June 14, 2017
SBK-L-17084
Docket No. 50-443

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Seabrook Station

Mitigating Strategies Assessment (MSA) Report
for Impact of New Flooding Hazard Information on FLEX Strategies

References:

1. NRC Letter, "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," March 12, 2012 (ML12053A340)

2. U.S. Nuclear Regulatory Commission (NRC), Order EA-12-049, “Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events,” March 12, 2012 (ML12054A736 (package))

3. NextEra Energy Seabrook letter SBK-L-15181 to U.S. Nuclear Regulatory Commission, “Response to NRC 10 CFR 50.54(f) Request for Information Regarding Near-Term Task Force Recommendation 2.1, Flooding - Submittal of Flooding Hazards Reevaluation Report,” September 25, 2015, (ML15274A210)

4. NextEra Energy Seabrook letter SBK-L-16175 to U.S. Nuclear Regulatory Commission, “Response to NRC 10 CFR 50.54(f) Request for Information Regarding Near-Term Task Force Recommendation 2.1, Flooding - Submittal of Flooding Hazards Reevaluation Report,” November 7, 2016 (ML16314D429)

5. U.S. Nuclear Regulatory Commission (NRC), Interim Staff Response to Reevaluated Flood Hazards Submitted in Response to 10 CFR 50.54(f) Information Request – Flood-Causing Mechanism Reevaluation (ML16356A468)

6. U.S. Nuclear Regulatory Commission (NRC), Staff Requirements Memo to COMSECY-14-0037, "Integration of Mitigating Strategies for Beyond-Design-Basis External Events and the Reevaluation of Flooding Hazards," March 30, 2015, (ML15089A236)

7. U.S. Nuclear Regulatory Commission (NRC), "Coordination Of Requests for Information Regarding Flooding Hazard Reevaluations and Mitigating Strategies for Beyond-Design-Basis External Events," September 1, 2015, (ML15174A257)

8. Nuclear Energy Institute (NEI), NEI 12-06, "Diverse and Flexible Coping Strategies (FLEX) Implementation Guide," Revision 4, December 2016 (ML16354B421)

9. Revision to JLD-ISG-2012-01, Compliance with Order EA-12-049, Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events, Revision 2, February 2017 (ML17005A188)

On March 12, 2012, the Nuclear Regulatory Commission (NRC) staff issued Reference 1 to all NRC power reactor licensees and holders of construction permits in active or deferred status. Enclosure 2 of Reference 1 contains specific requested actions, requested information, and required responses associated with Near-Term Task Force (NTTF) Recommendation 2.1 for flooding hazards. Enclosure 2 of Reference 1 directed reevaluation of flooding hazards at sites and indicated that a Flooding Hazards Reevaluation Report (FHRR) would be due within one to three years from the date of the Reference 1 letter. Revision 0 of the Seabrook FHRR was submitted to the NRC in Reference 3.

During subsequent discussions with NRC Staff on the contents of the FHRR, Seabrook agreed to perform an additional flooding case for the Probable Maximum Storm Surge (PMSS) event to see the effects that additional standing water, an increase in significant wave height, and a shorter wave period would have on wave overtopping. Since these resultant PMSS flooding elevations were greater than those presented in the original Seabrook FHRR (Reference 3), a revision to the FHRR was submitted to the NRC in Reference 4. The NRC Staff completed its review of the FHRR as documented in Reference 5.

Concurrent to the flood hazard reevaluation, Seabrook developed and implemented mitigating strategies in accordance with NRC Order EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond Design-Basis External Events." In Reference 6, the NRC affirmed that licensees need to address the reevaluated flooding hazards within the mitigating strategies for beyond-design-basis (BOB) external events, including the reevaluated flood hazards. This requirement was confirmed by the NRC in Reference 7. Guidance for performing Mitigating Strategies Assessments (MSAs) for the reevaluated flood hazard is contained in NEI 12-06, Appendix G (Reference 8), endorsed by the NRC in Reference 9. In Reference 5, the NRC Staff concluded that the reevaluated flood hazard information for Seabrook is suitable for the assessment of mitigation strategies developed in response to Order EA-12-049 (i.e., the mitigating strategies flood hazard information (MSFHI)).

The enclosure to this letter provides the Mitigating Strategies Assessment for the reevaluated flood hazard.

This letter contains seven new regulatory commitments.

1. NextEra Energy Seabrook will modify the following doors credited for mitigating flood water ingress to reduce gaps by July 31, 2018.
   - A134, Admin Building stairwell entrance to RCA Tunnel
   - C102, A ESWGR Room doorway into Turbine Building
   - EM401, EM402, and EM414, Alternate RP Checkpoint / Containment Personnel Hatch areas
2. NextEra Energy Seabrook will revise the flood door surveillance procedure to ensure gaps are maintained for the doors listed above and Door P901 by July 31, 2018.
3. NextEra Energy Seabrook will add flood protection feature to the RHR Vault hallway off the RCA Tunnel walkway to ensure flooding is routed to the Unit 2 Tunnel or Waste Processing Building and seal the floor drain and portions of the metal siding in the Alternate RP Checkpoint area by December 31, 2018.
4. NextEra Energy Seabrook will add flood protection features to the SEPS switchgear and electrical vault areas to mitigate PMSS flooding by December 31, 2018.
5. NextEra Energy Seabrook will revise storm preparation procedures by June 1, 2018 to
   - Add installation of sandbags at Service Water Cooling Tower Doors CT102 & CT103 and East Main Steam and Feedwater Pipe Chase Door EM408.
   - Move sandbag dike at Door C119 to Door C118.
   - Move the sandbag dike in the Door EM401 hallway to individual dikes in Doors EM401 and EM414.
   - Delete sandbags at Doors C100, C101, & F203
   - prestage the FLEX high pressure pump in the PAB prior to a major hurricane.
6. NextEra Energy Seabrook will revise storm preparation procedures to enhance sandbag dike installation instructions to include additional information from US Army Corps of Engineers guidance by June 1, 2018.
7. NextEra Energy Seabrook will revise the FLEX program documents by June 1, 2018 to
   - include a hurricane specific timeline for alternate portable equipment strategies.
   - include hurricane specific TSAs.
   - relax time constraints for ventilation actions.
   - document validation of new TSAs including hurricane anticipatory actions in accordance with NEI 12-06.

Should you have any questions concerning this submittal, please contact Mr. Kenneth Browne, Licensing Manager, at (603) 773-7932.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 14, 2017.

Sincerely,

NextEra Energy Seabrook, LLC

Eric McCartney
Regional Vice President – Northern Region

Enclosure

cc: D. Dorman, NRC Region I Administrator
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Enclosure to SBK-L-17084

Seabrook Station
Flooding Mitigating Strategies Assessment, Revision 0

Mitigating Strategies Assessment for New Flood Hazard Information
Seabrook Station

Acronyms:

- CLB – Current Licensing Basis
- DFCS – Diverse and Flexible Coping Strategies (FLEX) Program
- ELAP – Extended Loss of AC Power
- FHRR – Flooding Hazards Reevaluation Report
- FLEX DB – FLEX Design Basis (flood hazard)
- LIP – Local Intense Precipitation
- MSA – Mitigating Strategy Assessment
- MSFHI – Mitigating Strategies Flood Hazard Information (from FHRR and MSFHI letter)
- MSL – Mean Sea Level
- PMF – Probable Maximum Flood
- PMH – Probable Maximum Hurricane
- PMP – Probable Maximum Precipitation
- PMSS- Probable Maximum Storm Surge
- SBK – Seabrook Station
- SEPS – Supplemental Emergency Power System
- WSEL – Water Surface Elevation

Definitions:

- FLEX Design Basis Flood Hazard (FLEX DB) – The controlling flood parameters used to develop the original FLEX flood strategies.
- MSFHI – New flood hazard information from the FHRR, and summarized in the NRC MSFHI Letter (Ref. 5.1).
- National Geodetic Vertical Datum of 1929 (NGVD29) – Fixed vertical control datum, affixed to 21 tide stations in the United States and 5 in Canada (Ref. 5.2).
- North American Vertical Datum of 1988 (NAVD88) – Fixed vertical control datum determined by geodetic leveling, referenced to the tide station and benchmark at Pointe-au-Pere, Rimouski, Quebec, Canada (Ref. 5.2).
- Seabrook Plant Datum, equivalent to NGVD29 – Fixed vertical control datum, Elevations in the Updated Final Safety Analysis Report (UFSAR) infer that NGVD29 and MSL are interchangeable (Ref. 5.2). Site datum is 0.77 ft. below NAVD88 datum (Site Datum elevation, ft. = NAVD88 elevation, ft. + 0.77).

1. Executive Summary

Mitigating Strategies Flood Hazard Information (MSFHI) provided in the Seabrook Flooding Hazards Reevaluation Report (FHRR, Ref. 5.2) indicates that Local Intense Precipitation (LIP) and hurricane induced Probable Maximum Storm Surge (PMSS) potentially challenge implementation of the current FLEX program and procedures. These mechanisms are confirmed as the only two considered not bounded by the current licensing basis (CLB) in the MSFHI Letter. FLEX strategies can be modified to address the impacts of the MSFHI through program and procedure changes without the need for development of alternate strategies. Physical modifications are also required to support FLEX implementation. Other

reevaluated flood hazard mechanisms (i.e.: tsunami, riverine, dam breaches, etc.), are bounded by the FLEX design basis or have no impact on the site.

