



January 18, 2019

**VIA ELECTRONIC MAIL AND OVERNIGHT MAIL**

Melanie A. Bachman  
Executive Director  
State of Connecticut  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

**Petition No. 1218 – PSEG Power Connecticut LLC  
Bridgeport Harbor Station Unit 5 – Bridgeport, Connecticut  
Progress Report No. 14 – Fourth Quarter 2018**

Dear Ms. Bachman:

This is the Fourth Quarter 2018 progress report submittal to the Connecticut Siting Council (CSC) for the new combined cycle generating station designated by PSEG Power Connecticut LLC (PSEG) as the PSEG Bridgeport Harbor Station Unit 5 Combined Cycle Project (BHS 5, the Project, or the Facility). This progress report documents compliance with the CSC conditions as set forth in the CSC Decision and Order (D&O), as well as the Development and Management Plan (D&MP) approvals.

The CSC Condition Compliance Matrix is included in this report as **Exhibit 1** and will continue to be included in future progress reports to track the CSC's requirements.

**Construction Status Summary**

Site construction continued to progress in the October to December 2018 period covered by this report. The project continues on schedule with site field construction progress at approximately 77%. The Commercial Operations Date (COD) for the facility remains June 1, 2019.

All substantial structures have been constructed, including the Heat Recovery Steam Generator (HRSG) and stack, the Air Cooled Condenser (ACC) including all risers, steam trunks, and headers, the Auxiliary Boiler (and portions of the stack), all field erected tanks and all Pre-Engineered Metal Buildings (PEMB). The majority of site work at this time, in preparation for startup / commissioning testing, relates to piping, electrical and instrumentation installation activities. All marine / barge deliveries are complete and the two barge offload areas have been demobilized.

The only remaining underground utility left to complete is the stormwater system tie-in to the outfall, which is pending completion of site finishes and currently scheduled for the second quarter of 2019. The Gas Insulated Switchgear (GIS) equipment was energized and the 345 kilovolt backfeed from the United Illuminating Company Singer Substation was placed in service on December 5, 2018. As noted, construction of the PEMBs, including the Turbine and Administration Buildings, is complete with interior fit-out continuing.

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Equipment deliveries to site and offsite yards continued as required by the schedule. The two water tanks (Fire / Service and Demineralized Water), and the Ultra-Low Sulfur Distillate (ULSD) tank were completed and the water tanks were hydro-tested. The ULSD hydro-test is scheduled to be completed in January. Following submittal of required notices, process procedures, Special Inspector qualifications, and other data to the CSC and other required Connecticut / City agencies, fuel gas pipe cleaning activities commenced in December 2018. Completion is expected in January 2019.

Excepting minor grout and small miscellaneous pads, all of the planned concrete quantity has been installed. Site fill is essentially complete. As previously reported, Soil Erosion and Sediment Control (SESC) Best Management Practice (BMP) installation is complete, required stormwater inspections are being conducted, and the SESC BMPs are being maintained.

**Exhibit 2** provides construction status photographs depicting site developments during the fourth quarter of 2018.

### **Community Activities**

As previously reported, PSEG continues to work closely with the City of Bridgeport in the implementation of the Community Environmental Benefit Agreement (CEBA). The \$600,000 PSEG Ready2Work Apprenticeship Readiness Training Program (in conjunction with the City of Bridgeport, the Environmental Task Force (ETF), the local trade unions, the Connecticut AFL-CIO and the Connecticut Department of Labor) continues.

Four of the five classes have been completed. The final class begins at Bridgeport Harbor Station in January 2019.

As part of the CEBA, PSEG has established a website with additional information (<https://bridgeportharborstation.com/home/>). Note that real-time / time-lapse video is available of the construction from inception through the current time on the website.

PSEG continued discussions with a local firm related to energy projects in the City of Bridgeport. As detailed in **Exhibit 3**, PSEG has explored opportunities to use waste heat from the facility and determined that no viable alternatives exist. PSEG is submitting the **Exhibit 3** assessment as backup for the proposed closure of CSC Conditions 1(b) and 12/23/16-04. However, PSEG continues to engage with a local firm to develop options for potential PSEG involvement in a thermal loop project under the CEBA Renewable Energy Investment Program.

