



SUBJECT

SUBSTATION OPERATIONS
COASTAL STORM PLAN

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COASTAL STORM PLAN

APPROVED	DATE	NUMBER	SUPERSEDES	PAGE 1 OF
Bruce Gavioli	03/05/14	EM-P-008; CCSP Tab 3	12/12/13	21 PAGES

TABLE OF CONTENTS

1.0	PURPOSE	3
2.0	APPLICATION	3
3.0	PROCEDURES	3
3.1	Incident Command System (ICS) Use and Structure	3
3.2	Planning / Response	4
3.3	Operations	7
3.4	Damage Assessment	10
3.5	Restoration	12
3.6	Demobilization	13
3.7	Staffing / Facilities	14
3.8	Training	14
3.9	Drills	14
3.10	Self-Assessment / Lessons Learned	14
3.11	Assumptions	15
3.12	Other Considerations	15
4.0	DEFINITIONS	15
5.0	REFERENCES	16
6.0	ADVICE & COUNSEL	16
	EXHIBIT A – Organization Chart	17
	EXHIBIT B – Substation Operations Station Assessment Form	18
	EXHIBIT C – ICS Form 201 – Incident Action Plan Template	20
	EXHIBIT D – Spare Equipment	21

1.0 PURPOSE

To establish guidelines for the pre-event actions, equipment protection, evacuation, restoration, and the recovery of Substation Operations' facilities in response to a significant coastal storm.

2.0 APPLICATION

This procedure applies to Substation Operations as it relates to pre- and post-event planning and response to a significant coastal storm. Substation Operations' Coastal Storm Plan (CSP) identifies facilities and their specific equipment that will be impacted, along with the tactical response to mitigate and recover from those events.

3.0 PROCEDURES**3.1 Incident Command System (ICS) Use and Structure**

Substation Operations will operate under ICS structure, see organization chart, Exhibit A. CI 260-4 Corporate Response to Incidents and Emergencies establishes guidelines for determining the appropriate level of response and mobilizing the appropriate Company and external resources in a timely manner in response to any incident. It describes the Incident Command System (ICS), whose principles are used to manage any incident or emergency and the ICS organizational structure, including the role of the Incident Commander. The following are descriptions of the functional elements that Substation Operations will utilize:

- a. Deputy Planning Chief – The Deputy Planning Chief will be responsible for collecting information on equipment that needs to be tested, cleaned, and/or repaired. The Deputy Planning Chief will be responsible for notifications and updates to the Planning Chief at CERC. Incident Action Plans will be developed based on the direction of System Operations given the existing conditions surrounding restoration.
- b. Deputy Operations Chief – The Deputy Operations Chief will be located at the Energy Control Center (ECC) and will be the interface between SSO areas and System Operations. He/she will be responsible for the real-time field operations activities.
- c. Logistics Chief – The Logistics Chief will supply and/or procure any items requested by the Regional Area Commands in support of the restoration process. The Logistics Chief will also serve as the interface between Substation Operations and Central Field Service for any sole-source ordering to eliminate redundant requests. This individual will be located at the Van Nest complex.
- d. Finance Officer – Responsibilities will include capturing employee time, equipment replacement cost, and material procurement. This individual will report to Van Nest.
- e. Environmental Health and Safety (EH&S) Officer – Will serve as the Subject Matter Expert (SME) in terms of guidance for all EH&S issues. This individual will be located at the Van Nest complex.
- f. Safety & Environmental Personnel – These field personnel will report to the area commands, which they normally support.
- g. Field Engineering – Will be required to provide guidance regarding the cleaning, repair, replacement, and testing process for substation equipment. This group will report to their respective area commands, which they support during normal operations.

- h. Civil & Transmission Engineering – Will be assigned to area commands based on residency.
- i. Regional Command Center – Will be located at the Energy Control Center and will be responsible for coordinating the efforts for each of the respective area commands under their jurisdiction.
- j. Area Commands – These groups are managed by Branch Directors who will coordinate field efforts in terms of restoration. Their responsibilities will include the execution of the Incident Action Plan (IAP) and will be required to maintain the level of staffing necessary to carry out such activities.
- k. Storm Riders – These are employees assigned to a Substation during the storm to report station status and conditions to the Energy Control Center.

3.2 Planning / Response

a. Pre-Storm Actions

- ☐ A notification of a significant coastal storm will be initiated by Corporate Emergency Management beginning at the 120 hour mark (5 days out). Conference calls will be held daily beginning at the 96 hour mark in order to provide the latest and most accurate weather information. The on-duty Emergency Response Group member will participate in the Corporate Emergency Management conference call and provide a status of the actions taken by Substation Operations (SSO) at the corresponding intervals.
- ☐ Emergency Response Group personnel will send out hourly countdown of expected actions from the checklist to General & Area Managers.
- ☐ Area Commands (Section Managers or their designee) will be responsible for carrying out the task requests set forth within sections (1) through (6) of the Pre-Storm Actions.
- ☐ Area Commands (Section Manager or their designee) will reply to the countdown email confirming that the tasks required in each operational window have been completed, are adequate or require no action.
- ☐ The Emergency Response Group will correlate the information from the conference call as it relates to weather and System conditions and communicate same to SSO GM's and Area Commands.

