Item Number 21b **ER Section 2.5.3**

Request:

Describe the cultural background (prehistoric and historic) at the Calvert Cliffs site to put the historical properties in context. Provide this in the Phase II report planned for completion in August 08.

Response:

The Phase II Management Summary, and the Phase I Cultural Resources Investigation and Phase II National Register Site Evaluation reports are provided with this response. These reports summarize the cultural background at the Calvert Cliffs site, and present a contextual description for these sites.

ER Impact:

No changes to the ER are required.

Item Number 21c **ER Section 2.5.3**

Request:

Identify status and results of the phase II investigations. Provide this in the Phase II report planned for completion in August 08.

Response:

Phase II field investigations have been completed. Preliminary results indicate that three of the four archaeological sites (18CV480, 18CV481, and 18CV482) were found to be disturbed and to lack integrity. Those sites have been recommended as not eligible for the NRHP. One site, 18CV474, was found to contain intact archaeological deposits and to contain sufficient integrity so that the site can yield significant information about the history of the area. The site is recommended as eligible for the NRHP under Criterion D.

The Phase II Management Summary, and the Phase I Cultural Resources Investigation and Phase II National Register Site Evaluation reports are provided with this response.

ER Impact:

No changes to the ER are required.

Item Number 21d **ER Section 2.5.3**

Request:

Provide copy of cultural resource survey reports including:

- Management Summary Phase 1A Cultural Resources Investigation, Calvert Cliffs Nuclear Power Plant, Prepared by GAI Consultants, Inc., October 20, 2006
- Draft Interim Report, Phase 1B Cultural Resources Investigations, Calvert Cliffs Nuclear Power Plant, Prepared by Barbara A. Mumford, M.A. and Matthew G. Hyland, PhD GAI Consultants, Inc., March 14, 2007
- Technical Report Cultural Resources Records Search within 10-mi Radius of Calvert Cliffs Nuclear Power Plant, Prepared by Matthew G. Hyland, PhD and Megan L. Otten, GAI Consultants, Inc., March 5, 2007.
- Any recorded/used best management practices that is used for units 1 and 2 and if there is one in place for unit 3.
- Phase 2 reports when they are completed

Response:

With the exception of the Phase II reports, copies of the reports identified above, as well as a survey report addressing underwater cultural resources in the area for construction water intake were provided with the initial response to this RAI Item.

The Phase II Management Summary, and the Phase I Cultural Resources Investigation and Phase II National Register Site Evaluation reports are provided with this response.

ER Impact:

No changes to the ER are required.

Item Number 21e **ER Sections 2.5.3, 4.1.3**

Request:

Provide copy of procedures that identify measures to be taken if cultural or historic resources are inadvertently discovered during construction.

Response:

Measures that will be taken if cultural or historic resources are inadvertently discovered during construction were described in the initial response to this RAI Item.

As was described in the initial response to this RAI Item, the Phase II Management Summary, and the Phase I Cultural Resources Investigation and Phase II National Register Site Evaluation reports are provided with this response.

ER Impact:

No changes to the ER are required.

Item Number 21f ER Sections 2.5.3, 4.1.3, 5.1.3

Request:

What measures for avoidance, minimization, or mitigation of any adverse effects on cultural or historic resources have been identified? Provide mitigation in the Phase II report planned for completion in August 08.

Response:

Measures for avoidance, minimization, or mitigation of any adverse effects on cultural or historic resources were described in the initial response to this RAI Item.

As was described in the initial response to this RAI Item, the Phase II Management Summary, and the Phase I Cultural Resources Investigation and Phase II National Register Site Evaluation reports are provided with this response.

ER Impact:

No changes to the ER are required.

Item Number 22b ER Sections 2.5.3, 4.1.3, 5.1.3

Request:

Describe the cumulative impacts to cultural resources and the process for making the determination. Provide cumulative impacts in the Phase II report planned for completion in August 08.

Response:

Cumulative impacts to cultural resources and the process for making the determination were described in the initial response to this RAI Item.

As was described in the initial response to this RAI Item, the Phase II Management Summary, and the Phase I Cultural Resources Investigation and Phase II National Register Site Evaluation reports are provided with this response.

ER Impact:

No changes to the ER are required.

Item Number 22c **ER Sections 2.5.3, 4.1.3**

Request:

Provide pre- and post-construction aerial photographs when available. Provide photos in the Phase II report planned for completion in August 08.

Response:

As was described in the initial response to this RAI Item, the Phase II Management Summary, and the Phase I Cultural Resources Investigation and Phase II National Register Site Evaluation reports are provided with this response. The Phase I and II report includes aerial photographs of site areas with cultural or historic significance. Additionally, pre- and post-construction aerial photographs, from April 1938 and March 1969, respectively, for the CCNPP Unit 1 and 2 site are provided as an attachment to this response.

ER Impact:

No changes to the ER are required.

Item Number 22d **ER Sections 2.5.3, 9.3**

Request:

Explain how cultural resources were considered in the site selection process and how the cultural background and known cultural resources were considered at the alternative site locations at a reconnaissance level.

Response:

Explanation of how cultural resources were considered in the site selection process is provided in the response to RAI Item 197.

Explanation of how the cultural background and known cultural resources were considered at a reconnaissance level for the alternative site locations is provided in the response to RAI Item 206.

ER Impact:

No changes to the ER are required.

Item Number 45 **ER Section 4.1.1**

Request:

What is the status of approval by the Chesapeake Bay Critical Area Commission for the proposed project?

Response:

The Chesapeake Bay Critical Commission Committee and Board approved the Calvert Cliffs Unit 3 Nuclear Power Plant project on August 6, 2008. Details and conditions of this approval are as described in the attached letter.

Reference

CAC, 2008. Amber Widmayer (State of Maryland, Critical Area Commission) to Susan Gray (Maryland Department of Natural Resources, Power Plant Research Program), Notification of Critical Area Commission Action on Request for Approval of Calvert Cliffs Nuclear Power Plant Expansion Project, dated August 8, 2008.

ER Impact:

No changes to the ER are required.

Item Number 117 **ER Section 5.8**

Request:

Identify the socioeconomic impacts of transmission line operations.

Response:

The relative distribution of minority and low income groups is discussed ER Section 2.5.4, and impacts are summarized in ER Sections 4.4.3 and 5.8.3. Results show that within a 50 mile radius of the CCNPP plant site, most census blocks defined as being either minority or low income occurs near and within the Washington, D.C. and Baltimore, Maryland metropolitan areas. In the Region of Influence (ROI), defined as Calvert and St. Mary's counties, there were no minority groups identified within Calvert County and only two within St. Mary's County. There were no low income census blocks within Calvert County and only one within St. Mary's County.

ER Figures 2.5-4 through 2.5.9 depict the relative distribution of minority and low income census blocks within the 50 mile radius and within the ROI two counties. ER Section 3.7 discusses the regional transmission grid and depicts its relative locations in ER Figure 3.7-1. A comparison of the existing transmission line locations and the distribution of minority and low income census block groups indicate that there should be no disproportionate impacts on these groups given their low percent occurrence. An aggregate minority and low income population exists in southern St. Mary's County (Figures 2.5-7 and 2.5-9), but the transmission lines associated with CCNPP (Figure 3.7-1) travel north through Calvert County and do not impact St. Mary's County. Furthermore, since there are no new transmission lines proposed for CCNPP Unit 3, there will be no cumulative increase in transmission line impacts to this aggregate grouping.

ER Impact:

No changes to the ER are required.

Item Number 128 **ER Section 5.8.2.4.2**

Request:

Revenue generating property is typically valued by its revenue, not its depreciated construction cost. Confirm your assumptions are correct and provide references.

Response:

The State of Maryland subjects all real and personal property to tax unless specifically exempted (COMAR, 2008a). Municipal corporations are authorized to levy real and personal property taxes within special taxing districts for the purpose of financing the capital and operating costs of enhancing police, fire protection and rescue services (COMAR, 2008b).

For generation facilities, personal property taxes are applied to any portion of the facility that is used for the generation of electricity, including any building structure which is necessary to house vital equipment; real property is land or any property or permanent structures which don't meet the definition of personal property, including any administrative buildings not integral to plant operations, non-security fencing and similar realty.

Although public utility property, including electric generating facilities, are typically valued using an income or revenue approach, Maryland regulations specify that for property tax assessment purposes, personal property of non-utility nuclear power plants must be depreciated at annual rates as determined by the Maryland Department of Assessments and Taxation consistent with licenses and license extensions (Maryland Regulations: §18.03.01.02(B)(2) and §18.03.01.02(B)(10). (COMAR, 2008c) It is therefore expected that CCNPP Unit 3 will have the same 50 year depreciated construction cost that Maryland has determined for and imposed for CCNPP Units 1 and 2.

References

COMAR, 2008a. Annotated Code of Maryland, § 6-101(a), Taxable Property; Imposition of Tax; Setting Tax Rates, Taxable Property, accessed online at http://mlis.state.md.us/asp/web_statutes.asp?gtp&6-101, July 14, 2008.

COMAR, 2008b. Annotated Code of Maryland, § 6-202, Taxable Property; Imposition of Tax; Setting Tax Rates, Imposition of Taxes, accessed online at http://mlis.state.md.us/asp/web_statutes.asp?gtp&6-202, July 14, 2008.

COMAR, 2008c. Maryland Regulations, § 18.03.01.02, Personal Property Assessments, General, Depreciation, accessed online at http://www.dsd.state.md.us/comar/18/18.03.01.02.htm, July 14, 2008.

ER Impact:

No changes to the ER are required.

Item Number 130 **ER Section 5.8.3**

Request:

Provide sections/statements on environmental and socioeconomic effects on minority and low income populations – impacts, pathways, comparison to the geographic area. If there are no expected impacts in this category, state this. Provide analytical maps of the roads in the ROI and an overlay map of roads and the minority / low-income census tracts.

Response:

As discussed in the response to RAI Item 117, the relative distribution of minority and low income census groups within a 50 mile radius of the CCNPP site suggests that there will be no disproportionate impact from the operation of CCNPP Unit 3. Calvert County contains no aggregate populations of minority or low income groups, and St. Mary's County has one aggregate group of minority populations in the southern tear of the county just south of the intersection of Maryland State Routes 4 and 235. Given the absence of minority and low income groups in Calvert County, there should be no geographic disadvantage from exposure to radiological pathways or other impacts including the relative location of roads and transmission lines.

While an aggregate population of minority groups exists in southern St. Mary's County there should no geographic disadvantage to this grouping as well. With respect to radiological impacts, ER Section 2.7 discusses relative wind direction. The prevailing winds from October through June are from the northwesterly quadrant and during summer, prevailing winds are from the southwesterly quadrant. As a result, St. Mary's County is generally upwind of the Calvert Site limiting radiological impacts from routine operations and from postulated accidental releases. With respect to possible impacts on roads, ER Figures 3.7-1 and 2.5-7 show the relative geographic location of major roads and aggregate minority and low income groupings. There will be no new public roads constructed specifically for CCNPP Unit 3, and given the small cumulative number of operations staff commuting to Calvert on a daily basis, there should be no impact to the St. Mary's County population.

ER Impact:

No changes to the ER are required.

Item Number 196 **ER Section 9.3**

Request:

What is the region of interest for the COLA? Clarify the discussion of the region in Section 9.3.1.1 and Section 9.2.1.2 of the ER which states that the region of interest is Maryland.

Response:

The region of interest (ROI) that was used in the evaluation in ER Section 9.3 included Maryland and New York.

The following changes will be made to the ER to reflect this information.

ER Section 9.2.1.2

The third to last sentence of the last paragraph will be revised to read as follows (emphasis added):

… power needs within the region of interest (ROI).

Instead of

… power needs within the region of interest (ROI), which is Maryland.

ER Section 9.3.1.1

The second sentence of the first paragraph will be revised to read as follows (emphasis added):

…and chose Maryland and New York as the *ROI*, based on…,

instead of

…and chose Maryland and New York as *candidate areas*, based on….

ER Impact:

ER Sections 9.2.1.2 and 9.3.1.1 will be revised as identified above to identify the applicable ROI in a future revision of the CCNPP Unit 3 COLA.

Item Number 197 **ER Section 9.3.1**

Request:

Explain how cultural resources were considered in the site selection process. Provide references.

Response:

Cultural resources were one of the factors evaluated in the site selection process. Exclusionary criteria used in screening the Region of Interest (ROI) to identify candidate areas included selecting candidate areas that were not in national and state parks, historic sites, or tribal lands. Impacts to cultural resources due to construction and operation of a new nuclear power plant were also considered in comparing the alternative sites to the proposed site to determine if any of the alternative sites were environmentally preferable, and thus obviously superior, to the proposed site.

The evaluation of cultural resource impacts at each of the candidate sites was accomplished by analyzing reconnaissance-level information available on Geographical, Environmental, and Siting Information System (GEn&SIS) and from or from other sources such as the Topologically Integrated Geographic Encoding and Referencing (TIGER®) digital database; reviewing literature; reviewing reports from Federal, State, regional, local, and affected Native American tribal agencies such as State geological agencies, EPA, U.S. Department of Agriculture, or county extension offices; reviewing regional scientific, engineering, economic, and planning studies; reviewing aerial photographs and topographic maps; reviewing site-specific information from local citizens and from authorities associated with Federal, State, regional, local, and affected Native American tribal agencies, universities, and museums; and reviewing onsite inspections by technical specialists.

References for the cultural resources summaries for each of the candidate sites are provided in the Historic, Cultural, and Archeological Resources subsections of ER Section 9.3.4. The cultural resources related to the new alternate Brownfield site location (the former Thiokol site) are shown in the response to RAI Item Number 201.

ER Impact:

No changes to the ER are required.

Item Number 198 **ER Section 9.3**

Request:

Section 9.3.1.2 of the ER is not clear on what candidate areas were considered. Provide more specific detail of candidate area and potential site selection process.

Response:

In response to this RAI, the following information will be incorporated into ER Section 9.3.1.1:

> Candidate areas were selected by screening the ROI (the States of New York and Maryland) using exclusionary criteria. Candidate areas refer to one or more areas within the ROI that remain after unsuitable areas have been removed. Screening of the ROI was performed at a high level with the purpose of quickly identifying areas within the ROI that would not be suitable for the siting of a nuclear power generating station.
>
> The criteria used in the screening of the ROI areas are consistent to those identified in ESRP Section 9.3 (NRC, 2007) and the EPRI siting guide (EPRI, 2002), and include:
>
> - Proximity to major population centers (that is, not located in an area with greater than or equal to 300 persons per square mile [ppsm]).
> - Proximity of adequate transmission lines (that is, within approximately 30 miles (mi) [48.3 kilometer {km}) of 345- or 500-kV transmission lines). Per the EPR standard grid connection design, 345- or 500-kV transmission lines are needed.
> - Lack of a suitable source for cooling water (that is, within 15 mi [24.10 km] of an adequate source for cooling water).
> - Dedicated land (that is, not located within areas such as national and state parks, historic sites, and tribal lands).
>
> Figures 9.3-1 and 9.3-2 show the application of the exclusionary criteria within the ROI for New York and Maryland, respectively.

Also, the following information will be added as a new Section 9.3.1.2 in the ER:

> **9.3.1.2 Potential Sites**
>
> Potential sites were selected by screening the candidate areas using refined discretionary criteria in order to identify potential geographic locations for the placement of the proposed nuclear power generating station. The criteria used in screening the candidate areas to identify potential sites include:

- Proximity of 345- or 500-kV transmission lines.
- Distance from towns, villages, and developed areas.
- Proximity of existing nuclear power generating facility infrastructure.
- Ownership and/or availability of adequate land area.
- Distance from industrial areas (for example, airports, and industrial complexes).
- Land near suitable water supply sources (rivers, lakes, and coastal areas).
- Avoidance of areas that contained threatened and endangered species and/or land use restrictions

Information used in the evaluation of the candidate areas was obtained from GoogleEarth™ images, the Geographical, Environmental, and Siting Information System described in ESRP 9.3 (NRC, 2007), publicly held information on geographic information system (GIS) database Websites that generally included electric power-producing plants and brownfield sites, topographic maps showing roads, urban areas, wetlands, parks, and other dedicated lands. Information on electric power plants in New York and Maryland was obtained from the U.S. Department of Energy (DOE), Energy Information Administration (EIA) that listed the major electrical plants in New York (EIA, 2008a) and Maryland (EIA, 2008b). Data on brownfield sites in New York and Maryland were obtained from the New York State Department of Environmental Conservation (NYDEC), Environmental Remediation Databases (NYSDEC, 2008) and the Maryland Department of the Environment (MDE), Maryland Brownfield, Voluntary Cleanup Program and State Remediation Sites database (MDE, 2008). Compiling the information resulted in more than 4,000 remediation sites, 14 hydroelectric sites, 21 natural gas sites, 25 other power-generating stations (for example, coal, wood, and oil), and 5 nuclear sites within the ROI candidate areas that needed to be screened.

