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MEMORANDUM TO: Brent Clayton, Branch Chief
Environmental and Technical Support Branch
Division of Site and Environmental Reviews

FROM: Andrew J. Kugler, Senior Project Manager ***/RA/ JCushing for***
Environmental Projects Branch 2
Division of Site and Environmental Reviews

SUBJECT: SUPPLEMENTAL STAFF GUIDANCE TO NUREG 1555 "ENVIRONMENTAL STANDARD REVIEW PLAN," (ESRP) FOR ALTERNATIVES REVIEWS

Enclosed is the supplemental guidance for alternatives reviews for the new reactor environmental impact statements (EIS). This guidance clarifies ESRP sections 9.1, No-Action Alternative; 9.2.3, Assessment of Competitive Alternative Energy Sources and Systems; 9.3, Site Selection Process; and 9.4.3, Transmission Systems. The guidance clarifies the ESRP guidance for (1) the discussion of the no-action alternative, (2) the discussion of greenhouse gas emissions for alternative energy sources, (3) the use of cumulative impacts in the comparison of alternative sites, (4) the discussion of global climate change for alternative sites, and (5) alternatives for transmission systems.

Enclosures: As stated

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DATE	4/ 19 /2010	03/ 26/2010	4/23/2010	/ /2010

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B. Clayton

Memo to Brent Clayton from Andrew Kugler dated April 26 , 2010

SUBJECT: Supplemental Staff Guidance to NUREG 1555, “Environmental Standard Review Plan,” (ESRP) for Alternatives Reviews

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Staff Guidance for Alternatives Reviews for New Reactor Environmental Impact Statements

Purpose

The purpose of this guidance is to clarify certain aspects of the alternatives analysis for new reactors. This guidance clarifies the environmental standard review plan (ESRP) sections 9.1, No-Action Alternative; 9.2.3, Assessment of Competitive Alternative Energy Sources and Systems; 9.3, Site Selection Process; and 9.4.3, Transmission Systems.

Background

The ESRP directs the staff's assessment of potential impacts of alternatives to the proposed action. There are various subparts to the alternatives analysis including the no-action alternative, alternative energy sources, site selection, and alternative systems designs.

Guidance

No-Action Alternative

The current guidance in ESRP 9.1 is adequate for the reviews. However, reviewers continue to have difficulty describing this alternative. In large measure, this is because the no-action alternative isn't really feasible if a need for power in the region of interest (ROI) has been demonstrated in Chapter 8. With a demonstrated need for power, doing nothing would mean significant consequences to people living in the ROI as the power system became unreliable because of inadequate generating capacity. CEQ guidance states, "Where a choice of no action" by the agency would result in predictable actions by others, this consequence of the "no action" alternative should be included in the analysis. Reviewers know that regulatory authorities (typically a State public service commission, or equivalent, in conjunction with any regional transmission operator and electrical reliability council) would take action to meet the need for power before the grid became unreliable. Because of this, the staff will generally discuss what other steps might be taken to address the need for power. The no-action alternative in the draft environmental impact statements for Calvert Cliffs, V.C. Summer, and South Texas Project may serve as examples for reviewers of the no-action alternative.

Alternative Energy Sources

In the Commission Memorandum and Order regarding *Duke Energy Carolinas, LLC* (Combined License Application for Williams States Lee III Nuclear Station, Units 1 and 2) and *Tennessee Valley Authority* (Bellefonte Nuclear Power Plant, Units 3 and 4) CLI-09-20, dated November 3, 2009, the Commission directed the staff to "include consideration of carbon dioxide and other greenhouse gas emissions in its environmental reviews for major licensing actions under the National Environmental Policy Act." ESRP 9.2.3 does not specifically discuss including this information. In response to this direction, the staff issued a memorandum containing detailed guidance for consideration of the effects of greenhouse gases and of climate change including alternative energy sources in Chapter 9 of the EIS (ML 100810036). The memorandum and order includes detailed guidance for analyzing greenhouse gases for alternatives. The staff

added to the discussion of energy alternatives, the relative emissions of carbon dioxide for the proposed action, and for energy alternatives it has determined are feasible alternatives to the proposed action.