### **Remediation Status Summary**

Site fill and remediation activities are essentially complete in the field.

PSEG plans to document remediation closure with the CT DEEP at the time site finishes are installed (as noted above, this is currently targeted for the second quarter of 2019). Documentation related to fill depths and the orange warning fabric elevation is being prepared, but the final grading / finishes need to be part of the closure documentation. In addition, with completion of marine / barge deliveries and pending the release from construction use of the area with Engineered Controls (EC) in the laydown near the east ramp, the final EC

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documentation will be prepared. The remediation and EC closure documentation is currently planned for concurrent submittal to the CT DEEP by the end of September 2019.

**Engineering and Regulatory Status Summary**

Design engineering is complete. Construction and equipment supply contracting, with minor exceptions, is complete. Similarly, City of Bridgeport building permitting in support of ongoing site field work is complete, exclusive of closeouts (which have begun) and minor refinements.

A permitting update is provided below. There were no applications filed with CT DEEP during the fourth quarter of 2018. A copy of the final Title V Air Operating Permit was submitted with the 3Q2018 Progress Report. A copy of the Industrial Wastewater pre-treatment permit will be provided upon approval by CT DEEP, in accordance with CSC Decision and Order Condition No. 4.

1. CT DEEP published the draft Industrial Wastewater Pre-Treatment Notice of Tentative Determination (NTD) on their website and in the Connecticut Post on December 21, 2018. This followed City of Bridgeport Water Pollution Control Authority (WPCA) review and approval of the proposed NTD. The final permit is expected in late-January or early-February 2019.

2. No discharges under the General Permit (GP) Registration for Miscellaneous Discharges of Sewer Compatible Wastewater (MISC GP), which is applicable to start-up / commissioning wastewater discharges to the WPCA treatment facilities via the installed force main, have been initiated to date.

3. Initial discharges under the Comprehensive GP Registration for Discharges to Surface Water and Groundwater for hydrostatic testing water discharge were initiated in November 2018 with no issues. This authorization is primarily for the hydrostatic testing water from the 1 million gallon demineralized and service / fire water tanks and the 5.5 million gallon ULSD tank.

4. PSEG has obtained CT DEEP and the United States Environmental Protection Agency concurrence on a separate commissioning schedule for start-up on ULSD, which is currently scheduled for late 2019. Initial testing and commissioning in support of the June 1, 2019 COD will be on natural gas only.

5. The remaining permitting activities associated with the construction of BHS5 include:

- a. Receipt of the Individual Industrial Wastewater Pre-treatment Permit from CT DEEP for discharge of industrial wastewater to the City of Bridgeport WPCA, as noted above.
- b. Transition from the CT DEEP construction stormwater GP to the existing site operating stormwater GP. This will occur when site finishes are completed, final connections to the Mechanical Treatment Device are made, and the system is placed in service for stormwater discharges.
- c. Updates of the BHS site Stormwater Pollution Prevention Plan (SWPPP), and Spill Prevention, Control and Countermeasures Plan (SPCC) for incorporation of BHS5 into the existing site plans. These updates will be re-submitted to the CSC

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per Conditions 1(j) and 1(m) through 1(p), with the 1Q2019 Quarterly Progress Report.

- d. Update and reinstatement of the BHS site Facility Response Plan (FRP) upon reaching the petroleum product storage capacity of 1,000,000 gallons. This update will be re-submitted to the CSC per Conditions 1(m) through 1(p) with the 1Q2019 Quarterly Progress Report.
- e. Permit closeouts upon completion of construction and start-up / commissioning.
- f. Building permit closeouts upon City of Bridgeport acceptance of work.

