



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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VIA ELECTRONIC MAIL

July 7, 2016

TO: Parties and Intervenors

FROM: Melanie Bachman, Acting Executive Director *NAB*

RE: **PETITION NO. 1218** – PSEG Power Connecticut LLC petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the construction, maintenance, and operation of a new 485 megawatt (MW) dual fuel combined-cycle electric generating facility at the existing Bridgeport Harbor Station located at 1 Atlantic Street, Bridgeport, Connecticut.

As stated at the hearing in Bridgeport on May 5, 2016, after the Connecticut Siting Council (Council) issues its draft findings of fact, parties and intervenors may identify errors or inconsistencies between the Council's draft findings of fact and the record; however, no new information, evidence, argument, or reply briefs will be considered by the Council.

Parties and Intervenors may file written comments with the Council on the Draft Findings of Fact issued on this petition by July 14, 2016.

MB/MP/lm

Enclosure

<p>PETITION NO. 1218 – PSEG Power Connecticut LLC petition } for a declaratory ruling that no Certificate of Environmental } Compatibility and Public Need is required for the construction, } maintenance, and operation of a new 485 megawatt (MW) dual } fuel combined-cycle electric generating facility at the existing } Bridgeport Harbor Station located at 1 Atlantic Street, Bridgeport, } Connecticut.</p>	<p>Connecticut Siting Council July 7, 2016</p>
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DRAFT Findings of Fact

Introduction

1. On March 9, 2016, PSEG Power Connecticut LLC (PSEG or Petitioner) pursuant to Connecticut General Statutes (C.G.S.) §16-50k and §4-176(a), submitted a petition (Petition) to the Connecticut Siting Council (Council) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the construction, maintenance, and operation of a 485 megawatt (MW) dual fuel combined-cycle electric generating facility at the existing Bridgeport Harbor facility site at 1 Atlantic Street, Bridgeport, Connecticut. (PSEG 1, pp. 1 and 3)
2. The purpose of the proposed project is to develop and operate an independent power production facility in the wholesale electric power market operated by ISO New England, Inc. (ISO-NE). (PSEG 1, p. 1)
3. PSEG provided notice of its Petition to all abutting property owners, federal, state and local officials and agencies identified in the Regulations of Connecticut State Agencies (RCSA) § 16-50j-40(a). (PSEG 1, p. 2 and Tabs L and M)
4. PSEG is the Connecticut operating company subsidiary of PSEG Fossil LLC, which itself is wholly owned by PSEG Power LLC. PSEG Power LLC is an independent power producer that generates and sells electricity in the wholesale market. PSEG Power LLC is a subsidiary of Public Service Enterprise Group Incorporated. (PSEG 1, pp. 11-12; PSEG 1, Tab J – Environmental Justice Plan, Combined Cycle Project Fact Sheet)
5. The proposed project is eligible for approval by declaratory ruling pursuant to C.G.S. 16-50k(a) because it is an electric generating facility that would be located at a site where an electric generating facility existed prior to July 1, 2004. Specifically, Bridgeport Harbor Unit #1 (BHU #1), a coal-fired facility, became operational in 1957. A second coal-fired generating unit, Bridgeport Harbor Unit #2 (BHU #2), was added to the plant in 1961 and later converted to burn oil exclusively. BHU #1 and BHU #2 are no longer in service. Additionally, Bridgeport Harbor Units #3 and #4 were installed in the 1960s and are explained further below in FOF #5. (PSEG 1, p. 1 and Tab A, p. 8-2)
6. Currently, the Bridgeport Harbor facility contains two active electric generating units:
 - a) Bridgeport Harbor Unit #3 (BHU #3) is a coal-fired steam unit with summer output of approximately 384 MW. This unit went into service on August 1, 1968; and
 - b) Bridgeport Harbor Unit #4 (BHU #4) is a peaking combustion turbine that burns jet fuel and has a summer output of approximately 17 MW. This unit went into service on October 1, 1967. (Council Administrative Notice Item No. 14, p. 2.1.48; PSEG 1, p. 4; PSEG 1, Tab A, p. 8-2; Transcript 1 – May 5, 2016, 3:00 p.m. [Tr. 1], pp. 20-21, and 71)
7. The proposed generating unit would be identified as Bridgeport Harbor Unit #5 (BHU #5). The primary fuel would be natural gas. The secondary or backup fuel would be ultra-low sulfur diesel (ULSD). (PSEG 1, pp. 2, 4 and 18-19; Tr. 1, p. 63)

8. ISO-NE conducts annual forward capacity auctions (FCA) to solicit electric capacity resources to meet its anticipated needs for New England three years in advance in order to allow time for such resources to be developed. These capacity resources can include traditional electric power generation, renewable generation, or demand-side resources such as load management and energy efficiency measures. (PSEG Administrative Notice Item No. 3, pp. 2-3)
9. The latest FCA, known as FCA #10, was conducted on February 8, 2016. PSEG was notified on February 10, 2016 that the proposed project had been selected to provide both energy and capacity beginning June 1, 2019 consistent with the purchasing needs of ISO-NE. PSEG's summer capacity supply obligation under FCA #10 is 484.3 MW or close to 485 MW. (PSEG 1, p. 3; PSEG 1, Tab A, pp. 1-3 and 1-4; PSEG 2, response 7)
10. If the proposed BHU #5 project is approved, PSEG is committed to retiring BHU #3 by July 1, 2021 as part of the Community Environmental Benefit Agreement (CEBA). (PSEG 1, p. 8)
11. With the retirement of the approximately 384 MW BHU #3 and its replacement with the proposed approximately 485 MW BHU #5, the net summer power output increase would be close to 100 MW. (PSEG 1, pp. 4 and 8; Tr. 1, pp. 20-21, and 84)
12. The party in this proceeding is the Petitioner. The United Illuminating Company (UI) is an intervenor in this proceeding. (Tr. 1, p. 5)

Council Procedures

13. Upon receipt of the Petition, on March 11, 2016, the Council sent a letter to the City of Bridgeport as notification that the Petition was received and is being processed in accordance with C.G.S. §4-176(c). (Council correspondence dated March 11, 2016)
14. During a regular Council meeting on March 31, 2016, the Petition was deemed complete pursuant to RCSA § 16-50j-39a, and a public hearing schedule for the project was established by the Council. (Council Meeting Minutes of March 31, 2016)
15. Pursuant to §16-50m, the Council published a legal notice indicating the date and time of the May 5, 2016 public hearing and field review in The Connecticut Post on April 5, 2016. (Record)
16. Pursuant to C.G.S. § 16-50m, on April 1, 2016, the Council sent a letter to the City of Bridgeport to provide notification of the scheduled public hearing and to invite the municipality to participate in the proceeding. (Record)
17. On April 13, 2016, the Council held a pre-hearing teleconference on procedural matters for parties and intervenors to discuss the requirements for pre-filed testimony, exhibit lists, administrative notice lists, expected witness lists, filing of pre-hearing interrogatories and the logistics of the public inspection of the site scheduled for May 5, 2016, at the Office of the Council. The Petitioner and intervenor UI were the only participants. (Council Pre-hearing Conference Memorandum dated April 13, 2016)
18. In compliance with R.C.S.A. §16-50j-21, PSEG erected a sign at 1 Atlantic Street, Bridgeport. The sign included the Petitioner's name, type of facility proposed, the date and location of the Council's public hearing, and contact information for the Council. (Tr. 1, pp. 19-20)

19. Pursuant to C.G.S. § 16-50m, the Council, after giving due notice thereof, held a public hearing on May 5, 2016, beginning at 3:00 p.m. and continuing at 7:00 p.m. at the Bridgeport City Hall, Council Chambers, 45 Lyon Terrace, Bridgeport, Connecticut. (Council's Hearing Notice dated April 1, 2016; Tr. 1, p. 1; Transcript 2 – May 5, 2016, 7:00 p.m. [Tr. 2], p. 1)
20. The Council and its staff conducted an inspection of the proposed site on May 5, 2016. (Council's Hearing Notice dated April 1, 2016; Tr. 2, p. 5)

State Agency Comment

21. Pursuant to C.G.S. § 16-50j (g), on April 1, 2016 and May 27, 2016, the following State agencies were solicited by the Council to submit written comments regarding the proposed facility: Department of Energy and Environmental Protection (DEEP); Department of Public Health (DPH); Council on Environmental Quality (CEQ); Public Utilities Regulatory Authority (PURA); Office of Policy and Management (OPM); Department of Economic and Community Development (DECD); Department of Agriculture (DOAg); Department of Transportation (DOT); Connecticut Airport Authority (CAA); Department of Emergency Services and Public Protection (DESPP); Department of Consumer Protection (DCP); Division of Construction Services (DCS) under Department of Administrative Services; Department of Labor (DOL); and State Historic Preservation Office (SHPO). (Record)
22. The Council received a response from the DOT's Bureau of Engineering and Construction on April 19, 2016 indicating that DOT has no comments on the proposed project. (DOT Comments dated April 19, 2016)
23. The Council received a response from the Drinking Water Section (DWS) of the DPH on April 22, 2016 indicating that the proposed project does not appear to be located in a public water supply source water area. (DPH Comments received April 22, 2016)
24. The Council received a response from the CAA on April 29, 2016 including the following comments:
 - a) Igor I. Sikorsky Memorial Airport is located three miles southeast of downtown Bridgeport, within the Town of Stratford. The proposed heat recovery steam generator stack would be located approximately 12,300 feet from the end, and offset 1,450 feet to the left from the extended centerline of the airport runway 11-29. The Petitioner should verify that the proposed construction would not create a hazard to air navigation. The Petitioner should file a Federal Form 7460-1 "Notice of Proposed Construction or Alteration" for required determinations.
 - b) In the Federal Aviation Administration (FAA) memorandum on "Technical Guidance and Assessment Tool for Evaluation of Thermal Exhaust Plume Impact on Airport Operations" (FAA Exhaust Plume Memo) dated September 24, 2015, the FAA concluded that thermal exhaust plumes in the vicinity of airports may pose a unique hazard to aircraft in critical phases of flight, particularly takeoff, landing and within the pattern.
 - c) CAA recommends that the Petitioner complete an exhaust plume analysis and provide the results to the Council to ensure that the potential effects of thermal exhaust plumes on airport operations can be adequately evaluated.
(CAA Comments received April 29, 2016)

25. PSEG filed a Federal Form 7460-1 with the FAA for the proposed 300-foot exhaust stack, which is the tallest object associated with the proposed facility. PSEG received a Notice of No Hazard to Air Navigation dated April 20, 2016 from the FAA. PSEG was not required to file separate forms with the FAA for any other structures that are part of the proposed project. (PSEG 2, response 24; Tr. 1, p. 27; PSEG 1, Tab B, Figure B-5)
26. PSEG performed an Exhaust Plume Analysis in accordance with the FAA Exhaust Plume Memo and provided the results to the Council on May 13, 2016. See later section titled *Aviation Safety and Exhaust Plumes*. (PSEG Late Filed Exhibit No. 1, dated May 13, 2016)
27. The Council received a response from DEEP on May 5, 2016 including the following comments:
 - a) DEEP has identified the following conditions under which PSEG would be allowed to use ULSD in the combustion turbine:
 - i. ISO-NE declares an Energy Emergency and requests the firing of ULSD
 - ii. The natural gas supply is curtailed by the gas supplier.
 - iii. There exists a physical blockage or breakage in the natural gas pipeline.
 - iv. The Petitioner is commissioning the combined cycle turbine and, pursuant to the manufacturer's written instructions, the Petitioner is required by the manufacturer to fire ULSD during the commissioning process.
 - v. The firing of ULSD is required for emissions testing purposes.
 - vi. Routine maintenance of any equipment that would require the Petitioner to fire ULSD.
 - vii. In order to maintain an appropriate turnover of the on-site fuel inventory, the Petitioner can fire ULSD when the last delivery of the oil to the tank was more than six months ago.
 - b) DEEP Bureau of Energy Technology and Policy (DEEP BETP) would prefer to see approximately five days of ULSD on site during a prolonged natural gas supply curtailment.
 - c) DEEP notes that site remediation efforts would be undertaken after the removal of the existing fuel oil storage tanks. PSEG has submitted a preliminary remedial action plan to DEEP. Due to the location and proposed future uses of the site, remediation would likely principally rely on rendering areas of contamination inaccessible through the construction of a new plant on top of the contaminated soils. A demarcation layer marking the location of any areas of contaminated soil would be incorporated into the development plan.
 - d) The existing fuel offloading dock is in need of repair as a result of damage from Hurricane Sandy. If the necessary repairs are as described in the Petition, this would not require further review or authorization from DEEP. However, if the necessary work is more substantial, the work may require a Certificate of Permission or a General Permit for Coastal Maintenance.
 - e) Modification of the stormwater outfall structure, including moving the outfall location within the revetment, would be covered under a Certificate of Permission (COP) from the Office of Long Island Sound Programs (OLISP). OLISP has been in contact with the Petitioner on this matter.
 - f) With respect to the use of retaining walls to contain the fill necessary to raise the plant site elevation to 16.5 feet above mean sea level (amsl), DEEP believes that more justification would be necessary to support the compliance of the site development with structural solutions (such as use of a retaining wall) for coastal flood hazard areas.