The screening process used to identify the potential sites considered discretionary criteria similar to those used in the process of identifying the candidate areas; however, identifying potential sites required a more detailed review. These discretionary criteria included the distance to a cooling water supply, proximity to transmission facilities, and load centers. The screening process also included a consideration of existing site conditions, including whether the site was improved or potentially contained wetlands or floodplains.

Aerial screening was used to identify areas within which potential sites were identified. The screening of the potential sites was conducted as an iterative process by applying refined criteria until an appropriate number of potential sites were identified. By applying these discretionary criteria, potential sites were identified as availability of discrete parcels of land approximating the size needed

for an EPR station (420 ac) [170 ha], which includes 240 ac [97.1 ha] for the EPR footprint plus 180 ac [72.8 ha] for the additional land for the ancillary structures and areas such as construction laydown area and parking area). The goal of the screening process was not to identify every potential site in the candidate area, but rather to use a logical process that produced a list of the best potential sites located within the candidate areas.

The results of the screening identified potential sites in New York and Maryland that included CEG-owned nuclear stations, another nuclear station, other electric power stations (coal and hydroelectric), suitable brownfield sites, and a generic greenfield site. Figures 9.3-3 and 9.3-4 show the potential sites in New York and Maryland, respectively.

ER Impact:

The information listed in the above response will be added to ER Section 9.3.1.1, and a new Section 9.31.2, "Potential Sites," will be added. Also, the following reference will be added for ER Section 9.3:

EPRI, 2002. Electric Power Research Institute Siting Guide: Site Selection and Evaluation Criteria for an Early Site Permit Application, Final Report, Electric Power Research Institute, March 2002.

GoogleEarth, 2008. Available online: earth.google.com, Accessed: March 24, 2008.

MDE, 2008. Maryland Department of the Environment, Maryland Brownfield, Voluntary Cleanup Program and State Remediation Sites website: http://www.mde.state.md.us/Programs/LandPrograms/ERRP_Brownfields/home/index.asp, accessed June 18, 2008.

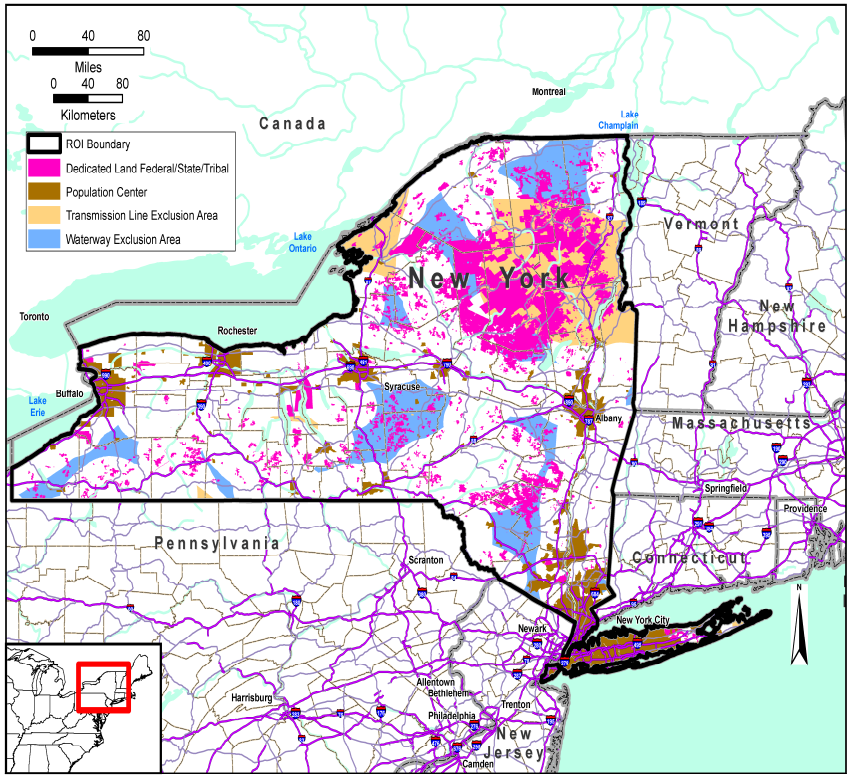
USNRC, 2007. Standard Review Plans for Environmental Reviews for Nuclear Power Plants (NUREG-1555), Draft Revision 1, U.S. Nuclear Regulatory Commission, July 2007.

NYSDEC, 2008. New York State Department of Environmental Conservation, Environmental Remediation Databases, website: http://www.dec.ny.gov/chemical/8437.html. Accessed June 18, 2008.

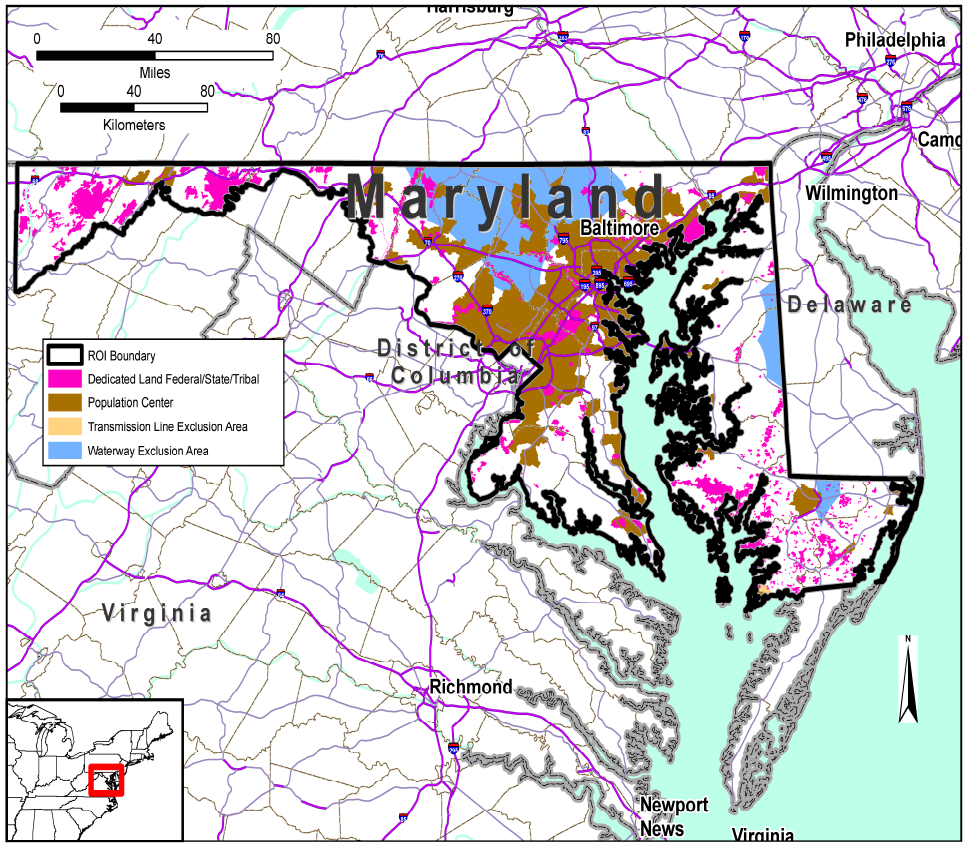
EIA, 2008a. U.S. Department of Energy, Energy Information Administration Website: http://tonto.eia.doe.gov/state/state_energy_profiles.cfm?sid=MD. Accessed June 18, 2008.

EIA, 2008b. U.S. Department of Energy, Energy Information Administration Website: http://tonto.eia.doe.gov/state/state_energy_profiles.cfm?sid=NY. Accessed June 18, 2008.

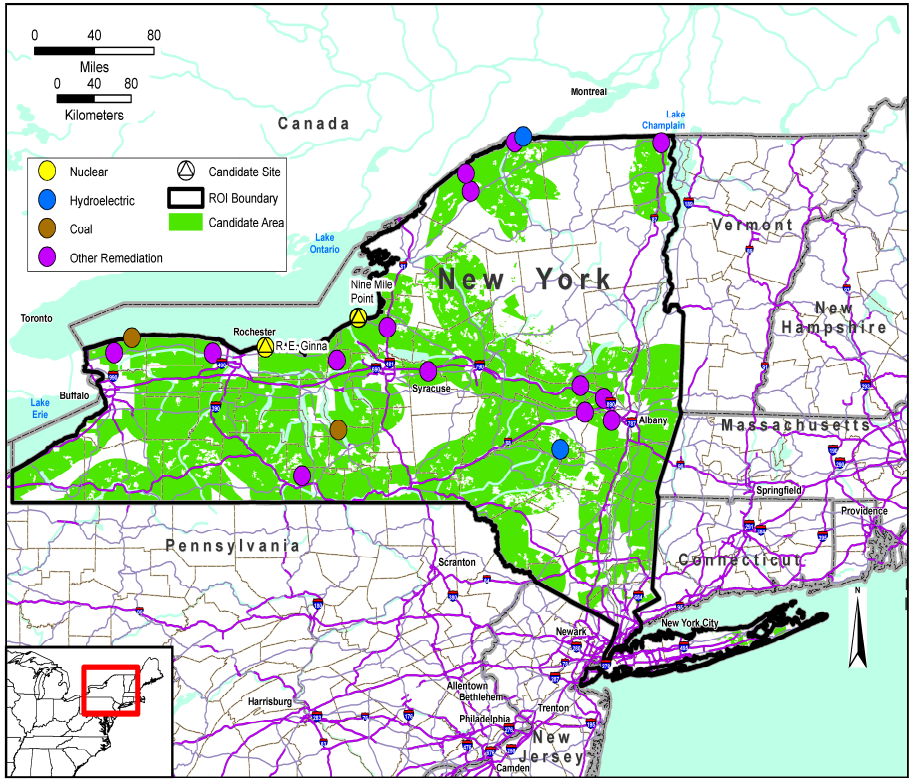
(New) Figure 9.3-1: Candidate Area Exclusionary Criteria and Region of Interest – New York



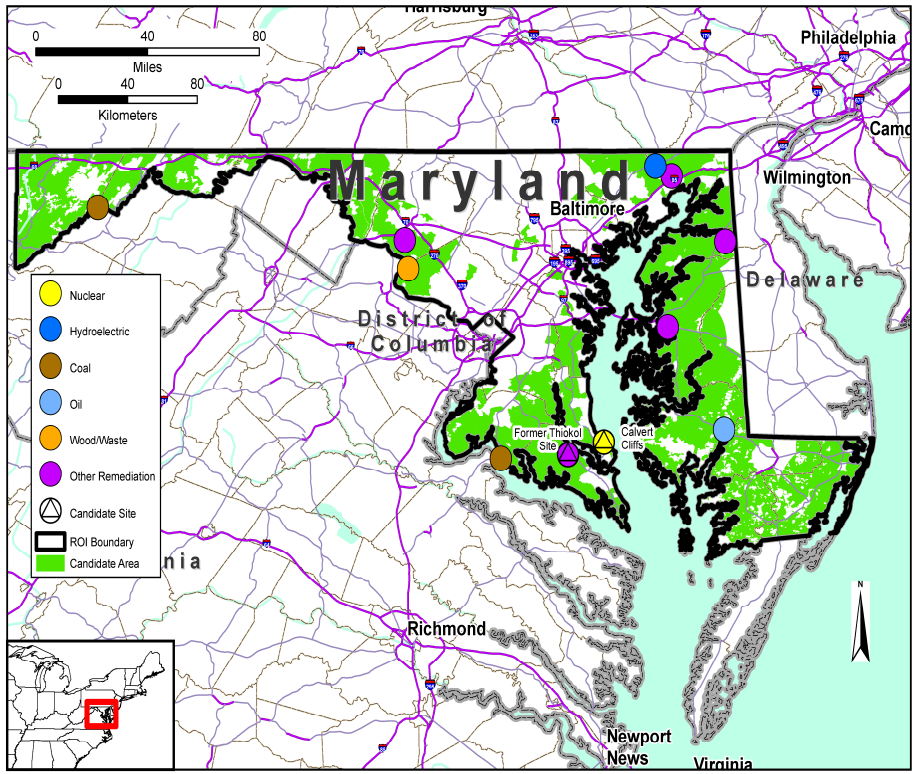
(New) Figure 9.3-2: Candidate Area Exclusionary Criteria and Region of Interest – Maryland



(New) Figure 9.3-3: Potential and Candidate Sites – New York



(New) Figure 9.3-4: Potential and Candidate Sites – Maryland



Item Number 199 **ER Section 9.3**

Request:

How was the list of potential sites narrowed down to the four candidate sites? Provide a detailed discussion of the process.

Response:

The process used to identify candidate sites from the list of potential sites principally involved technical evaluation of the potential sites using a two-step process. The first step of the process involved the identification of criteria to evaluate each of the potential sites. The criteria used to evaluate the potential sites were drawn from a larger, more comprehensive set of criteria identified in NUREG-1555, ESRP, Section 9.3 (NRC, 2007) and the EPRI siting guide (EPRI, 2002).

ESRP 9.3 provides the following information about candidate site qualification criteria (NRC, 2007):

- Consumptive use of water should not cause significant adverse effects on other users.

- The proposed action should not jeopardize Federal, State, and affected Native American tribal listed threatened, endangered, or candidates species or result in the destruction or adverse modification of critical habitat.

- There should not be any potential significant impacts to spawning grounds or nursery areas of populations of important aquatic species on Federal, State, and affected Native American tribal lists.

- Discharges of effluents into waterways should be in accordance with Federal, State, regional, local, and affected Native American tribal regulations and would not adversely affect efforts to meet water-quality objectives.

- There should be no preemption of or adverse impacts on land specially designated for environmental, recreational, or other special purposes.

- There would not be any potential significant impact on terrestrial and aquatic ecosystems, including wetlands, which are unique to the resource area.

- There are no other significant issues that preclude the use of the site.

The potential site evaluation criteria include the following:

- Available land, 420 ac (170 ha): This is an exclusionary criteria based on the availability of the site to support an EPR footprint plus ancillary structures, construction buildings, laydown and parking space, etc.

- Distance to cooling water supply: Based on the distance to the nearest cooling water supply.

- Flooding: Based on the presence or absence of floodplains near the site.

- Distance to population center: Distance to nearest population center (census tract with more than 300 people per square mile [116 people per square kilometers]).

- Regional population density: Population density within 10 mi (16.1 km) radius of site, based on data for census tracts.

- Ecology: Based on the number of federal and state, rare, threatened, and endangered species in the county (aquatic and terrestrial).

- Wetlands: Based on the presence or absence of wetlands near the site.

- Railroad access: Based on the distance to the nearest in-service rail line.

- Transmission access: Based on the distance to the nearest 500-kV line.

- Existing transmission corridor: Based on whether or not the site has existing transmission connections or whether additional land would potentially be impacted by new corridors.

- Additional land availability/land acquisition: Based on whether or not additional surrounding land (other than the minimum land needed for the EPR footprint) would need to be acquired and is expected to be available for sale for supporting the appurtenant structures, laydown and parking, etc. of the proposed facility. In addition, this criterion also takes into account the additional land needed to potentially meet the EAB requirements.

- Environmental remediation: Based on the site's potential need for environmental cleanup or remediation of hazardous materials.

- Expansion potential: Based on the availability of additional land surrounding the site to accommodate another nuclear power facility.

- Ownership criteria: Based on the site's ownership status.

The second step of the evaluation of the potential sites involved the scoring and ranking of each potential site. A team was developed based on their knowledge, skills, and specific areas of expertise to conduct the evaluation, scoring, and ranking of the potential sites.

The results of the potential site evaluation scoring procedure identified four candidate sites from the list of potential sites that were among the best sites that could reasonably be found for the siting of a nuclear power station. Per NUREG-1555, ESRP,

Section 9.3, three to five alternative sites in addition to the proposed site could be viewed as an adequate number of candidate sites (NRC, 2007). The selected candidate sites were judged to present the likelihood of having the least environmental impact while satisfying the requirements of an EPR nuclear plant site. Finally, the candidate sites are expected to be licensable, that is, able to obtain applicable NRC licenses and state and local permits.

The selected candidate sites include:

- Calvert Cliffs Nuclear Power Plant Unit 3
- Nine Mile Point Nuclear Power Plant Unit 3
- R.E. Ginna Nuclear Power Plant Unit 2
- Former Thiokol Site (brownfield site in Maryland)

Figures 9.3-3 and 9.3-4 show the candidate sites in New York and Maryland, respectively.

As presented in Section 9.3, the environmental impacts from construction and operation of a nuclear power plant at a greenfield site range from MODERATE to LARGE and were greater than the impacts at other candidate sites. Therefore, a generic greenfield site was not carried forward as a Candidate Site for further evaluation.