**Storage, Offsite Fabrication and Barge Delivery of Equipment**

Deliveries and staging of equipment to the PSEG site through the adjoining Remington property continued. PSEG-owned property near the plant continues to be used for warehousing and storage, consistent with historic uses. PSEG has leased City-owned storage and laydown areas in the vicinity of the plant and Bridgeport Harbor.

**Development and Management Plan (D&MP) and Other CSC Updates**

PSEG expects to file D&MP Update No. 3 to the CSC in February 2019. The D&MP Update will include minor changes to the ammonia containment footprint from that previously submitted.

**Construction Schedule Update**

There have been no significant changes in the schedule for major activities from the prior reporting period, excepting the scheduling of ULSD commissioning. Minor date changes are shown below in alignment with the current detailed startup schedule. Initial Start-up, Commissioning and Testing activities began in October 2018 (on the 345 kv interconnection) and continued during 4Q2018.

1.	Forward Capacity Auction No. 10	February 10, 2016 (A)
2.	Completion of City of Bridgeport Land Use Permitting	November 1, 2016 (A)
3.	Completion of Non-Air CT DEEP Permitting	February 2017 (A)
4.	Initial City of Bridgeport Building Permit Submittals	February 2017 (A)
5.	Receipt of CT DEEP Final Air Permit	April 11, 2017 (A)
6.	Initiation of Field Construction and Delivery Activities	April 12, 2017 (A)
a.	Temporary Construction Facilities	November 2016 (A)
b.	Site Work	April 12, 2017 (A)
c.	Foundations	June 2017 (A)
d.	Initial Equipment Deliveries	August 2017 (A)
e.	Major Equipment Delivery (Transformers)	November 2017 (A)
f.	Major Equipment Delivery (Turbines / Generators)	January 2018 (A)
f.	GIS and Transformer Foundation Installation	June 2017 (A)
g.	Gas Turbine Generator (GTG) Delivery and Set	January 2018 (A)
h.	HRSG Delivery	May 2018 (A)
i.	Start-up Testing and Commissioning	October 2018 (A)
7.	Operational Testing (first GTG operations)	March 2019
8.	Balance of Plant Initial Start-up Testing	January 2019

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9.	Performance and Reliability Testing	April - May 2019
10.	Target Completion	May 2019
11.	Commercial Operation Date (COD) on Natural Gas	June 1, 2019
12.	Commissioning on ULSD	December 2019

Note: "(A)" refers to ACTUAL

**Status of CSC Conditions**

The changes and updates to the full listing of CSC conditions (**Exhibit 1**) for this reporting period includes the following:

1. Submittal to the CSC of information related to fuel pipeline/system cleaning operations was completed and the status of requirements 6 through 8(iii) have been updated in **Exhibit 1**.
2. Condition 1(f) related to the filing of closeout documentation with CT DEEP for the tank farm remediation is now scheduled for the third quarter of 2019 based on site finishing schedule. This condition is expected to be closed out with the CSC via the Quarterly Progress Report for that period.
3. An update to D&MP Phase 2 Condition 12/23/16-04 related to the potential use of waste heat is addressed in **Exhibit 3** and is proposed for closure.
4. The date for submitting a schedule for D&MP Phase 2 Condition 12/23/16-05 (Oil Dock Refurbishment Plans) remains June 7, 2019 (i.e. the target date for the 2Q2019 Quarterly Progress Report). Note that this schedule may be modified as plans for oil commissioning late in 2019 are developed.
5. PSEG closure documentation related to Condition 18 (Code Training Fund) was filed with the CSC on October 11, 2018.
6. Other minor updates and refinements are as noted in **Exhibit 1** below.

If you have any questions or require clarification, please contact me at 973-856-0066 or the Project Senior Technical Director / Regulatory Lead, Jeff Pantazes at 609-440-0236.