- g) No application for a water discharge permit for plant wastewaters to the City of Bridgeport municipal wastewater treatment system has been received by DEEP (as of May 5, 2016). Pending receipt of an inventory of the wastewater discharges, DEEP cannot yet determine if the water discharges would be addressed via a general permit or would require an individual discharge permit.
- h) The project would also require registration under the General Permit for Stormwater and Dewatering Wastewaters from Construction Activities to cover activities during the construction of the proposed power plant. Registration under the General Permit for Stormwaters Associated with Industrial Activities would also be necessary for this project.
- i) DEEP suggests the Council receive confirmation that the proposed plant design is consistent with the latest Federal Emergency Management Agency sea level forecasts and flood standards for the duration of its design life.
- j) With regard to coastal resiliency, the Council should be aware that the Connecticut Department of Housing has received a Natural Disaster Resilience award from the U.S. Department of Housing and Urban Development towards the development of flooding resiliency measures in the project neighborhood of Bridgeport. This includes elevating University Avenue to create an access/egress route that would connect to Park Avenue and provide safe access during significant coastal flooding events. This also includes constructing a flood protection berm from the rail viaduct at Ferry Access Road southward to tie into the high ground of the PSEG plant site and the berm to be constructed as part of the 60 Main Street development.

(DEEP Comments received May 5, 2016)

- 28. In response to point b) under DEEP Comments, PSEG would have 5.5 million gallons of ULSD on site, which is approximately a 10-day supply. (PSEG 2, response 10)
- 29. In response to point c) under DEEP Comments, the details of how site remediation may impact the power plant project layout would be included in the Development and Management Plan (D&M Plan). Notwithstanding, PSEG believes that it is feasible to meet the applicable remediation cleanup standards without having to modify the proposed design of the new power plant. (Tr. 1, p. 51-52)
- 30. In response to point f) under DEEP Comments, the primary reason for PSEG's proposed retaining wall for the power plant is because of space limitations and proximity to the coastal jurisdiction line and the coastal waters. (Tr. 1, p. 55)
- 31. In response to point i) under DEEP Comments, PSEG utilized the current Federal Emergency Management Agency (FEMA) flood elevation and mapping data that was developed post-Storm Sandy. It is the latest flood design information as specified by FEMA. According to the federal Quadrennial Energy Review, sea levels (under a high-end scenario) could rise about 32 inches or about 2.7 feet by 2060. However, PSEG would design its plant to an elevation of approximately 16.5 feet above mean sea level (based on the current sea level), which is above the current 100-year and 500-year flood elevations. (Tr. 1, pp. 23-24 and 55; Council Administrative Notice Item No. 8, p. 2-10)
- 32. In response to point j) under DEEP Comments, PSEG has not seen the plans that DEEP references regarding elevating University Avenue and constructing a flood protection berm from the rail viaduct at Ferry Access Road southward to tie into the high ground of PSEG's plant. PSEG plans to work with DEEP to better understand what is being proposed. (Tr. 1, pp. 55-56)
- 33. The following agencies did not respond with comment on the application: CEQ, PURA, OPM, DECD, DOAg, DESPP, DCP, DCS, DOL, and SHPO. (Record)

Municipal Consultation and Public Outreach

34. PSEG began its community and municipal outreach approximately 18 months prior to the filing of the Petition or approximately September 2014. (PSEG 1, p. 1 and 12)
35. C.G.S. § 22a-20a and DEEP's Environmental Justice Guidelines requires applicants seeking a permit from DEEP or the Council for a new or expanded facility defined as an "affecting facility" to file an Environmental Justice Public Participation Plan (EJPPP). The proposed facility would be an "affecting facility" under C.G.S. §22a-20a because it would be an "electric generating facility with a capacity of more than ten megawatts." (PSEG 1, Tab J, p. 1; C.G.S. § 22a-20a)
36. By letter dated August 15, 2014, DEEP noted that the EJPPP was received on August 11, 2014 and approved on August 15, 2014. (PSEG 1, Tab J – DEEP Letter regarding EJPPP)
37. On October 27, 2014, PSEG held a Public Information Meeting on the project at the Bijou Theatre at 275 Fairfield Avenue, Bridgeport. (PSEG 1, Tab J)
38. PSEG submitted a technical report to the Mayor of Bridgeport on November 13, 2015. (PSEG 1, p. 13)
39. To date, PSEG has not received any formal response from the City of Bridgeport regarding the technical report. (PSEG 1, p. 14)
40. On February 25, 2016, PSEG entered into a CEBA with the City of Bridgeport, Connecticut Coalition for Environmental and Economic Justice (CCEEJ), the University of Bridgeport (UB), the South End Neighborhood Revitalization Zone Committee, the West Side/West End Neighborhood Revitalization Zone Committee, and the Black Rock NRZ. In the CEBA, PSEG made several commitments, including but not limited to the following:
 - a) Contribute \$2 million to create a community environmental benefits fund for public health and environmental benefits for the community to be administered at the direction of the community's environmental task force (ETF);
 - b) End commercial operation of Bridgeport Harbor Unit #3 by July 1, 2021;
 - c) Initiate a program with the purpose of investing \$5 million in renewable energy investment projects located in Bridgeport that satisfy certain conditions;
 - d) Participate jointly with the City of Bridgeport in site planning study to explore potential redevelopment or reuse of a portion of the Bridgeport Harbor site not occupied by the proposed project or other Bridgeport Harbor facilities; and
 - e) Work cooperatively with local building trades unions, the City of Bridgeport, ETF, CCEEJ, and UB to identify and qualify subcontractors and laborers, including minorities, women and veterans, with a preference for Bridgeport residents and businesses.

(PSEG 1, p. 13 and Tab G)
41. As a result of the cooperative communications and negotiations that resulted in the CEBA, the City of Bridgeport and the community groups confirmed that they do not oppose the proposed project. (PSEG 1, p. 13)

Site Description

42. The site is located on an approximately 58.8-acre parcel of land located on Bridgeport Harbor at 1 Atlantic Street, Bridgeport, just south of Bridgeport's transportation center and ferry terminal. The northern portion of the proposed project site is located within the Industrial-Heavy (I-H) Zone, and the southern portion of the proposed project site is located within the Industrial-Light (I-L) Zone. (PSEG 1, p. 3; PSEG 1, Tab A, p. 2-8)
43. The BHU #3 plant lies to the north of the proposed new BHU #5 power plant site. Directly to the west of the site is the 60 Main Street property, currently undergoing demolition. This was the former Remington Shaver factory. Farther to the west, across from 60 Main Street is the University of Bridgeport campus. Farther to the northwest of the proposed site is the Bridgeport Energy power plant owned by Emera. To the east are wetlands and the open waters of Bridgeport Harbor. (DEEP Comments received May 5, 2016; Late Filed Exhibit No. 3, Wetland Map)
44. The former Remington Shaver site at 60 Main Street is a planned 12.2-acre waterfront development site that has been approved for 1,200 residential units, 75,000 square feet of commercial space, and a 200-slip marina. The first phase of development is anticipated to include 222 apartments and 14,500 square feet of commercial space in two 4-story buildings. (PSEG 1, Tab A, p. 2-8)
45. There are no residences located within a 1,000-foot radius from the center of the proposed power plant site. All properties located within a 1,000-foot radius from the center of the proposed power plant are zoned industrial. (PSEG 2, response 2)
46. The closest residence to the proposed facility is located at 146 Main Street, approximately 900 feet from the western property boundary of the BHU #5 site. The distance to the actual power plant development area would be approximately 300 to 400 additional feet. (PSEG 2, response 2; Tr. 1, p. 36)
47. The proposed power plant site contains four existing aboveground No. 6 fuel oil tanks. On February 4, 2016, PSEG filed a Notice of Exempt Modification (EM) per R.C.S.A §16-50j-57(a) known as EM-PSEG-015-160205. In PSEG's EM, PSEG proposed to remove these four oil tanks and perform limited site remediation in accordance with DEEP requirements. The EM also contained the proposal to remove three small underground storage tanks and install a new aboveground 217,000-gallon fuel oil storage tank for BHU #3. The EM was acknowledged by the Council on March 1, 2016. (Council Administrative Notice Item No. 34; PSEG 1, Tab A, p. 1-3)

Power Plant Project

48. PSEG's proposed BHU #5 facility would utilize a General Electric 7HA.02 gas turbine (similar to a very large jet engine and is also referred to as a combustion turbine) that can operate on either natural gas or ULSD as a fuel. Evaporative cooling would be used to condition the air entering the combustion turbine. (PSEG 2, response 13; PSEG 1, pp. 4-5 and 19)
49. The combustion turbine itself has a thermal efficiency of about 42 percent. However, operating the combustion turbine by itself is not an expected mode of operation. The facility would also have a heat recovery steam generator (HRSG) and steam turbine that would also operate under normal conditions and use the waste heat of the combustion turbine to generate more electricity (known as combined cycle operation) and boost the efficiency. This brings the overall thermal efficiency of the proposed combined cycle plant to about 59 percent. (PSEG 1, pp. 4-5; PSEG 2, response 6)

50. The proposed power plant capabilities in MW depending on the season and fuel source are listed below.

Gas: GE H65 907338G1 Steam: GE H33 807338S1	Winter Capability	Summer Capability
Natural Gas		
Gas Turbines (1 unit)	365.8 MW	338.0 MW
Steam Turbine (1 unit) (with duct firing*)	170.0 MW	191.7 MW
Facility Load	(17.9 MW)	(17.6 MW)
Total Plant Net Output	517.9 MW	512.1 MW
ULSD		
Gas Turbine (1 unit)	362.3 MW	340.4 MW
Steam Turbine (1 unit) (with duct firing*)	181.6 MW	182.2 MW
Facility Load	(16.9 MW)	(16.2 MW)
Total Plant Net Output	527.0 MW	506.4 MW

*Duct firing is the use of a natural gas-fired duct burner in the HRSG to increase steam production under certain conditions.

(PSEG 2, response 7; PSEG 1, p. 18)

51. While the proposed power plant is technically capable of over 500 MWs of output, PSEG has identified the facility as a 485 MW facility in the Petition because its actual summer capacity supply obligation to ISO-NE for FCA #10 is approximately 484.3 MW. However, the plant has energy injection rights based on 509.6 MW summer output or 529.8 MW winter output. (PSEG 2, response 7)
52. Under current ISO-NE market conditions, PSEG expects that the proposed facility would be load-following or roughly equivalent to an "intermediate" unit. A load-following unit can ramp up and down in MW output, as opposed to a baseload unit that tends to stay at a relatively constant MW output. (PSEG 2, response 4; Tr. 1, p. 72)
53. The projected capacity factor would be relatively high and roughly on the order of 80 percent. (Tr. 1, p. 72; PSEG Late Filed Exhibit No. 4)
54. In addition to ISO-NE's energy and capacity markets, PSEG's proposed facility would be able to participate in three ancillary services markets: Regulation, Ten and Thirty Minute Reserves, and Voltage Support. (PSEG 2, response 5)
55. Black start capability is the capability of a power plant to start generating electricity by itself without any outside source of power, for instance, during a general blackout. The proposed power plant would not have black start capability. (Council Administrative Notice Item No. 17, p. 53; PSEG 2, response 3)

56. The proposed power plant would have a 300-foot exhaust stack. The stack would have a diameter of approximately 21 feet and would not be tapered. (PSEG 1, Tab B, Figure B-5; PSEG 2, response 18)
57. The plant would have an auxiliary boiler to be used primarily for start-up purposes only. The auxiliary boiler stack would be approximately 160 feet tall. (PSEG 1, Tab B, Figure B-5; Tr. 1, p. 25)
58. The proposed project would utilize an air-cooled condenser (ACC). The ACC would save water because it would be a fully closed loop system that would not rely on evaporative cooling. (PSEG 2, response 11)
59. The proposed turbine building, HRSG building, and ACC would have heights of approximately 97, 125 and 125 feet above proposed site design grade, respectively. (PSEG 1, p. 16)
60. The proposed power plant would have a 2 MW (electric) diesel backup generator that would be fueled by ULSD. (PSEG 2, response 33)
61. The proposed power plant would have a retaining wall around its footprint that would reach a height of approximately 20 feet amsl. (PSEG 1, Tab B, Figure B-1)
62. Approximately 160,000 cubic yards of clean (i.e. non-contaminated) fill would be brought to the site to develop the proposed power plant project. (Tr. 1, pp. 23 and 65)
63. Existing access to the PSEG property would be utilized for the power plant project and would not need to be upgraded/improved. (Tr. 1, p. 21)
64. Parking areas and access within the plant's footprint would be bituminous concrete. The majority of the open areas of the power plant footprint would be gravel. (PSEG 1, Tab B, Figure B-9)
65. The existing power plant property is already surrounded by a security fence. PSEG would maintain that existing fence. No new fence is proposed. (Tr. 1, p. 21)
66. The proposed power plant project includes rehabilitation of the existing approximately 50-year old fuel dock terminal facility, which was damaged during Storm Sandy on October 29, 2012. This dock rehabilitation would be intended to allow for future ULSD deliveries by barge. The existing oil dock was designed for oil tankers much larger than necessary to support the new facility, so the proposed rehabilitation of the existing dock would involve demolishing and removing portions of the existing timber walkways, rehabilitating existing platforms, piers, and mooring dolphins, constructing new walkways and upgrading and replacing existing fender units and mooring hardware. No new concrete piers are necessary, but the existing ones would be repaired. Several of the wooden piles that hold up the walkway would also need to be replaced. The length of the walkway would be reduced to approximately 40 percent of the current dock configuration. (PSEG 1, pp. 5-6; Tr. 1, p. 22)
67. The proposed fuel dock rehabilitation work included with this Petition would occur above the water and at the splash zone. (Tr. 1, p. 22)
68. If approved, the final plans for the dock rehabilitation work associated with this Petition would be included in the D&M Plan. (Tr. 1, pp. 22-23)
69. Additional work will be performed on the fuel dock in 2016 to make it safe for personnel access, but it is unrelated to the instant Petition. (Tr. 1, p. 22)