Site Selection

In order for the staff to perform its evaluation, and a reasonable comparison of sites, the staff has determined that it will perform a cumulative impacts analysis for each of the resource areas and each alternative site in the comparison process. This will put the analysis of the alternative sites in Chapter 9 on an equal footing with the analysis of the cumulative impacts at the proposed site in Chapter 7. A key difference is that the analysis of the alternative sites will be performed at a reconnaissance level, as is already discussed in ESRP 9.3. ESRP 9.3 is not specific as to whether cumulative impacts would be used for the comparison. So this additional guidance specifies that cumulative impacts will be used for comparison of sites. To implement the use of cumulative impacts for the alternative sites, an approach similar to that used in Chapter 7 will be used. Therefore, the staff has issued a memorandum containing detailed guidance (ML100621084) for analyzing cumulative impacts at alternative sites. This guidance supplements the environmental standard review plan (ESRP) direction to the staff for review of the cumulative impacts associated with the proposed project when considered in the context of other past, present and reasonably foreseeable future actions. The scope of the cumulative impact analysis will include identification of the time frame of the analysis, the geographic area of interest, the baseline for the analysis and other actions that could contribute to the cumulative impact.

For example, the review staff will look for information on other past, present and reasonably foreseeable future actions that could affect the same resources that would be affected by building and operating the proposed project at each alternative site. The staff will develop a table listing and briefly describing these actions for each site.

For each resource, the reviewer will evaluate the impacts of building and operating the proposed project at each alternative site. Because the results of this portion of the evaluation is not the final (i.e., not the cumulative) result, impacts will be described, but the staff will not reach a conclusion on impacts level (i.e., the reviewer will not use the terms SMALL, MODERATE, or LARGE). In describing the effects of just the proposed project, the reviewer should use terms that make clear the relative impacts expected. So, depending on the expected effects, a reviewer might describe them as minor, or noticeable but not destabilizing, or significant and potentially destabilizing. The reviewer must ensure that the analysis is sufficient to support the impact determination.

After completing this discussion of the impacts of the proposed project, the information in the table of projects around the site will be used by the reviewer, as appropriate for the resource under consideration, to evaluate the cumulative impacts of the proposed project at the alternative site when considered in combination with other projects and activities affecting the same resource. The reviewer should make clear whether the evaluation results reflect specific effects from selected projects from the table, or if the results are based on a blending of the effects of the projects in the table. (For example, under socioeconomics, the effects of past projects are generally reflected in the current data being used to describe the existing conditions). The cumulative impacts evaluation will end with the designation of the impact level

(SMALL, MODERATE, or LARGE) to the resource. In addition, if the impacts are greater than SMALL, the reviewer will state whether or not the proposed project (building and operating one or more nuclear plants) is a significant contributor to the impacts. In the context of this evaluation, "significant" is defined as a contribution that is important in reaching the impact level determination. This information will be used in the comparison of the sites.

After evaluating the cumulative impacts of the proposed project at each of the alternative sites, the reviewer will compare these sites to the proposed site. For the proposed site, the reviewer will use the cumulative impacts information from Chapter 7, as well as the information regarding the impacts of NRC-authorized activities and also pre-construction impacts from Chapters 4 and 5. For a given resource, the comparison of the cumulative impact characterization (SMALL, MODERATE, or LARGE) will often be sufficient. However, the reviewer will have to consider cases in which the proposed project is not a significant contributor to the impacts. So, for example, assume that both the proposed site and alternative site A are described as having a MODERATE impact on terrestrial resources. However, the staff has concluded that the proposed project is a significant contributor to the impacts at the proposed site while the proposed project is not a significant contributor to the impacts at alternative site A. In such a case, the reviewer will describe the situation so that readers will understand the contribution of the proposed project at each site. This information will also be used by the reviewer in determining whether an alternative site is environmentally preferable to the proposed site.

Alternative Systems Designs

ESRP 9.4.3 directs the staff to evaluate alternatives to the proposed transmission systems. However, with the change in the definition of "construction" in 10 CFR 50.10 and 10 CFR 51.4, transmission lines are clearly not construction. Because the transmission lines are not within the definition of construction, the staff will no longer consider alternative transmission systems. ESRP 9.4.3 will be deleted in a future revision to NUREG-1555.