(1) *120 Hours*

- ☐ Emergency diesel generator fuel tanks must be surveyed and fueled as necessary prior to storm impact.
- ☐ Inspect station man-lifts to ensure operability.
- ☐ Conduct assessment of construction of buildings or other projects adjacent our facilities that have the potential to impact operations through collapse, projectiles, or water intrusion. Emergency Response Group will contact the Office of Emergency Management and/or Department of Buildings for resolution. They can be reached through the Shift Manager.
- ☐ ERG's to over-see equipment check of storm response supplies.
- ☐ Operations to verify the nitrogen pumps at East River and 13th Street.

(2) *96 Hours*

DATE	NUMBER	SUPERSEDES	PAGE 4 OF
03/05/14	EM-P-008; CCSP Tab 3	12/12/13	21 PAGES

- ❑ Conduct internal review of stations to identify and eliminate wind generated hazards. SSO environmental health & safety should conduct assessment of any scaffolding to determine if it should be reduced in height for the duration of the storm. A safe height will be determined by proximity to surrounding equipment and wind exposure.
 - ❑ Test flood sensor alarms.
 - ❑ Flood Protection Measures (96 Hours):
 - o Implement shrink wrap plan for Goethals to protect sensitive equipment.
 - o Implement shrink wrap plan for Fresh Kills to protect sensitive equipment.
- (3) 72 Hours
- ❑ Equipment pending installation shall be moved to outside of flood inundation areas prior to storm impact.
 - ❑ Cots shall be obtained through SSO Procurement for personnel to rest at stations that will house storm riders.
 - ❑ Inventory and restock as required:
 - o General station supplies
 - o Raingear
 - o Batteries
 - o Flashlights
 - o Tarps (enough to cover sections)
 - o Rope (to secure tarps)
 - o Nitrogen / SF6 supplies
 - o Gas cans
 - ❑ Flood Protection Measure (72 Hours):
 - o Deploy Temporary Flood Barriers: Emergency Response Group will be responsible for coordinating this effort with Construction Management.
Note: this process will only be implemented for locations that do not have their respective barriers currently available.
 - o Place request through Substation Operations Logistics to obtain labor and materials (HESCO) to protect Trade Center. *Note: Installation will commence at 48 hour mark.*
 - o Deploy two hydraulic pumps at Trade Center.
- (4) 48 Hours
- ❑ Remove man lifts, hi-lo, scissor lifts from flood inundations zones and stage at safe havens. Arrangements can be made through CFS or through ERG's.
 - ❑ Remove any parts, tools or other capital equipment from flood inundation areas and stage at safe haven.
 - ❑ Flood Protection Measures (48 Hours):

DATE	NUMBER	SUPERSEDES	PAGE 5 OF
03/05/14	EM-P-008; CCSP Tab 3	12/12/13	21 PAGES

- o Begin installation of HESCO barriers stored in the empty vaults at WTC. One loading dock bay and one emergency exit will remain open until 24hrs from the storm.
- o Implement shrink wrap plan for East River to protect sensitive equipment.
- o Implement shrink wrap plan for 13th Street to protect sensitive equipment.
- o Implement shrink wrap plan for 36th Street to protect sensitive equipment.
- o Implement shrink wrap plan for Seaport SS to protect sensitive equipment.
- o Implement shrink wrap plan for Gowanus to protect sensitive equipment.
- o Remove sump pump discharge caps and connect hoses.

(5) *24 Hours*

- ❑ Branch Directors (Area Managers or their designees) shall finalize the staffing plan which outlines location and qualification of personnel, along with the shift they will cover.
- ❑ Fuel all Company vehicles.
- ❑ High voltage test trucks should be moved to regional safe haven for storage until storm passes service territory.
- ❑ Verify station drains, gutters, and other water runoff controlling devices are in place and operational. Tests can be conducted with garden hose or hydrant water.
- ❑ Flood Protection Measures (24 Hours):
 - o Set up two hydraulic pumps at Trade Center inside the berm area outside of loading bay doors.
 - o Install flood barriers and vestibules at:
 - 13th Street
 - Millyard: PURS plants located within the confines of the Millyard will be protected by the exterior intrusion measures of the property.
 - East River
 - 36th Street
 - Seaport
 - 16th Street PURS
 - Apply other applicable flood measures were appropriate.