LIP flood levels are greater than the CLB and are above critical door threshold elevations for a limited period of time. Limited internal flood depths in critical areas will still allow the FLEX program and procedures to be implemented as written for a LIP event. Plant modifications will be required to support this assessment. A flood protection feature in the Residual Heat Removal (RHR) Vault hallway off the lower level walkway (RCA Tunnel) will be necessary to prevent flood water from entering the A RHR Vault. Minor modifications consisting of improved door seals are also required for several doors to limit flood water ingress. A listing of these doors may be found in the body of the assessment.

PMSS flooding also challenges current FLEX strategies. PMSS flooding delays access to the site for debris removal and deployment of portable equipment. A change to the Diverse and Flexible Coping Strategies (FLEX) Program (DFCS, Ref. 5.3) is required to create a hurricane specific implementation timeline for alternate portable equipment strategies in the event of a major hurricane. The changes will extend the time allowed for certain required actions based on the required preemptive shut down of the reactor and/or sufficient margin in the existing timelines. FLEX implementation procedures as well as procedures for storm preparedness and response will require revision. Note that the primary FLEX Supplemental Emergency Power System (SEPS) strategy can be implemented as it currently exists; only the alternate portable equipment strategies are affected. A modification is required to protect the SEPS switchgear enclosure and electrical vault area from PMSS flooding to support this conclusion.

Ample hurricane warning time allows for a controlled shut down of the reactor, implementation of storm preparation activities, and mobilizing additional on-site personnel and resources. Anticipatory actions include installation of temporary flood protection features. These actions will be validated in accordance with NEI 12-06 Appendix E. Extended coping time and increased resources (personnel, fuel, water and equipment) lessen the challenge of the storm surge.

Required modifications and program/procedure changes are being tracked in the station's Action Tracking System. NextEra Energy Seabrook, LLC., will develop and implement the required modifications and process the program/procedure changes once the MSA has been evaluated as acceptable by the NRC. With these changes, the FLEX strategies can be implemented as designed.

2. Characterization of the MSFHI, NEI 12-06 Appendix G, Section G.2

Information is presented in this section regarding reevaluated flood hazard data and plant responses to predicted or in progress events with the potential for site flooding. The following MSFHI data is extracted from the Flooding Hazards Reevaluation Report (FHRR, Ref. 5.2) except where noted.

2.1 Local Intense Precipitation (LIP)

Probable Maximum Precipitation (PMP) for a one hour LIP is determined to be 11.4 inches. Flood depth for the LIP event is shown in Attachment A for various plant areas impacted by LIP flooding.

The maximum LIP flood depth is in the slot area between the Turbine Building and Containment. Water from flooding at this location could enter the West Main Steam and Feedwater Pipe Chase or the Primary Auxiliary Building through the Containment Personnel

Hatch Room and associated Alternate RP Checkpoint area. Flooding through the Turbine Building can impact the A Essential Switchgear Room. The maximum depth is by Door EM402 near the Containment Personnel Hatch at 1.45 ft. for 60 minutes. LIP flood depth is also above door threshold/floor levels to a lesser degree at the Diesel Generator Building, Control Building (Essential Switchgear Rooms), Fuel Storage Building, Service Water Pump House, and Administration Building (drains through floor drains and stairwell to Primary Auxiliary Building).

Storm systems that can result in LIP events may potentially provide little warning. No credit is taken for anticipatory for LIP. Realistically there is some warning on the approach of storm systems that can result in significant rainfall events. Site procedures include actions to be taken for "Predicted rainfall intensity greater than four inches in one hour" or "Anticipated flood water level in the protected area greater than six inches above ground level" (Ref. 5.4, 5.5). The only action taken for a potential extreme rainfall event is to ensure flood barrier doors are closed (Ref. 5.5), which is not predicated on significant advance warning.

2.2 Riverine (Rivers and Streams) Flooding

The MSFHI calculates a flow volume at Hampton Harbor to be 26,158 cfs. This does not constitute a flood hazard by itself, but is an input into the PMSS analysis.

2.3 Dam Breaches and Failures

A flow volume of 18,363 cfs into Hampton Harbor was calculated in the FHRR and was determined to not adversely affect the Seabrook site.

2.4 Probable Maximum Storm Surge (PMSS)

PMSS is a result of the Probable Maximum Hurricane (PMH). Results were compared in the FHRR to other types of storms that occur in the region (e.g., Nor'easters). PMH induced PMSS is determined to be the bounding case. Influence from the Probable Maximum Flood (PMF) due to the six hour Probable Maximum Precipitation (PMP) of 19.4 inches is included in the PMSS evaluation. The Peak water surface elevation (WSEL) is calculated to be El. 23.35 ft.-NAVD88 (24.12 ft.-Plant Datum). Peak WSEL includes the following relevant associated effects:

10 Percent Exceedance Tide	El. 7.48 ft.-NAVD88
Sea Level Rise	+0.20 ft.
Wind, Pressure, and Wave Setup	+6.07 ft.
Wave Runup	+5.60 ft.
Sensitivity Margin	+4.00 ft.
Resultant PMSS Maximum WSEL	El. 23.35 ft.-NAVD88 (24.12 ft.-Plant Datum)

The maximum WSEL occurs at the vertical seawall sections. Peak WSEL without wave runup is below the top of the seawall (El. 19.23 ft.-NAVD88, 20 ft.-Plant Datum). Wave runup creates an overtopping effect that results in flood waters on the site. The greatest PMSS flood depth at any structure on site is 1.77 ft. at the southwest corner of the Waste Processing Building. The greatest depth at any SSC relevant to implementation of FLEX mitigating strategies is 0.83 ft. at the SEPS electrical switchgear. Additional depth due to minor wave runup on certain structures also needs to be considered. Duration of significant flooding is approximately four hours. Critical areas impacted by PMSS flooding and associated WSEL are shown in Attachment A.

Large storms such as hurricanes or nor'easters provide significantly more warning than local storms that can result in LIP events. Site procedures require the unit to be placed in Hot

Standby (Mode 3) at least 2 hours prior to the projected onset of hurricane force winds (Ref. 5.4). Storm preparation procedures include actions to be performed if severe weather is forecast to occur, including installation of flood protection for critical doors and establishing augmented staffing levels (Ref. 5.5).

2.5 Seiche

Seiche was determined to be a negligible phenomenon in Hampton Harbor.

2.6 Probable Maximum Tsunami

Tsunami analysis in the FHRR results in a peak WSEL of 16.1 ft.-NAVD88 (16.9 ft.-Plant Datum). Due to the long wavelength character of the tsunami wave, the calculated WSEL includes wave runup. The tsunami water level does not result in flooding on site and is thus not considered a flood hazard.

2.7 Ice Induced Flooding

Evaluation of flooding from ice damming was considered in the FHRR with a maximum WSEL of 12.43 ft. NAVD88 (13.20 ft.-Plant Datum). Similar to the tsunami analysis, this does not result in flood waters on site and therefore is not considered a flood hazard.

2.8 Channel Migration or Diversion Flooding

Review of this phenomenon concluded that Seabrook is not affected by flooding from channel migration or diversion since no streams of significance flow near the plant.

2.9 Combined Event Flooding

Combined flooding events were evaluated in accordance with industry standards. The bounding combination was the probable maximum surge with wind-wave activity + antecedent 10% exceedance high tide + PMF in the stream. This combined flooding scenario is included in the PMSS evaluation.

2.10 Hydrostatic and Hydrodynamic Loading

Total hydrostatic and hydrodynamic loading is calculated for various locations and presented in the FHRR. Total loads are generally low and not a concern.

2.11 Waterborne Projectiles and Debris

MSFHI PMSS and LIP WSEL's are not sufficient to convey waterborne projectiles of significant size; therefore, a waterborne projectile could not affect any SSCs at or above site grade. Sediment and debris loadings were not calculated. The drainage area for Seabrook consists mostly of concrete and paved surfaces which contain no or very few unconsolidated particles. Therefore, the Seabrook site cannot provide the amount of sediment necessary to lead to any significant accumulation and debris loading from sediment at the points of interest.

2.12 Low Water Effects

The low water value of (-)21.42 ft.-NAVD88 in the FHRR is not bounded by the CLB. However, the reevaluated low water level is well above the intake structures and above the service water pump minimum water level requirements and is therefore not a concern.

3. Comparison of MSFHI and FLEX DB flood hazards, NEI 12-06 Appendix G, Section G.3

Comparison of the FLEX Design Basis and MSFHI is performed below for Local Intense Precipitation (LIP) and hurricane induced storm surge (PMSS). All other flooding mechanisms reevaluated in the MSFHI are either bounded by the CLB/FLEX DB and/or do not present a flooding hazard and therefore do not require further evaluation.

