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NRC CAA Applicability Analysis for PSEG ESP

5 Clean Air Act Applicability Analysis Regarding the Issuance of an Early Site Permit with no
6 Limited Work Authorization for the PSEG Site

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8 U.S. Nuclear Regulatory Commission
9 Docket No. 52-043
10 February 2012

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12 **1.0 Introduction**

13 The U.S. Nuclear Regulatory Commission (NRC) has prepared this applicability analysis in
14 accordance with U.S. Environmental Protection Agency (EPA) requirements at Title 40 of the
15 Code of Federal Regulations (CFR) Part 93, Subpart B, "Determining Conformity of General
16 Federal Actions to State or Federal Implementation Plans." This applicability analysis finds that
17 the issuance of an early site permit (ESP) with no limited work authorization (LWA) for the
18 PSEG Site will cause no direct or indirect emissions and, therefore, that such issuance does not
19 require a general conformity determination.

20 By letter dated May 25, 2010, PSEG Power, LLC and PSEG Nuclear, LLC submitted an
21 application for an ESP with no LWA to the NRC for the PSEG Site located in Salem County,
22 New Jersey, in accordance with the requirements contained in Title 10 of the Code of Federal
23 Regulations Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants,"
24 Subpart A, "Early Site Permits."

25 According to the regulations implementing the Clean Air Act (CAA), no department, agency or
26 instrumentality of the Federal Government shall engage in, support in any way or provide
27 financial assistance for, license or permit, or approve any activity which does not conform to an
28 applicable State or Federal CAA implementation plan (implementation plan). To this end, the
29 NRC performed an applicability analysis to determine whether its Federal action of issuing an
30 ESP with no LWA will cause emissions that adversely affect the ability of the Philadelphia-
31 Wilmington-Atlantic City nonattainment area to meet the national ambient air quality standards
32 (NAAQS) for ozone (O₃) and particulate matter (PM_{2.5}) and their precursors [nitrogen oxides
33 (NO_x), volatile organic compounds (VOC), sulfur dioxide (SO₂), and ammonia (NH₃)].

34 In the case where multiple federal agencies may have jurisdiction over a project, each agency
35 must make its own conformity determination. When doing so, each agency is only responsible
36 for the portion of that project that it is permitting. Therefore, other Federal agencies from which
37 permits or authorizations may be required will address the conformity determination
38 requirements of 40 CFR Part 93 relevant to their particular permits separately and only those
39 requirements relevant to NRC's ESP will be discussed below.

40 The existing 734 acre PSEG property is located on the southern part of Artificial Island on the
41 east bank of the Delaware River in Lower Alloways Creek Township, Salem County New
42 Jersey. PSEG is developing an agreement in principle with the U.S. Army Corps of Engineers
43 (USACE) to acquire an additional 85 acres immediately to the north of Hope Creek Generating
44 Station (HCGS). Therefore, with the land acquisition, the PSEG Site will be 819 acres. The site
45 is 15 miles south of the Delaware Memorial Bridge, 18 miles south of Wilmington, Delaware, 30

1 miles southwest of Philadelphia, Pennsylvania, and 7-1/2 miles southwest of Salem, New
2 Jersey.

3 The PSEG Site currently has three operating nuclear reactors. Salem Units 1 and 2 are
4 Westinghouse Pressurized Water Reactors (PWR), rated at 3459 MWt each. Hope Creek Unit 1
5 is located north of the Salem Units. Hope Creek is a General Electric Boiling Water Reactor,
6 rated at 3840 MWt. Hope Creek Unit 2 was originally planned and partially constructed directly
7 adjacent to Unit 1. Surrounding the Salem and Hope Creek units are many support facilities,
8 including circulating and service water intake structures, switchyards, administration buildings,
9 and an independent spent fuel storage installation (ISFSI). The location selected for the new
10 plant on the PSEG Site is north of the Salem and Hope Creek units.

11 Salem County is currently designated as in attainment for all criteria pollutants, with the
12 exception of the 8-hour ozone standard and the particulate matter, PM_{2.5}, standard. Salem
13 County, which is included in the Philadelphia-Wilmington-Atlantic City (PA-NJ-MD-DE)
14 nonattainment area, is in moderate nonattainment for the 8-hour ozone standard.