(6) *12 Hours*

- ❑ Remove Company vehicles from flood inundation zones.
- ❑ Shift Manager to consult with cable engineering in regards to moving pressurizing source from stations that reside within flood zones.
- ❑ Once CERC is established, Area Commands must contact the Deputy Planning Chief to provide staffing information. In addition, support groups such as ASM, Transformer Group, and PST must do the same. The Deputy Planning Chief will be responsible for developing and circulating a contact list for each operational

DATE	NUMBER	SUPERSEDES	PAGE 6 OF
03/05/14	EM-P-008; CCSP Tab 3	12/12/13	21 PAGES

period. The list should include the name, location, and contact info for support group personnel. The list should also include SME's from Field Engineering.

Note: One person should be designated from Transformer Group, ASM, and PST for each operational period. Service and support can be requested through these individuals system-wide. Each support group outlined above will furnish the Deputy Operations Chief at the ECC with their name and contact information. All requests for service shall be directed to the Deputy Operations Chief who will contact these support groups.

- ❑ Once CERC is established, the Deputy Operations Chief should staff ECC and communicate contact info to CERC and Area Commands.
- ❑ Implement staffing plan as necessary. Branch Directors, or their designees, should prepare the staffing plan for the next operational period.
- ❑ Flood Intrusion Measures (12 Hours):
 - o Connect all sump pumps to AC supply.
 - o Secure/close all pumphouse, circulating plant and relay house doors.
 - o Install/close internal moat gates at:
 - Fresh Kills
 - Goethals
 - Gowanus
 - Millyard S1 Relay House

3.3 Operations

Substation Operations will operate to maintain continuity of services until continued service is imminently threatened by storm and system conditions.

- a. Electronically distribute Substation Operations Procedure 0300-0006 "Staffing Requirements during Adverse Weather."
- b. All substation facilities will be staffed in preparation for the storm. Management employees will be deployed to sensitive, transmission or flood-prone stations.
- c. Water Management: Sump pumps have been stored locally at each substation in order to discharge seepage into vaults or moats. Prior to the beginning of each hurricane season on June 1st, pumps will be removed from storage in each station and installed in their dedicated areas. This will require the connection of hoses to the discharge outlets for each moat or vault. Please note, until directed in the storm countdown sequence, outlet caps for water discharge lines will remain in place and pumps will not be connected to their respective AC supply. The hurricane season concludes November 1st at which time pumps and hoses will be returned to storage within the station.

Note: Two large scale pumps will be deployed to the Trade Center by the Emergency Response Group.

- d. Water Intrusion Measures: Shrink wrap will be applied to critical equipment as outlined in the individual station plans. Such equipment is outlined as tap changers, throw-over switches, 208 supply cabinets, relay back-up cabinets and circuit switcher controls.
 - (1) Shrink wrap material, tape to secure seams and tools to apply the wrap will be stored locally within each station.

DATE	NUMBER	SUPERSEDES	PAGE 7 OF
03/05/14	EM-P-008; CCSP Tab 3	12/12/13	21 PAGES

Note: Applying the wrap requires the use of a heat gun. The fuel for the gun is propane. The basic application will require two 20lb propane tanks. Propane may be used but not stored within substations. Propane containers must be removed once the wrap process has been completed.

- e. Flood Barriers & Vestibules: Given the perimeter design of 13th Street, Millyard, East River, 36th Street, Seaport, Trade Center and the 16th Street PURS flood barriers will be installed to repel water from doorways and driveway entrances at these locations. These permanent barriers will be located with the station for quick deployment once directed in the storm countdown mode.

Note: Stations that may be staffed during predicted surge periods will have temporary vestibules erected to facilitate a safe evacuation of the site if necessary. Mobile stairs have been designed for these vestibules so that station occupants can scale the barrier safely.

- (1) Emergency Evacuation Plans have been developed for 13th Street, East River, 36th Street and the East 16th Street PURS since these locations may be staffed during storm conditions.
 - (2) Temporary HESCO Barriers: The installation of these barriers must begin at the 72 Hour mark in order to be completed prior to the zero hour. Emergency Response Group along with Construction Management will deploy and fill the barriers at predetermined locations.
 - f. Moats: Moats have been constructed around sensitive equipment within Gowanus, Fresh Kills, and Goethals and provided with sump pumps in order to relieve seepage.
 - g. Nitrogen Pumps: The loss of light and power at the East 13th Street and East River transmission facilities will impact the ability to pressurize pump houses. In response, nitrogen pumps have been installed at these locations to insure feeders remain pressurized.
- Note:** Consideration must also be given to moving the pressurizing sources from potential flood zones to the remote terminal ends prior to the zero hour mark.
- h. Stations will be operated to design criteria. Emergency requests for equipment isolation will follow existing guidelines for Category 1 and Category 2 Off -On Emergency and Off-On Emergency Maintenance requests.
 - i. Based on wind, water, and structural issues, on-site personnel may determine that it is no longer safe to remain at the facility. Prior to evacuating a station, the Operator will notify the Control Center Shift Manager on the Emergency Line (212-460-3848) that conditions have become unsafe, or that the agency having jurisdiction has ordered an evacuation of the area. In addition, management personnel at the site will notify their respective Area Commands of the intent to evacuate. Employees will report to local safe havens outlined in section 3.7 (d).
 - j. Stations that have been evacuated will rely on flood detectors, where equipped, to indicate water intrusion. Once the Shift Manager receives a flood alarm, he will notify the Senior System Operator who, in turn, will make the determination if a preemptive shutdown is in order. Flood sensors do not have rate of rise monitoring. They are designed to alarm once a set point has been reached. Category III stations and above are not equipped with flood monitoring. Structures within these sites are not designed for Category III wind and therefore are unsafe to house employees. These stations will be operated in accordance with System Operations Procedure SO 5-5 *Criteria For Shutting Down A Substation*.