ER Impact:

The information listed above, with the exception of the last paragraph, will be added to Section 9.3.1.3 of the ER. In addition, the following references will be added to the ER:

EPRI, 2002. Electric Power Research Institute Siting Guide: Site Selection and Evaluation Criteria for an Early Site Permit Application, Final Report, Electric power Research Institute, March 2002.

NRC, 2007. Standard Review Plans for Environmental Reviews for Nuclear Power Plants (NUREG-1555), Draft Revision 1, U.S. Nuclear Regulatory Commission, July 2007.

Item Number 200 **ER Section 9.3**

Request:

Section 9.3.1.1 of the ER is not clear on what specific potential sites were considered. Provide a list of the potential sites that were considered. Table 9.3-5 in the ER implies that the only potential site considered in addition to the four candidate sites is a generic greenfield site.

Response:

A description of the process that was used for screening and evaluation of potential sites is provided in the response to RAI Item Number 198. New ER Figures 9.3-3 and 9.3-4 (provided in the response to RAI item Number 198) show the locations of the potential and candidate sites in New York and Maryland, respectively. The listing of sites evaluated within the candidate areas is large and has been included in documentation that is available for onsite review.

Potential sites evaluated with the candidate areas were sites in New York and Maryland that included CEG-owned nuclear stations (Calvert Cliffs Nuclear Power Plant, Nine Mile Point Nuclear Power Plant, R. E. Ginna Nuclear Power Plant), another nuclear station (Fitzpatrick Nuclear Power Plant), other electric power stations (coal and hydroelectric), suitable brownfield sites, and a generic greenfield site.

ER Impact:

No changes to the ER are required.

Item Number 201 **ER Section 9.3.2**

Request:

How much additional land would need to be purchased at the Crane site for siting a new nuclear plant? Would obtaining additional land be a reasonable possibility given that the surrounding land has been designated as a critical area under the Chesapeake Bay Critical Area statute and that the adjacent land is predominantly wetlands and is zoned for resource conservation (Section 9.3.2.1.1 of the ER)?

Response:

The Crane site is no longer being considered an Alternative Site for the CCNPP Unit 3. A supplemental brownfield site in Maryland (former Thiokol Site) has been evaluated and a summary of this evaluation will be included in the ER Section 9.3.

In addition, the second sentence of the second paragraph of ER Section 10.4.1.3 will be replaced with "The analysis also evaluated the former Thiokol brownfield site located in St. Mary's County, Maryland".

Information relevant to the former Thiokol Site will be added to ER Section 9.3.2.1 as shown below.

9.3.2.1 Former Thiokol Brownfield Site

The former Thiokol site is a 619-ac (250-ha) brownfield property located near Mechanicsville, Maryland, in St. Mary's County, Maryland.

9.3.2.1.1 Land Use

The former Thiokol site is located in St. Mary's County, Maryland, less than 3 mi (4.8 km) south of the Patuxent River. The site is bordered by Maryland State Route 235 to the north and Friendship School Road to the west. Woodlands are located to the east and south. Washington D.C. is the closest major city and is located approximately 40 mi (64.3 km) north of the site.

The former Thiokol site is currently undeveloped and covered in vegetation including trees and shrubs. The surrounding area is a mix of suburban and agricultural development with a portion of the land being undeveloped. There are no population centers, parks, airports, or other major destinations located in the vicinity. Land to the east of the site is generally comprised of low-density residential development that includes residential subdivisions. Most of the land to the north of the site is also in residential development and has a lower density than lands to the east. Lands west of the site contain a mix of low-density residential development and agriculture. The areas south of the site are generally undeveloped but also contain some low-density residential development.

The site was formerly used for the manufacturing of munitions up until the late 1950s. In the early 1980s, buildings were removed from the site, timber was harvested, and the site was reforested. The property contains covenants that restrict residential development in two areas that are approximately 75 ac (30.3 ha) in size due to those areas being suspect of containing unexploded ordinances (UXOs). The site is currently being monitored by the Maryland Department of the Environment (MDE), Land Restoration Program (MDE, 2007), to determine the appropriate measures necessary to finish remediation of the site.

Overall land use impacts are expected to be SMALL to MODERATE due to the proximity of residential developments and lack of industrial and manufacturing facilities.

9.3.2.1.2 Air Quality

The former Thiokol site is located in St. Mary's County, Maryland. St. Mary's County is currently designated as being in attainment of all air pollutants regulated by the U.S. Environmental Protection Agency (EPA) (EPA, 2008). Any air emissions that will occur as a result of the operation of the proposed new facility will be low enough that they will not cause or contribute to a significant change in local or regional air quality levels at any location.

Construction activities at the site have the potential to temporarily impact the ambient air quality in the immediate vicinity of construction due to emissions from onsite construction equipment. These emissions are expected to be consistent with emissions from other construction projects of this magnitude. It is anticipated that there should be no significant impacts on air quality at offsite locations during the construction period due to the relatively long distance from the center of the site (where most construction and equipment laydown will occur) to the site boundaries. Overall air quality impacts to the surrounding area attributable to the construction of the proposed facility would be SMALL.

With the exception of some relatively small diesel-fueled emergency power generating equipment and fire pumps, operation of the proposed facility will not have any significant sources of emissions attributable to the combustion of fossil or other fuels. The proposed facility will contain a cooling tower that will emit water vapor and particulate matter to the atmosphere. Because of the exceptionally low level of emissions, operation activities are not expected to cause or contribute to a violation of any state or federal ambient air quality standards. There would be a small increase in regional and local air emissions as a result of increased vehicular traffic associated with workforce employed for plant operations. It is anticipated that overall air quality impacts associated with operation of the proposed facility will be SMALL

9.3.2.1.3 Water

The main source of water for the former Thiokol site would be the Patuxent River. The proposed nuclear facility would require a cooling water system and it would include a circulating water system (CWS) and a service water system. The CWS circulates cool water through the main condensers to condense steam after it passes through the turbine. The service water system circulates cooling water through heat exchangers that serve various plant components. The CWS for the proposed unit would be a closed-cycle system that uses a cooling tower. The proposed new unit would have a separate intake and discharge structures located offshore in the river, and a screenwell and pumphouse structure located onshore.

Hydrologic impacts associated with construction activities include alteration of the existing watershed surface; disturbance of the ground surface for stockpiles, material storage, and construction of temporary access roads; construction of water intake and discharge structures; construction of cofferdams and storm sewers; construction of piers, jetties, basins, or other structures that might alter shoreline processes; dredging operations; temporary dewatering activities; construction activities contributing to sediment runoff; changes in surface water drainage characteristics; decreases in surface water infiltration (increases of impervious surfaces); and increased erosion and sedimentation. Water will be used for construction activities. A specific quantity of water usage is not known at this time. However, proper mitigation and management methods implemented during construction will limit the potential water quantity and quality effects to surface water and groundwater.

Construction-related water use impacts will be minimized through the implementation of best management practices (BMPs) including erosion, grading, and sediment control measures; stormwater control measures; spill prevention plan; and observance of federal, state, regional, tribal, and local regulations pertaining to nonpoint source discharges. Overall construction-related water impacts will be SMALL.

Ensuring permitted limits for water withdrawal and discharge are met through operational controls and monitoring would minimize the potential for adverse impacts to water availability and water quality. It is anticipated that there would be a site-specific water treatment system or the use of a municipal system, if available. Therefore, it is anticipated that overall water use impacts from operation activities would be SMALL.

9.3.2.1.4 Terrestrial Ecology and Sensitive Species

This site is relatively flat area surrounded by deciduous forests. There are 11 animals and 32 plant species listed as threatened or endangered in St. Mary's County, Maryland (Maryland Department of Natural Resources, Division of

Wildlife and Heritage, 2008). Because the area is heavily forested, there is a high potential for threatened or endangered terrestrial species to exist onsite.

Impacts on the terrestrial ecosystem associated with construction of the proposed facility include noise, clearing and grading, and potential collisions of birds with new structures. Construction of the proposed facility would result in direct mortality for certain wildlife and would reduce the available habitat area but would not adversely affect local or regional populations of wildlife species. Species that are mobile are likely to preferentially use less-disturbed habitats on adjacent lands. The terrestrial ecology impacts from construction of the water pipeline and transmission line corridors are anticipated to be MODERATE to LARGE but would be minimized by searching for sensitive species and complying with permit and mitigation requirements before beginning work. Because no land will be disturbed once construction is complete, the impacts of operation would be SMALL.

9.3.2.1.5 Aquatic Ecology and Sensitive Species

Construction-related impacts to the aquatic ecology would include temporary loss of habitat and short-term degradation of water quality in isolated areas due to in-water and shoreline construction of the cooling water intake structure (CWIS) and other appurtenant structures (such as blowdown and discharge pipelines).

National Wetland Inventory maps show palustrine forested wetlands associated with streams to the east and west of the Former Thiokol site (U.S. Fish and Wildlife, 2008). No wetlands are shown within the proposed construction area. Federal Emergency Management Agency (FEMA) floodplain maps show no flood zones within the study area (FEMA, 2008).

While much of the supporting CWIS structure will be located onshore, a portion will extend a short distance into the waterway and will likely involve the dredging of sediment to allow for the construction of the concrete structure on the bottom of the river. The dredging of sediment during construction of the CWIS and pipeline will result in the temporary suspension and redeposition of the sediment, as well as the removal of those benthic organisms living in or on the removed sediment. It is anticipated that the suspended sediment will quickly redeposit in the immediate area. For a short period of time, the suspended sediment will create increased turbidity in the immediate area of the construction. Fish and motile crustaceans present in the area during construction activities will avoid the area during active construction or will actively feed on suspended organisms during dredging operations, and are unlikely to be adversely affected by the construction activities.

No construction effluents are anticipated from in-water construction activities. BMPs and compliance with permit requirements will be used to minimize runoff volumes and impacts. The use of a cofferdam to facilitate construction of the in-water portions of the CWIS will minimize releases of sediment. Prior to

commencement of dredging, sediment in those areas proposed to be dredged will be sampled and analyzed to obtain detailed chemical characterizations according to the requirements of dredging permits; special sediment-handling requirements suggested by the sediment sampling results and required by the dredging permit will be followed.

CWIS and pipeline construction-related impacts on aquatic species are anticipated to be minor because the area of impacts is limited to the immediate vicinity of the construction activities. Because the potential impacts will be localized and given the short-term nature of the construction activities and the relatively short-term recovery periods for disturbed benthic species within and near the dredged area, no long-term effects on important species and their habitats are anticipated to occur. Therefore, the adverse aquatic ecology impacts associated with construction of the CWIS and other appurtenant structures (such as blowdown and discharge pipelines) are anticipated to be SMALL to MODERATE. The aquatic ecology impacts from construction of the water pipeline and transmission line corridors are anticipated to be MODERATE to LARGE but would be minimized by searching for sensitive species and complying with permit and mitigation requirements before beginning work.

Operation of the proposed new reactor is expected to have a SMALL impact on the aquatic ecology in the area.

9.3.2.1.6 Socioeconomics

The former Thiokol site is located within census tract (CT) 995600 block group (BG) 3, St. Mary's County, Maryland. In 2007 St. Mary's County had a population of approximately 100,378, a 14.1 percent increase from 2000. In 2000 and 2005 the population within CT 995600 BG 3 was 812 and 817, respectively. The population density for CT 995600 BG 3 in 2000 and 2005 was 125 ppsm and 134 ppsm, respectively. The population density of St. Mary's County in 2000 and 2005 was 139 ppsm and 152 ppsm, respectively. The 2005 and 2007 population data presented is projected and therefore an estimated value.

Census tract data from 2000 were reviewed to determine the average population density within a 20-mi (32.2-km) radius of the former Thiokol site. Based on these data, there are 149 ppsm within this area (U.S. Census Bureau, 2000). The 149 ppsm includes seasonal transient populations. When using population data from the year 2000 as a baseline, St. Mary's County is estimated to experience a population increase of 25.0 percent by 2010, 38.6 percent by 2015, and 51.7 percent by 2020 (Maryland State Data Center, 2007).

Employment projections within the area indicate a general upward trend in the availability of various construction jobs. The Maryland Occupational Projections for 2004 to 2014 for construction trades workers estimates an increase of 52,000 openings from 135,000 in 2004 to 163,000 in 2014. The unemployment rate in St. Mary's County was 3.4 percent and 3.2 percent for the southern Maryland

area. St. Mary's County employs 38,000 people, of which 2,000 are in construction. The southern Maryland area employs 167,000 people, of which 8,600 are in construction jobs (MDLLR, 2008a). An increase of available jobs indicates additional competition in acquiring a workforce for the construction of the project.

The employer tax credits available include: federal, state, work opportunity, employment opportunity, welfare to work, enterprise zone, Maryland disability employment, and individuals with barriers to employment (MDLLR, 2008).

According to 2006 American Survey data, approximately 3,796 housing units are currently vacant, representing 9.5 percent of the total housing units within the county (U.S. Census Bureau, 2006).

The cooling tower plume from the proposed facility would likely be visible at a considerable distance. The proposed facility, however, is predominately wooded and therefore would have some viewshed protection. Overall impacts to the area's population from construction and operation of a new reactor would be SMALL.

9.3.2.1.7 Transportation

Maryland State Route 235 / Three Notch Road (MD 235) runs along the northern border of the site. Access to the site must be from MD 235 because all other roads near the site are local residential roads. MD 235 is an important north/south road connecting many of the smaller communities in the county. It is the main transportation route in this area of the county. MD 245 / Hollywood Road is the closest east-west transportation route south of the site and MD 5 / Loveville Road is the closest east-west transportation route north of the site. Many of the local roads surrounding the site do not have good connections with other roads.

The closest airport is the St. Mary's County Airport located approximately 5 mi (8.0 km) south of the site off of MD 235. The site is less than 3 mi (4.8 km) from the Patuxent River but it has no immediate barge access. The site is approximately 17 mi (27.3 km) from the nearest active rail line.

It is anticipated that there will be traffic impacts on local roads during construction and operation activities. The development of a traffic management plan prior to construction would aid in identifying and mitigating potential traffic impacts. The following mitigation measures will be considered in the traffic management plan:

Workforce shift changes and delivery options: Scheduling shift changes and the delivery of large items during off-peak hours could reduce potential impacts on local roads.

Carpooling: The use of carpooling and providing transit services (buses) during construction and operation of the facility could be considered.

Coordination with local planning authorities: If necessary, the upgrading of local roads, intersections, and signals to handle increased traffic loads could be considered.

Implementing the appropriate mitigation measures would result in SMALL to MODERATE impacts on transportation systems during construction activities and SMALL impacts during operation of the proposed facility.

9.3.2.1.8 Historic, Cultural, and Archeological Resources

The former Thiokol Site is located in Mechanicsville, St. Mary's County, Maryland. The county, the first established in Maryland, is located on a peninsula between the Patuxent and Potomac Rivers in southern Maryland. Mechanicsville, located in the northern portion of the county, is considered an unincorporated area of Maryland. St Mary's City, more than 20 mi SSW of the site, was settled by colonists from England in 1634. St. Mary's City was the provincial capitol of Maryland until 1695; the seat is now Leonardtown.

There are no NRHP-listed properties in Mechanicsville (NRHP, 2008a); there are 31 NRHP-listed properties in St. Mary's County (NRHP, 2008b). The Maryland Historical Trust (MHT) has files on 50 properties (which include individual buildings, sites, structures and districts) in Mechanicsville that were been recorded as part of their Historic Sites Survey program (MHT, 2008). Recordation of a site is not an indication that it is NRHP-eligible. A search using the terms [Maryland] [St. Mary's] in the National Archaeological Database (NADB) resulted in 246 matches. Several of these reports recorded Phase I, Phase II, and Phase III Archaeological surveys in the county. Only one report was specific to Mechanicsville.

The Maryland Department of the Environment (MDE, 2007b) report on the site states that all buildings were razed by Thiokol in the early 1980s. There was a preliminary site assessment report prepared in 1985. Due to a lack of substantial information regarding previous recordation of prehistoric, archaeological and historic architecture in the immediate vicinity of the Former Thiokol Site, it is suggested that both a survey and investigation is completed before construction activities begin. Consultation with SHPO would occur if any significant cultural resources were identified and appropriate mitigation measures would be negotiated prior to construction and operation. Impacts to cultural resources are likely to small, depending on the results of the cultural resource investigations.

The site is located close to a major north-south thoroughfare (MD State Route 235), which increases the potential of finding historic archaeological sites in the area. Additionally, this county contains some of the earliest settlements in the country, which is another indicator that historic archaeological sites may be present. Due to the removal of existing buildings in the 1950s, and subsequent soil removal in 1994 and 1998, as well as soil testing in 1999 and 2000 (MDE,

2007b), there is the low potential for finding archaeological and above ground resources in this area.