Very truly yours



David Hinchey  
Manager – Environment Major Permits and Projects

PSEG Power LLC  
Fossil Environment, Health and Safety

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**Enclosures - Exhibits:**

- 1. Updated CSC Condition Compliance Matrix**
- 2. Site Construction Photos**
- 3. Assessment of Feasibility of Using Waste Heat (CSC D&MP Phase 2 Condition 12/23/16-04 )**

C Michael Perrone (three copies and electronic)  
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**Exhibit 1 – Updated CSC Condition Compliance Matrix**

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<b>CSC Requirement Number</b>	<b>CSC Requirement</b>	<b>D&amp;M Plan Phase 1 Construction Support Facilities</b>	<b>D&amp;M Plan Phase 2 BHS 5 Design</b>	<b>Subsequent Filing Report and Date Closure Status **</b>
1(a)	Final site plan showing roads, structures, and other improvements on the site	Partial: construction execution planning process summary included as Exhibit 1. A general update on Project Scope and Design is included as Exhibit 15.	Final structures and other improvements, including buildings, stack, power block, and balance of plant (Exhibits 1 and 2)	Completed; D&MP Update No. 1 was filed in June 2017 and approved in July 2017.
1(b)	Consideration of waste heat as supply for thermal loop or nearby industrial user	N/A	Included (Exhibit 9)	Completed; see CSC Requirement Number 12/23/16-04 below for follow-up requirements.
1(c)	Lighting plan and details to minimize impact on off-site properties	Partial: construction lighting only – Exhibit 9	Final lighting plans (Exhibits 1 and 2)	Completed
1(d)	Final fuel dock rehabilitation plan	Update on status included as Exhibit 7	Status unchanged since D&MP Phase 1 – PSEG will provide an update of this portion of the project by September 30, 2017 after design is completed. See Exhibit 10.	Completed; see CSC Requirement Number 12/23/16-05 below for follow-up actions.
1(e)	Water and sewer connection routes	Partial: temporary construction sewer line connection and other utilities included in Exhibit 9. Note that the status of the UI Exempt Modification request is included as Exhibit 11.	Permanent utility routing included (Exhibits 1 and 2)	Completed
1(f)	Status of site remediation in existing fuel tank area and remaining remediation work - Which areas of contamination will be inaccessible? - Layer showing contaminated soil locations	Remedial Action Plan Addendum included as Exhibit 6. Status of remediation implementation included as Exhibit 5.  Unit 3 tank and unloader status included as Exhibit 4.	Status for remaining work will be included to document final soil placement locations. (Exhibits 7 and 8)	Open – PSEG anticipates submittal of final remediation status to the CT DEEP in the third quarter of 2019 and to the CSC with the 3Q2019 Quarterly Progress Report. This condition also addresses remediation reporting related to CSC Exempt Modification EM-PSEG-015-160205 as noted in the 3Q2018 Quarterly Progress Report.
1(g)	Natural gas interconnection plan and gas compressor building design and location	N/A	Included (Exhibit 2)	Completed



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1(h)	Final Erosion and Sediment Control Plans	Soil Erosion and Sediment Control Plans included in Exhibit 9 as noted in Exhibit 14.  The USACE Jurisdictional Determination is included as Exhibit 13.	SESC plans included in Exhibit 2; they were previously provided in D&MP Phase 1 as well.	Completed
1(i)	Final stormwater design	N/A	Included (Exhibit 2)	Completed. D&MP Update No. 1 was filed in June 2017 and approved in July 2017 that included stormwater design revisions.
1(j)	Stormwater Pollution Protection Plan	N/A	Included (Exhibit 15)	Completed; an update will be provided after incorporation of BHS5 into the existing site SWPPP.
1(k)	Flood Mitigation Plan	N/A	Included (Exhibit 3)	Completed
1(l)	Final plans to demonstrate compliance with CT DEEP noise standards	N/A	Final Noise Study Report Included (Exhibit 14)	Completed
1(m)	Fuel storage and handling plan, including containment and spill protection measures	N/A	Spill Prevention Control and Countermeasures Plan included (Exhibit 18)	Completed; an update will be provided after incorporation of BHS5 into the existing site SPCC Plan
1(n)	Containment measures for step-up transformer dielectric fluids and ULSD storage tank	N/A	Included (Exhibit 3)	Completed; an update will be provided after incorporation of BHS5 into the existing site SPCC Plan
1(o)	Containment and/or protective measures for delivery and storage of hydrogen and aqueous ammonia	N/A	Included (Exhibits 3 and 20)	Completed; Note that D&MP Update No. 3 is planned for submittal to the CSC in February 2019 with minor containment footprint changes.
1(p)	Backup generator design and containment measures for fuel, oil, and coolant	N/A	Included (Exhibit 3)	Completed: Vendor data included in Exhibit 4 of the May 2017 Monthly Progress Report No. 5.
1(q)	Dewatering plan to address groundwater issues during construction	N/A	Stormwater Pollution Control Plan for construction stormwater and dewatering included. (Exhibits 15 and 16)	Completed
1(r)	Detailed project schedules for all work activities and proposed typical construction days and hours	Partial: Schedule update Included as Exhibit 2 and permitting status included as Exhibit 3.	Work hours and schedule update included in Exhibits 3 and 6 respectively.	Completed