DATE	NUMBER	SUPERSEDES	PAGE 8 OF
03/05/14	EM-P-008; CCSP Tab 3	12/12/13	21 PAGES

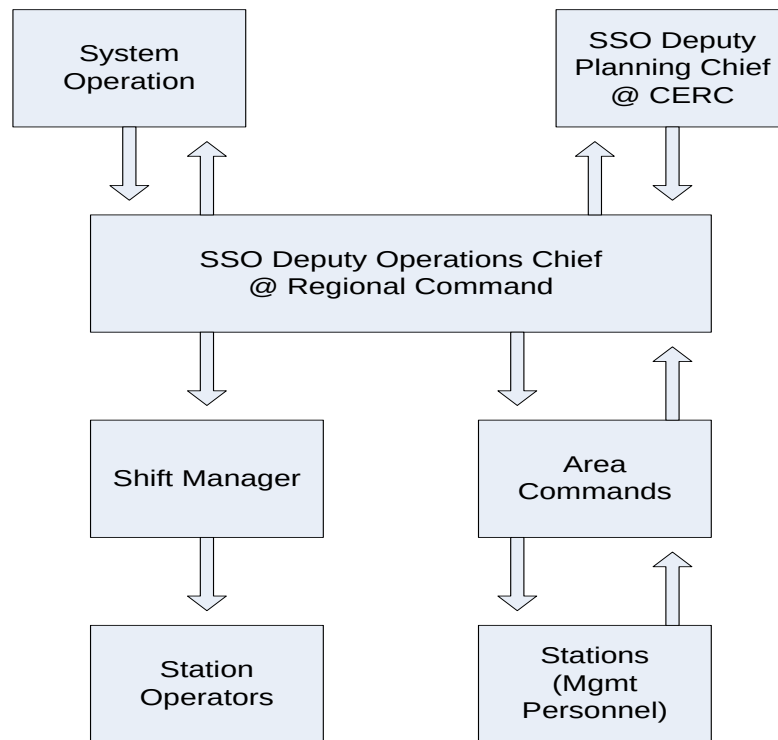
Note: To aid in the decision of preemptive shutdown, the Security Operations Center in Rye will be contacted so that they may review real-time conditions through video monitoring of the site, if so equipped. They can be reached at 914-933-2914.

Flood Detectors are installed at the following locations:

- o East 13th Street
- o East 36th Street
- o West 49th Street (camera)
- o Ave "A"
- o Leonard Street
- o Goethals (camera)
- o Gowanus
- o Farragut (Camera)
- o Vernon (Camera)
- o Bruckner
- o Sherman Creek (Camera)
- o Steam Generating Stations – East River and 59th Street

Note: The loss of East River and/or 59th Street generating stations impacts our ability to cool transmission feeders via their water supply to our respective circulating plants at West 49th Street (Feeders M51, M52, M54, M55) & E. 16th Street (Feeders Q35 L&M, M54, M55).

- k. The Shift Manager will notify the Senior System Operator of plans to evacuate of upon receipt of a flood alarm where so equipped.
- l. The System shall be operated in accordance with existing procedures. In the case of preemptive shut down, the final decision will rest with the Senior System Operator who will direct those operations as necessary to eliminate equipment damage/failure.
- n. Action to shut down substations will be in accordance with System Operations Procedure 5-5.
 - Transmission feeder/s loading over Short Term Emergency (STE) or Long Term Emergency (LTE) limits and the overload/s cannot be cleared within specified time limits.
 - To facilitate firefighting in the event a substation fire cannot be controlled or isolated.
 - Substation flooding or street flooding, which may result in escalating failures of non-submersible equipment.
 - Loss of all D.C. Systems that are used for relay protection and fault clearing. Refer to System Operation Procedure SO10-3, "Criteria for the Operation of Facilities with Less than Design Relay Protection".
 - The number of transformers in service at a station is not capable of supporting the load within their emergency ratings.
 - To provide safety for Company personnel and the Public.
- o. The flowchart below illustrates the communication paths within the ICS framework.