9.3.2.1.9 Environmental Justice

The demographic characteristics surrounding the former Thiokol site were evaluated to determine the potential for environmental justice issues based on disproportionately high and adverse impacts to minority or low-income population. Demographic information used for this study was obtained from the 2000 U.S. Census. Demographics of the adjoining CTs/BGs on and around the site within the county were examined and compared with the demographics of St. Mary's County and the State of Maryland. Table 9.3-1 presents this demographic information.

The former Thiokol site is located in CT 995600 BG 3. Adjacent CTs include 995600 (BG 2 and 4), 995500 (BG 1 and 3), and 995700 (BG 4). CT 995600 BG 3 has a 6.3 percent minority population, which is lower than or comparable to all adjacent CTs within the county (995600 BG 2 [7.5 percent] and BG 4 [36.4 percent], 995500 BG 1 [15.3 percent] and BG 3 [19.8 percent], and 995700 BG 4 [4.5 percent]). The Hispanic population for the proposed action CT/BG is 0.7 percent and is comparable to the adjacent CTs and BGs, which range from 0.1 percent to 1.5 percent.

CT 995600 BG 3 (6.3 percent) has a lower percentage of minority residents compared to St. Mary's County (18.4 percent) and the State of Maryland (36.0 percent). The Hispanic population of CT 995600 BG 1 (0.7 percent) is lower than St. Mary's County (2.0 percent) and the State of Maryland (4.3 percent).

In 2000 the median household income for St. Mary's County was $54,706, compared to an average of $52,868 for the State of Maryland (U.S. Census Bureau, 2000).

CT 995600 BG 3 has 21.7 percent of its population below the poverty level, which is higher than the adjacent CT 995600 BG 2 (2.7 percent) and BG 4 (2.3 percent), CT 995500 BG 1 (6.0 percent) and BG 3 (20.0 percent), and CT 995700 BG 1 (6.0 percent). The percent of population classified as below the poverty level in CT 995600 BG 3 (21.7 percent) is higher than that in St Mary's County (7.2 percent) and the State of Maryland (8.5 percent).

Based on the data presented in Table 9.3-1, no disproportionately high percentage of minority residents would be directly impacted by construction and operation of the proposed project. The proposed project site does have a higher poverty population in comparison to the surroundings CTs/BGs, St. Mary's County, and the State of Maryland. The poverty level at the proposed site, however, is not disproportionately higher when compared to the State of Maryland. The economic benefits of the facility to the county would likely also benefit minority and low-income populations to some degree, either directly by

offering new jobs or indirectly through secondary job creation and increased services from the increased tax revenue.

The proposed facility would be a positive economic stimulus to St. Mary's County and the local economy. Any adverse human health and environmental consequences from the proposed facility would not be borne disproportionately by minority or low-income groups. Therefore, it is anticipated that environmental justice impacts would be SMALL.

9.3.2.1.10 Transmission Corridors

The former Thiokol site was not used for power generation and has no existing power transmission lines or corridors. New transmission corridors would be necessary to connect with existing or proposed transmission lines. Specific monitoring requirements for new transmission lines and corridors and associated switchyards would be designed to satisfy conditions of applicable federal, state, and local permits, to minimize adverse environmental impacts, and to ensure that organisms are protected against transmission line alterations.

Most transmission corridors would pass through land that is primarily agricultural and forest land. New transmission corridors would result in some ecological impacts from potential surface water and wetlands crossings. The areas are mostly rural and remote with low population densities. The effect of these corridors on land usage is minimal; farmlands that have corridors passing through them generally continue to be used as farmland. Because new right-of-ways would need to be constructed to accommodate the new transmission lines, it is anticipated that construction impacts from the development of new transmission corridors would be MODERATE to LARGE due to the commitment of land and construction impacts on ecological resources.

Operational activities within the transmission corridors might include visual inspection and appropriate maintenance of transmission line ROWs. Maintenance activities might include reclearing vegetation, tree trimming/removal, and encroachment licensing/removal. For maintenance purposes, wooded sections of the ROW would be recleared to the full width through mechanical clearing, hand cutting, or herbicide application. Overall operation transmission impacts are anticipated to be SMALL.

ER Impact:

References and text pertaining to the Crane site will be removed from ER Section 9.3.2 and replaced with information pertaining to the brownfield site in Maryland (former Thiokol Site) in a future revision of the CCNPP Unit 3 COLA. Additionally, ER Section 10.4.1.3 will be updated to reference the former Thiokol brownfield site in lieu of the Crane site.

Item Number 202 **ER Section 9.3.2**

Request:

Does the Crane Generating Station combust oil as well as coal?

Response:

The Crane site is no longer being considered as an alternative site for CCNPP Unit 3. A supplemental brownfield site in Maryland (i.e., a former Thiokol Site) has been evaluated and will be incorporated into ER Section 9.3, and the Crane site description will be removed.

ER Impact:

Information relevant to the former Thiokol Site will be added to ER Section 9.3.2.1, as described in the response to RAI Item Number 201, and the Crane site description will be removed.

Item Number 203 **ER Section 9.3.2**

Request:

Section 9.3.3 of the ER states that the Crane Generating Station would have to be dismantled to allow construction of a new nuclear plant. Is the Crane Generating Station currently scheduled for dismantlement? Section 9.2.1.2 of the ER does not list the Crane Generating Station as slated for retirement.

Response:

The Crane site is no longer being considered as an alternative site for CCNPP Unit 3. A supplemental brownfield site in Maryland (i.e., a former Thiokol Site) has been evaluated and will be incorporated into ER Section 9.3, and the Crane site description will be removed.

ER Impact:

Information relevant to the former Thiokol Site will be added to ER Section 9.3.2.1, as described in the response to RAI Item Number 201, and the Crane site description will be removed.

Item Number 204 **ER Section 9.3.2**

Request:

Page 9.3-2 of the proposed revision of ESRP 9.3 calls for the candidate sites "to be among the best that can be reasonably found for the siting of a nuclear power plant." Explain how the Crane site fit within this criterion given that (1) an existing generating plant would have to be dismantled before a new nuclear plant could be built, and (2) the additional adjacent land that would be needed to site a new nuclear plant at the Crane site has been designated as a critical area under the Chesapeake Bay Critical Area statute, is predominantly wetlands, and is zoned for resource conservation (section 9.3.2.1.1 of the ER). Clarify how this zoning is consistent with the proposed revision to ESRP 9.3, which states that to be a candidate site, there should be no preemption of or adverse impacts on land specially designated for environmental, recreational, or other special purposes.

Response:

The Crane site is no longer being considered as an alternative site for CCNPP Unit 3. A supplemental brownfield site in Maryland (i.e., a former Thiokol Site) has been evaluated and will be incorporated into ER Section 9.3, and the Crane site description will be removed.

ER Impact:

Information relevant to the former Thiokol Site will be added to ER Section 9.3.2.1, as described in the response to RAI Item Number 201, and the Crane site description will be removed.

Item Number 205 **ER Section 9.3.2**

Request:

Section 9.3.2.2 of the ER states that collocating a new reactor with another reactor is advantageous when compared to a greenfield or brownfield site because the new reactor would be able to take advantage of the infrastructure that serves the existing reactor. Would a new reactor at the Crane brownfield site also be able to take advantage of existing infrastructure including transmission lines?

Response:

The Crane site is no longer being considered as an alternative site for CCNPP Unit 3. A supplemental brownfield site in Maryland (i.e., a former Thiokol Site) has been evaluated and will be incorporated into ER Section 9.3, and the Crane site description will be removed.

ER Impact:

Information relevant to the former Thiokol Site will be added to ER Section 9.3.2.1, as described in the response to RAI item Number 201, and the Crane site description will be removed.

Item Number 206 **ER Section 9.3.2**

Request:

Explain the cultural background and known cultural resources at the alternative site locations at a reconnaissance level. Provide references.

Response:

Evaluation of cultural resource impacts at each of the candidate sites was accomplished by analyzing reconnaissance-level information available on Geographical, Environmental, and Siting Information System (GEn&SIS) and from or from other sources such as the Topologically Integrated Geographic Encoding and Referencing (TIGER®) digital database; reviewing literature; reviewing reports from Federal, State, regional, local, and affected Native American tribal agencies such as State geological agencies, EPA, U.S. Department of Agriculture, or county extension offices; reviewing regional scientific, engineering, economic, and planning studies; reviewing aerial photographs and topographic maps; reviewing site-specific information from local citizens and from authorities associated with Federal, State, regional, local, and affected Native American tribal agencies, universities, and museums; and reviewing onsite inspections by technical specialists.

As provided in ER Section 9.3.2, impacts to cultural resources were considered in comparing the alternative sites to the proposed site to determine if any of the alternative sites were environmental preferable, and thus obviously superior, to the proposed site. References for the cultural resources summaries for each of the alternative sites are provided in the Historic, Cultural, and Archeological Resources portions of ER Section 9.3.4.

ER Impact:

No changes are required to the ER.

Item Number 207 **ER Section 9.3.2.1.3**

Request:

Provide data on faunal diversity in the tidal creeks at Crane. Is diversity greater there than at Calvert Cliffs?

Provide data to support the contention that aquatic impacts from cooling water intake I&E and thermal effects would be MODERATE or LARGE when the same discharges would have only SMALL effects at Calvert Cliffs.

Response:

The Crane site is no longer being considered as an alternative site for CCNPP Unit 3. A supplemental brownfield site in Maryland (i.e., a former Thiokol Site) has been evaluated and will be incorporated into ER Section 9.3, and the Crane site description will be removed.

ER Impact:

Information relevant to the former Thiokol Site will be added to ER Section 9.3.2.1, as described in the response to RAI Item Number 201, and the Crane site description will be removed.

Item Number 208 **ER Section 9.3.2.1.3**

Request:

Identify construction impacts on aquatic resources—is there dredging required, pipeline installation?

What transmission system effects are likely?

Response:

This RAI is related to the Crane site, which is no longer being considered as an alternative site for CCNPP Unit 3. A supplemental brownfield site in Maryland (i.e., a former Thiokol Site) has been evaluated and will be incorporated into ER Section 9.3, and the Crane site description will be removed.

ER Impact:

Information relevant to the former Thiokol Site will be added to ER Section 9.3.2.1, as described in the response to RAI Item Number 201, and the Crane site description will be removed.

Item Number 209 **ER Section 9.3.2.1.3**

Request:

Provide the water impacts section for the Crane Generation Plant. The text provided is a repeat of air quality.

Response:

The Crane site is no longer being considered as an alternative site for CCNPP Unit 3. A supplemental brownfield site in Maryland (i.e., a former Thiokol Site) has been evaluated and will be incorporated into ER Section 9.3, and the Crane site description will be removed.

ER Impact:

Information relevant to the former Thiokol Site will be added to ER Section 9.3.2.1, as described in the response to RAI Item Number 201, and the Crane site description will be removed.

Item Number 210 **ER Section 9.3.2.1.9**

Request:

Provide census block level populations and key economic aspects of the area. This holds for all discussion of EJ at the alternative sites. Provide consistent years and populations for the comparisons of populations at the different sites.

Response:

The ER will be revised as described below to include census block level population and key economic aspects of the area for each of the alternative sites, including consistent years and populations for comparisons between the alternative sites.

Information relevant to the Former Thiokol Site will be added to ER Section 9.3.2.1 as shown in RAI Item Number 201 response.

The following information will be added to ER Section 9.3.2.2.1.6, Socioeconomics:

> The Calvert Cliffs site is located within CT 861001 BG 1, Calvert County, Maryland. In 2007 Calvert County had a population of approximately 88,223, an 18 percent increase from 2000. In 2000 and 2005 the population within CT 861001 BG 1 was 1131 and 1401, respectively. The population density for CT 861001 BG 1 in 2000 and 2005 was 119 ppsm and 147 ppsm, respectively. The population density of Calvert County in 2000 and 2005 was 343 ppsm and 407 ppsm, respectively. The 2005 and 2007 population data presented was projected and therefore an estimated value.
>
> Census tract data from 2000 were reviewed to determine the average population density within a 20-mi (32.2-km) radius of the Calvert Cliffs site. Based on these data, there are 141 ppsm within this area (USCB, 2000a). The 141 ppsm includes seasonal transient populations. When using population data from the year 2000 as a baseline, Calvert County is estimated to experience a population increase of 28.0 percent by 2010, 32.3 percent by 2015, and 36.5 percent by 2020 (MSDC, 2007).
>
> Employment projections within the area indicate a general upward trend in the availability of various construction jobs (MDLLR, 2008b). Bechtel and the Building and Construction Trades Department of the AFL-CIO union announced they plan to reach an agreement by the end of 2008 on wages and benefits for workers who would be employed to construct a potential third reactor at the site. Construction on the proposed Unit 3 at Calvert Cliffs would create roughly 4,000 jobs for pipe fitters, welders, electricians and other skilled union members (Bechtel, 2008).
>
> The Maryland Occupational Projections from 2004 to 2014 for construction trades workers estimates an increase of 52,000 openings from 135,000 in 2004 to 163,000 in 2014. Calvert County employs 21,000 people of which 2,400 are in

construction jobs. The southern Maryland area employs 167,000 people of which 8600 are in construction jobs. An increase of available jobs indicates additional competition in acquiring a workforce for the construction of the project. Average annual unemployment rates in Calvert County and the Southern Maryland area are at 3.2 percent (MDLLR, 2008b).

The employer tax credits available include: federal, state, work opportunity, employment opportunity, welfare to work, enterprise zone, Maryland disability employment, and individuals with barriers to employment (MDLLR, 2008)

According to 2006 American Survey data, approximately 1,822 housing units are currently vacant, representing 5.7 percent of the total housing units within the county (USCB, 2006a). It is assumed that many of the direct and indirect jobs created by the project would require a largely migrating workforce. In addition, infrastructure is currently in place for the existing CCNPP.

The following information will be added to ER Section 9.3.2.2.1.9, Environmental Justice:

The demographic characteristics surrounding the proposed site were evaluated to determine the potential for environmental justice issues based on disproportionately high and adverse impacts to minority or low-income population. Demographic information used for this study was obtained from the 2000 U.S. Census. Demographics of the adjoining CTs/ BGs on and around the site within the county were examined and compared with the demographics of Calvert County and the State of Maryland. Table 9.3-2 presents this demographic information.

The Calvert Cliffs site is located in CT 861001 BG 1. Adjacent CTs include 860802 (BG 3), 860900 (BG 1 and 2), and 861002 (BGs 1 and 2). CT 861001 BG 1 has a 9.5 percent minority population, which is lower than all adjacent CTs within the county (860802 [9.6 percent], 860900 BG 1 [28.8 percent] and BG 2 [19.5 percent], 861002 BG 1 [17.7 percent] and BG 2 [14.1 percent]). The Hispanic population for the proposed action CT/BG is 2.5 percent and is comparable to the adjacent CTs and BGs, which range from 0.6 percent to 2.8 percent.

CT 861001 BG 1 (9.5 percent) has a lower percentage of minority residents compared to Calvert County (16.1 percent) and the State of Maryland (36.0 percent). The Hispanic population of CT 861001 BG 1 (2.5 percent) is slightly higher but comparable to the Calvert County (1.5 percent) and lower than the State of Maryland (4.3 percent).

CT 861001 BG 1 has 0 percent of its population below the poverty level, which is lower than all adjacent CTs and BGs. The percent of population classified as below the poverty level in CT 861001 BG 1 (0 percent) is lower than Calvert County (4.4 percent) and the State of Maryland (8.5 percent).

In 2000 the median household income for Calvert County was $65,945, compared to an average of $52,868 for the State of Maryland (USCB, 2000b).

Based on the data presented in Table 9.3-2, no disproportionately high percentage of minority or low low-income residents would be directly impacted by construction and operation of the proposed project. Also, the economic benefits of the facility to the county would likely also benefit the minority and low-income populations to some degree, either directly by offering new jobs or indirectly through secondary job creation and increased services from the increased tax revenue.

The proposed facility would be a positive economic stimulus to Calvert County and the local economy. Any adverse human health and environmental consequences from the proposed facility would not be borne disproportionately by minority or low-income groups. Furthermore, this site has been operating as a nuclear power generating facility for a number of years. Therefore, it is anticipated that environmental justice impacts would be SMALL.

The following information will be added to ER Section 9.3.2.2.2.6, Socioeconomics:

The Nine Mile Point site is located within CT 21502, BG 1, Oswego County, New York. In 2007 Oswego County had a population of approximately 121,454, a 0.8 percent decrease from 2000. In 2000 and 2005 the population within CT 21501 BG 1 was 7,331 and 7,678, respectively. The population density for CT 21501 BG 1 in 2000 and 2005 was 180 ppsm and 188 ppsm, respectively. The population density of Oswego County in 2000 and 2005 was 121 ppsm and 125 ppsm, respectively. The 2005 and 2007 population data presented was projected and therefore an estimated value.