70. The proposed power plant project would cost slightly over \$550 million. The cost to deactivate BHU # 3 is not included in that calculation. (Tr. 1, p. 45)
71. If approved, PSEG anticipates commencing site construction for the proposed power plant on or about March 2017 with start-up testing and commissioning in August 2018 and commercial operation by June 2019. PSEG is required to achieve commercial operation by June 1, 2019 because of its obligation to ISO-NE under FCA #10 results. (PSEG 1, p. 3; PSEG 1, Tab K – Construction Schedule)
72. The proposed power plant would have an estimated service life of 40 years. (Tr. 1, p. 46)
73. PSEG would confer with its legal counsel regarding the possibility of providing a decommissioning plan for BHU #5 to the Council. The decommissioning plan would be a contingency plan in the event that BHU #5 is permanently taken out of service. (Tr. 1, p. 46-48)

Transmission Interconnection

74. PSEG has a signed Large Generator Interconnection Agreement with ISO-NE and UI. (PSEG 1, Tab A, p. 1-4)
75. PSEG's combustion turbine generator would produce electricity at a line voltage of 25 kV. PSEG's steam turbine generator would produce electricity at 18 kV. They would each have an on-site step-up transformer to boost their voltage outputs to 345 kV before leaving the plant. (PSEG 2, response 26)
76. The 345-kV output would be transmitted to UI's Singer Substation, located approximately one block west of the site, via an approximately 800-foot underground transmission line. Specifically, the underground transmission line would run along the northern side of Henry Street to connect PSEG's proposed 345-kV GIS Building to the south end of UI's Singer Substation (PSEG 4, p. 1)
77. The underground transmission line would utilize 3000 kcmil or 3500 kcmil conductors with cross-linked polyethylene insulation. The conductors would be arranged in a single-circuit vertical configuration with one conductor per phase. (PSEG 4, p. 3; Tr. 1, p. 34)
78. The 345-kV line would be owned, operated and constructed by PSEG. This line is part of the instant Petition. The Point of Change of Ownership between PSEG's 345-kV line and UI's Singer Substation equipment would be the conductor tap point on the cable that would connect PSEG's 345-kV line to UI's 345-kV terminal. (PSEG 2, response 17)
79. Except for adding two communications cables, UI would not make any modifications outside of the Singer Substation property boundary. Within Singer Substation, UI would install necessary equipment to interface with PSEG's new 345-kV cable system such as surge arrestors, metering equipment, etc. In addition, UI would make minor upgrades to protection, control, and monitoring systems. (UI 2, response 1d; Tr. 1, p. 87)
80. If approved, UI would file a Petition or Energy Exempt Modification with the Council for the proposed modifications within Singer Substation. UI would be willing to submit such filing to the Council on or about the time that PSEG would file its D&M Plan. (Tr. 1, p. 88)

Fuel Supply and Storage

81. The Southern Connecticut Natural Gas Company (SCG) operates an existing high pressure natural gas lateral pipeline connection adjacent to the proposed site. The lateral pipeline terminates at the Emera Bridgeport Energy power plant at 10 Atlantic Street. This existing pipeline is capable of delivering natural gas for the proposed project via a new take-off connection using a high-pressure natural gas service lateral line. (PSEG 1, p. 6)
82. PSEG is negotiating appropriate natural gas service agreements with SCG. (PSEG 1, p. 6)
83. SCG is reserving a certain amount of natural gas on the existing lateral for its own use to serve home heating customers. Thus, PSEG sized their proposed power plant based on the amount of natural gas that SCG is willing to provide to PSEG after they reserved capacity for winter heating needs. (Tr. 1, p. 73)
84. The proposed power plant would require on-site compression to raise the pressure of the natural gas. The design pressure of the SCG lateral is approximately 600 pounds per square inch gauge pressure (psig), and pressure at the delivery point would be in the range of 426 to 530 psig, with an average of 475 psig. The GE 7HA.02 combustion turbine requires a supply pressure of 525 psig. (PSEG 2, response 16)
85. If approved, the final design and location of the gas compressor building would be included in the D&M Plan. (Tr. 1, p. 25)
86. PSEG is proposing the ULSD backup fuel because PSEG's commitment to ISO-NE's FCA has a pay for performance or performance incentive capacity market design. If the project is approved, by the time the proposed facility goes into commercial operation in 2019, the penalty for failing to be available or online providing reserves when required by ISO-NE could be as high as \$3,500 per MW-hour. Thus, PSEG has a significant incentive to ensure that adequate fuel is available at all times. (Tr. 1, p. 68)
87. The proposed power plant would have an aboveground ULSD storage tank with a fuel capacity of approximately 5,500,000 gallons. (PSEG 1, Tab B, Figure B-1)
88. PSEG anticipates that it would be limited to a maximum of 30 days* or 720 hours of annual ULSD run time under its DEEP air permit.

*PSEG expects that the limit would actually be specified as the number of British Thermal Units (BTUs) equivalent to the full load operation for 30 days on ULSD, rather than a limit of days or hours per se. However, the result is the same.
(Tr. 1, pp. 69-70)

Traffic

89. Where practicable, barges would be used to deliver materials and equipment to the site, including large equipment and bulk deliveries of materials such as backfill and aggregates. Large equipment would include, but not be limited to, HRSG modules, two generators, and the combustion and steam turbines. (PSEG 1, Tab A, pp. 7-1 and 7-2)

90. Routine access to the existing site is limited to Atlantic Street for industrial security reasons. The exact location for construction gates has not yet been determined. However, PSEG expects that access would be via Atlantic Street, Kiefer Street, and Henry Street. Station entrances located on Kiefer Street and Henry Street are used, when required, by station personnel and for construction worker access to the existing site. (PSEG 1, Tab A, p. 7-1)
91. Route truck deliveries to and from the site would be scheduled for Monday through Friday from 7:00 a.m. to 4:00 p.m. In limited cases where critical construction activities need to take place due to schedule or other project constraints, truck deliveries to the site may take place outside of the standard time window. (PSEG 1, Tab A, p. 7-1)
92. Truck trips to and from the site are expected to average 30 per day, with less than 10 per day during morning and evening peak hours. This is consistent with the level of vehicle trips for other similar power plant construction projects. (PSEG 1, Tab A, p. 7-2)
93. Most vehicle traffic, including heavy trucks and employee commuters accessing the site would utilize Interstate 95 and Routes 8 and 25. Traffic accessing the Site from I-95 would most likely take Exit 26 or 27 and drive approximately one mile prior to entering the existing station site at Atlantic Street. (PSEG 1, Tab A, p. 7-1)
94. Truck traffic is expected to increase along South Frontage Road (which parallels the interstate), and Broad, Lafayette, Atlantic, and Main Streets as a result of construction staff and deliveries and removal of materials from the Site. During construction, certain trucks requiring high clearances would access the site via I-95 Exit 26 onto Pine Street, to Admiral Street, Iranistan Avenue, and to the site entrance on Atlantic Street. Trucks leaving the site would take Atlantic Street to Main Street, Broad Street, Gregory Street, Iranistan Avenue, and Washburn Street to I-95 at Wording Avenue. (PSEG 1, Tab A, p. 7-1)
95. The project would comply with applicable Connecticut laws regarding excessive idling of vehicles. (PSEG 1, Tab A, p. 7-1)
96. The estimated number of construction workers for the two-year construction period would be up to approximately 350. Commuting traffic during peak hours would result in approximately 250 to 300 additional vehicles, assuming a level of carpooling and a limited workforce for second shift construction operations.
97. After construction is completed, the workforce for the facility is expected to be 20 full-time positions. Operations traffic would consist of workforce commuting, limited maintenance and outage workforce for short periods of time, and relatively minor truck deliveries of materials needed to operate and maintain the new plant. The number of additional vehicle trips is expected to be less than the number of vehicle trips for the existing facility. (PSEG 1, Tab A, p. 7-2)

Water Requirements

98. Aquarion Water Company (AWC), the local water utility, would supply the facility's water requirements. PSEG has consulted with AWC and confirmed availability of sufficient water to supply the plant. (PSEG 1, p. 5; PSEG 2, response 14)
99. The proposed power plant would have a worst-case water consumption rate of 239 gallons per minute (GPM) or 344,168 gallons per day (GPD) if operated at full load on natural gas. (PSEG 2, response 14)

100. The proposed power plant would have a worst-case water consumption rate of 818 GPM or 1,177,920 GPD if operated at full load on ULSD. Water consumption is higher under ULSD due to emissions controls. (PSEG 2, response 14)
101. The water would be demineralized for use at the plant, and this process would be performed on-site through demineralization trailers. (PSEG 2, response 15)
102. The proposed power plant would have an on-site aboveground demineralized water storage tank of approximately 1,000,000 gallons. (PSEG 1, Tab B, Figure B-1)

Wastewater Discharge

103. Wastewater would be discharged to the Bridgeport Water Pollution Control Authority facility. (PSEG 1, p. 5)
104. Sources of wastewater for the proposed plant would include the following:
 - a) Sanitary wastewater;
 - b) Off-line compressor wash water;
 - c) Demineralization system wastewater;
 - d) HRSG blowdown;
 - e) Evaporative cooler blowdown;
 - f) Auxiliary cooling tower; and
 - g) Plant maintenance water collected in facility floor drains.(PSEG 1, Tab A, pp. 11-1 and 11-2)
105. Sanitary wastewater would average approximately 2 GPM. Demineralized system wastewater would range from 10 GPM to 25 GPM while the plant is operating on natural gas and 160 to 200 GPM when operating on ULSD. (PSEG 1, Tab A, p. 11-2)

Environmental Considerations

Wetlands

106. GEI Consultants (GEI) performed a wetland field delineation and assessment on April 9, 2014. (PSEG Late Filed Exhibit No. 3, Wetland Assessment Report, p. 5; Tr. 1, p. 90)
107. National Wetland Inventory (NWI) identifies an estuarine and marine intertidal wetland system along the southern and eastern coastline in the vicinity of the proposed site. It corresponds to NWI's Cowardin classification of E2US2P: estuarine (E), intertidal (2), unconsolidated shore (US), with a sand subclass (2), and irregularly flooded (P). No vegetation was observed along the beach or revetment during the site visit. (PSEG Late Filed Exhibit No. 3, Wetland Assessment Report, pp. 7-9 and Approximate Wetland Boundaries Map)
108. Herring gulls and Grebes were observed in the open water. A pair of Osprey was observed overhead, and an apparent Osprey nest was located above the dock platform extending from the south of the site. (PSEG Late Filed Exhibit No. 3, Wetland Assessment Report, p. 8)
109. NWI also identifies an estuarine and marine deepwater wetland directly to the east of the proposed power plant site. While NWI identifies it as a single wetland system, an east-west vegetated berm separates the area into two distinct systems that GEI refers to as: the Northern Wetland Area and the Southern Wetland Area. (PSEG Late Filed Exhibit No. 3, Wetland Assessment Report, pp. 8-9)