3.4 Damage Assessment

- The strategy employed in terms of restoring the system will focus on re-energizing the transmission paths as directed by System Operations.
- Area Commands will be responsible for coordinating damage assessments within their jurisdictions. The information will be communicated back to the Deputy Planning Chief at the ECC. All requests for SME's such as Field Engineering, Transmission Operations, and Civil Engineering should be directed to the Deputy Planning Chief.
- To ensure that information is captured in a uniform fashion, a Station Assessment form has been developed; it can be found as Exhibit A on Page 17 of this plan. Based on these assessments, personnel will be relocated as necessary to areas that need assistance. Damage assessments shall be used by area commands to create an Incident Action Plan which has been included as Exhibit C.
- For loss of AC supply to batteries follow procedure 0300-84. If a temporary supply cannot be connected within an eight hour shift, the DC Load Board supplied by the affected battery charger is to be de-loaded.
- Rapid Assessment Teams (RAT) shall only be implemented at the request of the SSO Deputy Planning Chief to combat system-wide, or large-scale, damage. Rapid Assessment Teams are comprised of personnel from:
 - Transformer Group
 - Auxiliary Systems Maintenance (ASM)
 - SSO Maintenance

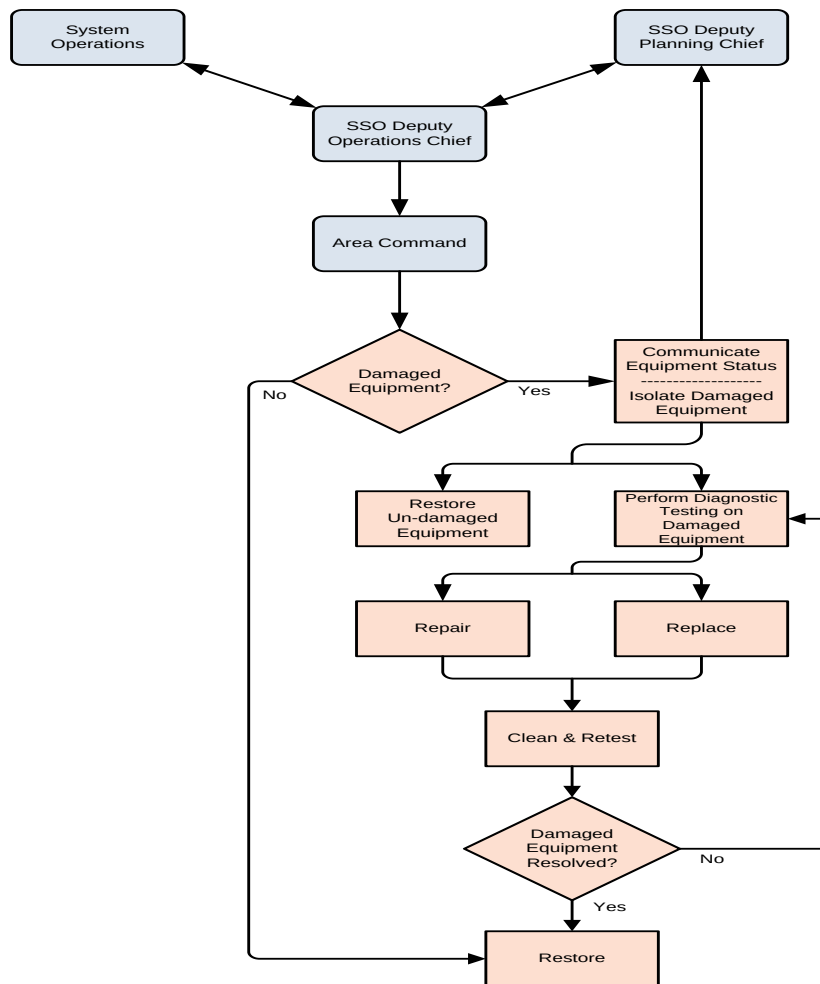
- Electrical Construction Bureau (ECB)
 - Field Engineering
 - Environmental Health & Safety Officers
- f. RAT assessments will focus on a four-tier reporting system outlined below:
- What may be energized immediately
 - What needs to be tested prior to re-energizing
 - What needs to be cleaned & tested prior to re-energizing
 - What needs to be isolated & repaired
- g. Once assessments have been completed the staffing plan must be revisited to consider shifting personnel to impact areas outside of their normal reporting borough/town. Employees should be told to pack clothing and essentials for three day rotations. Area Commands should notify SSO Logistics Chief of deployment so that lodging accommodations can be made to support the extended work hours and eliminate lengthy travel.
- h. Equipment Affected
- (1) *Relay House:* Relays that experienced salt water contamination will be removed and cleaned, if possible, to remove salt deposits and other contaminants from terminals and connections. Electromechanical relays will be cleaned and tested prior to reusing them. As necessary, these will be replaced. Electronic and microprocessor relays will be replaced when beyond repair. As available, they will be replaced from stock. Similar like-in-kind relays also may be harvested from comparable stations outside of the impact zone. These facilities will run with single line protection until such time that they can be properly replaced. Post-storm evaluations and repairs will be performed under the direction of Engineering.
 - (2) In stock relays listed in PST Central website. [Protective Systems Testing Central](#)
Note: Pre-approval is needed for access.
 - (3) *Battery Rooms:* The proper Personnel Protective Equipment (PPE) will be available for each team's entry into a battery room that may be covered with sulfuric acid. We will define the number of cells damaged and note the size and capacity of the batteries needed for replacement. Replacements will be made available through:
 - (a) Existing stock
 - (b) Pre-existing contract with suppliers
 - (c) Batteries on hand for future stations under construction
 - (d) Harvest batteries from one of the non-impacted stations
 - (4) *Transformers:* All transformers impacted by storm water or wind-blown debris will be evaluated by Engineering to determine if, cleaning, repairs or replacement will be necessary. In addition, gas and oil samples will also be taken on all transformers that were impacted by storm water. The results of these tests will be reviewed by Engineering for approval prior to restoration. Exhibit C provides an outline of the equipment that is available in the Spare Transformer Yard.