Census tract data from 2000 were reviewed to determine the average population density within a 20-mi (32.2-km) radius of the Nine Mile Point site. Based on these data, there are 104 ppsm within this area (USCB, 2000c). The 104 ppsm includes seasonal transient populations. When using population data from the year 2000 as a baseline, Oswego County is estimated to experience a population decrease of 0.08 percent by 2010, 1.1 percent by 2015, and 2.7 percent by 2020 (Cornell, 2008).

Currently there is a 6.4 percent unemployment rate in Oswego County and a 4.3 percent unemployment rate in the Central New York region. Of the 53,000 Oswego County residents employed in 2000, 7,000 were in construction. Onondaga County which contains the largest city in the area, Syracuse, had 222,000 residents employed of which 14,000 were in construction (NYLB, 2008a). A combination of slow population growth, increasing numbers of baby boomers retiring, and fewer young people entering the local job market have contributed to a tightening labor supply in Central New York. If these trends continue, local employers will have great difficulty filling positions, which could

hamper future job growth. In response, the region's employers are aggressively advertising to fill vacancies at various skill levels (NYSDL, 2008a).

In addition to lower taxes, New York offers a variety of incentives to companies expanding or relocating in the Empire State. These include:

- Investment Tax Credit (ITC). Businesses that create new jobs and make new investments in production property and equipment may qualify for tax credits of up to 10 percent of their eligible investment. New businesses may elect to receive a refund of certain credits, and all unused credits can be carried forward for 15 years.

- Research and Development Tax Credit. Investments in research and development facilities are eligible for a 9 percent corporate tax credit. Additional credits are available to encourage the creation and expansion of emerging technology businesses, including a 3-year job creation credit of $1000 dollars per employee and a capital credit for investments in emerging technologies.

- Sales Tax Exemptions. New York State offers exemptions for purchases of production machinery and equipment, research and development property, and fuels/utilities used in manufacturing and R&D. Other exemptions may be available through local Industrial Development Agencies (IDA.)

- Real Property Tax Abatement. To encourage development, expansion, and improvement of commercial property, a 10-year property tax abatement is available to offset increased assessments due to improvements to business and commercial property.

- No Personal Property Tax. Unlike many other states, which tax both real property and personal property, property taxes in New York State are imposed on real property only. Personal property, whether tangible or intangible, is exempt from state and local taxes.

- Economic Development Zone/Empire Zone Tax Credits. New York State has designated 72 zones as Economic Development Zones/Empire Zones (EZs), which offer a host of benefits. These include discounts on electricity, enhanced tax credits for investment and job creation, and additional sales and property tax exemptions (NYLB, 2008c).

Based on 2006 census data, approximately 7,507 housing units are currently vacant, representing 14 percent of the total housing units within the county (USCB, 2006b).

The following information will be added to ER Section 9.3.2.2.2.9, Environmental Justice:

The demographic characteristics surrounding the proposed site at Nine Mile Point were evaluated to determine the potential for environmental justice issues based on disproportionately high and adverse impacts to minority or low-income population. Demographic information used for this study was obtained from the 2000 U.S. Census. Demographics of the adjoining CTs/BGs on and around the site within the county were examined and compared with the demographics of Oswego County and the State of New York. Table 9.3-3 presents this demographic information.

The Nine Mile Point site is located in CT 21502 BG 1. Adjacent CTs include 21502 (BG 2), 21501 (BG 1 and 2), and 21605 (BG 1). CT 21502 BG 1 has a 1.9 percent minority population, which is lower or comparable to all adjacent CTs within the county (21502 BG 2 [3.4 percent], 21501 BG 1 [1.1 percent] and BG 2 [2.1 percent], and 21605 BG 1 [4.6 percent]). The Hispanic population for the proposed action CT/BG is 1.0 percent and is comparable to the adjacent CTs and BGs, which range from 0.6 percent to 4.0 percent.

CT 21501 BG 1 (1.9 percent) has a lower percentage of minority residents compared to Oswego County (2.8 percent) and the State of New York (31.2 percent). The Hispanic population of CT 21501 BG 1 (1.0 percent) is lower than Oswego County (1.3 percent) and the State of New York (15.1 percent).

CT 21502 BG 1 has 14.3 percent of its population below the poverty level, which is lower than the adjacent CT 21502 BG 2 (15.1 percent) and CT 21605 BG 1 (17.5 percent), and slightly higher than CT 21501 BG 1 (13.1 percent) and BG 2 (9.4 percent). The percent of the population classified as below the poverty level in CT 21502 BG 1 (14.3 percent) is higher than Oswego County (8.6 percent) and lower than that in the State of New York (14.6 percent).

In 2000 the median household income for Oswego County was $36,598 compared to an average of $43,393 for the State of New York (USCB, 2000d).

Based on the data presented in Table 9.3-3, no disproportionately high percentage of minority or low-income residents would be directly impacted by construction and operation of the proposed facility. The economic benefits of the facility to the county would likely also benefit the minority and low-income populations to some degree, either directly by offering new jobs or indirectly through secondary job creation and increased services from the increased tax revenue.

The proposed facility would be a positive economic stimulus to Oswego County and the local economy. Any adverse human health and environmental consequences from the proposed facility would not be borne disproportionately by minority or low-income groups. Furthermore, this site has been operating as a

nuclear power generating facility for a number of years. Therefore, it is anticipated that environmental justice impacts would be SMALL.

The following information will be added to ER Section 9.3.2.2.3.6, Socioeconomics:

The Ginna site is located within CT 20101 BG 1, Wayne County, New York. In 2007, Wayne County had a population of approximately 91,291, a 2.6 percent decrease from 2000. In 2000 and 2005, the population within CT 20101 BG 1 was 4,712 and 5,045, respectively. The population density for CT 21501 BG 1 in 2000 and 2005 is 217 ppsm and 233 ppsm, respectively. The population density of Wayne County in 2000 and 2005 was 155 ppsm and 158 ppsm, respectively. The 2005 and 2007 population data presented is projected and therefore an estimated value.

Census tract data from 2000 were reviewed to determine the average population density within a 20-mi (32.2-km) radius of the Ginna site. Based on these data, there are 284 ppsm within this area (USCB, 2000e). The 284 ppsm includes seasonal transient populations. When using population data from the year 2000 as a baseline, Wayne County is estimated to experience a population decrease of 0.6 percent by 2010, 0.9 percent by 2015, and 1.9 percent by 2020 (Cornell, 2008).

Currently the unemployment rate in Wayne County is 5.4 percent. Of the 47,000 people employed in Wayne County, 4,500 are in construction (NYLB, 2008b). The economy of the Finger Lakes region is presently in transition. The local economic base, which was once dependent upon a few large manufacturing firms, has become much more diverse in recent years. A mix of small manufacturers and firms in a variety of service-producing industries are adding jobs, a trend that will likely continue. Among the region's most important economic assets are its post-secondary educational institutions (NYSDL, 2008b)

In addition to lower taxes, New York offers a variety of incentives to companies expanding or relocating in the Empire State. These include:

- Investment Tax Credit (ITC). Businesses that create new jobs and make new investments in production property and equipment may qualify for tax credits of up to 10 percent of their eligible investment. New businesses may elect to receive a refund of certain credits, and all unused credits can be carried forward for 15 years.

- Research and Development Tax Credit. Investments in research and development facilities are eligible for a 9% corporate tax credit. Additional credits are available to encourage the creation and expansion of emerging technology businesses, including a 3-year job creation credit of $1,000 dollars per employee and a capital credit for investments in emerging technologies.

- Sales Tax Exemptions. New York State offers exemptions for purchases of production machinery and equipment, research and development property, and fuels/utilities used in manufacturing and R&D. Other exemptions may be available through local Industrial Development Agencies (IDA.)

- Real Property Tax Abatement. To encourage development, expansion, and improvement of commercial property, a 10-year property tax abatement is available to offset increased assessments due to improvements to business and commercial property.

- No Personal Property Tax. Unlike many other states, which tax both real property and personal property, property taxes in New York State are imposed on real property only. Personal property, whether tangible or intangible, is exempt from state and local taxes.

- Economic Development Zone/Empire Zone Tax Credits. New York State has designated 72 zones as Economic Development Zones/Empire Zones (EZs), which offer a host of benefits. These include discounts on electricity, enhanced tax credits for investment and job creation, and additional sales and property tax exemptions (NYLB, 2008c).

Based on 2006 census data, approximately 3,845 housing units are currently vacant, representing 9.6 percent of the total housing units within the county (USCB, 2006c).

The following information will be added to the CCNPP Unit 3 ER, Subsection 9.3.2.2.3.9, Environmental Justice:

The demographic characteristics surrounding the proposed R. E. Ginna site were evaluated to determine the potential for environmental justice issues based on disproportionately high and adverse impacts to minority or low-income population. Demographic information used for this study was obtained from the 2000 U.S. Census. Demographics of the adjoining CTs/BGs on and around the site within the county were examined and compared with the demographics of Wayne County and the State of New York. Table 9.3-4 presents this demographic information.

The Ginna site is located in CT 20101 BG 1. Adjacent CTs include 20102 (BG 2), 20401 (BG 2), and 20402 (BG 1). CT 20101 BG 1 has a 2.7 percent minority population, which is lower than all adjacent CTs within the county (20102 BG 1 [4.3 percent], 20401 BG 2 [4.0 percent], and 20402 BG 1 [8.6 percent]). The Hispanic population for the proposed action CT/BG is 1.3 percent and is comparable to the adjacent CTs and BGs, which range from 1.2 percent to 2.5 percent.

CT 20101 BG 1 (2.7 percent) has a lower percentage of minority residents compared to Wayne County (6.2 percent) and the State of New York (31.2

percent). The Hispanic population of CT 20101 BG 1 (1.3 percent) is lower than Wayne County (1.3 percent) and the State of New York (15.1 percent).

CT 20101 BG 1 has 2.5 percent of its population below the poverty level, which is lower than all of the adjacent CTs/BGs. The percent of population classified as below the poverty level in CT 20101 BG 1 (2.5 percent) is lower than that in Wayne County (14.0 percent) and the State of New York (14.6 percent).

In 2000, the median household income for Wayne County was $44,157, compared to an average of $43,393 for the State of New York (USCB, 2000f).

Based on the data presented in Table 9.3-4, no disproportionately high percentage of minority or low-income residents would be directly impacted by construction and operation of the proposed facility. The economic benefits of the facility to the county would likely also benefit the minority populations to some degree, either directly by offering new jobs or indirectly through secondary job creation and increased services from the increased tax revenue.

The proposed facility would be a positive economic stimulus to Wayne County and the local economy. Any adverse human health and environmental consequences from the proposed facility would not be borne disproportionately by minority or low-income groups. Furthermore, this site has been operating as a nuclear power generating facility for a number of years. Therefore, it is anticipated that environmental justice impacts would be SMALL.

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ER Impact:

Section 9.3.2 of the ER will be updated in a future revision of the CCNPP Unit 3 COLA to include census block level population and key economic aspects of the area for each of the alternative sites, as described above.

Item Number 212 ER Section 9.3.2.2.2.3 (NMP)

Request:

Provide the water impacts section for Nine Mile Point Plant. The text provided is for air quality.

Response:

The following text will be inserted into ER Section 9.3.2.2.2.3 to replace the text for air quality:

> Lake Ontario is the smallest of the Great Lakes. The lake is 193 mi (310 km) long, 53 mi (85 km) wide, has a surface area of approximately 7,340 mi2 (19,010 km2). The average depth is 283 ft (86 m) with a maximum depth of 802 ft (244m). The Niagara River supplies approximately 80 percent of the water that flows into Lake Ontario, while the rest comes from small tributaries and runoff from precipitation. The lake drains through the St. Lawrence River, and water retention time is estimated to be approximately 8 years (NMP, 2004).
>
> The cooling water system for the proposed new unit would include a CWS and a service water system. The CWS circulates cool water through the main condensers to condense steam after it passes through the turbine. The service water system circulates cooling water through heat exchangers that serve various plant components. It is anticipated that the proposed new unit would have a CWS and service water system similar to the existing Nine Mile Point Nuclear Plant Unit 2. The service water system for Unit 2 is a once-through system. The CWS for Unit 2 is a closed-cycle system that uses a cooling tower, and some of the discharge from the service water system is added to the CWS to make up for losses due to evaporation and drift from the cooling tower. The proposed new unit would have a separate intake and discharge structures located offshore in Lake Ontario, and a screenwell and pumphouse structure located onshore.
>
> Hydrologic impacts associated with construction activities include alteration of the existing watershed surface; disturbance of the ground surface for stockpiles, material storage, and construction of temporary access roads; construction of water intake and discharge structures; construction of cofferdams and storm sewers; construction of piers, jetties, basins, or other structures that might alter shoreline processes; dredging operations; temporary dewatering activities; construction activities contributing to sediment runoff; changes in surface water drainage characteristics; decreases in surface water infiltration (increases of impervious surfaces); and increased erosion and sedimentation. Water will be used for construction activities. A specific quantity of water usage is not known at this time. However, proper mitigation and management methods implemented during construction will limit the potential water quantity and quality effects to surface water and groundwater.

Construction-related water use impacts will be minimized through the implementation of BMPs including erosion, grading, and sediment control measures; stormwater control measures; spill prevention plan; and observance of federal, state, regional, tribal, and local regulations pertaining to non-point source discharges. Overall construction-related water impacts will be SMALL.

The main source of water for the proposed new unit at NMP would be Lake Ontario. As mentioned above, given the volume of water contained in Lake Ontario, surface water supply is adequate for plant needs, and addition of a new unit at the site would not cause a significant impact to water resources. In addition, NMP is not a direct user of groundwater and there are no plans for direct groundwater use in the future (NMP, 2004).

The impacts associated with operating the proposed new unit's CWS and intake and discharge systems would be similar those associated with the existing NMP Unit 2. Impacts associated with operating NMP Unit 2 CWS and intake and discharge systems are described in detail in both the Nine Mile Point License Renewal document (NMP, 2004) and the Nine Mile Point Nuclear Station GEIS (NRC, 2006a) and include: thermal discharge is in compliance with applicable permit requirements; the plant operates in accordance with applicable local, state, and federal discharge limitations; there are no impacts of scouring caused by discharged cooling water; no impacts of discharge of chlorine or other biocides; no impacts of discharges of sanitary wastes; no impacts of discharges of other metals in wastewater; there are no impacts of altered current patterns at the intake and discharge; there are no impacts of altered thermal stratification of the lake; there are no impacts of temperature effects on sediment transport capacity; there are no impacts of thermal plume barriers to migrating fish and no impacts of stimulation of nuisance organisms. Finally, there would be no impacts of impingement and entrainment of fish and shellfish in early life stages because of the use of a cooling tower based system.

Ensuring permitted limits for water withdrawal and discharge are met through operational controls and monitoring would minimize the potential for adverse impacts to water availability and water quality. It is anticipated that there would be a site-specific water treatment system or the use of a municipal system, if available. Therefore, it is anticipated that overall water use impacts from operation activities would be SMALL.

References

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ER Impact:

The text listed above will be inserted into ER Section 9.3.2.2.2.3 to replace the text for air quality.

Item Number 213 **ER Section 9.3.2.2.2.3**

Request:

Provide information about cooling water intake and discharge parameters including the extent of the thermal plume. Would nuisance species (e.g., zebra mussels) likely be a problem?

Response:

Information regarding the cooling water intake and discharge parameters, including the extent of the thermal plume, is provided in the response to RAI Item 212.

ER Impact:

ER Impacts related to cooling water intake and discharge parameters, including the extent of the thermal plume, will be as described in the response to RAI item Number 212. No additional ER impacts identified.

Item Number 215 **ER Section 9.3.2.2.2.3**

Request:

Construction impacts on aquatic resources need to be better identified—would dredging be required, pipeline installation? Also, transmission system effects?