Table 3-1 MSFHI Comparison to FLEX DB for LIP

	Flood Scenario Parameter	Plant Current License Basis (Ref. 5.6)	FLEX Design Basis Flood Hazard (Ref. 5.3 & 5.7)	MSFHI LIP (Ref. 5.2)	Bounded (B) or Not Bounded (NB) by FLEX DB
Flood Level and Associated Effects	1. Maximum Water Surface Elevation (WSEL)	20.7 ft. Plant Datum	See Note 1	See Note 2	NB
	2. Max Wave Run-up Elevation	Not Considered	Not Considered	See Note 3	B
	3. Max Hydrodynamic /Debris Loading	Not Considered	Not Considered	See Note 4	B
	4. Effects of Sediment Deposition/Erosion	Not Considered	Not Considered	See Note 5	B
	5. Concurrent Site Conditions	Not Considered	High Winds	High Winds	B See Note 6
	6. Effects on Groundwater	Not Considered	Not Considered	See Note 7	B
Flood Event Duration	7. Warning Time (hours)	Not Considered	0	0	B
	8. Period of Site Preparation (hours)	Not Considered	0	0	B
	9. Duration of Significant Flooding (hours)	Not Explicitly Discussed	Not Considered	See Note 8	NB
	10. Period of Recession (hours)	Not Considered	Not Considered	See Note 8	NB
Other	11. Plant Mode of Operations	All	All	All	B
	12. Other Factors	-	-	-	-

1. The current FLEX DB did not consider LIP specifically as the PMSS flood levels were considered bounding.
2. FLEX DB LIP WSEL of 19.93 ft.-NAVD88 (20.7 ft.-Plant Datum) is exceeded in many locations. See Attachment A for table of plant areas where FLEX strategies could be impacted by LIP flood levels.
3. LIP wave run-up is not considered in the MSFHI due to the minimal depth of water on site.
4. The FLEX DB did not consider hydraulic loading due to LIP as it is not a concern for the FLEX DB flood depths. Hydrostatic and hydrodynamic loading is calculated in the FHRR for the MSFHI flood levels. The resultant loads are generally very low and not considered a concern. Since hydrostatic/hydrodynamic loadings are not deemed to be a hazard, they are considered bounded by the FLEX DB.
5. The FLEX DB did not consider debris loading due to LIP. Sediment and debris loadings are not calculated in the MSFHI because the drainage area for Seabrook consists mostly of concrete and paved surfaces which contain no or very few unconsolidated particles. Therefore, the Seabrook site cannot provide the amount of sediment necessary to lead to any significant accumulation at the points of interest. Erosion is not considered a hazard at the calculated flood depths and flow rates. Since sediment deposition and erosion are not judged to be a hazard,

	they are considered bounded by the FLEX DB. 6. FLEX program timelines include debris removal for potential associated wind generated debris (Ref. 5.3). 7. Groundwater ingress is not expected during the LIP event as the surface around the power block is generally impervious asphalt or concrete pavement and the LIP event occurs over a very short timeframe (rainfall duration is one hour). Groundwater ingress for the MSFHI is therefore considered bounded by the FLEX DB. 8. LIP flood depth durations above plant door thresholds and floor levels were calculated in the FHRR (Ref. 5.2). The durations are considered Not Bounded and individual areas are evaluated in Section 4.

Table 3-2 MSFHI Comparison to FLEX DB for PMSS

Flood Scenario Parameter		Plant Current License Basis (Ref. 5.6)	FLEX Design Basis Flood Hazard (Ref. 5.3 & 5.7)	MSFHI Hurricane (Ref. 5.2)	Bounded (B) or Not Bounded (NB) by FLEX DB
Flood Level and Associated Effects	1. Max Water Surface Elevation (WSEL)	<21 ft (Plant Datum)	<21 ft (Plant Datum)	See Note 1	NB
	2. Max Wave Run-up Elevation (ft. MSL)	21.8 ft. Plant Datum	21.8 ft. Plant Datum	See Note 2	NB
	3. Max Hydrostatic/ Hydrodynamic Loading	Not Considered	Not Considered	See Note 3	B
	4. Effects of Sediment Deposition/Erosion	Not Considered	Not Considered	See Note 4	B
	5. Waterborne Projectiles	Not Considered	Not Considered	See Note 5	B
	6. Concurrent Site Conditions	Not Considered	High Winds	High Winds	B See Note 6
	7. Effects on Groundwater	Not Considered	Not Considered	See Note 7	B
Flood Event Duration	8. Warning Time (hours)	Not Considered	12-72	48-72	B See Note 8
	9. Period of Site Preparation (hours)	Not Considered	Not Considered	36 minimum	B See Note 8
	10. Period of Inundation (hours)	Not Considered	1-2	4	NB See Note 9
	11. Period of Recession	Not Considered	Included in 10 Above	2 (part of 10 above)	NB See Note 9
Other	12. Plant Mode of Operations	All Modes	Modes 3, 4 or 5	Modes 3, 4 or 5	B See Note 10
	13. Other Factors	-	-	-	-
	1. FLEX DB WSEL of 20.23 ft.-NAVD88 (21 ft.-Plant Datum) is exceeded in various locations. See Attachment A for plant areas where FLEX strategies could be impacted by PMSS flood levels. 2. The FLEX DB considers that a potential wave of 0.6 ft. could be supported in the limited depth of water on site and only impacts south and east walls of certain structures on the southern end of the site. Due to the minimal flood depth, wave generation on the site was not considered in the MSFHI. Wave runup was included in the calculations for overtopping of the seawall. However, the statement is made that the wave runup on building walls can be expected to be somewhat more than that described in the FLEX DB. The MSFHI PMSS flood depth is not bounded by the FLEX DB level including wave runup of 21.03 ft.-NAVD88 (21.8 ft.-Plant Datum) for one location. Further locations would exceed the FLEX DB when wave generation on site is considered.				

	Consideration is given for wave runup on the structures indicated in the CLB in assessment of the mitigating strategies. 3. The FLEX DB did not consider hydraulic loading due to PMSS as it is not a concern for the FLEX DB flood depths. Hydrostatic and hydrodynamic loading is calculated in the FHRR. The resultant loads are generally very low and not considered a concern. Since hydrostatic/hydrodynamic loadings are not deemed to be a hazard, they are considered bounded by the FLEX DB. 4. The FLEX DB did not consider sediment debris loading due to PMSS. Sediment and debris loadings are not calculated in the MSFHI because the drainage area for Seabrook consists mostly of concrete and paved surfaces which contain no or very few unconsolidated particles. Therefore, the Seabrook site cannot provide the amount of sediment necessary to lead to any accumulation at the points of interest. Erosion is not considered a hazard at the calculated flood depths and flow rates. Since sediment deposition and erosion are not judged to be a hazard, they are considered bounded by the FLEX DB. 5. The maximum water depths on site due to PMSS flooding are on the order of 1 – 2 feet and are transient in nature. The low levels and short durations will not support transport of debris of significant size, so no further evaluation of waterborne projectiles and debris loading is warranted. The MSFHI is therefore considered bounded by the FLEX DB for this associated affect. 6. FLEX program timelines include debris removal for potential associated wind generated debris (Ref. 5.3) 7. Groundwater ingress is not expected to be impacted by PMSS flooding levels. The surface around the power block is generally impervious asphalt or concrete pavement and the flooding depth and duration are not significant with regard to driving increased groundwater ingress. Groundwater ingress for the MSFHI is therefore considered bounded by the FLEX DB. 8. Storm surge probabilities, based on the National Hurricane Center (NHC) official advisory, are available approximately 48 hours in advance of hurricane force winds (Ref. 5.8). The NHC produces a set of updated storm surge probability graphics for every active hurricane watch or warning along any portion of the Gulf of Mexico or Atlantic coasts of the continental United States. These graphics are updated on the NHC website approximately 60-90 minutes following the issuance of NHC tropical cyclone advisory updates every six hours. References 5.4 and 5.5 require monitoring of the NOAA website to track weather conditions. Sufficient warning time is provided to ensure the site is in a hardened state that is well prepared to cope with the event. Given that the potential for a major hurricane is predicted well in advance (48-72+ hours), storm preparations are expected to be completed 48 hours prior to the arrival of tropical storm force winds including the CST and fuel oil tanks filled and on-site resources augmented (Ref. 5.5). As a minimum, 36 hours is available to install temporary flood barriers based upon entry into the site abnormal procedure for severe weather upon receipt of a Hurricane Watch for a Category 3 or greater hurricane (Ref. 5.4). 9. Overtopping of the seawall of any significance begins approximately two hours before the peak flood levels and reduces to an insignificant level approximately two hours after the peak. The site would essentially be drained at that time. 10. Hurricane based events provide sufficient warning time (48-72 hrs) that allows the plant to be Shutdown to Mode 3, 4 or 5 at least 2 hours prior to projected onset of hurricane force winds (Ref. 5.4).

4. Evaluation of Mitigating Strategies for the MSFHI, NEI 12-06 Appendix G, Section G.4

4.1 Assessment of Current FLEX Strategies, NEI 12-06 Appendix G, Section G.4.1

4.1.1 Local Intense Precipitation (LIP)

The major impact of a LIP event would be flooding through door gaps and floor drains into spaces required to implement the primary FLEX strategy. Primary FLEX strategies utilize the SEPS diesel generators to power installed plant equipment. No credit is taken for warning time or anticipatory actions other than ensuring credited flood doors are closed, which is not predicated on significant advance warning. The credited flood doors are all RCA Boundary and/or Fire Doors. Only one of them, Administration Building Door A134, could potentially be left open unattended and would be closed by ON1090.13 (Ref. 5.5). The following buildings important to FLEX are affected: Fuel Storage Building (FSB), Diesel Generator Building (DGB), Control Building (Essential Switchgear Rooms), Residual Heat Removal (RHR) Vaults, and the West Main Steam and Feedwater (MSFW) Pipe Chase. Affected areas with associated exterior LIP flood depths and height above door thresholds / floor elevations from the FHRR (Ref. 5.2) are listed in Attachment A.

