specific event and work efficiency, provided such items can be safely undertaken. Note the tasks (bullets) within a numbered item are largely in the order that tasks should be completed.
- POLA PIC shall follow and complete SOP checklist during connection process.
- POLA PIC shall identify hazard locations (i.e. area of ship being loaded/unloaded, vehicles, forklift working around the crew, lifting, etc.).
- POLA PIC shall verify the location of: communication equipment (i.e. walkie-talkies/channel, emergency phone numbers), e-stops, light source if needed, etc.
- POLA PIC must have the proper PPE on. (hard hat, safety shoes and leather gloves).
- POLA PIC shall complete top of POLA HVSC Pre-Power Transfer Conference form.

2. HVSC SUBSTATION BREAKER DISENGAGED AND GROUNDED - POLA

- POLA PIC verifies that the main breaker and feeder HVL switch for shore vault to be used is initially open and visually verifies that all three blades are disengaged.
- POLA PIC verifies that the earth grounding switch is closed and visually verifies all three blades are engaged.
- POLA PIC shall lock-out the earth ground switch.
- POLA PIC takes meter reading from main breaker Power Logic meter and record on HVSC Pre-Power Transfer Conference form "for POLA use only" section.



CONSTRUCTION AND
MAINTENANCE DIVISION

STANDARD OPERATING PROCEDURE

GENERAL HIGH VOLTAGE SHORE CONNECTION (HVSC)*

(DIVISION 147)

*Also known as Alternative Maritime Power (AMP)

Revision Date: 10/18/2016

Revision #: 7

Document #: Safety_Electrical
SOP HV-01

Page 2 of 4

3. PIC PRE-POWER TRANSFER CONFERENCE – POLA PIC & SHIP PIC

- POLA PIC and Ship PIC hold HVSC Pre-Power Transfer Conference and complete and sign POLA HVSC Pre-Power Transfer Conference form.
- If the ship has not successfully transferred to and from high voltage shore power in compliance with IEC/ISO/IEEE 80005-1 procedures within the last 12-months ("No" answer to question #3 on Pre-Power Transfer Conference Form) HVSC System Safety Verification procedures and related form must be completed.
- Ship PIC provided copy of completed POLA HVSC Pre-Power Transfer Conference form.

4. CONNECTION TO VAULT ON DOCK – SHIP/SHIP DESIGNEE

- Only after items 1 thru 3 are completed, Ship PIC, or designee, lock-out ground switch.
- Lower cables from ship to shore vault (except when using barge or cruise terminal AMP mobile).
- Ship PIC/designee, plug cables into shore vault, apply securing chains, insert Kirk key safety interlock pins, remove Kirk keys KA & KB and secure vault. POLA PIC will monitor ship cable connection to ensure use of appropriate procedures and avoid damage to equipment.
- Ship PIC/designee provides Kirks key KA & KB to POLA PIC.
- Ship PIC/designee remove lock from ground switch.

5. Closing SUBSTATION AMP BREAKER TO PROVIDE POWER – POLA

- One POLA PIC (QP) is needed to perform the following.
- Only after items 1 thru 4 have been completed, POLA PIC will unlock the earth grounding switch and insert Kirk keys KA & KB.
- POLA PIC will open earth grounding switch and visually verify all three blades are disengaged.
- POLA PIC will verify that there is no backflow power from the ship by checking lamps at the feeder HVL switch.
- POLA PIC will remove Kirk key KC from earth grounding switch.
- POLA PIC will insert Kirk key KC into the feeder HVL switch and close switch. Visually verify all three blades are engaged.
- POLA PIC to ensure all within approach boundary of the feeder HVL and earth grounding switches are out of the area.
- POLA PIC confirm with Ship PIC that power is requested.
- Once everyone is removed from the area, POLA PIC activates the 60 second timer for automatic closing of breaker, or uses remote actuator switch as appropriate.
- POLA PIC confirm that power has been sent, visually at substation.
- POLA PIC confirm with Ship PIC that power has been successfully transferred.
- If ship E-stop circuit testing is requested, POLA PIC will inform Ship PIC to test and repeat below procedures until E-stop testing is complete and power is transferred for ship operations.
 - POLA PIC will reset 86 lock-out relay.
 - POLA PIC confirms with Ship PIC that power is again requested.
 - Once everyone is removed from the area, POLA PIC activates 60 second timer for automatic closing of breaker, or uses remote actuator switch as appropriate.
 - The 60 seconds automatic breaker closing timer or the remote actuator allows the QP to be at a safe distance or to leave the substation before the breaker closes.**
 - POLA PIC confirms with Ship PIC that power has been successfully transferred.



CONSTRUCTION AND
MAINTENANCE DIVISION

STANDARD OPERATING PROCEDURE

GENERAL HIGH VOLTAGE SHORE CONNECTION (HVSC)*

(DIVISION 147)

*Also known as Alternative Maritime Power (AMP)

Revision Date: 10/18/2016

Revision #: 7

Document #: Safety_ Electrical
SOP HV-01

Page 3 of 4


- POLA PIC closes and secure substation.
- POLA PIC completes HVSC Pre-Power Transfer Conference form "for POLA use only" section, including time of successful transfer of shore power for ship operations.
- If a HVSC connection or power transfer issue is experienced, POLA PIC shall notify the Terminal superintendent and document on POLA HVSC Pre-Power Transfer Conference form.
- POLA PIC shall submit completed POLA HVSC Pre-Power Transfer Conference form and SOP checklist for HVSC connection to Division 147 by end of shift.

NAME OF SHIP	DATE (mm/dd/yy):
TERMINAL	BERTH
POLA PIC (print)	SIGNATURE
POLA QP (print)	SIGNATURE

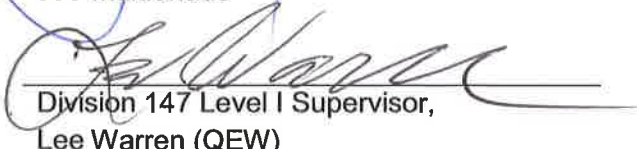
APPROVAL:



C&M Director
Joe Maldonado



Division 147 Level II Supervisor,
Chuck Smith (QEW)



Division 147 Level I Supervisor,
Lee Warren (QEW)



CONSTRUCTION AND
MAINTENANCE DIVISION

STANDARD OPERATING PROCEDURE

GENERAL HIGH VOLTAGE SHORE CONNECTION (HVSC)*

(DIVISION 147)

*Also known as Alternative Maritime Power (AMP)

Revision Date: 10/18/2016

Revision #: 7

Document #: Safety_Electrical
SOP HV-01

Page 4 of 4

REVISION HISTORY

REVISION #	DATE	SECTIONS AFFECTED
0	12/04/2013	All
1	12/19/2013	(1) Added requirement to complete checklist. (3) Added reference to HVSC System safety Verification procedures. (4) Ship lock-out made mandatory. (5) Removed lamp test, as the equipment does not provide for that function. Other clarifications.
2	01/13/2014	(5) Changed order of task for checking for electrical backflow. All: Changed to bullet format.
3	01/27/2014	(4) Clarified need to monitor for equipment damage. All: Updated name of form.
4	03/04/2014	(1), (4), an (5): Clarification regarding ability to change order of numbered items and ability to proceed with some tasks prior to arrival of complete crew.
5	07/03/14	(1) Equipment and PPE items updated specific to task. All: Reformatted into checklist format. Added Document # to header and changed approval signatures consistent with Electrical Safety Manual provisions.
6	08/01/2016	(1) Number of personal performing the task. Added notes and clarifications for the procedures.
7	10/18/2016	Clarified QP task to close breaker on page 2