Response:

The following information will be inserted into ER Section 9.3.2.2.2.5 to address construction impacts on aquatic resources:

> Construction-related impacts to the aquatic ecology would include loss of wetlands and temporary loss of habitat and short-term degradation of water quality in isolated areas due to in-water and shoreline construction of the CWIS and other appurtenant structures (such as blowdown and discharge pipelines).
>
> While much of the supporting CWIS structure will be located onshore, a portion will extend a short distance into the waterway and will likely involve the dredging of sediment to allow for the construction of the concrete structure on the bottom of the lake. The blowdown and discharge pipeline would extend approximately 2,000 ft (61 m) into the lake. The dredging of sediment during construction of the CWIS and pipeline will result in the temporary suspension and re-deposition of the sediment, as well as the removal of those benthic organisms living in or on the removed sediment. It is anticipated that the suspended sediment will quickly redeposit in the immediate area. For a short period of time, the suspended sediment will create increased turbidity in the immediate area of the construction. Fish and motile crustaceans present in the area during construction activities will avoid the area during active construction or will actively feed on suspended organisms during dredging operations, and are unlikely to be adversely affected by the construction activities.
>
> No construction effluents are anticipated from in-water construction activities. BMPs and compliance with permit requirements will be used to minimize runoff volumes and impacts. The use of a cofferdam to facilitate construction of the in-water portions of the CWIS will minimize releases of sediment. Prior to commencement of dredging, sediment in those areas proposed to be dredged will be sampled and analyzed to obtain detailed chemical characterizations according to the requirements of dredging permits; special sediment-handling requirements suggested by the sediment sampling results and required by the dredging permit will be followed.
>
> CWIS and pipeline construction-related impacts on aquatic species are anticipated to be minor because the area of impacts is limited to the immediate vicinity of the construction activities. Because the potential impacts will be localized and given the short-term nature of the construction activities and the relatively short-term recovery periods for disturbed benthic species within and near the dredged area, no long-term effects on important species and their

habitats are anticipated to occur. Therefore, the adverse aquatic ecology impacts associated with construction of the CWIS and other appurtenant structures (such as blowdown and discharge pipelines) are anticipated to be SMALL to MODERATE.

Because no sensitive species are known to occur in the vicinity, and operation of the proposed new reactor is expected to have a similar impact on aquatic resources as the operation of the existing reactor, operating a new reactor at NMP would have a SMALL impact on the aquatic ecology in the area.

The following information will be inserted into ER Section 9.3.2.2.2.10 to address transmission system effects on aquatic resources:

The proposed new unit at NMP would utilize, to the extent possible, existing NMP transmission facilities to minimize environmental impacts. This site is capable of supporting the required 345-kV transmission lines, but will require upgrades to the switchgear. However, the tie-in is currently congested with limited transmission corridor space. Further evaluation would be required to determine the need for additional transmission corridors. If required, new transmission corridors and towers would be situated (if possible) in existing ROWs to avoid critical or sensitive habitats/species as much as possible. It is anticipated that transmission corridors might need to be widened in some cases to support new lines. Specific monitoring requirements for new transmission lines and corridors and associated switchyards would be designed to satisfy conditions of applicable federal, state, and local permits, to minimize adverse environmental impacts, and to ensure that organisms are protected against transmission line alterations.

Most transmission corridors would pass through land that is primarily agricultural and forest land. Widening transmission corridors would result in some ecological impacts. The areas are mostly rural and remote with low population densities. The effect of these corridors on land usage is minimal; farmlands that have corridors passing through them generally continue to be used as farmland.

Operational activities within the transmission corridors might include visual inspection and appropriate maintenance of transmission line ROWs. Maintenance activities might include reclearing vegetation, tree trimming/removal, and encroachment licensing/removal. For maintenance purposes, wooded sections of the ROW would be recleared to the full width through mechanical clearing, hand cutting, or herbicide application. Overall construction and operation transmission impacts are anticipated to be SMALL.

ER Impact:

The text listed above will be inserted into ER Sections 9.3.2.2.2.5 and 9.3.2.2.2.10 in a future revision of the CCNPP Unit 3 COLA.

Item Number 217 ER Section 9.3.2.2.3.3 (Ginna)

Request:

Provide water impacts related to Lake Ontario.

Response:

The following information will be inserted into ER Section 9.3.2.2.3.3 to replace the existing text:

> Lake Ontario is the smallest of the Great Lakes. The lake is 193 mi (310 km) long, 53 mi (85 km) wide, has a surface area of approximately 7,340 square miles (mi2) (19,010 km2). The average depth is 283 ft (86m) with a maximum depth of 802 ft (244m). The Niagara River supplies approximately 80 percent of the water that flows into Lake Ontario, while the rest comes from small tributaries and runoff from precipitation. The lake drains through the St. Lawrence River, and water retention time is estimated to be approximately 8 years. In addition to Lake Ontario, surface water features at the Ginna site include Mill Creek, which enters the site from the south, and Deer Creek, which enters the site from the west. Mill Creek has a continuous yield, while Deer Creek dries up during the summer months. Ginna does not use groundwater resources for plant operations or domestic purposes (RG&E, 2002).
>
> The cooling water system for the proposed new unit would include a CWS and a service water system. The CWS circulates cool water through the main condensers to condense steam after it passes through the turbine. The service water system circulates cooling water through heat exchangers that serve various plant components. The proposed new unit would have a once-through service water system and a closed-cycle CWS system that uses a cooling tower. Some of the discharge from the service water system will be added to the CWS to make up for losses due to evaporation and drift from the cooling tower. The proposed new unit would have a separate intake and discharge structures located offshore in Lake Ontario, and a screenwell and pumphouse structure located onshore.
>
> Hydrologic impacts associated with construction activities include alteration of the existing watershed surface; disturbance of the ground surface for stockpiles, material storage, and construction of temporary access roads; construction of water intake and discharge structures; construction of cofferdams and storm sewers; construction of piers, jetties, basins, or other structures that might alter shoreline processes; dredging operations; temporary dewatering activities; construction activities contributing to sediment runoff; changes in surface water drainage characteristics; decreases in surface water infiltration (increases of impervious surfaces); and increased erosion and sedimentation. Water will be used for construction activities. A specific quantity of water usage is not known at this time. However, proper mitigation and management methods implemented

during construction will limit the potential water quantity and quality effects to surface water and groundwater.

Construction-related water use impacts will be minimized through the implementation of BMPs including erosion, grading, and sediment control measures; stormwater control measures; spill prevention plan; and observance of federal, state, regional, tribal, and local regulations pertaining to nonpoint source discharges. Overall construction-related water impacts will be SMALL.

The main source of water for the proposed new unit at Ginna would be Lake Ontario. As mentioned above, given the volume of water contained in Lake Ontario, surface water supply is adequate for plant needs, and addition of a new unit at the site would not cause a significant impact to water resources (RG&E, 2002). In addition, Ginna is not a direct user of groundwater and there are no plans for direct groundwater use in the future (NRC, 2004).

The impacts associated with operating the proposed new unit's CWS and intake and discharge systems would be similar to those impacts associated with the existing Ginna Nuclear Power Plant, which are described in detail in the both the R.E. Ginna License Renewal document (RG&E, 2002) and the R. E. Ginna Nuclear Station GEIS (NRC, 2004) with one main difference: while the exiting unit uses a once-through condenser cooling system, the proposed new unit will be a closed – cycle system which will have less of an impact to the impingement and entrainment of fish and shellfish Lake Ontario. Impacts discussed in the R.E. Ginna license renewal document and the GEIS indicate that the thermal discharge is in compliance with applicable permit requirements; the plant operates in accordance with applicable local, state, and federal discharge limitations; there are no impacts of scouring caused by discharged cooling water; no impacts of discharge of chlorine or other biocides; no impacts of discharges of sanitary wastes; no impacts of discharges of other metals in wastewater; there are no impacts of altered current patterns at the intake and discharge; there are no impacts of altered thermal stratification of the lake; there are no impacts of temperature effects on sediment transport capacity; there are no impacts of thermal plume barriers to migrating fish and no impacts of stimulation of nuisance organisms. Finally, there would be no impacts of impingement and entrainment of fish and shellfish in early life stages since the proposed new unit would use a cooling tower based system.

Ensuring permitted limits for water withdrawal and discharge are met through operational controls and monitoring would minimize the potential for adverse impacts to water availability and water quality. It is anticipated that there would be a site-specific water treatment system or the use of a municipal system, if available. Therefore, it is anticipated that overall water use impacts from operation activities would be SMALL.

Cumulative water impacts were addressed for the continued operation of the existing Ginna nuclear station in the NUREG 1437, Supplement 14 (NRC, 2004).

It was determined that there would be a SMALL cumulative impacts on water use, water quality and groundwater withdrawals since there are no groundwater withdrawals at Ginna and there are none anticipated in the future; and water use and water quality impacts associated with the intake of water from, and the discharge of water to, Lake Ontario would be continue to be regulated by the State of New York and other agencies. Water use (intake and discharge) for the proposed new reactor unit at Ginna would also be regulated by applicable state and other agencies. Therefore, cumulative water impacts would be SMALL.

References

RG&E, 2002. R.E. Ginna Nuclear Power Plant Application for Renewed Operating License, Volume 3, Appendix E - Environmental Report, July 2002, accession number ML022240023.

NRC, 2004. Generic Environmental Impact Statement for License Renewal of Nuclear Plants, NUREG-1437, Supplement 14, Regarding R.E. Ginna Nuclear Power Plant - Final Report, Nuclear Regulatory Commission, January 2004.

ER Impact:

The information identified above will be inserted into ER Section 9.3.2.2.3.3 to replace the existing text in this section.

Item Number 218 **ER Section 9.3.2.2.3.3**

Request:

Provide information about cooling water intake and discharge parameters. What is the extent of the thermal plume? Would nuisance species (e.g., zebra mussels) likely be a problem?

Response:

Information regarding the cooling water intake and discharge parameters, including the extent of the thermal plume, is provided in the response to RAI item Number 217.

ER Impact:

ER Impacts related to cooling water intake and discharge parameters, including the extent of the thermal plume, will be as described in the response to RAI item Number 217. No additional ER impacts identified.

Item Number 219 **ER Section 9.3.2.2.3.3**

Request:

Construction impacts on aquatic resources need to be better identified—would dredging be required, pipeline installation? What would the transmission system effects be?

Response:

The following information will be inserted into ER Section 9.3.2.2.3.5 to address construction impacts on aquatic resources:

> Construction-related impacts to the aquatic ecology would include loss of wetlands and temporary loss of habitat and short-term degradation of water quality in isolated areas due to in-water and shoreline construction of the CWIS and other appurtenant structures (such as blowdown and discharge pipelines).
>
> While much of the supporting CWIS structure will be located onshore, a portion will extend a short distance into the waterway and will likely involve the dredging of sediment to allow for the construction of the concrete structure on the bottom of the lake. The blowdown and discharge pipeline would extend into the lake. The dredging of sediment during construction of the CWIS and pipeline will result in the temporary suspension and redeposition of the sediment, as well as the removal of those benthic organisms living in or on the removed sediment. It is anticipated that the suspended sediment will quickly redeposit in the immediate area. For a short period of time, the suspended sediment will create increased turbidity in the immediate area of the construction. Fish and motile crustaceans present in the area during construction activities will avoid the area during active construction or will actively feed on suspended organisms during dredging operations, and are unlikely to be adversely affected by the construction activities.
>
> No construction effluents are anticipated from in-water construction activities. BMPs and compliance with permit requirements will be used to minimize runoff volumes and impacts. The use of a cofferdam to facilitate construction of the in-water portions of the CWIS will minimize releases of sediment. Prior to commencement of dredging, sediment in those areas proposed to be dredged will be sampled and analyzed to obtain detailed chemical characterizations according to the requirements of dredging permits; special sediment-handling requirements suggested by the sediment sampling results and required by the dredging permit will be followed.
>
> CWIS and pipeline construction-related impacts on aquatic species are anticipated to be minor because the area of impacts is limited to the immediate vicinity of the construction activities. Because the potential impacts will be localized and given the short-term nature of the construction activities and the relatively short-term recovery periods for disturbed benthic species within and

near the dredged area, no long-term effects on important species and their habitats are anticipated to occur.

Construction activities would have a SMALL TO MODERATE impact on the aquatic ecology at the Ginna site depending on the proximity of the new reactor to onsite streams and the impacts associated with construction of the CWIS and other appurtenant structures (such as blowdown and discharge pipelines).

Operating a new reactor at Ginna would have a SMALL impact on the aquatic ecology in the area since no sensitive species are known to occur in the vicinity, and operation of the proposed new reactor is expected to have a similar impact on aquatic resources as the existing reactor.

Cumulative impacts to threatened or endangered species were addressed for the continued operation of the existing Ginna nuclear station in NUREG 1437, Supplement 14 (NRC, 2004). It was determined that that the cumulative impacts to threatened or endangered species due to continued operation of the Ginna site would be SMALL and that additional mitigation would not be warranted primarily because none are known to occur near the Ginna site. The addition of another unit at the Ginna site would not impact threatened or endangered species at the site for the reason identified above.

The following information will be inserted into Subsection 9.3.2.2.3.10 to address transmission system effects on aquatic resources:

Most transmission corridors would pass through land that is primarily agricultural and forest land and would result in some ecological impacts. The areas are mostly rural and remote with low population densities. The effect of these corridors on land usage is minimal; farmlands that have corridors passing through them generally continue to be used as farmland. Specific monitoring requirements for new transmission lines and corridors and associated switchyards would be designed to satisfy conditions of applicable federal, state, and local permits, to minimize adverse environmental impacts. Because new right-of-ways would need to be constructed to accommodate the new transmission lines, it is anticipated that construction impacts from the development of new transmission corridors would be MODERATE due to the commitment of land and construction impacts on ecological resources.

Operational activities within the transmission corridors might include visual inspection and appropriate maintenance of transmission line ROWs. Maintenance activities might include reclearing vegetation, tree trimming/removal, and encroachment licensing/removal. For maintenance purposes, wooded sections of the ROW would be recleared to the full width through mechanical clearing, hand cutting, or herbicide application. Overall operation transmission impacts are anticipated to be SMALL.

ER Impact:

The text identified above will be inserted into ER Sections 9.3.2.2.3.5 and 9.3.2.2.3.10 in a future revision of the CCNPP Unit 3 COLA.

Item Number 220 **ER Section 9.3.2.2.3.3**

Request:

Describe the cumulative effects (of land use, hydrological and ecological resources, radiological releases) of adding a new plant to the existing one.

Response:

The following information will be added to ER Section 9.3.2.2.3.1 to address this RAI:

> As stated in Subsection 9.3.2.2.3, sufficient land area is available at Ginna to support an additional unit; therefore, impacts associated with construction of the new unit would be anticipated to be SMALL in relation to operation of the existing Ginna nuclear power plant. Appropriate controls and monitoring during operation of the new unit would minimize any cumulative impacts associated with the ongoing operation at Ginna. Therefore, overall cumulative land use impacts would be anticipated to be SMALL.

The following information will be added to ER Section 9.3.2.2.3.2 to address this RAI:

> The public and occupational radiological doses resulting from operation of Ginna are well below regulatory limits. The radiological exposure limits for protection of the public and for occupational exposures have been developed assuming long-term exposures, and therefore incorporate cumulative impacts. The Annual Radioactive Effluent Release Report, covering the period from January 1, 2006 through December 31, 2006, indicates all gaseous and liquid effluents discharged during the reporting period were in compliance with the limits of the R. E. Ginna Technical Specifications as defined in the Offsite Dose Calculation Manual (ODCM) (Constellation, LLC, 2007). Per NUREG 1437 (NRC, 2004), the cumulative radiological impacts of continued operation of Ginna will be SMALL, additional mitigation is not warranted, and the NRC would regulate any reasonably foreseeable future actions in the vicinity of Ginna that could contribute to cumulative radiological impacts. Since operation of the new unit at Ginna and the existing unit would be in compliance with applicable regulatory dose limits, cumulative radiological impacts would be SMALL.

The following information will be added to ER Section 9.3.2.2.3.3 to address this RAI:

> Cumulative water impacts were addressed for the continued operation of the existing Ginna nuclear station in the NUREG 1437, Supplement 14 (NRC, 2004). It was determined that there would be a SMALL cumulative impacts on water use, water quality and groundwater withdrawals since there are no groundwater withdrawals at Ginna and there are none anticipated in the future; and water use and water quality impacts associated with the intake of water from, and the discharge of water to, Lake Ontario would be continue to be regulated by the State of New York and other agencies. Water use (intake and discharge) for the

proposed new reactor unit at Ginna would also be regulated by applicable state and other agencies. Therefore, cumulative water impacts would be SMALL.

The following information will be added to ER Section 9.3.2.2.3.4 and 9.3.2.2.3.5 to address this RAI:

> Cumulative impacts to threatened or endangered species were addressed for the continued operation of the existing Ginna nuclear station in NUREG 1437, Supplement 14 (NRC, 2004). It was determined that that the cumulative impacts to threatened or endangered mitigation would not be warranted primarily because none are known to occur near the Ginna site. The addition of another unit at the Ginna site would not impact threatened or endangered species at the site for the reason identified above.

References

Constellation, 2007. Annual Radioactive Effluent Release Report. R.E. Ginna Nuclear Power Plant, Docket No. 50-244, Annual Radioactive Effluent and Environmental Reports, 2006. May 14, 2007.