Calculations and evaluation of flood water ingress into the areas listed above were performed to determine the impact of a LIP event on FLEX implementation with SEPS (Ref. 5.9). Flooding through doorways directly into the A Essential Switchgear Room, B Electrical Tunnel, A RHR Vault, and West MSFW Pipe Chase will not result in water levels that affect or prevent access to necessary equipment. Flood levels in the FSB will be limited to the truck bay, which will not impact FLEX. Any potential flooding in the DGB would be extremely minor and limited to the A Fuel Oil Storage Tank Room with no impact to FLEX. With modifications described below installed, limited duration LIP flooding from the Administration Building into lower levels will not exceed the holding capacity of the Unit 2 Tunnel or Waste Processing Building (WPB) prior to reaching a level that could introduce water into critical areas. Internal flooding from a LIP event will therefore not prevent implementation of primary FLEX SEPS available strategies as currently described.

Modifications are required to support this assessment. A flood protection feature in the RHR Vault hallway off the lower level walkway (RCA Tunnel) will be necessary to ensure flood water in the RCA Tunnel is directed to the Unit 2 Tunnel or WPB. Minor modifications consisting of improved door seals are also required for several doors to limit flood water ingress. A floor drain and portions of the metal sided structure in the Alternate RP Checkpoint area require sealing to prevent water ingress from LIP flooding. All critical doors are currently inspected annually (Ref. 5.10). Gap measurements will be added to annual inspections for the doors where inflows were calculated and assumed a maximum gap. The doors requiring modification are listed below:

- A134, Administration Building stairwell entrance to RCA Tunnel
- C102, A ESWGR Room doorway into Turbine Building
- EM401, EM402, and EM414, exterior doors in Containment Personnel Hatch area

Due to the short duration of the LIP event, alternate strategies involving portable equipment in protected storage are not affected. Flood waters will recede very quickly after the one hour LIP event given the topography of the Seabrook site. Assuming an ELAP occurs during the one hour LIP event due to flooding greater than current design/licensing basis levels; there is margin in the timeline to account for flood levels rising and receding prior to any required actions performed outside. Flooding in the structures described above will not impact implementation of FLEX portable equipment strategies with one minor exception. The alternate Steam Generator makeup connections in the lower level of the West MSFW

Pipe Chase will potentially not be accessible. Loss of this tertiary strategy for the flood hazard only is acceptable in accordance with NEI 12-06 (Ref. 5.11). The turbine driven Emergency Feedwater (TDEFW) pump and portable pump with primary connection point would still be available. Portable equipment can be mobilized as currently described after flood waters have receded.

Flooding in the Service Water Pump House (SWPH) and locations described above will not be of sufficient depth to affect protected FLEX portable equipment. Therefore, upon implementation of required modifications and procedure changes, a LIP flooding event will not affect implementation of current FLEX primary or alternate strategies.

4.1.2 Probable Maximum Storm Surge (PMSS)

Similar to LIP, a major effect of flooding from hurricane induced storm surge with wind/wave action would be flooding through door gaps into spaces required to implement the primary FLEX strategy (i.e., SEPS). PMSS flooding duration also impacts the ability to implement alternate FLEX strategies involving deployment of portable equipment. Flood depths and height above door thresholds / floor elevations from the FHRR for affected structures are listed in Attachment A.

Additional wave generation on site is not directly calculated in the FHRR due to the minimal water depth and available fetch. FLEX DB includes a wave runup effect on the south and east walls for structures on the south end of the site (Ref. 5.3, 5.6). Assessments performed for areas affected by PMSS flooding included evaluation of additional flood depth from on-site generated waves where appropriate.

Sufficient hurricane warning is available from the National Hurricane Center of the National Oceanic and Atmospheric Administration (NOAA, Ref. 5.8) to perform anticipatory actions prior to the arrival of the hurricane. The NOAA website is monitored in accordance with Reference 5.4 and 5.5. Placing the unit in Hot Standby (Mode 3) is required in advance of a major (Category 3) hurricane at least two hours prior to the projected onset of hurricane force winds (Ref. 5.4). Augmented staffing is established and retained through the event including additional Operations and Maintenance personnel (Ref. 5.5).

Anticipatory actions for a major hurricane include installation of sandbags, sealing of floor drains, and installation of a flood gate to prevent flood waters from entering critical areas (Ref. 5.5). Preemptive actions were put in place as interim measures after the FHRR was submitted. An informal evaluation was completed to validate that the required actions could be performed in the allotted time frame. In order to satisfy NEI 12-06 requirements, formal Level B validation will be required for these actions in accordance with Appendix E.

PMSS flooding duration is approximately four hours, two hours on either side of the peak. Assuming a reasonable mechanistic timing for ELAP, it will be presumed to occur at the approximate time that flood depths exceed FLEX DB levels, which is approximately one hour before peak flooding.

PMSS flooding into critical spaces required for implementation of the primary FLEX strategy (SEPS) is prevented by anticipatory actions. FLEX procedures utilizing SEPS can be implemented as written for PMSS flooding. Modifications to protect the SEPS switchgear and electrical vault area are required to support this assessment. To ensure robustness, sandbag dike installation instructions will be enhanced to ensure US Army Corps of Engineers guidance (Ref. 5.12, 5.13) is followed. The following changes will be made to sandbagging strategies based on Reference 5.9:

- Add installation of sandbags at Service Water Cooling Tower Doors CT102 & CT103.
- Add installation of sandbags at East Main Steam and Feedwater Pipe Chase Door EM408.
- Move sandbag dike at Door C119 to Door C118.
- The sandbag dike in the Door EM401 hallway will be moved to individual dikes in Doors EM401 and EM414.
- Delete sandbags at Doors C100, C101, & F203

Implementation of existing alternate strategies involving deployment of protected portable equipment will be affected due to the duration of flooding and high winds on site. Based on conservative estimates of when the site can safely be accessed; and duration for initial debris removal, deployment of portable equipment can commence eight hours after ELAP (Ref. 5.9). Implementing procedures for alternate FLEX strategies require deployment of the portable 480V diesel generator to be completed by that point in time; with other actions performed in sequence after that. Therefore implementing procedures for portable equipment strategies cannot be performed as currently written when PMSS flooding is considered. FLEX portable equipment strategies can be implemented as designed with a modified timeline specific to a hurricane event with significant PMSS flooding. This would be considered a modified FLEX strategy in accordance with NEI 12-06 Section G.4.2 as opposed to an Alternate Mitigating Strategy as defined in Section G.4.3. The modified FLEX strategy is assessed in the Section 4.2.

Flood waters will enter the Service Water Pump House, but not to a depth that affects FLEX portable equipment stored in that location. Depth is limited by openings that drain water into the forebay. With ocean water intakes far removed from shore, forebay level will be significantly lower than the storm surge level in Hampton Harbor. FLEX equipment protection requirements of NEI 12-06 Section 6.2.3.1 (Ref. 5.11) therefore continue to be met.

4.2 Assessment for Modifying FLEX Strategies, NEI 12-06 Appendix G, Section G.4.2

Timing of FLEX implementation will be modified for the limited scenario involving deployment of portable equipment after extreme hurricane induced PMSS flooding. Equipment deployment for alternate FLEX strategies starts at the six hour mark in current FLEX implementation procedures. A new timeline will be created to extend the time allowed for certain required actions based on the required preemptive shut down of the reactor and/or sufficient margin in the existing timelines. The new hurricane specific timeline would start deployment of portable equipment at eight hours. Detailed evaluation of the new hurricane specific timeline is included in Reference 5.9 and summarized below. All hour designations in this section are in reference to time after ELAP.

Time Sensitive Actions (TSAs) with start time and time constraint delays of approximately two hours include repowering a Vital Battery Charger, restoration of power to critical MCCs, RCS boration, and CST makeup. Some sub-tasks can be performed while waiting for flooding and winds to subside. These actions will shorten the duration or provide additional resources for performance of the delayed TSAs. Some equipment can also be pre-staged

in a protected deployment location prior to hurricane arrival. Pre-staging equipment, early performance of sub-tasks, augmented staffing, and conservative assumptions for safe site access after the hurricane will add margin to substantially mitigate the reduction in margin inherent in the implementation delay.

Repowering a battery charger is the most time critical action. Maximum Vital Battery life can be extended to 12 hours based on early deep load shed (Ref. 5.14). Currently, the TSA start time for repowering a battery charger is six hours with a time constraint of eight hours. This time frame provides substantial margin from the 12 hour maximum battery life. The start time for repowering a battery charger can safely be extended to eight hours with a time constraint of ten hours. Local power distribution equipment stored in the Essential Switchgear Rooms will be deployed early while waiting for the storm to subside. Additional margin exists in the battery life calculation such as the assumption that no load is shed until the two hour mark and that the allowed performance time for repowering a battery charger is two hours. Both of these activities were demonstrated to be performed within one hour during the validation process. Based on the additional margin built into the modified timeline, demonstrated margin in performance times, and the augmented resources available, the reduction in margin due to the revised time constraint of ten hours for repowering a battery charger was determined to be acceptable for this limited scenario.