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1(s)	Construction laydown area locations	Included in Exhibits 8 and 10 including access routings for high trucks.  In addition, the plans for barge delivery of equipment and unloading are included as Exhibit 12.	See Exhibit 3 for an update regarding a lease agreement for an adjoining property	Complete: Submitted information in D&MP Phases 1 and 2 was updated in May 2017 Monthly Progress Report No. 5.
1(t)	Site security measures	Partial: site security for construction discussed in Exhibit 1.	Partial: Site security measures (Exhibit 3)	Completed
1(u)	Final FAA lighting design for the stack and any FAA crane determinations	N/A	Included (Exhibit 3)	Completed
1(v)	Decommissioning Plan as contingency plan, including infrastructure removal and site restoration plans	N/A	Included (Exhibit 19)	Completed
2	Submit FAA Determinations for temporary structures (cranes) and stack	N/A	N/A	Completed April 11, 2017 via memorandum to the CSC. Updated Determinations were included as Exhibit 4 of the 3Q2018 Quarterly Progress Report.
3	Submit local permits relative to the discharge of wastewater	N/A	N/A	Completed April 11, 2017 via memorandum to the CSC. Final CT DEEP pre-treatment permit for discharge of industrial wastewater to WPCA will be provided upon receipt.
4	Submit final CT DEEP air emissions and water discharge permits	N/A	N/A	Completed April 11, 2017 via memorandum to the CSC. Updated NSR permits were provided in Exhibit 3 of the 2Q2018 Progress Report No. 12. The CT DEEP pre-treatment permit for discharge of industrial wastewater to WPCA will be provided upon receipt. The Title V Air Permit was included as Exhibit 3 of the 3Q2018 Quarterly Progress Report.

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5	The use of natural gas as a fuel pipeline / system cleaning medium for construction or any future facility modification shall be prohibited.	N/A	N/A	PSEG notes this condition and will retain it as "Open". The provisions of CSC Requirement Number 6 (below) address the specifics of compliance.
6	Submit the information included below in CSC requirement Numbers 6(i) to 6(viii) at least 15 days prior to fuel pipeline / system cleaning medium for construction or any future facility modification.*	N/A	N/A	Closed – information submitted to the CSC via memos on November 13, November 15, and November 21, 2018. CSC provided acknowledgment on November 28, 2018.
6(i)	Identification of cleaning media to be used	N/A	Not currently available.	Closed – see Condition 6.
6(ii)	Identification of any known hazards through use of selected cleaning media	N/A	Not currently available.	Closed – see Condition 6.
6(iii)	Description of how known hazards will be mitigated, including applicable state or federal regulations	N/A	Not currently available.	Closed – see Condition 6.
6(iv)	Identification and description of accepted industry practices or relevant regulations concerning proper use of such media	N/A	Not currently available.	Closed – see Condition 6.
6(v)	Detailed narratives/drawings showing location and procedures to be used during pipe cleaning process, including worker safety exclusion zones	N/A	Not currently available.	Closed – see Condition 6.
6(vi)	Identification of contractor or personnel performing work, including description of past project experience and level of training/qualifications necessary for work	N/A	Not currently available.	Closed – see Condition 6.
6(vii)	Contact information for special inspector (CT registered engineer with knowledge or experience with electric generating facilities) with written approval by local fire marshal and building inspector	N/A	Not currently available.	Closed – see Condition 6.