DATE	NUMBER	SUPERSEDES	PAGE 11 OF
03/05/14	EM-P-008; CCSP Tab 3	12/12/13	21 PAGES

- (5) *High Voltage Circuit Breakers:* Any breakers impacted by storm water or wind-blown debris will be evaluated by Engineering prior to restoration. The dielectric medium of the breaker will be tested as required by Engineering.
- (6) *Control Room:* Damage to the control room in terms of water, fire or physical destruction must be evaluated by the respective groups within Engineering and Protective Systems Testing. This will determine the course of action necessary to facilitate restoration and eliminate inadvertent trip-outs.
- (7) *Switchgear:* Breakers would be removed from their cubicles and cleaned with fresh water to remove all salt deposit and other contaminants. Breakers would undergo a HiPot, Megger, and acceptance test based on existing procedures under the direction of Engineering.

3.5 Restoration

- a. The process flow chart below illustrates the decision-making logic, along with the path of information flow.



- b. After the water level has decreased and is continuing to decrease, preparation for restoration is to commence. If any equipment tripped-out due to electrical faults prior to the preemptive shutdown, it must be isolated and addressed separately from the other equipment. This faulted equipment would get processed according to the normal repair / restoration process. This would be as if there was no flood. That process involves isolation, protection, repair, and restoration. If that same equipment was impacted by flood waters, additional measures would be taken related to flood damage discussed herewithin. If the floodwater was fresh water, minimally contaminated, and never rose to the level of normally energized power equipment, the cubicle and equipment doors should be opened and the equipment allowed to air dry to remove any condensation or residual moisture that may still be present. Fans and/or heaters should be used where available to expedite the drying process. When all visible condensation and moisture has been removed, restoration may be attempted at the direction of Engineering.
- c. In the event that the floodwater was salt water, heavily contaminated, or rose to the level of normally energized equipment, the equipment should be gently flushed with fresh water prior to dry out. During the fresh water flush, care should be taken to avoid wetting any equipment that was not covered by floodwater. After the fresh water flush the cubicle doors should be left open and the equipment allowed to air dry to remove any condensation or residual moisture that may still be present. Fans and/or heaters should be used, where available, to expedite the drying process. When all visible condensation and moisture has been removed, restoration may be attempted at the direction of Engineering.
- d. Efforts should be directed toward restoring Light & Power within the station. If so equipped follow the 0300 series procedures for the operation of the emergency diesel generators.
- e. In the event the station is not equipped with an emergency back-up generator one can be ordered through SSO Procurement Group who will contact CERC.
- f. A cache of storm response equipment has been stockpiled by the Emergency Response Group to assist in the early stages of the incident until CERC support can be fully realized. The equipment includes the following:
 - Generators (3500 to 6000 w)
 - Pressure washers (gasoline)
 - Torpedo space heaters (dual fuel diesel or kero)
 - Electric heaters
 - Ventilation fans
 - Chain saws (gasoline)
 - Trash pumps (gasoline)
 - Wet/Dry vacuums
 - Jager Pumps (diesel)

3.6 Demobilization

- a. Deputy Planning Chief – Shall ensure that demobilization information is disseminated in a timely fashion so as to ensure the orderly downsizing of the incident.
- b. Operations Chief – Identify and communicate excess personnel and equipment available for demobilization to the Planning Section Chief.

DATE	NUMBER	SUPERSEDES	PAGE 13 OF
03/05/14	EM-P-008; CCSP Tab 3	12/12/13	21 PAGES

- c. Logistics Chief – Ensure that all equipment procured is accounted for and returned accordingly.
- d. Branch Directors – Those personnel who manage area command will be required to track the location of equipment procured by the SSO Logistics Chief. Once the operation within their area has concluded, ensure that it has been identified for pick up.