Restoration of MCC-111 and MCC-231 is less time critical and is performed in conjunction with repowering a vital battery charger. Both actions are accomplished with deployment of the same portable 480V diesel generator. Establishing ventilation in the Control Room and MSFW Pipe Chases is dependent on restoration of power to MCC-111/231. Ventilation actions for these two areas currently required by the eight hour mark can be extended to 12 hours (Ref. 5.9).

Current TSA time constraint of ten hours to commence RCS boration contains significant margin. Westinghouse evaluation of RCS makeup and boration determined this action is not required for 20 hours (Ref. 5.15). A two hour delay in the start of this activity from the seven hour mark to nine hours is therefore acceptable. The FLEX high pressure pump used to accomplish RCS boration will be pre-deployed to the Primary Auxiliary Building (PAB) as part of hurricane preparations; reducing the time to perform the activity to less than one hour. The TSA time constraint will therefore only be extended from 10 to 11 hours.

Deployment of equipment for Condensate Storage Tank (CST) makeup can be delayed based on extended coping time due to the preemptive shut down of the reactor. Coping time for the CST as a suction source for the TDEFW pump is conservatively extended from 15 hours to 17 hours under these conditions (Ref. 5.9). Accordingly, the TSA start time and time constraint are revised to 11 hours and 13 hours respectively versus 9 and 11 hours.

A modified FLEX timeline and TSAs as described above will allow existing FLEX strategies to be implemented as designed for a major hurricane with significant PMSS flooding.

4.3 Conclusions

LIP external flooding will result in minimal internal flooding in critical areas. Internal flood depths will not impact equipment or pathways required for FLEX. FLEX can therefore be implemented without modification for a LIP event. The following actions are required to support this assessment:

- Modify the following doors credited for mitigating flood water ingress to reduce gaps:
  - A134, Administration Building stairwell entrance to RCA Tunnel
  - C102, A ESWGR Room doorway into Turbine Building
  - EM401, EM402, and EM414, Alternate RP Checkpoint / Containment Personnel Hatch areas
- Revise flood door surveillance procedure to ensure gaps are maintained for the doors listed above and Door P901
- Add flood protection feature to the RHR Vault hallway off the RCA Tunnel walkway to ensure flooding is routed to the Unit 2 Tunnel or Waste Processing Building
- Seal the floor drain and portions of the metal siding in the Alternate RP Checkpoint area

Hurricane preparations will mitigate the potential for internal flooding from PMSS flooding in critical areas. Primary FLEX strategies utilizing the SEPS diesel generator units can be implemented without modification for a PMSS event. The following actions are required to support this assessment:

- Add flood protection features to the SEPS switchgear and electrical vault areas to mitigate PMSS flooding
- Revise sandbag strategies as described in Section 4.1.2
- Revise storm preparation procedures to enhance sandbag dike installation instructions to include additional information from US Army Corps of Engineers guidance (Ref. 5.12, 5.13)
- Perform validation for anticipatory actions in accordance with NEI 12-06 Appendix E

PMSS flooding duration and subsequently delayed debris removal activities will require a delayed start to TSAs for FLEX alternate portable equipment strategies. The FLEX program can be modified to allow successful implementation of portable equipment strategies after flooding related to hurricane induced PMSS flooding. The modified FLEX strategies maintain sufficient margin in the revised timeline compared to calculated implementation requirements. Pre-staging of equipment, early performance of sub-tasks, augmented staffing, and conservative assumptions for safe site access after the hurricane will add margin to substantially mitigate the reduction in margin inherent in the implementation delay. The following actions are required to support this assessment in addition to the required actions for PMSS above:

- Revise the FLEX program to include a hurricane specific timeline for alternate portable equipment strategies
- Revise the FLEX program to include hurricane specific TSAs
- Validate new TSAs as required by NEI 12-06 (Ref. 5.11)
- Revise the FLEX Program to relax time constraints for ventilation actions
- Revise FLEX implementation procedures as required to support the above
- Revise storm preparation procedures to pre-stage the FLEX high pressure pump in the PAB prior to a major hurricane

FLEX strategy changes only affect the timing of existing required actions and thus remain in compliance with the applicable sections of NEI 12-06 and NRC Order EA-12-049.

Revaluated LIP and PMSS flood depths do not affect compliance with NEI 12-06 FLEX equipment storage and protection requirements.

Required actions for modifications and program/procedure revisions are tracked within the site Action Tracking System and will be developed and issued/implemented once the MSA is accepted by the NRC.

5. References

5.1 NRC Letter to Seabrook, Seabrook Station, Unit 1 – Interim Staff Response to Reevaluated Flood Hazards Submitted in Response to 10 CFR 50.54(f) Information Request – Flood-Causing Mechanism Reevaluation, dated December 21, 2016, (MSFHI Letter, ADAMS Accession Nos. ML16356A468 and ML16347A175)

5.2 NextEra Energy Seabrook Letter SBK-L-16175 to NRC, Response to NRC 10CFR50.54(f) Request for Information Regarding Near-Term Task Force Recommendation 2.1, Flooding – Submittal of Flooding Hazards Reevaluation Report, dated November 7, 2016 (ADAMS Accession No. ML 16314D429)

5.3 Diverse and Flexible Coping Strategies (FLEX) Program (DFCS), Rev. 1

5.4 Seabrook Procedure OS1200.03, Severe Weather Conditions, Rev. 28

5.5 Seabrook Procedure ON1090.13, Response to Natural Phenomena Affecting Plant Operations, Rev. 13

5.6 Seabrook Updated Final Safety Analysis Report Section 2.4, Hydrologic Engineering, Rev. 17

5.7 NextEra Energy Seabrook Letter SBK-L-16175 to NRC, Status of Required Actions for EA-12-049 Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events [Submittal of Final Integrated Plan (FIP)], dated July 26, 2016

5.8 National Oceanic and Atmospheric Administration (NOAA), NOAA National Weather Service (NWS), National Hurricane Center, available at: http://www.nhc.noaa.gov/

5.9 Engineering Evaluation EE-17-005, Beyond Design Basis Flooding Mitigating Strategy Assessment, Rev. 0 (EC288388 Rev. 0)

5.10 NextEra Energy Fleet Procedure OP-AA-102-1002, Seasonal Readiness, Rev. 18

5.11 NEI 12-06, Diverse and Flexible Coping Strategies (FLEX) Implementation Guide, Rev. 2 [Note: Revision 2 was used in development of this MSA based on the MSFHI Letter (Ref. 5.1). Revision 4 has since been accepted by the NRC. Changes from Rev. 2 to Rev. 4 do not impact the content of this MSA or supporting evaluations.]

5.12 Flood Fight Handbook, US Army Corps of Engineers St. Paul District, 2016

5.13 Sandbagging Techniques, US Army Corps of Engineers, Northwestern Division, 2004

5.14 Calculation SBC-227-CALC, DC System Evaluation for Station Blackout and Beyond Design Basis External Events, Rev. 7

5.15 Westinghouse Calculation CN-SEE-II-15-3, RCS FLEX Evaluation with Low-Leakage Coolant Pump Seal Packages, Rev. 1 (FP100957 Rev. 0)

6. Enclosures

Attachment A Critical Plant Areas Impacted By LIP or PMSS Flooding

Mitigating Strategies Assessment for New Flood Hazard Information
Seabrook Station

Attachment A Critical Plant Areas Impacted By LIP or PMSS Flooding

Critical SSC (Note 1, 2)	Associated POIs / Door #'s (Note 1)	Floor/Threshold Elevation (ft. NAVD88) (Note 3)	LIP WSEL (ft. NAVD88) (Note 3	PMSS WSEL (ft. NAVD88) (Note 3)	LIP Height Above Floor/Threshold (in.)	PMSS Height Above Floor/Threshold (in.)	Comments
Service Water Pump House (SWPH)	4-7 SW100/105	20.23	20.69	20.77	5.5	6.5	Flood depth will not impact FLEX equipment stored in SWPH.
Fuel Storage Building (FSB)	19, 20 F203/204	20.73	20.78	20.02 (Ground El.)	0 (Note 4)	0 (Note 5)	EL. 20.73 FT. NAVD88 is the SFP Hx area. The two doors in the truck bay are at El 19.73 ft.-NAVD88. There is no relevant equipment in the truck bay.
Diesel Generator Building (B FOST)	33 D305	20.76	20.52	21.09	N/A	4.0	Door is sandbagged in anticipation of a major hurricane.
Diesel Generator Building (A FOST)	34 D300	20.74	20.73	21.34	N/A	7.2	Door is sandbagged in anticipation of a major hurricane.
A Essential Switchgear Room	36, 58 C100/101/ 102	20.73	21.26	20.63	6.4	N/A	LIP flooding will not impact FLEX strategy or equipment. Doors are sandbagged in anticipation of a major hurricane.
A RHR/CBS/SI Vault (Note 6)	30-32 P900/901	19.90	20.70 (Note 7)	20.89	9.6	11.9	LIP flooding will not impact FLEX strategy. Door is sandbagged in anticipation of a major hurricane.
	37, 38 43-46 Admin Bldg	20.23	20.87	20.95	7.7	8.6	Modifications will be installed to mitigate the LIP flood hazard from these flow paths into the RHR Vault. Flood barriers are installed in anticipation of a major hurricane.
	59, 60, 61 EM401/402/ 414	20.39	21.77	20.92	16.6	6.4	Modifications will be installed to mitigate the LIP flood hazard from these flow paths into the RHR Vault. Flood barriers are installed in anticipation of a major hurricane.
West Main Steam & FW Pipe Chase	59, 60 EM402	20.39	21.77	20.92	16.6	6.4	The lower level of the west pipe chase will be flooded during LIP; however this will only impact the alternate connection point for SG makeup. Door is sandbagged in anticipation of a major hurricane.
SEPS Electrical Vault	67-70	20.40	20.29	21.23	N/A	10.0	Modifications will be installed to mitigate the PMSS flood hazard.