110. The Northern Wetland Area is an isolated, approximately rectangular freshwater wetland dominated by common reed and gray birch. It corresponds to NWI's Corwardin classification of PEM1Eh: palustrine (P), emergent (EM), persistent (1), seasonally flooded/saturated (E), and diked/impounded (h). The invasive vine, dodder, blankets vegetation throughout the wetland. The wetland is characterized by variations in ground surface within the common reed stands and around fallen trees. The side slopes and road edge upland areas are dominated by quackgrass, mugwort, black locust, oak, and mowed lawn. (PSEG Late Filed Exhibit No. 3 Wetland Assessment Report, p. 9)
111. The Southern Wetland Area has a tidal connection, is approximately rectangular in shape, and is within a bermed or otherwise filled perimeter. It corresponds to NWI's Corwardin classification of PEM1Eh: estuarine (E), intertidal (2), emergent (EM), persistent (1), irregularly flooded (P), and diked/impounded (h). Standing water occupies approximately one-half of the wetland. The Southern Wetland Area soils consist of black, muck and peat. (PSEG Late Filed Exhibit No. 3) Wetland Assessment Report, p. 9)
112. The Southern Wetland Area is a salt marsh habitat dominated by common reed. However, many native plants were identified in each tidal zone including smooth cordgrass in the low marsh, sea lavender and saltmeadow cordgrass in the high marsh, and marsh elder and groundseltree in the spring tide zone. (PSEG Late Filed Exhibit No. 3, Wetland Assessment Report, p. 10)
113. In the Southern Wetland Area transition area, ribbed mussels were abundant along the hummocks bordering the open water zone. Great egret, mallard, Canada goose, mourning dove, and redwing blackbird were observed, and wild turkey tracks were noted. (PSEG Late Filed Exhibit No. 3, Wetland Assessment Report, p. 10)
114. The closest limits of construction to a delineated, vegetated wetland area is approximately 28 feet. This is measured from the eastern limits of construction to the western limits of the Southern Wetland Area. (PSEG 2, response 29; PSEG Late Filed Exhibit No. 3, Approximate Wetland Boundaries Map)
115. During construction, appropriate soil erosion and sedimentation control measures (e.g. silt fence, turbidity curtains, etc.) would be installed to prevent loose sediment from entering the on-site wetland area. (PSEG 1, p. 22)
116. New wetland habitat could be integrated into a stormwater treatment system for the site to avoid direct stormwater discharges. (PSEG Late Filed Exhibit No. 3, Wetland Assessment Report, p. 12)

Site Clearing

117. Approximately 39 trees with a diameter of at least six inches would be removed to construct the facility. The majority of the trees to be removed are located within previously developed portions of the site, which are not currently forested. These existing trees include red pines located along the existing fuel tank secondary containment berm. Approximately three of these pines at the northern portion of the site are already dead. (PSEG 2, response 28; DEEP Comments dated May 4, 2016, p. 1; Tr. 1, p. 50; PSEG 1, Tab A, p. 10-3)

Air Emissions

118. The proposed power plant would have state-of-the-art air quality emissions control technology, including Dry Low oxides of nitrogen (NO_x) burners, water injection, and selective catalytic reduction (SCR) to further reduce NO_x emissions and an oxidation catalyst to reduce carbon monoxide (CO) and volatile organic compound (VOC) emissions. (PSEG 1, Tab A, p. 1-3; PSEG 1, p. 10)

119. The proposed project would employ an exhaust stack design to reduce potential ground-level air quality impacts to comply with all applicable state and National Ambient Air Quality Standards (NAAQS). (PSEG 1, Tab A, p. 1-3)
120. PSEG would obtain its Air Permits from DEEP. PSEG has already filed its Prevention of Significant Deterioration (PSD) Pre-Construction Permit Application on November 13, 2014, which is currently being revised. PSEG has filed for a non-minor modification of its existing Title V Air Permit for Bridgeport Harbor Station along with applications for a Clean Air Interstate Rule and Acid Rain Permits. (PSEG 1, p. 11)
121. Dispersion modeling using the U.S. Environmental Protection Agency (EPA) models initially concluded that the project emissions, except for nitrogen dioxide (NO₂), would produce ambient air quality impacts less than the Significant Impact Levels (SIL) in order to comply with NAAQS and Allowable Prevention of Significant Deterioration (PSD) increment concentrations. (PSEG 1, p. 11)
122. A cumulative impact study for NO₂ was completed and submitted to DEEP on March 22, 2016. The report concluded that there are no predicted short-term NO₂ NAAQS exceedances within the modeling area from the proposed BHU #5 stack location. (PSEG 2, response 31; Tr. 1, pp. 49-50)
123. A multisource analysis for particulate matter was not required because modeling of the BHU #5 project emissions alone produced no predicted exceedances of the PM_{2.5} SIL. The SIL would not be exceeded for PM₁₀ either. (PSEG 2, response 31)
124. 300 feet above grade or 316.5 feet amsl is the minimum stack height required to ensure that the modeled PM_{2.5} impacts remain less than the SIL. (PSEG 2, response 18; PSEG 1, Tab B, Figure B-5)
125. The proposed project would align with the goals of the Connecticut Global Warming Solutions Act (C.G.S. § 22a-200d), by reducing carbon dioxide emission at the site compared to the baseline specified in the Act (both 1990 and 2001 baselines) through the increased fuel efficiency of the technology used, the selection of natural gas as the primary fuel and the retirement of BHU #3. (PSEG 1, Tab A, p. 1-3)

126. The permanent shutdown of the coal-fired BHU #3 and its replacement with the proposed natural gas or ULSD-fired BHU #5 would result in emissions reductions on both a tons per year basis* and also on a pounds per MW-hour basis** as noted below.

TONS PER YEAR EMISSION RATES COMPARISON			
Pollutant	Unit 3 Actual Emission Rates Adjusted to 80% Capacity Factor (tons/yr)	Unit 5 Projected Actual Emission Rates at 80% Capacity Factor (tons/yr)	Percent Decreases
NO _x	1,957	103	(94.7%)
SO ₂	3,145	19	(99.4%)
CO ₂	2,983,183	1,315,283	(55.9%)
PM-10	177	52	(70.6%)
CO	403	83	(79.4%)
VOC	48	30	(37.5%)

POUNDS PER MW-HOUR EMISSION RATES COMPARISON			
Pollutant	Unit 3 Past Actual Emission Rates (lb/MW-hr gross)	Unit 5 Projected Actual Emission Rates (lb/MW-hr gross)	Percent Decreases
NO _x	1.35	0.05	(96.3%)
SO ₂	2.17	0.01	(99.5%)
CO ₂	2,056	735	(64.3%)
PM-10	0.12	0.03	(75.0%)
CO	0.28	0.02	(92.9%)
VOC	0.03	0.01	(66.7%)

*PSEG adjusted BHU #3's capacity factor up to 80 percent (or approximately the proposed BHU #5 capacity factor) for an accurate comparison.

**PSEG assumed an average ULSD run time of about 10 days per year, 3,500 hours per year of natural gas operation with duct firing, 3,048 hours per year of natural gas operation without duct firing, and associated start-ups and shutdowns.

(PSEG Late Filed Exhibit No. 4)

Coastal Resources

127. The entire proposed project would occur within a regulated DEEP Coastal Boundary. Accordingly, PSEG filed a Coastal Consistency Review Form with DEEP. However, due to the developed nature of the site as an active electric generating station, the project is not expected to adversely impact coastal resources. (PSEG 1, Tab F; PSEG 2, response 30)
128. The only improvements proposed below the coastal jurisdiction line elevation of 5 feet amsl for the City of Bridgeport consist of the necessary repairs/maintenance to the existing oil dock to support future barge deliveries, the modifications to the existing stormwater outfall, and the temporary shoreline improvements to support off-loading of equipment from barges during construction. These activities would occur within previously-developed shoreline and in-water areas, and are not expected to disturb natural areas or associated resources. (PSEG 2, response 30)

Drinking Water Resources

129. Groundwater underlying the proposed site is classified as GB. Groundwater within this classification is presumed suitable for the following designated uses: industrial process water and cooling waters and as a base flow for hydraulically-connected surface water bodies. Groundwater within this designation is presumed potentially not suitable for human consumption without treatment. Discharges to groundwater designated as GB are restricted to: treated domestic sewage, certain agricultural wastes, certain water treatment wastewaters, and discharge from septage treatment facilities subject to stringent treatment and discharge requirements, and other wastes of natural origin that biodegrade easily and present no threat to groundwater. (PSEG 1, Tab A, p. 11-1)
130. The proposed combined-cycle power plant facility would result in no process discharges to groundwater, and is not expected to adversely impact groundwater. (PSEG 1, Tab A, p. 11-1)
131. The proposed project is not located within a DEEP-designated Aquifer Protection Area (PSEG 2, response 27)

Flood Zones

132. The 100-year flood elevation is 14 feet amsl. The 500-year flood elevation is 15.3 feet amsl. (Tr. 1, p. 23)
133. The proposed facility, interior to its retaining wall, would be raised to 16.5 feet amsl for flood risk mitigation. Thus, the facility would be located above the 100-year and 500-year flood elevations. (PSEG 1, p. 5; Tr. 1, pp. 23-24)
134. The top of the retaining wall would be at a minimum of 20 feet amsl. (PSEG 1, Tab B, Figure B-5, Design Notes)

Stormwater

135. Stormwater runoff from the site would be managed in accordance with DEEP Stormwater Management Regulations. (PSEG 1, Tab A, p. 11-4)
136. Stormwater that collects in secondary containment structures would be managed on an “inspect and release” basis. If there is any evidence of a spill or release (i.e. via visual sheen or unusual odors), stormwater would be collected and sampled. It would either be trucked for off-site treatment at an appropriately licensed facility or discharged to the WPCA based on constituents and volume. Clean stormwater from secondary containment structures would be discharged into the proposed facility’s stormwater collection system. (PSEG 1, Tab A, p. 11-4)

Wildlife Impacts

137. By letter dated March 12, 2016, DEEP has reviewed the Natural Diversity Database and determined that no negative impacts to State-listed species are expected to occur as a result of the proposed project. (PSEG 2, response 21)

138. The roseate tern, a federally-listed Endangered species of seabird, has the potential to occur in the project area. However, the Bridgeport Harbor power plant site is not nesting habitat for roseate terns. The construction and operation of the proposed power plant facility is not expected to adversely impact the breeding or foraging for roseate terns because essentially all project elements are landward of the high tide line. Work in the vicinity of the water such as the oil dock rehabilitation is not expected to disrupt the feeding behavior of the roseate tern. (PSEG 1, Tab A, p. 10-6)
139. U.S. Fish and Wildlife Services (USFWS) Migratory Birds have the potential to occur at the proposed power plant site. These USFWS Migratory Birds include the American oystercatcher; American bittern; bald eagle; black rail; black-billed cuckoo; blue-winged warbler; Canada warbler; horned grebe; least bittern; least tern; pied-billed grebe; purple sandpiper; rusty blackbird; saltmarsh sparrow; seaside sparrow; snowy egret; wood thrush; and worm eating warbler. These are all birds of Conservation Concern. However, the site lacks significant forage or habitat within its footprint. (PSEG 1, Tab A, p. 10-3)
140. The nearest Important Bird Area as identified by the National Audubon Society is Stratford Great Meadows area, approximately 1.3 miles away from the proposed BHU #5 site. (PSEG 2, response 22)
141. Osprey are present in the vicinity of the site, with intermittent nesting on or near waterfront structures, including the oil dock. Prior to commencement of construction, PSEG would consult with DEEP to avoid or minimize impacts to any nesting Ospreys near the site and on the oil dock, including the potential for taking mitigating actions. (PSEG 1, Tab A, p. 10-4)
142. The closest bat hibernaculum to the proposed BHU #5 site is located in Greenwich, approximately 25 miles to the west-southwest. (PSEG 2, response 23)
143. No wildlife species in the adjacent wetland are expected to be impacted by the proposed project. (Tr. 1, p. 42)
144. No diamondback terrapins were identified in the wetland area. (Tr. 1, p. 42)

Cultural Resources

145. The project site is expected to have low sensitivity for archaeological resources because it is located on land reclaimed from Bridgeport Harbor in the late 19th and early 20th century and because it was extensively disturbed during the construction of the existing power plant facility. (PSEG 1, Tab A, p. 8-1)
146. The State Historic Preservation Office (SHPO) determined that no historic properties would be affected by the proposed project. (PSEG 1, Tab F – SHPO Project Review Cover Form)

Noise

147. Under DEEP noise regulations, emitters and receptors of noise can be identified as either Class A (residential) or Class B (commercial) or Class C (industrial). DEEP noise criteria from an emitter to a receptor are as follows:

Emitter Class	Receptor Noise Zone			
	Class A (Daytime)*	Class A (Nighttime)**	Class B	Class C
Class A (Residential)	55	45	55	62
Class B (Commercial)	55	45	62	62
Class C (Industrial)	61	51	66	70

*(7:00 a.m. to 10:00 p.m.) ** (10:00 p.m. to 7:00 a.m.)
 (PSEG 1, Tab A, p. 6-2; Council Administrative Notice No. 40)

148. The proposed combined-cycle generating plant would be a Class C (industrial) noise emitter under DEEP noise regulations. (PSEG 1, Tab A, p. 6-2)

149. PSEG identified six Class A (residential) noise receptors in the vicinity of the proposed power plant. The predicted noise levels for the proposed facility at these receptor locations are listed below. Thus, the operation of the proposed facility would comply with DEEP noise control standards.