15 **2.0 Regulatory Background and Requirements**

16 Section 176(c) of the Clean Air Act (CAA) of 1977, as amended (42 U.S.C. 7506), forbids any
17 department, agency, or instrumentality of the Federal Government engaging in, supporting in
18 any way or providing financial assistance for, licensing or permitting, or approving, any activity
19 which does not conform to a State implementation plan (SIP) after it has been approved or
20 promulgated. As defined in Section 176(c)(1) of the CAA, conformity to an implementation plan
21 means conformity to an implementation plan's purpose of eliminating or reducing the severity
22 and number of violations of the NAAQS and achieving expeditious attainment of such
23 standards; and that such activities will not:

- 24 1. cause or contribute to any new violation of any NAAQS in any area;
- 25 2. increase the frequency or severity of any existing violation of any NAAQS in any area; or
- 26 3. delay timely attainment of any NAAQS or any required interim emission reductions or
27 other milestones in any area.

28
29 The EPA established NAAQS for six pollutants termed the "criteria" pollutants. They are carbon
30 monoxide (CO), nitrogen oxides (NO_x), ozone (O₃), lead (Pb), particulate matter (PM_{2.5} and
31 PM₁₀), and sulfur oxides (SO_x). The NAAQS are maximum allowable pollutant concentration
32 levels in the air based on different averaging schemes for each specific pollutant. Pursuant to
33 Section 107 of the CAA, the EPA designates geographical regions of the country as "attainment
34 areas" if ambient pollutant concentrations are in compliance with the NAAQS, as "nonattainment
35 areas" if ambient pollutant concentrations are not in compliance with the NAAQS, and as
36 "maintenance areas" if the area was previously in nonattainment and has achieved attainment.
37 States with non-attainment areas are required to develop a State implementation plan (SIP) to
38 demonstrate how the State intends to achieve attainment status.

39 The EPA has issued regulations to implement Section 176(c) of the CAA. The regulations
40 regarding conformity to implementation plans are codified in 40 CFR Part 51, Subpart W, and
41 40 CFR Part 93, Subpart B. Part 51 applies when states have instituted their own general
42 conformity regulations. New Jersey has not done this; therefore, the applicable regulations are
43 found in Part 93. The Transportation Conformity regulations at Subpart A of 40 CFR Part 93
44 address Federal actions related to highway and mass transit funding and approval actions. The
45 General Conformity regulations at Subpart B of 40 CFR Part 93 cover all other Federal actions
46 (75 FR 17254). Only Federal actions taken in designated nonattainment areas and maintenance
47 areas are subject to the General Conformity regulations.

1 In the General Conformity regulations, specifically in 40 CFR 93.153(b), the EPA specifies
2 emission rates for the criteria pollutants and their precursors based upon the severity of the
3 nonattainment in an area (§ 93.153(b) rates). For PM-2.5 and its precursors, the § 93.153(b)
4 rate is 100 tons/year (T/yr) direct emissions, 100 T/yr SO₂, 100 T/yr NO_x, and 100 T/yr VOC or
5 ammonia. For ozone and its precursors in states within the Northeast Ozone Transport Region,
6 such as New Jersey, the § 93.153(b) rate is 50 T/yr VOC and 100 T/yr NO_x.

7 The conformity determination for a Federal action in a nonattainment or maintenance area
8 involves two steps. First, a threshold applicability analysis is performed to determine whether a
9 conformity determination is required. Second, the conformity determination itself is performed.
10 Only the criteria pollutants for which the area is in nonattainment or maintenance are so
11 analyzed.

12 An applicability analysis is the process of determining whether a Federal action must be
13 supported by a conformity determination. As described in 40 CFR 93.153, the applicability
14 analysis may find that a conformity determination is not required if:

- 15 1. the total of direct and indirect emissions caused by the Federal action are below the §
16 93.153(b) rates;
- 17 2. the Federal action would result in no emissions increase or an increase in emissions that
18 is clearly *de minimis* such as in:
19 –Continuing and recurring activities such as permit renewals where activities conducted
20 will be similar in scope and operation to activities currently being conducted.
21 –Rulemaking and policy development and issuance.
22 –Routine maintenance and repair activities, including repair and maintenance of
23 administrative sites, roads, trails, and facilities.
24 –The granting of leases, licenses such as for exports and trade, permits, and easements
25 where activities conducted will be similar in scope and operation to activities currently
26 being conducted.
27 –Planning, studies, and provision of technical assistance.
28 –Routine operation of facilities, mobile assets and equipment.
- 29 3. the action includes major or minor new or modified stationary sources that require a
30 permit under the new source review (NSR) program or the prevention of significant
31 deterioration (PSD) program, for that portion of the action;
- 32 4. actions in response to emergencies; or
- 33 5. actions specified by individual Federal agencies to be “presumed to conform.”