Note 1: The Critical SSCs have been grouped by internal location vs. exterior door area. Values will therefore differ slightly from FHRR Table 6-1. Points of Interest (POI) are shown on the following pages of this attachment.

Note 2: The East MS&FW Pipe Chase (Door EM408), SW Cooling Tower (Doors CT102 & CT103), and SEPS Switchgear Enclosure are affected by PMSS flooding when on-site generated waves are considered.

Note 3: Floor/Threshold elevations are taken from the FHRR or plant drawings if not directly available in the FHRR. Data is for limiting case.

Note 4: The FSB has two doors into the truck bay (POI 19 & 20), a large rollup door (F204) and a personnel door (F203). The truck bay floor elevation is 19.73 ft.-NAVD88 (20.5 ft.-Plant Datum). The personnel door will see a LIP WSEL of 20.78 ft. and at the rollup door it will be 20.19 ft. Since the rollup door has much more gap area around it, the level in the FSB truck bay will be less than the average of the two depths and thus below the critical 20.73 ft. elevation.

Note 5: The calculated PMSS depths are 0 at these points. There will likely be some water present at these locations when on-site generated wave action is considered. However it will not exceed the 20.73 ft.-NAVD88 elevation where flooding would impact plant equipment or FLEX strategies.

Note 6: There are several flow paths for flood waters to enter the RHR Vault. One flow path through the vault's exterior door (P900, POI 30) will result in minimal water in the vault and have no impact. The other flow paths enter the vault from the Administration Building (POIs 37, 38, 43-46) and RCA Alt. Checkpoint (POI 60, 61) through the RCA Tunnel at PAB El. +5 ft. (Plant Datum).

Note 7: LIP WSEL value is extrapolated from the increase in WSEL from POI 32 to 31.

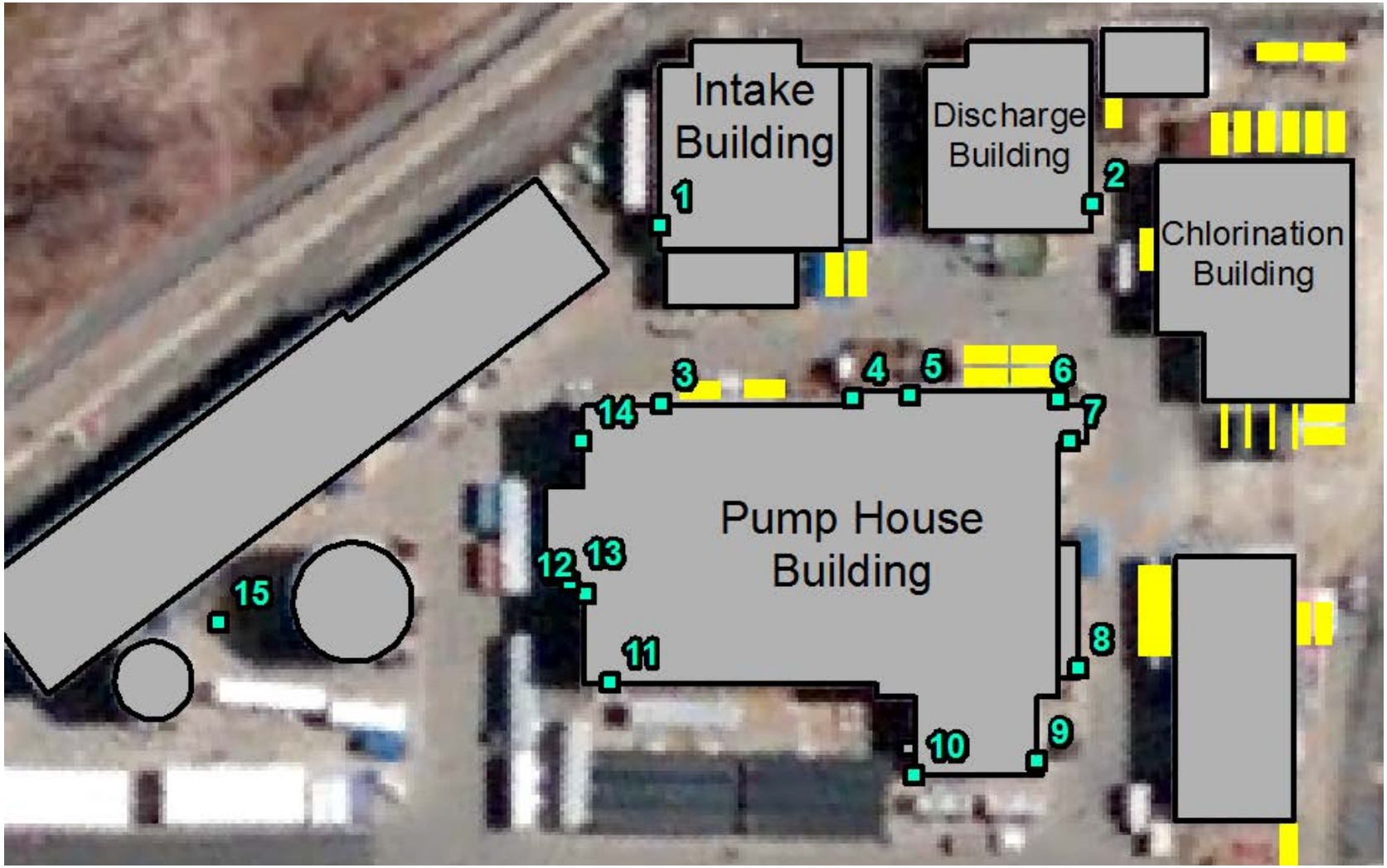
Mitigating Strategies Assessment for New Flood Hazard Information
Seabrook Station

Flooding Point of Interest (POI) Locations

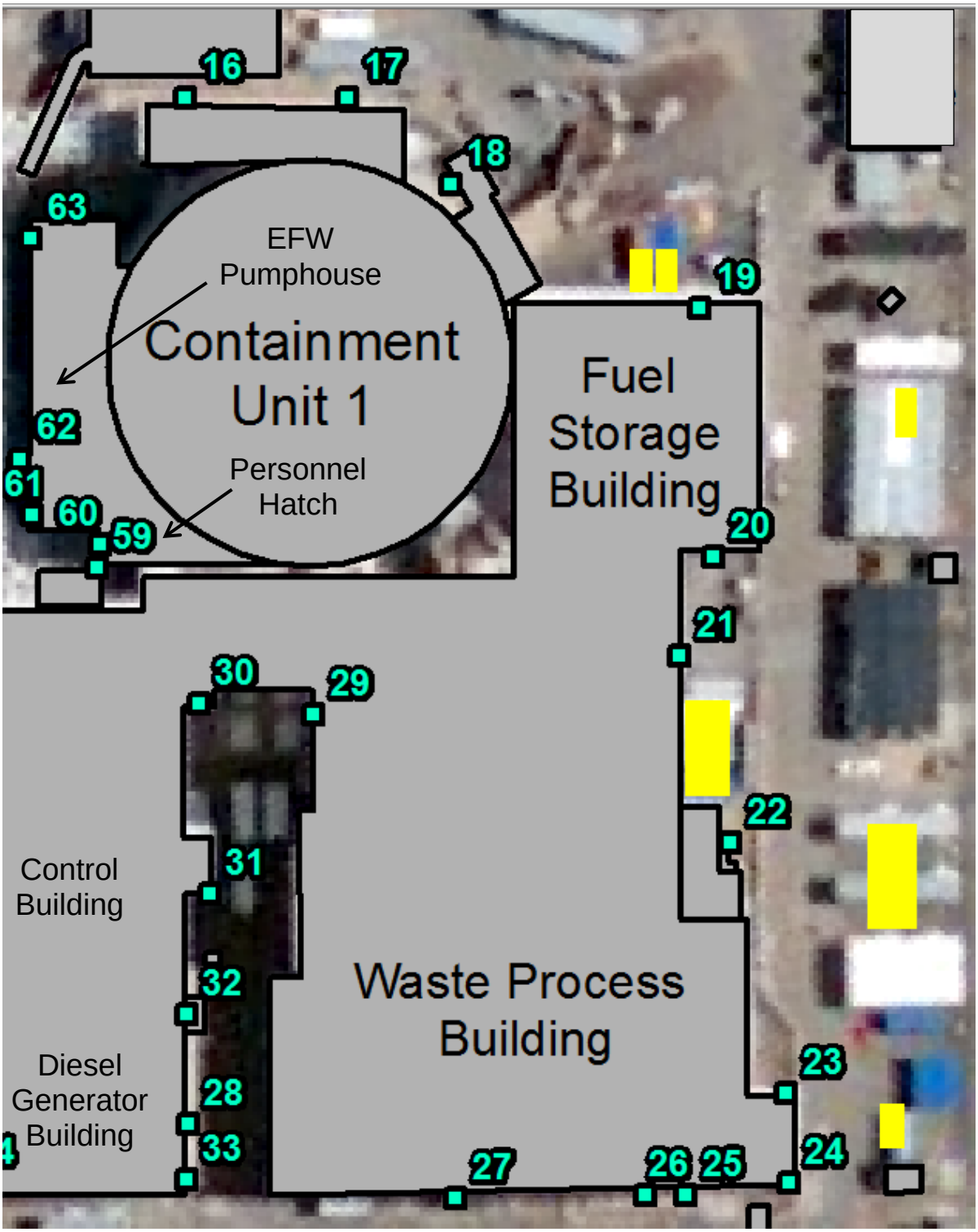
POI	Description
1	Intake Structure
2	Discharge Structure
3	CWPH
4	CWPH
5	SWPH
6	SWPH Missile Barrier
7	SWPH
8	SWPH Roof Stair
9	SWPH-Elec.
10	SWPH-Elec.
11	CWPH
12	CWPH
13	CWPH
14	CWPH
15	East CR HVAC Intake
16	East Pipe Chase
17	East Pipe Chase
18	Equip. Hatch Entry
19	FSB - Personnel Door
20	FSB - Overhead Door
21	PAB
22	RCA Tunnel
23	Asphalt Building
24	Asphalt Building
25	WPB