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6(viii)	Certification of notice regarding pipe cleaning operations (Submitted to all state agencies listed in CGS §16-50j(g), Dept of Consumer Protection, Dept of Labor, Dept of Emergency Services and Public Protection, Dept of Construction Services, Dept of Emergency Management and Homeland Security, and local fire marshal)	N/A	Not currently available. An update will be provided one month prior to the start date for pipe cleaning.	Closed – see Condition 6.
7	Compliance with specific codes and standards for any fuel pipeline / system cleaning operations related to construction or any future facility modification, as applicable. (Note: the Codes and Standards are listed in the Decision and Order)	N/A	N/A	Closed – see Condition 6.
8(i) <sup>†</sup>	Description of results of simulated emergency response activities	N/A	Not currently available.	See Note at the bottom of this <b>Exhibit 1</b> .
8(ii) <sup>†</sup>	Details of any facility site access system that accounts for all personnel entering and leaving the facility	N/A	Not currently available.	See Note at the bottom of this <b>Exhibit 1</b> .
8(iii) <sup>†</sup>	Establishment of emergency responder/local community notification system for onsite emergencies and planned construction-related activities	N/A	Not currently available.	See Note at the bottom of this <b>Exhibit 1</b> .
9	Unless otherwise approved by the Council, the facility must be constructed within five years of July 22, 2016 (by July 21, 2021) or re-approval by the Council is required.	N/A	N/A	Open: PSEG anticipates completion of BHS 5 by the scheduled Commercial Operation Date of June 1, 2019.
10	Notify the Council within 45 days of the completion of construction.	N/A	N/A	Open

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11	Maintain the facility in a reasonable physical and operational condition consistent with the Decision and Order and the approved D&MPs.	N/A	N/A	Noted
12	Provide the Council with a minimum of 30 days written notice when the facility will cease operations.	N/A	N/A	Noted
13	Remit timely payments associated with annual assessments and invoices submitted by the Council.	N/A	N/A	Noted
14	Notify the Council of any change in ownership or contact information within 30 days of the sale and / or transfer.	N/A	N/A	Noted
15	Submit any request for extension as noted in CSC Requirement Number 9 (above) not later than 60 days prior to the expiration, including notice to specific parties and the service list.	N/A	N/A	Noted
16	The Declaratory Ruling may be transferred subject to being current with payments and an agreement to continue payments as required.	N/A	N/A	Noted
17	Retain a Special Inspector to assist the Fire Marshall to assure compliance with CGS §16-50ii	N/A	N/A	Closed – see Condition 6.
18	Deposit a fee into the Code Training Fund in accordance with CGS § 29-251c.	N/A	N/A	Closed – PSEG submitted documentation to the CSC on October 11, 2018.

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	<b>D&amp;MP Phase 1 Conditions</b>			
10/31/16-01	Use of off-road construction equipment that meet the latest EPA or California Air Resources Board standards, or in the alternative, equipment with the best available controls on diesel emissions, including but not limited to retrofitting with diesel oxidation catalysts, particulate filters and use of ultra-low sulfur fuel.			Completed: February 2017 Monthly Progress Report.
10/31/16-02	Compliance with the provisions of Section 22a-174-18(b)(3)(C) of the RCSA that limit the idling of mobile sources to 3 minutes.			Completed: February 2017 Monthly Progress Report.
10/31/16-03	The petitioner shall submit the specifications of the fill to the Council			Completed; December 2, 2016 response to Interrogatory CSC D&M-05.
	<b>D&amp;MP Phase 2 Conditions</b>			
12/23/16-01	Same as 10/31/16-01 above			Completed: February 2017 Monthly Progress Report.
12/23/16-02	Same as 10/31/2016-02 above			Completed: February 2017 Monthly Progress Report.
12/23/16-03	Compliance with the reporting requirements under Section 16-50j-62 of the RCSA			Ongoing Reporting to continue on a quarterly basis as approved by the CSC on September 6, 2017.
12/23/16-04	The final modifications of the plant to accommodate the use of waste heat, if applicable, shall be submitted to the Council for review and approval.			Closed; see Exhibit 3 of 4Q2018 Quarterly Progress Report.
12/23/16-05	The final fuel dock rehabilitation plan shall be submitted to the Council for review and approval.			PSEG will submit a schedule for D&MP Phase 2 Condition 12/23/16-05 (Oil Dock Refurbishment Plans) on June 7, 2019 with the 2Q2019 Quarterly Progress Report.