34
35 When calculating the total of direct and indirect emissions caused by the Federal action of
36 issuing a permit for some aspect of a non-Federal undertaking, pursuant to option 1 above, the
37 relevant causal activity from which to measure emissions is the part, portion, or phase of the
38 non-Federal undertaking that requires the Federal permit. In this case, the federal permit sought
39 is an ESP with no LWA. An ESP with no LWA is simply a means by which an applicant may
40 have the environmental impacts of the potential construction and operation of a nuclear power
41 plant at a specific site evaluated before that applicant requests a permit for the portions of
42 constructing and operating that nuclear power plant requiring NRC approval. Therefore, for the
43 purpose of calculating emissions, the relevant non-Federal activity is the applicant’s obtaining of
44 a permit that allows it to subsequently apply for a combined operating license (COL) to operate
45 and construct a nuclear power plant without re-evaluating the environmental impacts of doing so
46 that were previously evaluated in the ESP.

47 Though only the emissions caused by the portion of the non-Federal undertaking specifically
48 authorized by the Federal permit need be counted, these emissions include both those directly

1 and indirectly so caused. "Direct emissions" means those emissions of a criteria pollutant or its
2 precursors that are caused or initiated by the Federal action and originate in a nonattainment or
3 maintenance area and occur at the same time and place as the action and are reasonably
4 foreseeable. "Caused by," as used in the terms "direct emissions" and "indirect emissions,"
5 means emissions that would not otherwise occur in the absence of the Federal action.
6 "Reasonably foreseeable" emissions are projected future direct and indirect emissions that are
7 identified at the time the conformity determination is made; the location of such emissions is
8 known and the emissions are quantifiable as described and documented by the Federal agency
9 based on its own information and after reviewing any information presented to the Federal
10 agency. Therefore, those reasonably foreseeable emissions that are caused by the issuance of
11 the ESP with no LWA, that require NRC approval, and that occur at the PSEG Site are
12 considered direct emissions and must be accounted for.

13 "Indirect emissions" means those emissions of a criteria pollutant or its precursors:

- 14 1. that are caused or initiated by the Federal action and originate in the same
- 15 nonattainment or maintenance area but occur at a different time or place as the action;
- 16 2. that are reasonably foreseeable;
- 17 3. that the agency can practically control; and
- 18 4. for which the agency has continuing program responsibility.

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20 Here, as in the definition of "direct emissions," "caused by" means emissions that would not
21 otherwise occur in the absence of the Federal action and "reasonably foreseeable" means
22 emissions that are identifiable and quantifiable. The differences between direct and indirect
23 emissions are that indirect emissions occur at a different time or place as the Federal action and
24 are expressly limited to just those indirect emissions that the agency can practically control and
25 for which the agency has continuing program responsibility. Even if a Federal licensing,
26 rulemaking or other approving action is a required initial step for a subsequent activity that
27 causes emissions, such initial steps do not mean that a Federal agency can practically control
28 any resulting emissions. "Continuing program responsibility" means a Federal agency has
29 responsibility for emissions caused by (1) actions it takes itself; or (2) actions of non-Federal
30 entities that the Federal agency, in exercising its normal programs and authorities, approves,
31 funds, licenses or permits, provided the agency can impose conditions on any portion of the
32 action that could affect the emissions. Therefore, emissions that may be reasonably foreseeable
33 but that do not occur at the PSEG Site are not considered to be indirect emissions for the
34 purposes of this analysis. These emissions are not considered to be indirect emissions because
35 the NRC does not have continuing program responsibility for or practical control of them.