Noise Receptor	Location	Land Use(s)	Distance from BHU #5 in feet	Predicted Nighttime Noise Level in dBA	Compliant with Nighttime DEEP Noise Standard	Predicted Daytime Noise Level in dBA	Compliant with Daytime DEEP Noise Standard
1	Bridgeport Harbor Station (Southwest Corner Boundary)	Future Residential	0 feet	49.5 dBA	Yes	56.6 dBA	Yes
1a	Bridgeport Harbor Station (West Boundary South of Henry Street)	Future Residential	0 feet	49.5 dBA	Yes	49.5 dBA	Yes
1b	Bridgeport Harbor Station (West Boundary South of Henry Street)	Future Residential	175 feet	50.8 dBA	Yes	54.4 dBA	Yes
2	Henry Street (east of Main Street)	Residential	650 feet	39.8 dBA	Yes	39.8 dBA	Yes
3	Atlantic Street (west of Main Street)	Residential	520 feet	33.7 dBA	Yes	33.9 dBA	Yes
4	Seaview Avenue (at Newfield Avenue)	Residential	2,500 feet	40.2 dBA	Yes	44.9 dBA	Yes

(PSEG 1, Tab A, pp. 6-4 and 6-6)

150. The noise contribution of BHU #3 was not included in the noise analysis. However, BHU #3 is not the dominant source of noise and does not contribute appreciably to the analysis. (PSEG 1, Tab A, p. 6-6)
151. PSEG does not expect that blasting would be necessary to construct the project. (Tr. 1, p. 45)
152. Noise related to construction would be exempt per DEEP noise regulations. (Council Administrative Notice Item No. 40)

Visibility

153. A total of four existing power plant stacks are located at the site, with the tallest being the BHU #3 stack which has a height of approximately 498 feet. This is taller than the proposed 300-foot stack for BHU #5. (PSEG 1, pp. 16-17)
154. The remaining proposed facility structures would generally be consistent with the heights of other existing structures at the Bridgeport Harbor power station site. (PSEG 1, Tab, p. 5-2)
155. The existing BHU #3 stack has an alternating orange/red and white painting scheme. (PSEG 3b)
156. Within a visual study area with a two-mile radius, the existing 498-foot stack is visible for 1,188 acres. Within the same study area, the proposed 300-foot stack would be visible over approximately 983 acres. With the proposed stack height reduction, views from over the water would be generally unaffected. However, the lower stack height would result in less visibility area over land. (PSEG 2, response 19; Tr. 1, p. 56)
157. PSEG has determined that an orange/red and white painting scheme is not required per FAA requirements. The proposed 300-foot stack would be gray in color. For aviation safety, medium intensity flashing white lighting during the daytime and twilight and red lighting at night would be installed on the new 300-foot stack. (PSEG 2, response 24; Tr. 1, p. 21)
158. The proposed on-site lighting design for the power plant footprint has not yet been determined. However, PSEG does not expect that on-site lighting would significantly impact the surrounding community. (Tr. 1, p. 24)
159. While the proposed plant would be visible, it is not expected to be visually out of character or out of proportion with the existing Bridgeport Harbor units or other energy infrastructure in the area. (PSEG 1, p. 17)
160. The proposed rehabilitation of the oil supply dock would have about 40 percent less walkways, be similar to the existing dock, and would result in some improvements in appearance. The dock repairs would not adversely impact existing views. (PSEG 1, Tab A, p. 5-2)

Safety and Reliability

General Safety and Reliability Measures

161. The design, construction, and operation of the proposed project would be implemented to ensure safety for employees, the surrounding community, and the environment, and would be in accordance with federal, State, and local regulations, and applicable engineering practices and standards. (PSEG 1, Tab A, p. 13-1)

162. The proposed facility would be designed and constructed in accordance with the 2015 Connecticut State Fire Protection Code and 2005 Connecticut Fire Safety Code, the currently applicable fire codes for Connecticut. (PSEG 1, Tab A, p. 13-1)
163. BHU #5 would have a smoke and fire detection system. BHU #5 would also have a fire protection system that includes fire water storage and distribution piping networks, hydrants and two fire water pumps driven by an internal combustion engine and an electric motor. (PSEG 1, Tab A, p. 13-1)
164. The existing security fencing for PSEG's property would secure the site. The existing secure access gate and guard shack would be in use during the construction and operation of the new facility. A secure entry gate and guard shack would also be used at any temporary construction entrances. (PSEG 1, Tab A, p. 13-2)
165. Existing security measures for the oil dock would be retained, as required by United States Coast Guard for marine terminal facilities. (PSEG 1, Tab A, p. 13-2)
166. The ULSD storage tank would have a secondary containment area with the capability of holding 110 percent of the full amount of ULSD. (PSEG 2, response 25)
167. Both of PSEG's generator step-up transformers would have containment to protect against any leaks of dielectric fluid. The generator step-up would not contain polychlorinated biphenyls (PCBs). (PSEG 2, response 26)
168. The proposed backup generator would be fueled by ULSD as a contingency in the event of loss of natural gas service. The backup generator would also have secondary containment capable of holding up to 110 percent of the fuel. If approved, the final design of the generator and its containment would be included in the D&M Plan. (Tr. 1, pp. 26 and 73)
169. Aqueous ammonia would be used to reduce NO_x emissions. The proposed facility would have an aqueous ammonia storage tank with an approximate capacity of 20,000 gallons of 19 percent ammonia solution. The tank would be located within a containment area as required by applicable codes. To ensure employee safety, employees would be informed of any hazards associated with ammonia storage and handling. (PSEG 1, Tab A, p. 13-1)
170. Hydrogen would be used to cool the generators. However, PSEG would utilize several safety precautions relative to the use and storage of hydrogen, as noted below:
 - a) PSEG training including but not limited to safety awareness training, OSHA 1910 standards, and National Fire Protection Agency standards;
 - b) PSEG written procedures including but not limited to the job hazard analysis, hydrogen delivery procedures, hydrogen purging and filling; and
 - c) PSEG design considerations including but not limited to hydrogen sensors, hydrogen storage locations, proper venting locations, electronic bonding of mobile supply units prior to hydrogen discharge.(PSEG 2, response 32)
171. PSEG's existing emergency plans and process would be updated to include the proposed new facility and repaired oil dock. This would include names and contact information for qualified emergency response personnel, names of the personnel and the organizations to be contacted immediately in the event of an emergency, a list of emergency response equipment and locations, a facility evacuation plan, and a map of the facility. Coordination with the appropriate City of Bridgeport and Connecticut personnel and agencies would be performed. (PSEG 1, Tab A, p. 13-2)

Docket No. NT-2010

172. On February 7, 2010, there was an explosion at the Kleen Energy Systems, LLC facility in Middletown, Connecticut. The Kleen Energy Plant Investigation Review Panel (Nevas Commission) was established to identify the cause and origin of the explosion. The Nevas Commission issued a Final Report on June 3, 2010 that included a recommendation that the Council review all gas-fired baseload power plants within its jurisdiction. Thereafter, a second commission was established, the Thomas Commission, to recommend any necessary specific legislative or regulatory changes to prevent such an event in the future. (Council Administrative Notice Item No. 20)
173. On September 21, 2010, the Thomas Commission issued an Executive Report that included recommendations for regulatory changes that could be accomplished by executive order, state legislation and/or the adoption of regulations. (Council Administrative Notice Item No. 20)
174. During a public meeting held on October 21, 2010, the Council moved to reopen the evidentiary records of all of its jurisdictional, natural gas fired electric generating facilities limited to Council consideration of changed conditions and the attachment of conditions to the certificates and declaratory rulings consistent with the findings and recommendations in the Executive Report issued by the Thomas Commission. (Council Administrative Notice Item No. 20)
175. On March 17, 2011, the Council issued a final decision in Docket NT-2010 identified as "Electric Generator Decision and Order" that included attachment of conditions to electric generating facilities approved by the Council via dockets (i.e. Certificate proceedings) or petitions for declaratory ruling that include, but are not limited to:
- a) The use of natural gas as a fuel pipeline/system cleaning medium for construction or any future facility modification shall be prohibited.
- (Council Administrative Notice Item No. 20)
176. PSEG would not use natural gas to clean the gas pipelines. An inert gas would be used. In addition, PSEG would comply with the recommendations and conditions relative to Council Docket No. NT-2010. (Tr. 1, p. 33)

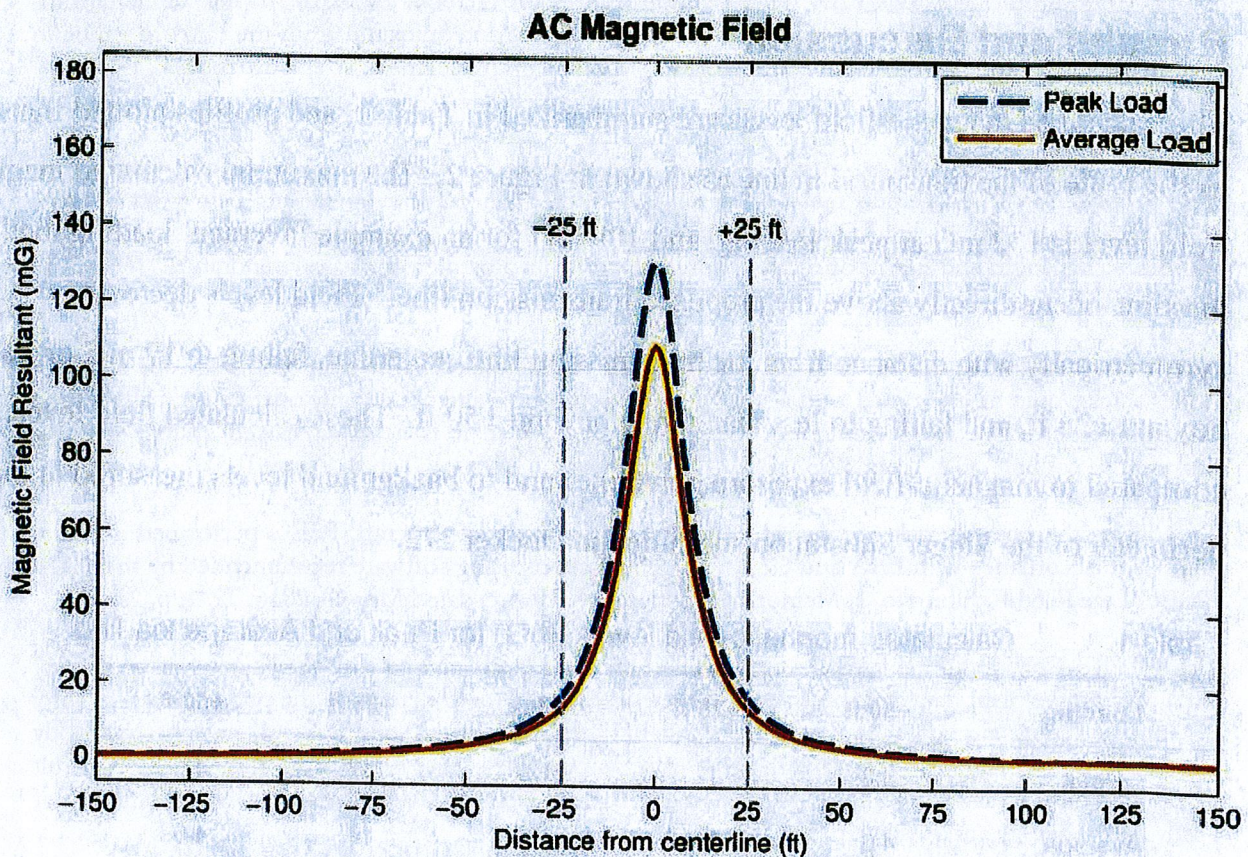
Magnetic Fields Associated with the Transmission Interconnection

177. The maximum generator rating of 651 megavolt-amperes (MVA) at 345-kV (including a six percent margin) was used to calculate a peak loading of 1089 Amperes (amps). The average loading is estimated at about 83 percent of the peak loading. (PSEG 4, pp. 1-2)

178. The calculated magnetic field levels in milligauss (mG) and magnetic field profile for the proposed transmission interconnection line (or lead) for the peak and average loading are listed below.