NRC, 2004. Generic Environmental Impact Statement for License Renewal of Nuclear Plants, NUREG-1437, Supplement 14, Regarding R.E. Ginna Nuclear Power Plant - Final Report, Nuclear Regulatory Commission, January 2004.

ER Impact:

The information identified above will be added to ER Sections 9.3.2.2.3.1, 9.3.2.2.3.2, 9.3.2.2.3.3, 9.3.2.2.3.4, and 9.3.2.2.3.5 in a future revision of the CCNPP Unit 3 COLA.

Item Number 221 **ER Section 9.3.3**

Request:

Section 9.3.3 states that terrestrial impacts at the Calvert site would be no greater than at the alternative sites. Table 9.3-5 shows that potential terrestrial impacts at the Crane site would be less than at Calvert. Explain the difference in terrestrial impacts between the Crane site and the Calvert site.

Response:

The Crane site is no longer being considered as an alternative site for CCNPP Unit 3. A supplemental brownfield site in Maryland (i.e., a former Thiokol Site) has been evaluated and will be incorporated into ER Section 9.3, and the Crane site description will be removed.

ER Impact:

Information relevant to the former Thiokol Site will be added to ER Section 9.3.2.1, as described in the response to RAI Item Number 201, and the Crane site description will be removed. No additional ER impacts are identified.

Item Number 222 **ER Section 9.3.3**

Request:

Table 9.3-5 of the ER states that the greenfield site is a candidate site. Section 9.3.1.2 of the ER states that the use of a greenfield site is not carried forward as an alternative site and that only the three existing nuclear sites plus the Crane site were considered as candidate sites. Clarify the use of a greenfield site as a candidate site.

Response:

As described in ER Section 9.3.1.3, the greenfield site was not carried forward as an alternative site (i.e., a candidate site). Therefore, the greenfield site will be removed from ER Table 9.3-5 and the table will be retitled as “Summary Comparison of Candidate Sites.”

ER Impact:

ER Table 9.3-5 will be revised to remove the greenfield site from ER Table 9.3-5, and the table will be retitled as “Summary Comparison of Candidate Sites” in a future revision of the CCNPP Unit 3 COLA.

Item Number 228 **ER Section 10.4.1.2**

Request:

"The evaluation indicated that neither a coal-fired nor a gas-fired facility would appreciably reduce overall environmental impacts relative to a new nuclear plant." This seems to conflict with the subsequent sentence in the section and with Chapter 9. Explain.

Response:

The following text in ER Section 10.4.1.2 will be clarified as follows:

> The evaluation indicated that neither a coal-fired nor a gas-fired facility would appreciably reduce overall environmental impacts relative to a new nuclear plant. Furthermore, a coal-fired or gas-fired facility would entail a significantly greater environmental impact on air quality than would a new nuclear plant.

Will be revised to read as follows:

> The evaluation indicated that neither a coal-fired nor a gas-fired facility would appreciably reduce overall environmental impacts relative to a new nuclear plant, with the exception of air-quality impacts. A coal-fired or gas-fired facility would entail a significantly greater environmental impact on air quality than would a new nuclear plant.

ER Impact:

ER Section 10.4.1.2 will be updated as shown above in a future revision of the CCNPP Unit 3 COLA.

Item Number 230 **ER Section 10.4**

Request:

Provide additional monetary values for the cost categories (Table 10.4-1). List the benefits separately from the costs. Identify the baseline assumption made to determine the costs and benefits of operating CCNPP Unit 3.

Response:

ER Table 10.4-1 has been updated to reflect the results of a recently concluded alternate sites evaluation.

Additional monetary values regarding costs of construction costs, equipment costs, and transmission expansion/upgrades for CCNPP and the alternative sites will be added to the information presented in Table 10.4-1 in a future supplement to this response. This update to Table 10.4-1 will also identify benefits associated with the new plant separate from the costs.

ER Impact:

Table 10.4-1 will be revised to list benefits from the new plant separate from costs, and additional monetary values, such as construction costs, equipment costs, and transmission expansion/upgrades for CCNPP and the alternative sites in a future revision of the CCNPP Unit 3 COLA.

Table 10.4-1 Benefit and Costs of the Proposed Project Summarized
(Page 1 of 12)

Cost Category	CCNPP Site	Former Thiokol Brownfield Site	Nine Mile Point Site	Ginna Site
Project Description	The CCNPP site is located in Calvert County, MD.	The former Thiokol site is located in St. Mary's County, MD.	The Nine Mile Point site is located in Oswego County, NY.	The Ginna site is located in Wayne County, NY.
INTERNAL COSTS				
Construction Cost	It is anticipated that CCNPP Unit 3 will have a net electrical output of approximately 1,600 MWe. [Construction cost data and cost basis to be provided in a supplemental response]	It is anticipated that the installed reactor will be similar to CCNPP Unit 3 (net electrical output of approximately 1,600 MWe).	It is anticipated that the installed reactor will be similar to CCNPP Unit 3 (net electrical output of approximately 1,600 MWe)	It is anticipated that the installed reactor will be similar to the CCNPP Unit 3 (net electrical output of approximately 1,600 MWe).
Operating Cost	$0.031 to $0.046 per kilowatt-hour	$0.031 to $0.046 per kilowatt-hour	$0.031 to $0.0 46 per kilowatt-hour	$0.031 to $0.046 per kilowatt-hour
Land	The CCNPP site is 2,070 acres (838 hectares). Co-located on the CCNPP site with CCNPP Units 1 and 2. Impact on land use is minimal compared to a new site. SMALL	The Thiokol site is a 619 acres (250 hectares) brownfield site previously used for industrial purposes. The surrounding land has some residential and industrial uses. Siting of a nuclear power plant would require a change of land use. Overall land use impacts are expected to be SMALL.	Approximately 900 acres (364 hectares) is available at the existing 900 acres (364 hectares) NMP site for the new facility. Co-located with existing nuclear facility. Impact on land use is minimal compared to new site. SMALL	425 acres (172 hectares) of available space is available at the existing Ginna site for the new facility. Co-located with existing nuclear facility. Impact on land use is minimal compared to new site. SMALL
Labor	Add 363 direct new jobs, 661 indirect new jobs to the benefits. SMALL	It is assumed that similar size workforce to that which is anticipated for the proposed CCNPP facility. SMALL	It is assumed that similar size work force to that which is anticipated for the proposed CCNPP facility. SMALL	It is assumed that similar size workforce to that which is anticipated for the proposed CCNPP facility. SMALL
Materials	Construction materials include concrete, aggregate, rebar, conduit,	Construction materials include concrete, aggregate, rebar, conduit,	Construction materials include concrete, aggregate, rebar, conduit,	Construction materials include concrete, aggregate, rebar, conduit,

Table 10.4-1 Benefit and Costs of the Proposed Project Summarized (Page 2 of 12)

Cost Category	CCNPP Site	Former Thiokol Brownfield Site	Nine Mile Point Site	Ginna Site
	cable, piping, building supplies, and tools. Operating material includes uranium. It is estimated that approximately [ ] will be spent annually on material, equipment, and outside services.	cable, piping, building supplies, and tools. Operating material includes uranium.	cable, piping, building supplies, and tools. Operating material includes uranium.	cable, piping, building supplies, and tools. Operating material includes uranium.
Equipment	Typical construction equipment will include cranes, cement trucks, excavation equipment, dump truck, and graders. Equipment for the new facility would include all of the necessary components for the facility such as the reactor, turbine, cooling system, water processing/ treatment system, cooling tower, etc.	Typical construction equipment will include cranes, cement trucks, excavation equipment, dump truck, and graders. Equipment for the new facility would include all of the necessary components for the facility such as the reactor, turbine, cooling system, water processing/treatment system, cooling tower, etc.	Typical construction equipment will include cranes, cement trucks, excavation equipment, dump truck, and graders. Equipment for the new facility would include all of the necessary components for the facility such as the reactor, turbine, cooling system, water processing/treatment system, cooling tower, etc.	Typical construction equipment will include cranes, cement trucks, excavation equipment, dump truck, and graders. Equipment for the new facility would include all of the necessary components for the facility such as the reactor, turbine, cooling system, water processing/treatment system, cooling tower, etc.
Services	Support services and supplies would be needed during construction. Security, maintenance, trash removal, and/or landscaping services may be needed during operation of the facility.	Support services and supplies would be needed during construction. Security, maintenance, trash removal, and/or landscaping services may be needed during operation of the facility.	Support services and supplies would be needed during construction. Security, maintenance, trash removal, and/or landscaping services may be needed during operation of the facility.	Support services and supplies would be needed during construction. Security, maintenance, trash removal, and/or landscaping services may be needed during operation of the facility.
Water Use	Chesapeake Bay water demand equals an estimated total 43,480 gpm (164,590 lpm). Surface and groundwater use will be	Adequate surface water (Patuxent River) available for plant use. SMALL	Groundwater not used at current facility. Adequate surface water (Lake Ontario) for plant use.	Groundwater not used at current facility. Adequate surface water (Lake Ontario, Mill and Deer Creeks) for plant use.

Table 10.4-1 Benefit and Costs of the Proposed Project Summarized (Page 3 of 12)

Cost Category	CCNPP Site	Former Thiokol Brownfield Site	Nine Mile Point Site	Ginna Site
	mitigated by construction of desalinization plant for cooling water systems. SMALL		SMALL	SMALL
EXTERNAL COSTS				
Land Use	Existing CCNPP site is 2,070 acres (832 hectares) Co-located on the CCNPP site with CCNPP Units 1 and 2. Impact on land use is minimal compared to new site. SMALL	The site is approximately 600 acres in size and capable of supporting a nuclear power plant. New transmission lines would need to be run to the site to support the plant. [Transmission related cost data and cost basis to be provided in a supplemental response] SMALL to MODERATE	This site is capable of supporting the required 345-kV transmission lines, but will require upgrades to the switchgear. However, the tie-in is currently congested with limited transmission corridor space. [Transmission related cost data and cost basis to be provided in a supplemental response] Two existing meteorological towers and firing range would need to be relocated, since they would be affected by the new facility. No barge off-loading facility is located at the site. Rail would require licensing and reinstallation. Co-located with existing nuclear facility. Impact on land use is moderate because the new reactor would be placed near existing nuclear facilities given the potential wetland issues.	Currently, no right–of- way capable of supporting the necessary 345 kV transmission lines exists. The tie-in with the existing 345 kV transmission corridor would require 20 mi (6 km) of new transmission lines and right-of-way. Estimated cost of transmission lines is $3 million per mile (not including the cost of the land). No barge off-loading facility is located at the site. Rail is not routed to the site. Impact on land use is minimal because the new reactor would be placed near existing power generating facilities. SMALL-MODERATE

Table 10.4-1 Benefit and Costs of the Proposed Project Summarized (Page 4 of 12)

Cost Category	CCNPP Site	Former Thiokol Brownfield Site	Nine Mile Point Site	Ginna Site
			SMALL-MODERATE	
Air Quality	Calvert County is in attainment with all National Ambient Air Quality Standards except for ozone. Based on the design of the new reactor, siting the unit at this location would have a SMALL impact on air quality. SMALL	The power facility must meet applicable federal, state, and local air quality permitting regulations. Air quality impacts are SMALL.	NMP site is not located in an area designated as a maintenance or non-attainment area for any air pollutants by the U.S. Environmental Protection Agency. Emissions are low enough at the existing NMP facilities to be exempt from any permit requirements. Based on the design of the new reactor, siting the unit at this location would have a SMALL impact on air quality. SMALL	Air quality in the Ginna region exceeds national standards for all measured parameters. There are no nearby areas designated as areas of non-attainment or maintenance. (Emissions from existing plant activities are below state and federal thresholds; therefore operations at Ginna do not require any air quality permits. Based on the design of the new reactor, siting the unit at this location would have a SMALL impact on air quality. SMALL

Table 10.4-1 Benefit and Costs of the Proposed Project Summarized (Page 5 of 12)

Cost Category	CCNPP Site	Former Thiokol Brownfield Site	Nine Mile Point Site	Ginna Site
Terrestrial Biology	The CCNPP site is largely forested and situated among other large forested tracts. Together these tracts form one contiguous and predominantly undeveloped forested area. The Wildlife Habitat Council has certified and registered the CCNPP site as a valuable corporate wildlife habitat SMALL-MODERATE	Terrestrial species listed as threatened or endangered by the USFWS and the State of Maryland have the potential to occur on the Thiokol site as presented in Section 9.3. The site has been previously disturbed, but vegetation has been allowed to establish and the site has some wetlands on the perimeter. Vegetation and wetlands that may be impacted by construction of the proposed facility are discussed in Section 9.3. Terrestrial impacts are SMALL.	The predominant land cover at the NMP site is woodlands. Federal- and state-designated wetlands including shrub wetlands, bogs, emergent marshes, and forested wetlands and inactive agricultural lands also occur on the site. Flora and fauna found on or near the site are typical of disturbed areas in the coastal communities of the region. The area is part of the Atlantic Flyway, so bird numbers and species vary seasonally as birds migrate through or return to breed. SMALL-MODERATE	The Ginna site is surrounded by a variety of habitat types, such as mature woodlands, meadows, and abandoned farm fields, all typical of central and western New York. There is no state or federally regulated wetlands at Ginna, and no federally-listed threatened or endangered terrestrial breeding species are known to occur at the site. SMALL-MODERATE
Aquatic Ecology	The area of the Chesapeake Bay where CCNPP is located is in the mesohaline zone, which is characterized by moderate salinity. Mitigation/monitoring with applicable federal, state, and local permitting regulatory entities will occur during construction and operation. SMALL	Impacts on aquatic ecology will be limited on the site to localized and short-term impacts to small streams adjacent to the site and would be controlled through the use of BMPs and compliance with permit requirements. There is the potential for limited impacts on aquatic ecology during the construction of the cooling water intake structure, water pipelines, and transmission corridors. These impacts would be	There are no Federally listed threatened or endangered aquatic species in the vicinity of the NMP site. No state-listed endangered aquatic species has been collected in the extensive lake sampling and impingement monitoring efforts at the NMP site or the nearby J.A. Fitzpatrick nuclear plant and Oswego Steam Station. SMALL	Although Ginna is situated on the shore of Lake Ontario, there are no aquatic species federally listed as threatened or endangered in the vicinity of the Ginna site. SMALL

Table 10.4-1 Benefit and Costs of the Proposed Project Summarized (Page 6 of 12)

Cost Category	CCNPP Site	Former Thiokol Brownfield Site	Nine Mile Point Site	Ginna Site
		localized and have a short duration, but are characterized as SMALL to MODERATE during construction. Impacts on aquatic ecology during operation would be SMALL.		
Socioeconomic	75,000 county population $70,000 median household income SMALL	100,378 county population $54,706 median household income SMALL	123,000 county population $38,000 median household income SMALL	94,000 county population $44,000 median household income SMALL
Housing	May be short term negative impact on availability of housing units in the area during construction SMALL	May be short term negative impact on availability of housing units in the area during construction SMALL	May be short term negative impact on availability of housing units in the area during construction SMALL	May be short term negative impact on availability of housing units in the area during construction SMALL
Local Infrastructure	Increased traffic at beginning and end of shifts may increase traffic on highways to and from plant. Little impact on availability of services; CCNPP Unit 3 will be built and operated in a large urbanized area. SMALL	Increased traffic at beginning and end of shifts may increase traffic on highways to and from plant. Little impact on availability of services. The proposed unit will be built and operated in an urban/rural area. SMALL	Increased traffic at beginning and end of shifts may increase traffic on highways to and from plant. Little impact on availability of services. The proposed unit will be built and operated in a large urbanized area. SMALL	Increased traffic at beginning and end of shifts may increase traffic on highways to and from plant. Little impact on availability of services. The proposed unit will be built and operated in a large urbanized area. SMALL
Radiological Heath	Radiological exposure below limits to workers and public SMALL	Radiological exposure below limits to workers and public SMALL	Radiological exposure below limits to workers and public SMALL	Radiological exposure below limits to workers and public SMALL

Table 10.4-1 Benefit and Costs of the Proposed Project Summarized
(Page 7 of 12)

Cost Category	CCNPP Site	Former Thiokol Brownfield Site	Nine Mile Point Site	Ginna Site
Loss of Resources	Loss of resources is discussed in Sections 10.1, 10.2, and 10.3. It is expected that losses will be mitigated to minimize the impact of the loss. SMALL	Loss of resources is discussed in Sections 10.1, 10.2, and 10.3. It is expected that losses will be mitigated to minimize the impact of the loss. SMALL	Loss of resources is discussed in Sections 10.1, 10.2, and 10.3. It is expected that losses will be mitigated to minimize the impact of the loss. SMALL	Loss of resources is discussed in Sections 10.1, 10.2, and 10.3. It is expected that losses will be mitigated to minimize the impact of the loss. SMALL
Measures and Controls to Reduce Environmental Impact	Costs associated with mitigation will be small, since this unit will be built on an existing nuclear site. Existing mitigation and environmental monitoring programs will be expanded to account for the new unit. Construction and operational impacts are expected to be small. SMALL	Costs associated with mitigation will be small, since this unit will be built on an existing power plant site. Existing mitigation and environmental monitoring programs will be expanded to account for the new unit. Construction and operational impacts are expected to be small. SMALL	Costs associated with mitigation will be small, since this unit will be built on an existing nuclear site. Existing mitigation and environmental monitoring programs will be expanded to account for the new unit. Construction and operational impacts are expected to be small. SMALL	Costs associated with mitigation will be small, since this unit will be built on an existing nuclear site. Existing mitigation and environmental monitoring programs will be expanded to account for the new unit. Construction and operational impacts are expected to be small. SMALL
BENEFITS				
Electricity Generated and Generating Capacity	The EPR nuclear power generating station reactor for the CCNPP has a rated core thermal power of 4,590 MWt and a rated net electrical output of greater than or equal to 1,600 MWe.	It is assumed that the electricity generated and generating capacity would be similar to that of the CCNPP.	It is assumed that the electricity generated and generating capacity would be similar to that of the CCNPP.	It is assumed that the electricity generated and generating capacity would be similar to that of the CCNPP.
Fuel Diversity	Nuclear provides option to natural gas. Does not have price volatility of natural gas, fuel availability issues limited.	Nuclear provides option to natural gas. Does not have price volatility of natural gas, fuel availability issues limited.	Nuclear provides option to natural gas. Does not have price volatility of natural gas, fuel availability issues limited.	Nuclear provides option to natural gas. Does not have price volatility of natural gas, fuel availability issues limited.