3.7 Staffing / Facilities

- a. Required Personnel – Refer to the existing SSO Procedure: 0300-0005 “System Emergency Mobilization,” reference item 7.7.
- b. Staffing Philosophy – For the staffing philosophy for coastal storms, refer to existing SSO Procedure 0300-0006 “Staffing for Adverse Weather Conditions,” reference item 7.11.
- c. Staffing Locations – All stations will be staffed in preparation of the storm. Management personnel will be deployed to sensitive, transmission and flood prone locations.
- d. Area Command Center – These are locations that will be used by Area Managers, or their designees who serve as Branch Directors, to preside over the incident. Area Commands will report to the Deputy Operations Chief at the Regional Command located at the Energy Control Center. Area Commands that are located within potential flood zones have identified alternate locations to establish command in the event of flooding. The need to staff alternate command locations will be driven by wind conditions, and the potential for flooding.
 - Staten Island Fresh Kills
 - Staten Island Alternate Woodrow
 - Brooklyn Gowanus
 - Brooklyn Alternate Bensonhurst
 - Queens Corona
 - Manhattan - East Murray Hill
 - Manhattan - West 49th Street
 - Manhattan - West Alternate W110th Street
 - Bronx Mott Haven
 - ASM Sedgwick Ave PURS
 - Westchester - North Briarcliff
 - Westchester - South Dunwoodie
- e. Regional Command Center (ECC) – The Regional Command Center will be established at the Energy Control Center and staffed by a General Manager, or their designee, during the AM and PM shifts. This individual will serve as the Deputy Operations Chief. The Regional Command Center will use the SSO Deputy Planning Chief as the Liaison to CERC.

3.8 Training

Management training in regards to plan execution and revisions will be performed annually at the SSO Vice-President's staff meeting.

3.9 Drills

- a. Drills will be conducted prior to June 1st of each year. Exercises may be field or table top exercises and will focus on the areas impacted by Hurricane Sandy or that have the potential to be impacted by storm conditions.
- b. Post exercise lesson learned to be incorporated into the Coastal Storm Plan as applicable.

3.10 Self-Assessment / Lessons Learned



DATE	NUMBER	SUPERSEDES	PAGE 14 OF
03/05/14	EM-P-008; CCSP Tab 3	12/12/13	21 PAGES

Lessons learned will be conducted by the Emergency Response Group following any coastal storm at the Vice-Presidents expanded staff meeting. Material changes to this CSP need to be filed with the NYS PSC.

3.11 Assumptions

- a. Facility Risk Assessments (point of failure) – The facility risk assessments are based upon potential water inundation related to specific surge models. Single points of failure at each facility have been identified within the [Storm Surge Calculator for Potentially Affected Equipment and Facilities link](#).

3.12 Other Considerations

- a. Specialized Activity Support Requirements
 - (1) Equipment, Relay, and Transmission Feeder Engineering – Will be required to analyze data and make recommendations regarding equipment restoration.
 - (2) Chem Lab – Sampling of dielectric strength testing may be required prior to restoration. Technicians must be available to address sampling and analysis needs.
 - (3) Central Field Services – At the 72 Hour mark a decision must be made to move any critical equipment from potential flood zones. Any equipment that can't be moved by the local area will require the services of CFS. As the time of impact grows closer logistical requests may grow beyond the ability of CFS to respond. Arrangements can be made through SSO Procurement to obtain flatbeds, knuckle-booms and so forth to support the move to a designated safe area.
 - (4) Information Resources – Technicians must be deployed to the area command locations in support of their operations.
 - (5) Purchasing or Treasury – Purchasing buyers and Treasury personnel must be available to the SSO Logistics Chief for procurement needs and petty cash funds beyond P-Card ability.
- b. Material Requirements
 - (1) All equipment requests will go through SSO Procurement Group. Any items that cannot be procured locally will be requested through CERC by the SSO Procurement Group.
 - (2) The spreadsheet attached below lists information on a variety of commonly used PPE, tools, and equipment.



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4.0 DEFINITIONS

- 4.1 Stakeholders – All organizations that have a stake in the reliability and dependability of substations.
- 4.2 Flood Detectors – As part of the coastal storm preparedness program, flood level detectors were installed at 11 substations. The alarming device consists of an ultrasonic detector that is

set to alarm when flood waters reach a station specific critical height. Once a flood condition is sensed, a "HIGH WATER - FLOOD" alarm will be initiated. The Flood Detector will initiate alarms at the local substation and at the Energy Control Center (ECC).

5.0 **REFERENCES**

- CI 260-4 Corporate Response to Incidents & Emergencies
- SSO 0300-5 System Emergency Mobilization
- SSO 0300-6 Staffing Requirements during Adverse Weather
- SO 5-5, "Criteria for Shutting Down A Substation"
- SO 10-3 Criteria for Operating of Facilities with Less than Design Relay Protection

6.0 **ADVICE & COUNSEL**

Substation Operation's Coastal Storm Team member(s) are responsible for the preparation of this procedure, and for any required reviews, updates, or revisions. Substation Operation's Coastal Storm Team shall also ensure that this procedure, and any future changes to it, has been reviewed with the senior leadership staff and Vice President of the organization.