36 If the results of an applicability analysis indicate that the § 93.153(b) rates will be met or
37 exceeded by the Federal action and that none of the other exceptions are met, the Federal
38 agency is to conduct a conformity determination, which determines whether the Federal action
39 will conform to the applicable SIP. There is conformity to the applicable SIP if two conformity
40 determination requirements are met: (1) the total of direct and indirect emissions from the action
41 is in compliance or consistent with all relevant requirements and milestones contained in the
42 applicable SIP, such as elements identified as part of the reasonable further progress
43 schedules, assumptions specified in the attainment or maintenance demonstration, prohibitions,
44 numerical emission limits, and work practice requirements, and if (2), for each pollutant that
45 exceeds the rates in 40 CFR § 93.153(b), any of the following are met:

- 46 1. the total of direct and indirect emissions from the action are specifically identified and
- 47 accounted for in the applicable SIP's attainment or maintenance demonstration or
- 48 reasonable further progress milestone or in a facility-wide emission budget included in a
- 49 SIP in accordance with 40 CFR § 93.161;

- 1 2. the total of direct and indirect emissions from the Federal action, based on local air
2 quality modeling analysis meeting the requirements in 40 CFR § 93.159, is determined
3 and documented by the State agency primarily responsible for the applicable SIP to
4 result in a level of emissions which, together with all other emissions in the
5 nonattainment (or maintenance) area, would not exceed the emissions budgets specified
6 in the applicable SIP;
- 7 3. the total of direct and indirect emissions from the Federal action, based on local air
8 quality modeling analysis meeting the requirements in 40 CFR § 93.159 is determined
9 by the State agency responsible for the applicable SIP to result in a level of emissions
10 which, together with all other emissions in the nonattainment (or maintenance) area,
11 would exceed an emissions budget specified in the applicable SIP and the State
12 Governor or the Governor's designee for SIP actions makes a written commitment to
13 EPA to revise the SIP to include the emissions from the action;
- 14 4. the action (or portion thereof), as determined by the Metropolitan Planning Organization
15 (MPO), is specifically included in a current transportation plan and transportation
16 improvement program which have been found to conform to the applicable SIP under 40
17 CFR part 51, subpart T, or 40 CFR part 93, subpart A;
- 18 5. the total of direct and indirect emissions from the action are fully offset within the same
19 nonattainment or maintenance area (or nearby area of equal or higher classification
20 provided the emissions from that area contribute to the violations, or have contributed to
21 violations in the past, in the area with the Federal action) through a revision to the
22 applicable SIP or a similarly enforceable measure that effects emissions reductions so
23 that there is no net increase in emissions of that pollutant; or
- 24 6. the total of direct and indirect emissions from the Federal action, based on areawide air
25 quality modeling analysis and local air quality modeling analysis meeting the
26 requirements in 40 CFR § 93.159, does not cause or contribute to any new violation of
27 any standard in any area; or increase the frequency or severity of any existing violation
28 of any standard in any area.

29 **3.0 Applicability Analysis**

30 PSEG's ESP application identifies an area located in a nonattainment area for ozone and PM_{2.5}.
31 Therefore, an applicability analysis must be conducted with respect to these pollutants and their
32 precursors.

33 As discussed above, an ESP without an LWA only grants its holder the ability to apply for a COL
34 without having to re-evaluate those environmental impacts of the COL that were previously
35 evaluated in the ESP. An ESP without an LWA does not grant permission to engage in any
36 other activities requiring an NRC permit. The portion of PSEG's non-Federal undertaking that
37 requires this ESP (i.e., later obtaining a COL without having to re-evaluate environmental
38 impacts evaluated in the ESP) does not cause any emissions either directly or indirectly. Thus
39 the total of direct and indirect emissions caused by the Federal action of issuing an ESP for the
40 PSEG Site are necessarily below the § 93.153(b) rates for ozone and PM_{2.5} and their respective
41 precursors.

42 Therefore, the applicability analysis of issuing an ESP without an LWA for the PSEG Site results
43 in a finding that this Federal action does conform to the applicable implementation plan without
44 requiring the support of a separate conformity determination.

45 **4.0 General Conformity Determination**

46 Based on the results of the applicability analysis described above, a general conformity
47 determination is not required to conclude that issuing an ESP with no LWA for the PSEG Site
48 will conform to the applicable implementation plan.

1 **5.0 Conclusion**

2 The issuance of an ESP with no LWA for the PSEG Site conforms to the applicable
3 implementation plan because such issuance does not directly or indirectly cause any emissions.
4 By determining through applicability analysis that conformity determination is not necessary
5 before issuing an ESP with no LWA for the PSEG Site, the NRC is in compliance with the
6 requirements of the CAA, specifically 40 CFR, Part 93, Subpart B.

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