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12/23/16-06	The containment measures for the backup generator engine oil and coolant shall be submitted to the Council.			Completed: Vendor data included in Exhibit 4 of the May 2017 Monthly Progress Report No. 5
12/23/16-07	Prior to testing or start-up of the plant, the Certificate Holder shall submit to the council its final plans to comply with the recommendation and conditions relative to Council Docket No. NT-2010 and conditions (6i through 8iii) Council's Decision and Order for Petition No. 1218 relative to plant safety.			Closed – information submitted to the CSC via memos on November 13, November 15, and November 21, 2018. CSC provided acknowledgment on November 28, 2018.
12/23/16-undesignated	The Council recommends that PSEG consult with Council staff regarding dust control measures for materials delivered by barge.			Completed: June 2017 Monthly Progress Report.
† Submittal of Emergency Response/Safety Plan developed in cooperation with all local public safety officials, DESPP, and other emergency response officials. ** Documents submitted to and from the CSC related to PE1218 are available on the CSC website at <a href="http://www.ct.gov/csc/cwp/view.asp?a=2397&amp;q=578006">http://www.ct.gov/csc/cwp/view.asp?a=2397&amp;q=578006</a>				

**NOTE:**

**Additional information related to submittal plans to address CSC condition 8 (emergency response) is provided below:**

Emergency response procedures (CSC Condition 8) are in place for both BHS 5 and the existing station. PSEG expects to update these processes at the time that BHS 5 transitions from construction to operations. At that time, additional coordination with City of Bridgeport, other local, and state emergency services will be performed to assure that all contact and response information is appropriately updated. The revised procedures are expected to be submitted to the CSC, to address CSC Condition 8 requirements, by May 31, 2019.

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**Exhibit 2 – Site Construction Photos**





**Bridgeport Harbor Station Unit 5  
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Progress Photos  
Site Progress Photo 12/19/18