Table 1. Calculated magnetic-field levels (mG) for Peak and Average loading

Loading	-50 ft	-25 ft	Max	+25 ft	+50 ft
Peak	4.8	17	132	17	4.8
Average	4.0	14	109	14	4.0



Magnetic field profile across transmission line cross-section for peak and average loading

(PSEG 4, pp. 5-6)

179. The maximum worst-case magnetic field level of 132 mG at the peak of the Table 1 profile is far below the International Commission on Non-ionizing Radiation Protection acceptable exposure level of 2,000 mG for the general public as recognized in the Council's "Electric and Magnetic Field Best Management Practices for the Construction of Electric Transmission Lines in Connecticut." (Council Administrative Notice Item No. 16, p. 3; PSEG 4, pp. 5-6)

180. The nearest residential use to the proposed transmission connection is located at the intersection of Henry Street and Main Street. The residence is located on the south side of Henry Street, so it is the opposite side of Henry Street as the proposed underground line. (Tr. 1, p. 34-35; PSEG 2, response 17, Site Layout Plan Drawing)

181. Existing magnetic field levels at this nearest residential structure would not be expected to change. (Tr. 1, p. 35)

Aviation Safety and Exhaust Plumes

182. While PSEG has received its Determination of No Hazard to Air Navigation letter from FAA for the proposed 300-foot stack, this FAA determination expires on October 20, 2016. Approximately mid-summer of 2016, PSEG plans to request an extension of that determination from the FAA in order to secure additional time to meet the proposed March 2017 commencement of construction. (Tr. 1, pp. 27-28)

183. The combustion of natural gas produces significant amounts of harmless water vapor. This vapor would condense under certain meteorological conditions (generally, temperatures below 40 degrees Fahrenheit or high humidity) to form a visible plume. Thus, the potential exists for visible exhaust plumes. The length and height of plumes would be controlled by meteorological conditions. (PSEG 2, response 20)

184. The primary plume source is the proposed 300-foot exhaust stack. The proposed 160-foot auxiliary boiler stack would be associated with a small combustion source and would only operate for a short time during startup. The ACC would not emit a plume because it is a sealed/closed system without evaporative cooling. (Tr. 1, pp. 32-33; PSEG 2, response 11; PSEG 1, Tab B, Figure B-5)

185. To address the possible risk of exhaust plumes posing a hazard to aircraft, PSEG performed a plume analysis in accordance with FAA and CAA recommendations using software recommended by the FAA. (PSEG Late Filed Exhibit No. 1, Memorandum from AKRF Inc. dated May 10, 2016; Tr. 1, p. 28)

186. The MITRE Corporation software recommended by FAA (and licensed to PSEG's consultant AKRF, Inc.) uses power plant data and three years of meteorological data to determine the probabilities that any of four different aircraft types: light sport; light general aviation; business jet; and narrow-body (essentially a fairly large commercial jet) would experience either severe turbulence or an upset as a result of a power plant exhaust plume. (PSEG Late Filed Exhibit No. 1, Exhaust Plume Analyzer Summary of Study Methodology and Results, p. 2; Tr. 1, p. 28)

187. For the purposes of the plume analysis, the criterion used to determine whether an aircraft "upset" would occur is the vertical gust required to reach a 45-degree wing tilt for an aircraft executing a turn with a 25-degree wing tilt with the gust caused by the stack plume hitting the wing tip. (PSEG Late Filed Exhibit No. 1, Memorandum from AKRF Inc. dated May 10, 2016; Tr. 1, p. 29)

188. The exhaust plume analysis was performed for the proposed BHU #5 as well as the existing BHU #3. The analysis yielded similar results for all four aircraft types based on the existing and proposed power plant. The results are printouts with the probabilities of severe turbulence or an upset in the vicinity of a power plant's stack based on altitude and distance from the top of the stack. See Figures 7 through 9. (PSEG Late Filed Exhibit No. 1)

189. The MITRE software model utilizes probabilities and does not include how many aircraft could be expected to advertently or inadvertently fly into stack plumes. For example, for a light general aviation aircraft, the area where the probability of severe turbulence occurring is 1 in 10,000 for about 120 feet from the centerline of the stack and extending up to about 900 to 1,000 feet. Essentially, the aircraft would first need to be in that area at that location and then the probability of encountering such severe turbulence would be the 1 in 10,000. (PSEG Late Filed Exhibit No. 1; Tr. 1, p. 29)
190. In approximately July 2004, the FAA added to the pilot's training manual warnings about flying into the vicinity of power plants. In addition, FAA's standard ceiling for pilots is 2,000 feet in congested areas (which would include Bridgeport). (Tr. 1, p. 29)
191. At an altitude of 2,000 feet, the most conservative or "worst-case" scenarios for the MITRE probabilistic plots are for light sport aircraft under the proposed BHU #5 operation for either natural gas or ULSD operation. At this location, the plot area is in the third lightest color area, which represents a 10^{-5} probability of an upset or severe turbulence, or a 1 in 100,000 event. (PSEG Late Filed Exhibit No. 1, Exhaust Plume Analyzer Summary of Study Methodology and Results, p. 7, 15, 23, 31, 48, 56, 64, 72)
192. The worst-case results for the existing BHU #3 coal-fired plant are similar directly at an altitude of 2,000 feet for light sport aircraft. At this location, the plot area is in the third lightest color area, which represents a 10^{-5} probability of an upset or severe turbulence, or a 1 in 100,000 event. (PSEG Late Filed Exhibit No. 1, Exhaust Plume Analyzer Summary of Study Methodology and Results, p. 80)
193. By memorandum dated September 24, 2015, FAA made a change to the Aeronautical Information Manual (AIM) on July 24, 2014. The change updated terminology and provide more detail regarding the associated hazards of exhaust plumes. In addition, in order to retain a current license, all aircraft pilots are required to complete a Biennial Flight Review. This two-year refresher training includes both classroom and flight time and is intended to assure that all pilots remain aware of regulatory and other information in the AIM. Therefore, all pilots who hold current licenses are expected to be aware of the potential risks of flying in the vicinity of exhaust plumes by the end of July 2016. (PSEG Late Filed Exhibit No. 1, Memorandum from AKRF Inc. dated May 10, 2016, pp. 1-2)

Future Deactivation of BHU #3

194. PSEG has an obligation to ISO-NE to deliver capacity and energy from BHU #3 through 2020. However, given that PSEG has committed to ending commercial operation of BHU #3 by July 1, 2021, PSEG has agreed to work with the City of Bridgeport on a joint planning study to explore how the development and/or reuse of the remainder of the site, including any schedule for partial or complete deconstruction of BHU #3 can reinforce City and community objectives for the South End section of the City. (Tr. 1, p. 70; PSEG 2, response 34)
195. One of the main components of the study would examine the near-term deconstruction, remediation, landscaping and other interim measures necessary to minimize any negative aesthetic impacts of the deactivated BHU #3, the minimum amount of work necessary to accomplish this goal and timeframe. It has not yet been determined specifically which BHU #3 structures would be removed and which could remain. PSEG would reach those decisions in collaboration with the City and PSEG's neighbors. (PSEG 2, response 34; Tr. 1, p. 60-61)
196. The second part of such study would explore medium and long-term redevelopment or re-use options for the site, specifically focusing on how the remainder of the parcel can support the City's coastal resiliency, waterfront access, and economic development objectives. The planning study has been incorporated into the CEBA associated with the project. (PSEG 2, response 34)

Figure 1 – Facility Location

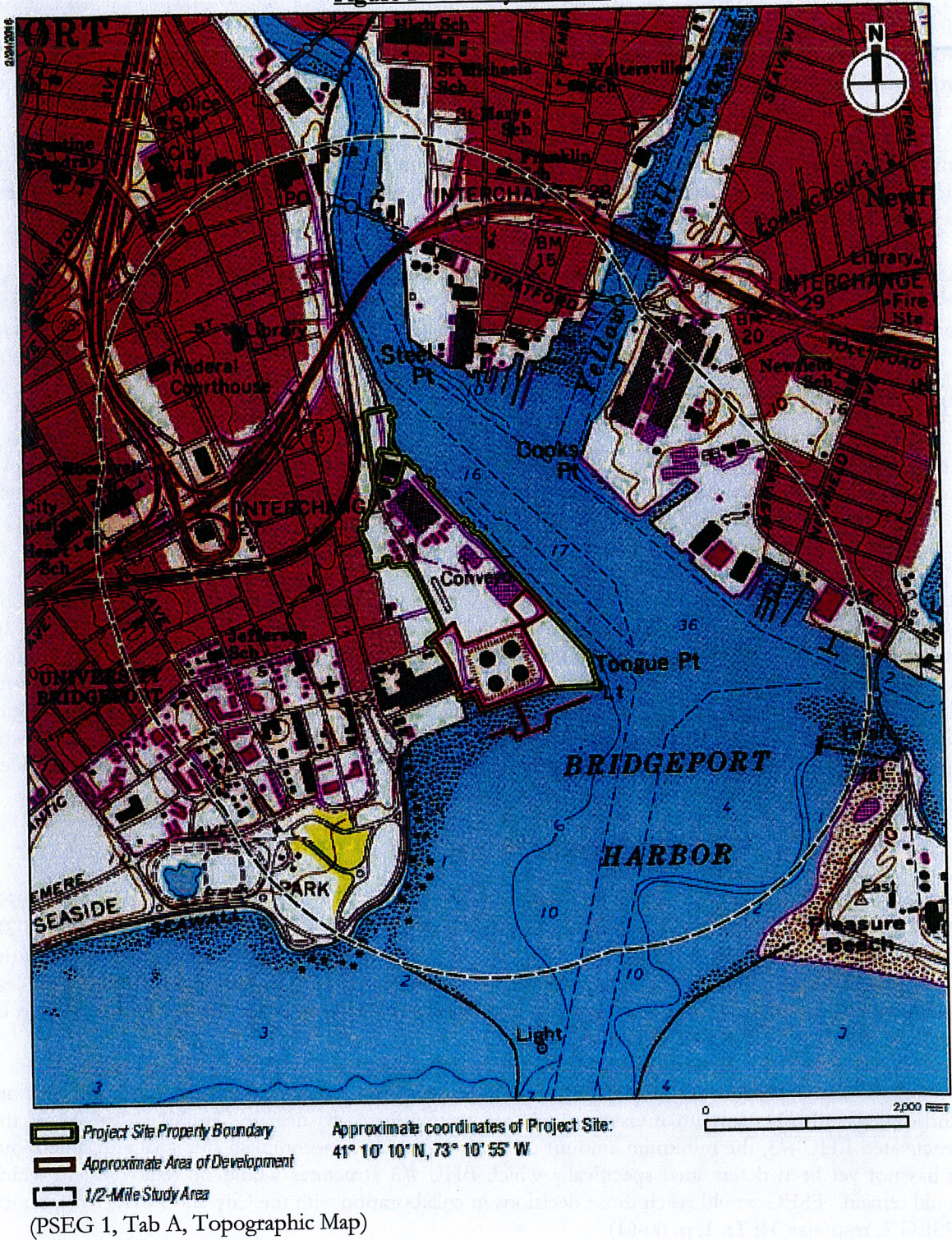
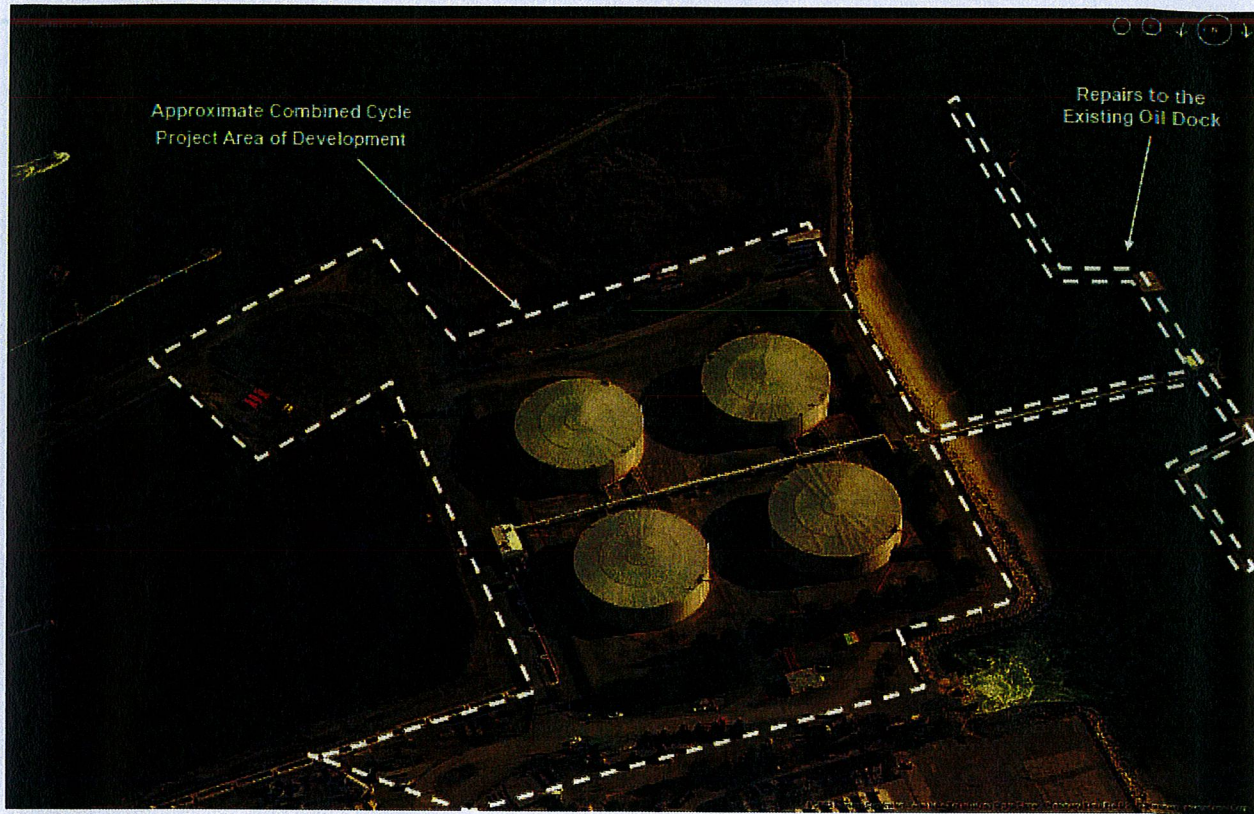
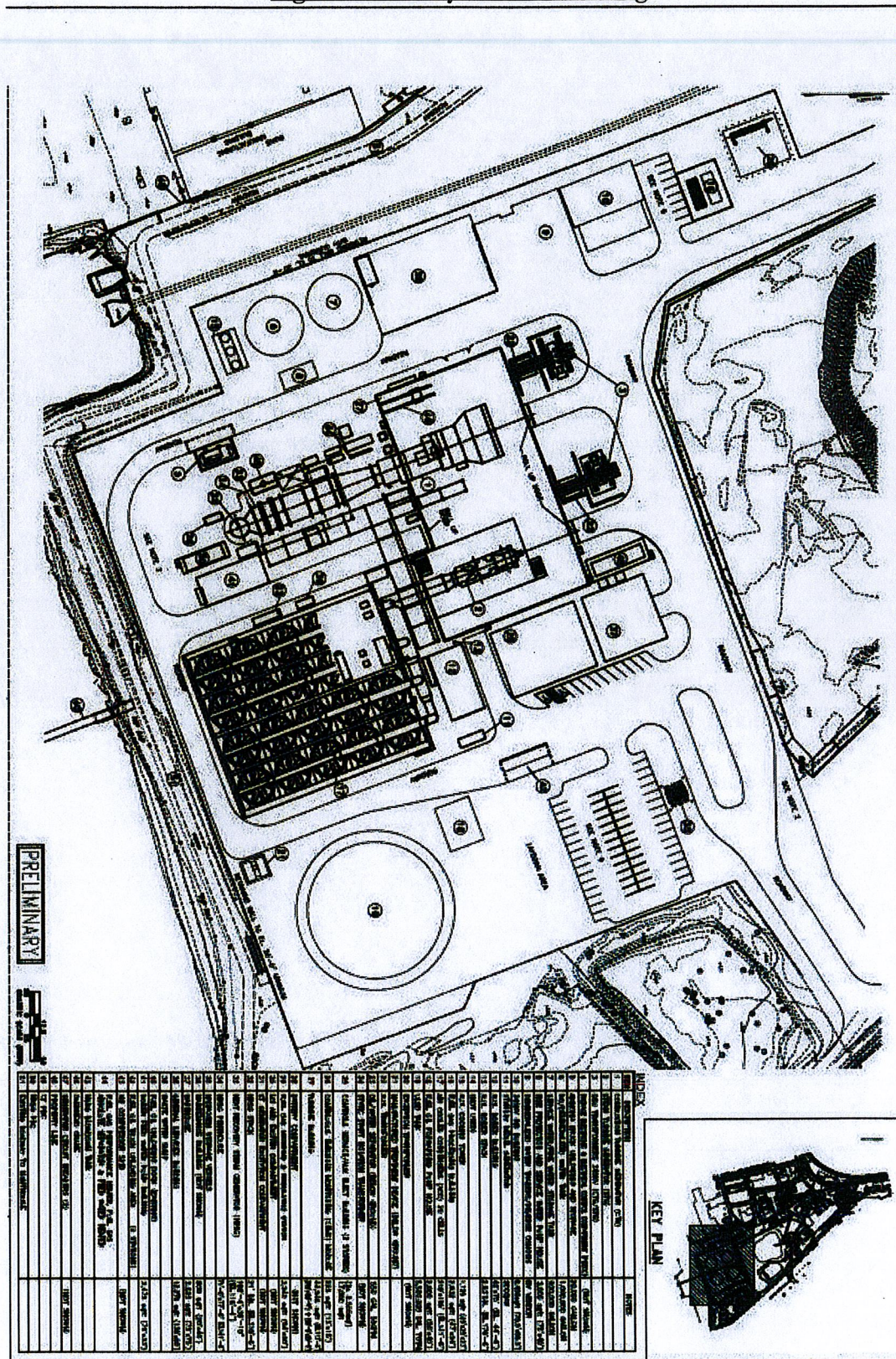