The Vice President of Substation Operations, or his/her designee, will provide advice and counsel on this procedure.

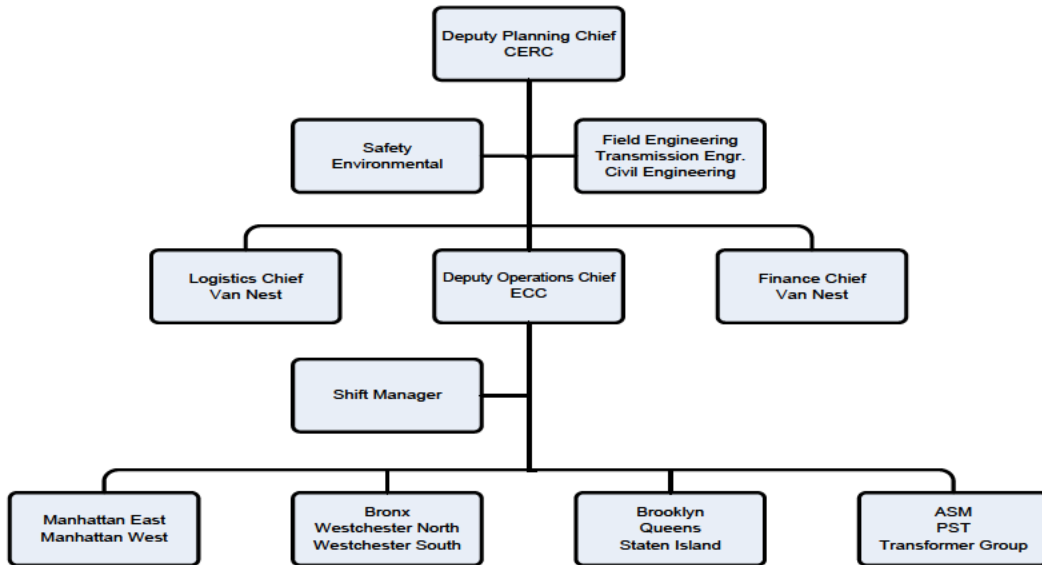
EXHIBIT A**Organization Chart****Substation Operations ICS Framework**

EXHIBIT B**Substation Operations
Station Assessment Form**

Station: _____

Date & Time: _____

Overall station condition: **Poor** **Fair** **Good**

Location & ID of damaged equipment:

Extent of damage to equipment:

Is the equipment currently in service? **Yes** **No**

Can it remain in service or should it be removed under Category conditions?

Yes **No**

Explanation _____

Can the damaged equipment be isolated and made safe for inspection and possible restoration of surrounding equipment?

Describe the repairs that are required.



DATE	NUMBER	SUPERSEDES	PAGE 18 OF
03/05/14	EM-P-008; CCSP Tab 3	12/12/13	21 PAGES

List resources needed to make repairs. Include personnel, equipment, material and tools.

Identify resources or materials need to make repairs that will require vendor support.

Estimate length of time to make repairs.

Describe post-repair testing that will be required.

If known, please indicate if replacement parts are available for damaged equipment.

Additional comments:

Prepared by (Name and Position)



DATE	NUMBER	SUPERSEDES	PAGE 19 OF
03/05/14	EM-P-008; CCSP Tab 3	12/12/13	21 PAGES

Exhibit C**ICS Form 201 - Incident Action Plan Template**

IAP Temp

DATE	NUMBER	SUPERSEDES	PAGE 20 OF
03/05/14	EM-P-008; CCSP Tab 3	12/12/13	21 PAGES

Exhibit D

Spare Equipment

Smit 220893	
ABB Dry Type	
ABB 63052 120 MVA	
ABB 9467 46 MVA	EBG 65 MVA Mott Haven N 5476104
Item 25	
Item 28	EBG N5476103 Mott Haven
	N5476102 Mott Haven
	N5476101 Mott Haven
	Spare Bushing Rack
White Plains	Waukegan A4909T 28 MVA

Item 11 Westinghouse 6993583 58 MVA
EBG E 75th St N5715101 65 MVA
EBG 93 MVA 5115102
EBG 93 MVA 5115101
Item 3 407714 Siemens 234 MVA
SI 1 ELIN 750 MVA 1,696,399
Item 4 ELIN Reactor 1,683,231
Tetra Union 421-155 E 75th St

Item 2 Westinghouse M 101399 Farraqui
EBG 65MVA 5673104 W 19th St
EBG 65 MVA 5673103 W 19th St
EBG 65 MVA 5673102 W 19th St
ABB 9651-02 Water St.
Item 5 Siemens 130 MVA 408601
Item 1 GEK547980 420 MVA
Dunwoodie Spare PAR