POI	Description
26	WPB
27	WPB
28	B DG Bldg Vents
29	PAB
30	RHR Vault
31	B ESS SWGR
32	DG Bldg
33	DG Bldg
34	DG Bldg
35	A DG Bldg Vents
36	Non-Ess SWGR
37	Administration Bldg
38	Storage
39	Storage
40	Storage
41	Storage
42	Storage
43	Administration Bldg
44	Administration Bldg
45	Administration Bldg
46	Administration Bldg
47	Administration Bldg
48	Administration Bldg
49	Administration Bldg
50	Administration Bldg

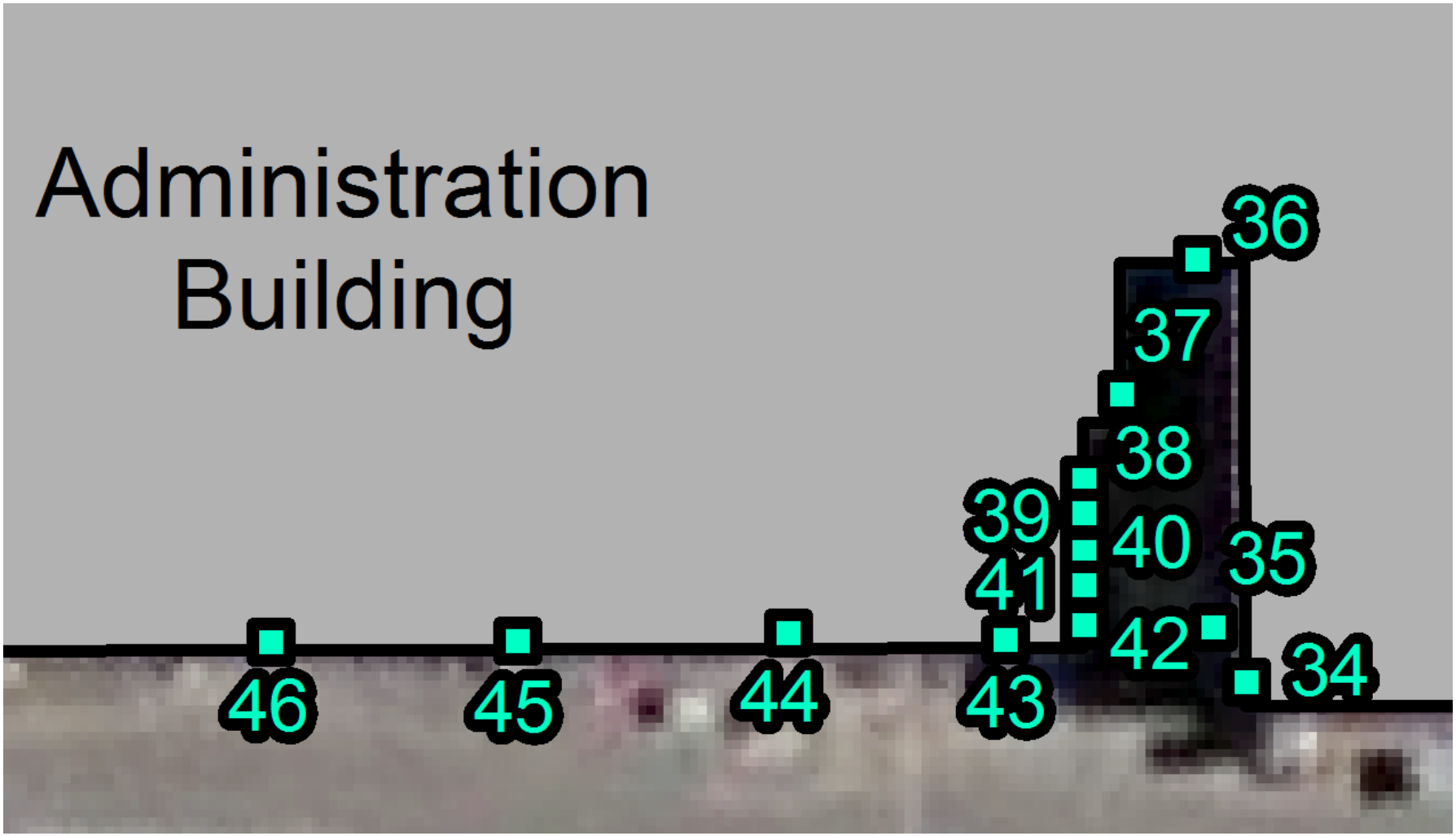
POI	Description
51	Administration Bldg
52	Turbine Building
53	Turbine Building
54	Turbine Building
55	Turbine Building
56	Turbine Building
57	Turbine Building
58	Turbine Building
59	Storage
60	RCA Ckpt / Cont. Hatch
61	RCA Checkpoint
62	EFW Pump Room
63	FP Room
64	Cooling Tower
65	West CR HVAC Intake
66	Cooling Tower
67	SEPS - Elec
68	SEPS - Elec
69	SEPS - Elec
70	SEPS - Elec
71	SEPS - SWGR
72	SEPS - SWGR
73	SEPS - SWGR
74	SEPS – DG 2A
75	SEPS – DG 2B