Figure 2 – Site Aerial Drawing



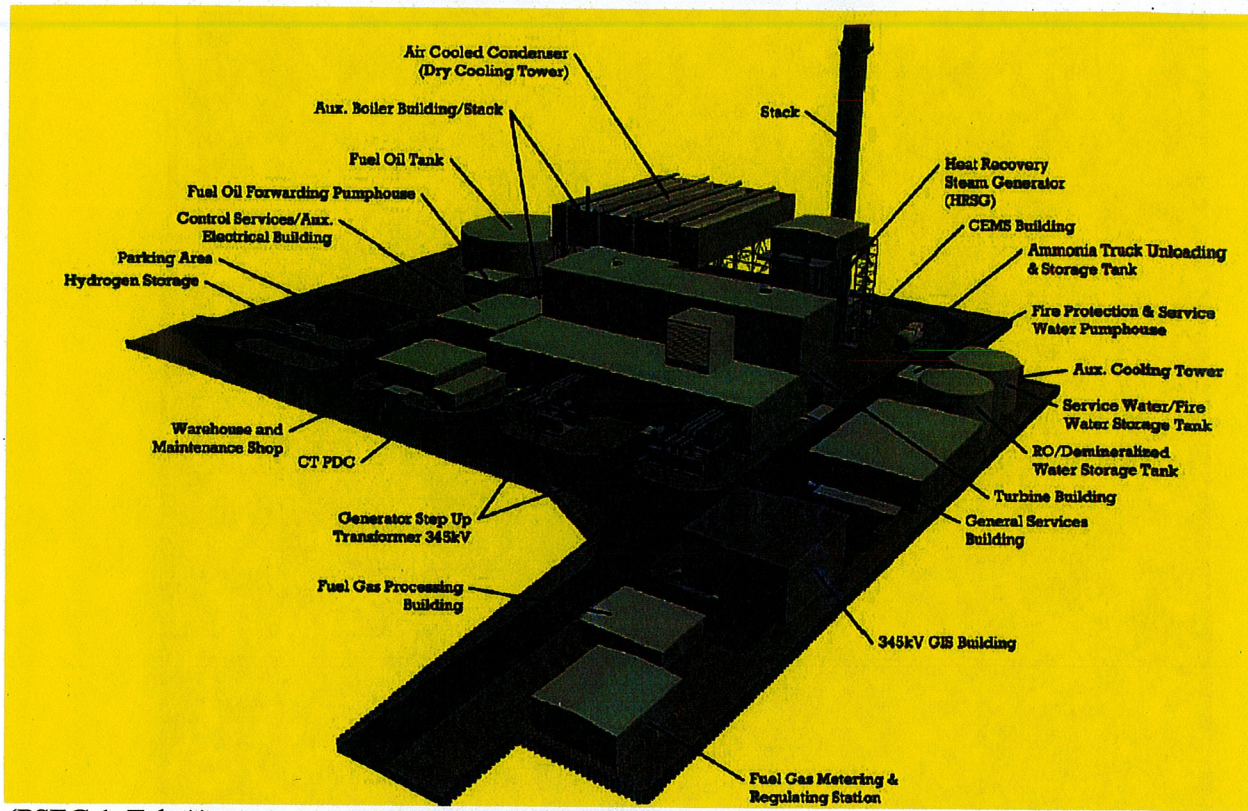
(PSEG 1, Tab A, Site Location Aerial)

Figure 3 – Facility Site Plan Drawing



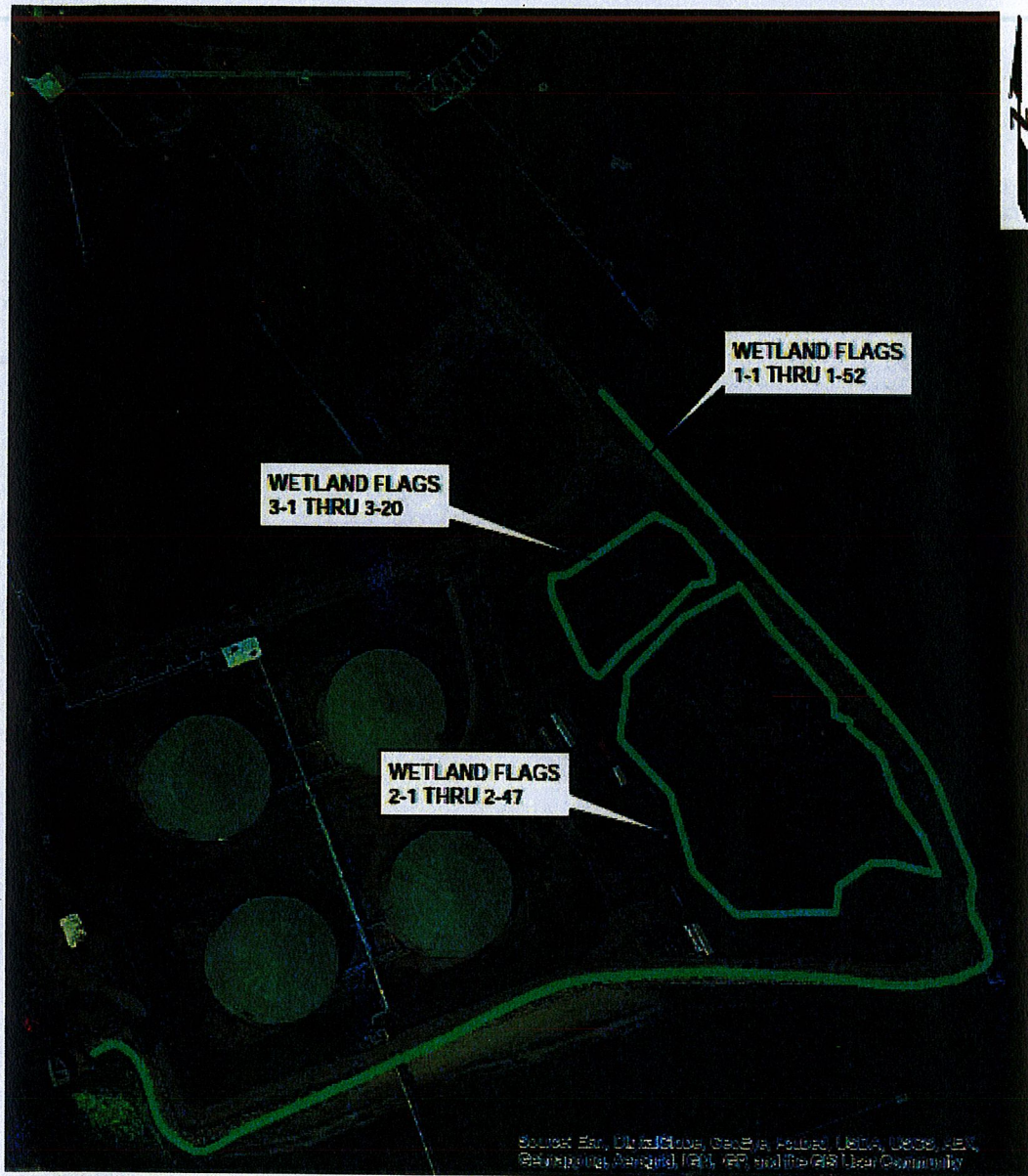
(PSEG 1, Tab A, Site Development Plan)

Figure 4 – 3D Facility Drawing



(PSEG 1, Tab A)