Site Progress Photo 12/27/18



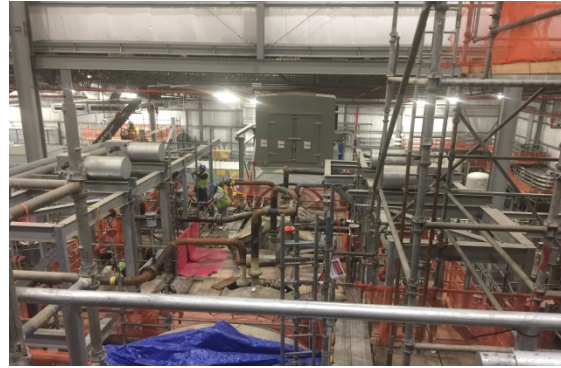


**Bridgeport Harbor Station Unit 5  
Combined Cycle Project**

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Aux Boiler Area



Steam Turbine Seals Piping



Steam Turbine Lube Oil Piping



Setting Atmospheric Drains Tank Vent



MVPDC Access Steel Erection



STG Iso-Phase Steel Erection



ST GSU Cabling



480 V MCC Termination in Admin Bld





Aux Boiler Area Progress



Welding Hot Reheat



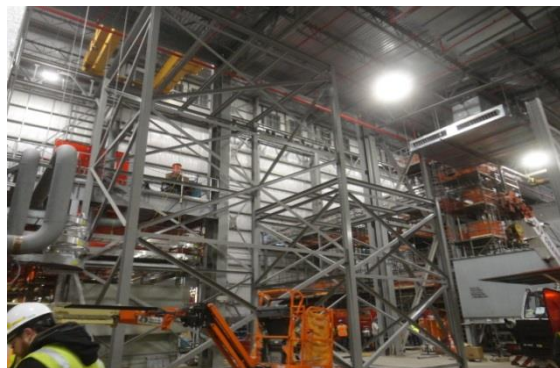
HRSG Sound Wall Progress



Hydrogen Piping Under CTG



PEECC Access Steel



STG Iso-Phase Steel Erection



Generator Protection Panel Terminations



ACC Cable in Tray

**Exhibit 3 - Assessment of Feasibility of Using Waste Heat (CSC D&MP Phase 2 Condition 12/23/16-04)**

**Concept**

PSEG has had ongoing discussions with a local Connecticut firm interested in further evaluating the possibility and feasibility of using waste heat from the BHS 5 plant. The original concept provided by the third party firm, was for PSEG to consider the use of up to 72,000 million British Thermal Units (BTU) per hour of “low grade” energy from the facility in a local hot water heating distribution system (i.e. a “district heating” concept).

**Conclusions**

Over the course of the multi-year engineering effort, PSEG has refined the BHS 5 design, including significant analysis of process waste streams that may carry useable energy. In its final design, PSEG believes it has adequately optimized energy transfer, including the selection of appropriate equipment and materials, and that there are insufficient continuous waste energy sources that could practically or realistically support district heating options. Any energy source in the plant which would result in reduction in generation is not, by definition, “waste” heat.

**Bases**

The key consideration in these conclusions is the high efficiency of the BHS 5 combined cycle power plant. With a state-of-the-art overall thermal cycle efficiency of nearly 60% (Low Heat Value basis), the thermodynamic parameters of temperature, temperature gradient, and residual energy of process waste streams are very low compared to those in older, less efficient plants.

As provided to the CSC in the initial Petition reviews (2015 and 2016) and the Development and Management Plan documentation, the final design of the condensate system utilizes an air-cooled condenser (ACC). With regard to condenser cooling, the BHS 5 design differs significantly from plants that use cooling water from a surface water source. More specifically, the use of an ACC at BHS 5 results in no surface water withdrawal or surface water discharge of any plant effluents. The waste heat from condenser cooling, which is the largest waste heat source at most power plants, is discharged directly to the air through the ACC. Additionally, the ACC design has been optimized for the geographic location of the facility.

The ACC uses a closed steam and condensate circuit that operates at very low pressures at the steam turbine exhaust, which in turn results in corresponding low condensate temperatures. Extremely large heat transfer surfaces in the ACC also result in very small temperature differences between the process stream and the ambient air used for cooling. These low temperatures and temperature differences make the capture of energy from the ACC impractical for district heating.

Other energy sources previously considered for potential heat recovery designs included intermittent HRSG blowdown, various feedwater and low pressure steam systems, and other elements of the previously noted condensate system. Similar to the ACC, and for the same basic thermodynamic reasons, PSEG has concluded that no cost effective opportunities exist within these process streams to make further energy recovery practical.

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Finally, in order for BHS 5 to operate, the continuous removal of heat from the plant for condenser cooling is required. Even assuming that a waste heat source was included in the design, the daily and seasonal variability of any alternative waste heat demand makes use of waste heat infeasible. There are no known offsite heat demands that would be consistently required on a 24/7 basis.

**Recommendation**

For the reasons above, PSEG is recommending that this condition be closed (CSC D&MP Phase 2 Condition 12/23/16-04). PSEG is continuing discussions related to local energy projects under the Community Environmental Benefits Agreement (CEBA) Renewable Energy Investment Program and anticipates making any related business decisions later in 2019 in accordance with the CEBA provisions.