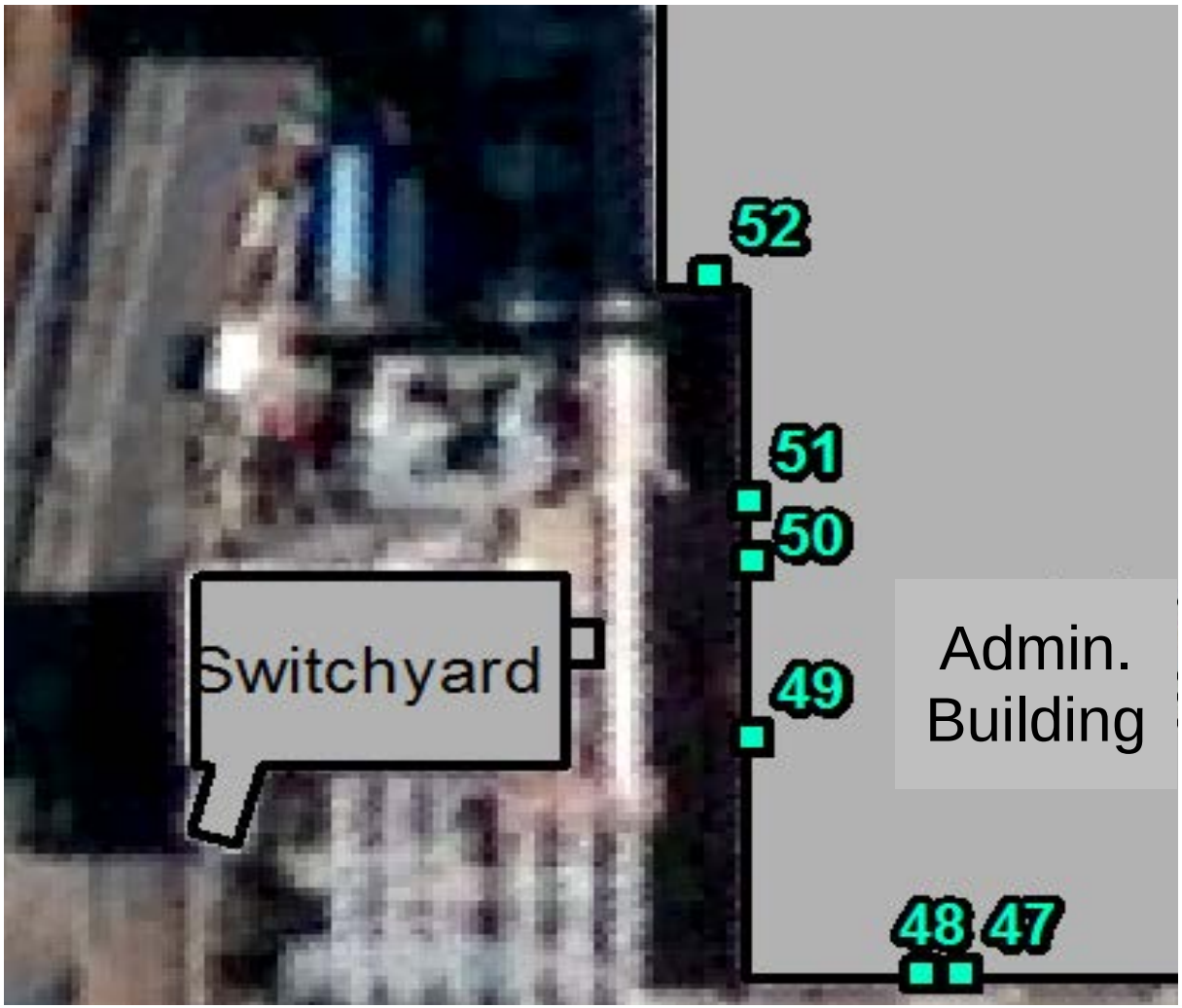
Points of Interest 1-15



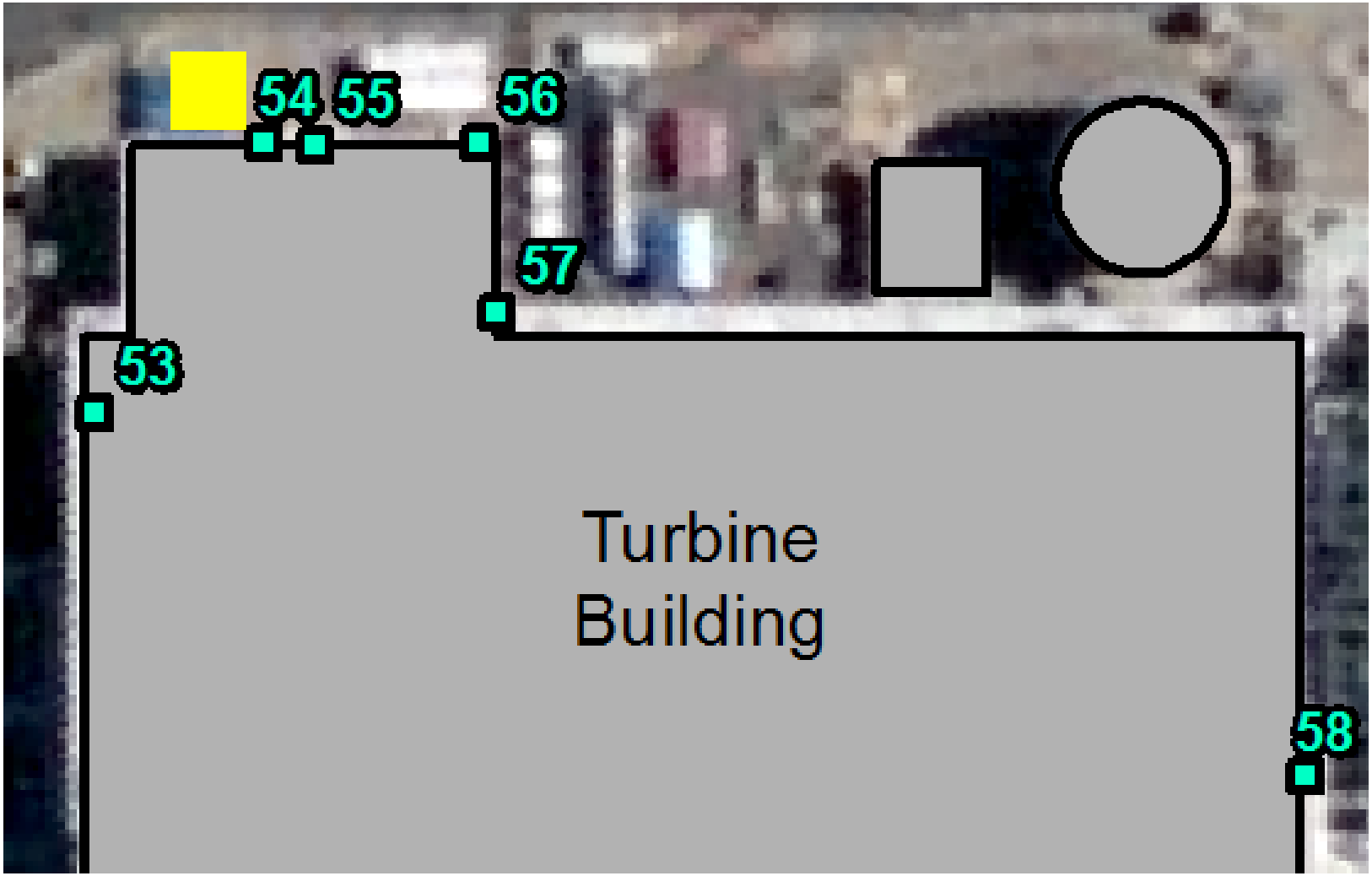
Points of Interest 16-33 and 59-63



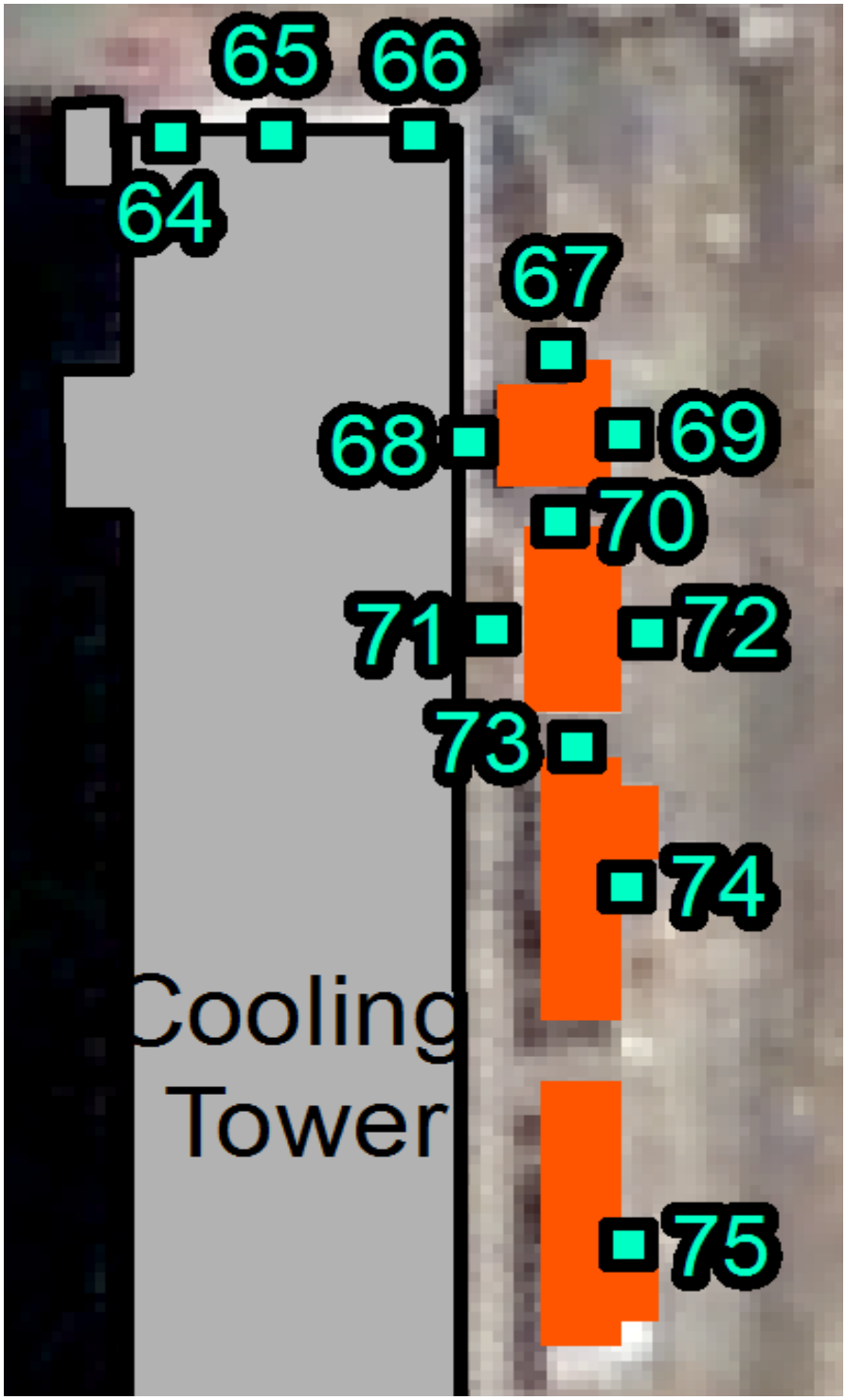
Points of Interest 34-46



Points of Interest 47-52



Points of Interest 53-58



Points of Interest 64-75 (SEPS)