Figure 5 – Wetland Map

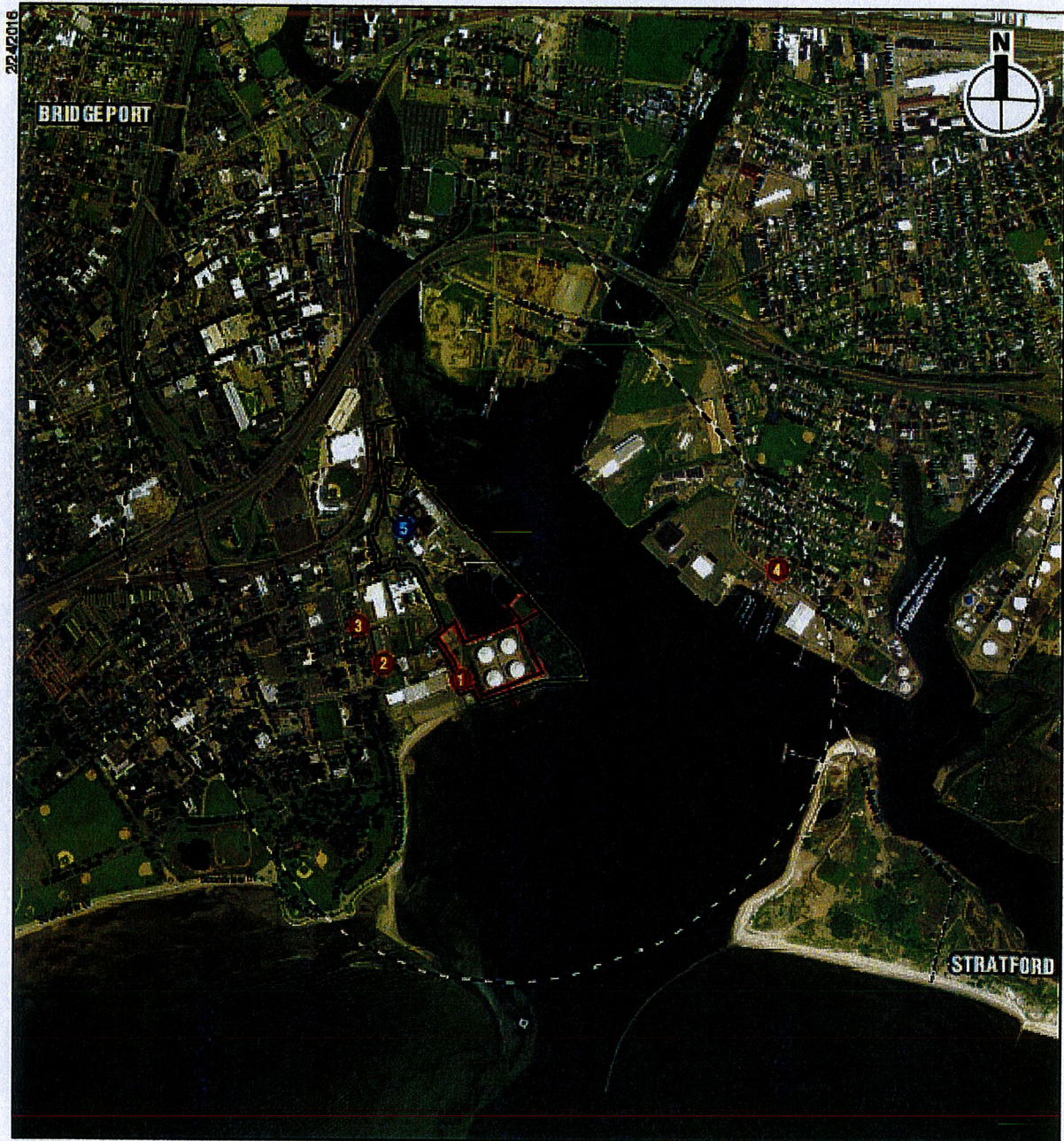


SOURCE:
1. 2011 ESRI WORLD IMAGERY

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SCALE: 1" = 200'

(PSEG Late Filed Exhibit No. 3)

Figure 6 – Noise Survey Locations








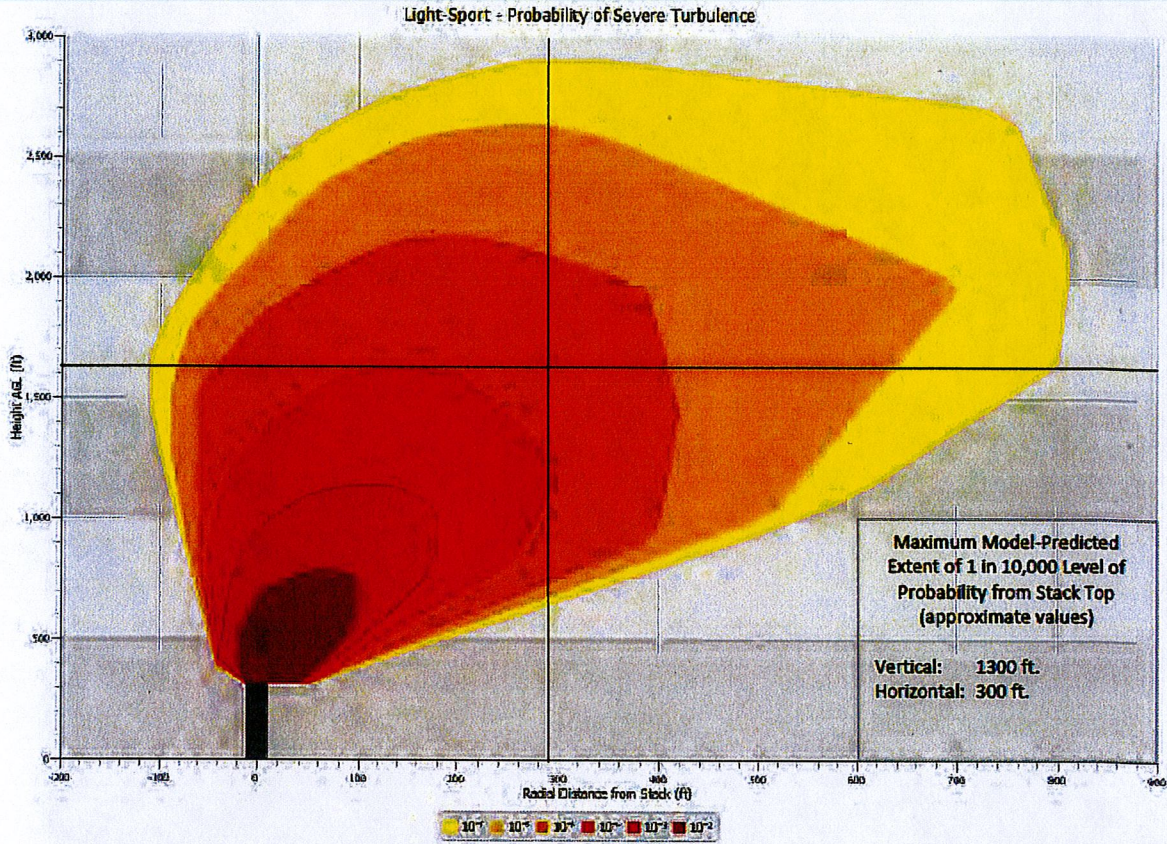
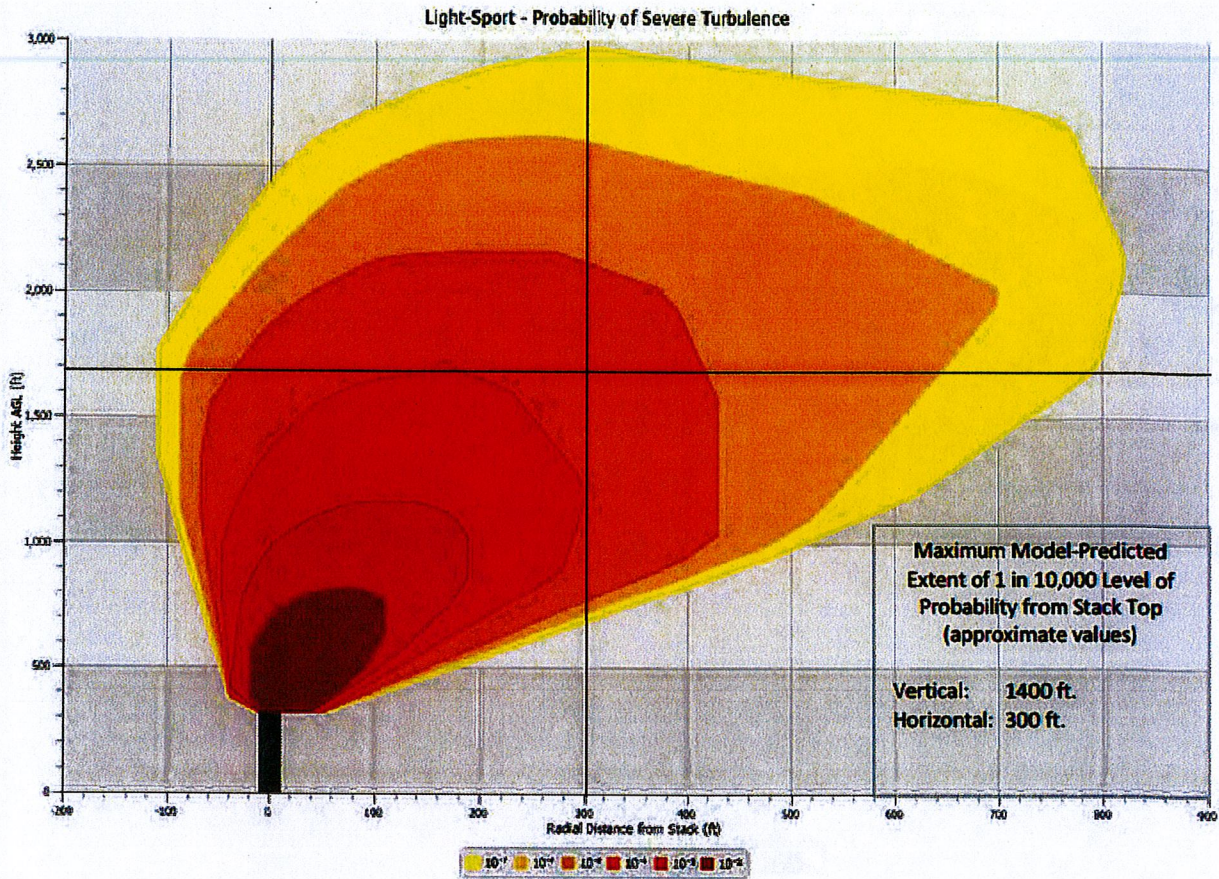
-  Approximate Area of Development
 -  Project Site Property Boundary
 -  1/2-Mile Study Area
 -  Noise Receptor Location
 -  Unit 3 Noise Survey Control Point
- (PSEG 1, Tab A, pp. 6-4 and 6-5)

Figure 7 – MITRE Plot for Light Sport Aircraft for BHU #5 under Summer Full-load Natural Gas Operation



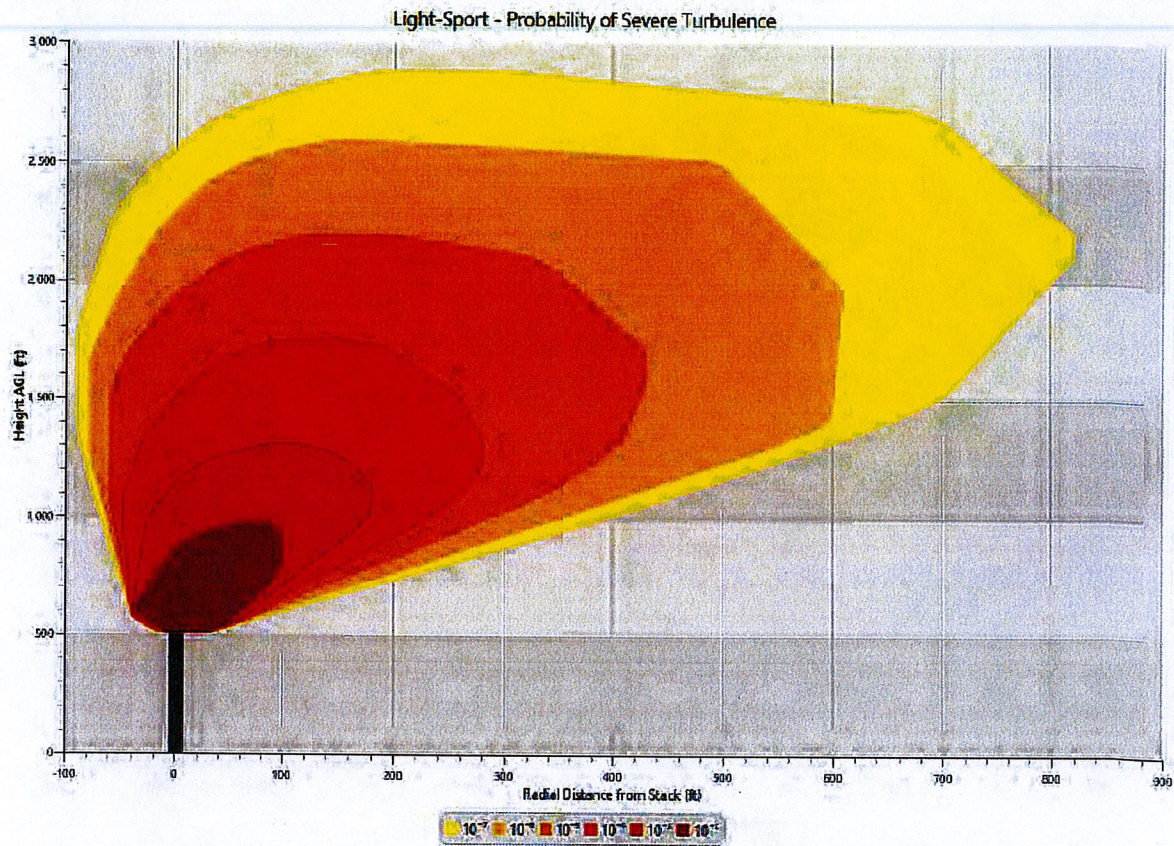
(PSEG Late Filed Exhibit No. 1, Exhaust Plume Analyzer Summary of Study Methodology and Results, p. 7)

Figure 8 – MITRE Plot for Light Sport Aircraft for BHU #5 under Full-load Winter ULSD Operation



(PSEG Late Filed Exhibit No. 1, Exhaust Plume Analyzer Summary of Study Methodology and Results, p. 31)

Figure 9 – MITRE Plot for Light Sport Aircraft for BHU #3 under Full-load Coal Operation



(PSEG Late Filed Exhibit No. 1, Exhaust Plume Analyzer Summary of Study Methodology and Results, p. 80)