Table 10.4-1 Benefit and Costs of the Proposed Project Summarized (Page 8 of 12)

Cost Category	CCNPP Site	Former Thiokol Brownfield Site	Nine Mile Point Site	Ginna Site
Licensing Certainty	Resolution of design criteria through certification; resolution of site, construction and operational issues in Combined Operating License Application (COLA); reliance on nuclear as generation.	Resolution of design criteria through certification; resolution of site, construction and operational issues in COLA; reliance on nuclear as generation.	Resolution of design criteria through certification; resolution of site, construction and operational issues in COLA; reliance on nuclear as generation.	Resolution of design criteria through certification; resolution of site, construction and operational issues in COLA; reliance on nuclear as generation.
Carbon Emissions (reduction)	Coal: (1,908,000 carbon dioxide equivalents [CO_2eq]) Natural Gas: (623,000 CO_2e) Nuclear: No carbon emissions.	It is assumed that carbon emissions reduction would be similar to the CCNPP. Nuclear: No carbon emissions.	It is assumed that carbon emissions reduction would be similar to the CCNPP. Nuclear: No carbon emissions.	It is assumed that carbon emissions reduction would be similar to the CCNPP. Nuclear: No carbon emissions.
Increased Customer Choice	Retail choice of “clean” energy source, in addition to menu of renewable sources.	Retail choice of “clean” energy source, in addition to menu of renewable sources.	Retail choice of “clean” energy source, in addition to menu of renewable sources.	Retail choice of “clean” energy source, in addition to menu of renewable sources.
Local Economy	Add a maximum of 3,950 new employees to the workforce for construction of the new facility. It is anticipated that a direct workforce of approximately 363 employees would be needed for operation. An additional 661 indirect jobs would be created during operation. Construction and operation workforce provide an economic benefit to the community.	It is assumed that a similar size work force to that which is anticipated for the CCNPP would be needed.	It is assumed that a similar size work force to that which is anticipated for the CCNPP would be needed.	It is assumed that a similar size work force to that which is anticipated for the CCNPP would be needed.

Table 10.4-1 Benefit and Costs of the Proposed Project Summarized (Page 9 of 12)

Cost Category	CCNPP Site	Former Thiokol Brownfield Site	Nine Mile Point Site	Ginna Site
Aesthetic Values	Selection of design and cooling tower technology allows for minimal aesthetic impacts. Site contains existing nuclear power facility structures.	Selection of design and cooling tower technology allows for minimal aesthetic impacts.	Selection of design and cooling tower technology allows for minimal aesthetic impacts. Site contains existing nuclear power facility structures.	Selection of design and cooling tower technology allows for minimal aesthetic impacts. Site contains existing nuclear power facility structures.
Air Quality	Major beneficial impact in terms of avoidance of power plant emissions.	Major beneficial impact in terms of avoidance of power plant emissions.	Major beneficial impact in terms of avoidance of power plant emissions.	Major beneficial impact in terms of avoidance of power plant emissions.
Land Use	Land to be used for new unit is owned by Constellation. The land is adjacent to an existing operating nuclear power plant.	Land will need to be acquired for the proposed Thiokol site. The required land will need to be re-zoned for development of the nuclear facility.	Land to be used for new unit is owned by Constellation. The land is adjacent to an existing operating nuclear power plant.	Land to be used for new unit is owned by Constellation. The land is adjacent to an existing operating nuclear power plant.
State/Local Tax Payments during Construction and Operations	Construction will generate tax revenues from sources including income tax, retail sales tax on materials, supplies, and selected construction services; retail sales tax on expenditures by workers; and corporate income taxes paid by contractors. Tax revenue will be generated on an estimated [ ] in direct and indirect wages on an annual basis. During operation of the facility, local government tax revenues will accrue from property taxes and permitting and impact fees.	Construction will generate tax revenues from sources including income tax, retail sales tax on materials, supplies, and selected construction services; retail sales tax on expenditures by workers; and corporate income taxes paid by contractors. Revenue on wages will be similar to that noted for CCNPP. During operation of the facility, local government tax revenues will accrue from property taxes and permitting and impact fees. Tax payments would occur annually over the life of the	Construction will generate tax revenues from sources including income tax, retail sales tax on materials, supplies, and selected construction services; retail sales tax on expenditures by workers; and corporate income taxes paid by contractors. Revenue on wages will be similar to that noted for CCNPP. During operation of the facility, local government tax revenues will accrue from property taxes and permitting and impact fees. Tax payments would occur annually over the life of the	Construction will generate tax revenues from sources including income tax, retail sales tax on materials, supplies, and selected construction services; retail sales tax on expenditures by workers; and corporate income taxes paid by contractors. Revenue on wages will be similar to that noted for CCNPP. During operation of the facility, local government tax revenues will accrue from property taxes and permitting and impact fees. Tax payments would occur annually over the life of the

Table 10.4-1 Benefit and Costs of the Proposed Project Summarized

Cost Category	CCNPP Site	Former Thiokol Brownfield Site	Nine Mile Point Site	Ginna Site
	Tax payments would occur annually over the life of the new reactor units and would be approximately [tax payment data to be provided in a supplemental response] per year. Beneficial economic impacts associated with station operation. Operations will result in annual expenditures of approximately $9 million on materials, equipment and outside services.	new reactor units. Annual expenditures during operation on material, equipment and outside services are assumed to be similar to that noted for CCNPP.	new reactor units. Annual expenditures during operation on material, equipment and outside services are assumed to be similar to that noted for CCNPP.	new reactor units. Annual expenditures during operation on material, equipment and outside services are assumed to be similar to that noted for CCNPP.
Effects on Regional Productivity	Anticipate an increase in regional productivity through the influx of construction and station operation workers. Workers will create additional new indirect (service related) jobs in the region through the multiplier effect of direct employment. Construction workforce and their families will increase the population in the area. The expenditures of construction and facility operation workers for food, shelter, and services will create jobs, which will have a SMALL to LARGE positive impact on the region's economy. Job	Anticipate an increase in regional productivity through the influx of construction and station operation workers. Workers will create additional new indirect (service related) jobs in the region through the multiplier effect of direct employment. Construction workforce and their families will increase the population in the area. The expenditures of construction and facility operation workers for food, shelter, and services will create jobs, which will have a SMALL to LARGE positive impact on the region's economy. Job	Anticipate an increase in regional productivity through the influx of construction and station operation workers. Workers will create additional new indirect (service related) jobs in the region through the multiplier effect of direct employment. Construction workforce and their families will increase the population in the area. The expenditures of construction and facility operation workers for food, shelter, and services will create jobs, which will have a SMALL to LARGE positive impact on the region's economy. Job	Anticipate an increase in regional productivity through the influx of construction and station operation workers. Workers will create additional new indirect (service related) jobs in the region through the multiplier effect of direct employment. Construction workforce and their families will increase the population in the area. The expenditures of construction and facility operation workers for food, shelter, and services will create jobs, which will have a SMALL to LARGE positive impact on the region's economy. Job

Table 10.4-1 Benefit and Costs of the Proposed Project Summarized
(Page 11 of 12)

Cost Category	CCNPP Site	Former Thiokol Brownfield Site	Nine Mile Point Site	Ginna Site
	creation will inject millions of dollars in the region's economy, reducing unemployment and creating business opportunities.	creation will inject millions of dollars in the region's economy, reducing unemployment and creating business opportunities.	creation will inject millions of dollars in the region's economy, reducing unemployment and creating business opportunities.	creation will inject millions of dollars in the region's economy, reducing unemployment and creating business opportunities.
Technical and Other Non-Monetary Improvements (for example, New Recreational Facilities and Improvements to Local Facilities)	Co-located with an existing nuclear facility (CCNPP). Anticipate that existing local and county police, fire, and medical facilities and/or personnel would be able to accommodate the influx of construction and facility operation workers. Anticipate that the existing water supply and the township wastewater treatment facilities can accommodate the added increase in population. Anticipate that the existing education and social services facilities can accommodate the increase in population. Construction and operation activities should not have long-term, adverse impacts to recreational use of the surrounding area. Neither technical developments nor recreational enhancements are anticipated at this time from the construction and operation of the proposed	Anticipate the need for additional local and county police, fire, and medical facilities and/or personnel to accommodate the influx of construction and facility operation workers. Anticipate the need for a site-specific wastewater treatment facility/system – either on site or municipal system if available, to accommodate the added increase in population. Anticipate the need for additional education and social services facilities to accommodate the increase in population. Construction and operation activities should not have long-term, adverse impacts to recreational use of the surrounding area. Neither technical developments nor recreational enhancements are anticipated at this time from the construction and operation of the proposed nuclear facility. In	Co-located with an existing nuclear facility (NMPNPP). The existing police, fire, and medical facilities and/or personnel should be able to accommodate the influx of construction and facility operation workers. Anticipate that the existing water supply and wastewater treatment facilities can accommodate the added increase in population. Anticipate that the existing education and social services facilities can accommodate the increase in population. Construction and operation activities should not have long-term, adverse impacts to recreational use of the surrounding area. Neither technical developments nor recreational enhancements are anticipated at this time from the construction and operation of the proposed nuclear facility. In	Co-located with an existing nuclear facility (Ginna NPP). The existing police, fire, and medical facilities and/or personnel should be able to accommodate the influx of construction and facility operation workers. Anticipate that the existing water supply and wastewater treatment facilities can accommodate the added increase in population. Anticipate that the existing education and social services facilities can accommodate the increase in population. Construction and operation activities should not have long-term, adverse impacts to recreational use of the surrounding area. Neither technical developments nor recreational enhancements are anticipated at this time from the construction and operation of the proposed nuclear facility. In

Table 10.4-1 Benefit and Costs of the Proposed Project Summarized
(Page 12 of 12)

Cost Category	CCNPP Site	Former Thiokol Brownfield Site	Nine Mile Point Site	Ginna Site
	nuclear facility. In addition, minor road improvements would occur near the proposed nuclear facility, on an as-needed basis, to support construction and operation activities.	addition, minor road improvements would occur near the proposed nuclear facility, on an as-needed basis, to support construction and operation activities.	addition, minor road improvements would occur near the proposed nuclear facility, on an as needed basis, to support construction and operation activities.	addition, minor road improvements would occur near the proposed nuclear facility, on an as needed basis, to support construction and operation activities.
Environmental Enhancement	Reduction in carbon emissions with the use of nuclear power. The CCNPP site demonstrated an advantage over the alternative sites due to Constellation-owned property The need for transmission line upgrades is significantly less for the CCNPP site than for the alternative sites. If possible, existing transmission lines and corridors would be used and/or expanded for the proposed reactors.	Reduction in carbon emissions with the use of nuclear power.	Reduction in carbon emissions with the use of nuclear power.	Reduction in carbon emissions with the use of nuclear power.

Item Number TE-14 ESRP/ER Section 2.4.1

Request:

Provide the State of Maryland environmental review report when received (June/July timeframe) as discussed at the site audit in March.

Response:

A copy of the environmental review report that was filed on July 16, 2008 by the State of Maryland, Office of the Attorney General, in support of the Certificate of Public Convenience and Necessity (CPCN) application for CCNPP Unit 3, along with supporting testimony, is attached.

ER Impact:

No changes to the ER are required.

Item Number SE-1 **ER Section 2.5.1**

Request:

Population numbers within 10 and 50 miles are different in Tables 2.5-2 and 2.5-6. Numbers in Table 2.5-6 are consistent with FSAR Tables 2.1.3-1 and 2.1.3-2. Verify numbers in these ER tables.

Response:

A comparison of the identified ER and FSAR tables indicates that the 0-10 mi radius total population in ER Table 2.5-2 is not correct. The total population should be consistent with ER Table 2.5.6 and with the corresponding tables in the FSAR.

ER Impact:

ER Table 2.5-2 will be updated to change the 0-10 mi radius total population (without transients) from 42,150 to 40,745 persons in a future revision of the CCNPP Unit 3 COLA.

Table 2.5-2 Select Demographic and Economic Characteristics of Residential Population, By Distance from the CCNPP Site, 2000
(Page 1 of 1)

Demographic and Economic Characteristics	Radii/Distances mi (km)					
	0 to 10 mi (0 to 16 km)	10 to 20 mi (16 to 32 km)	20 to 30 mi (32 to 48 km)	30 to 40 mi (48 to 60 km)	40 to 50 mi (60 to 80 km)	0 to 50 mi (0 to 80 km)
Total Population[(1)]	40,745	111,659	163,358	618,846	2,259,157	3,195,170
Age Composition:						
Person under 5 yrs old	2,992	7,588	10,873	41,578	148,788	211,819
Persons 18 yrs and over	29,458	80,295	120,226	456,584	1,738,152	2,424,715
Persons 65 yrs and older	4,203	9,721	18,951	61,657	218,766	313,298
Gender Composition:						
Females	21,169	55,925	83,981	322,859	1,161,278	1,645,212
Ethnic Composition:						
Caucasians[(2)]	35,454	91,113	116,465	265,801	1,170,147	1,678,980
African-Americans[(2)]	5,219	15,657	40,378	322,496	767,075	1,150,825
Persons of Hispanic/Latino origins[(3)]	782	1,885	2,578	14,135	241,685	261,065
Income Characteristics:						
Median Household Income[(4)], 1999	$61,369	$59,241	$57,945	$60,221	$57,464	$57,464

Notes:

(1) Resident population excludes transient populations.

(2) Persons describing themselves as of one race only.

(3) Persons of Hispanic or Latino origin may be of any race.

(4) Median Household Income is the median income for the cumulative households from the CCNPP site; for example. Median Household Income in column labeled 30 to 40 mi (48 to 60 km) is the median for all household 0 to 40 mi (0 to 60 km) from the plant site.

Item Number SE-2 **ER Section 2.5.1**

Request:

Clarify how the exponential growth rate for each county was determined, covering the 0-50 miles from the center of the site. Identify the number of years of population data considered in growth rate determination.

Response:

The previous population projections reported in the ER for the area in the vicinity of the Calvert Cliffs site have been recalculated based on a revised methodology. The revised methodology and calculations presented below.

The demographic characteristics for the 50 mi (80 km) comparative geographic area were generated by using the U.S. Census Bureau and state population projections. U.S. Census Bureau county data were obtained in this analysis from the decadal census years 1990 and 2000. Additional data for estimated county populations were obtained from the U.S. Census Bureau for the years 2001, 2002, 2003, 2004, 2005, and 2006 (USCB, 2008) in order to have comparable data for both counties in the 50 mi (80 km) radius. Census Bureau data is used because it is the most reliable, most often cited, and most detailed data available for comparison of multiple jurisdictions or areas. Additional county census projection data were obtained for 2010, 2015, 2020, and 2030 for Delaware (Delaware, 2008) and Maryland (MSDC, 2008), and 2010, 2020, and 2030 for Virginia (Virginia, 2008) and the District of Columbia (USCB, 2008).

County populations were projected for 2040, 2050, 2055, 2060, 2070, and 2080 by fitting a trend line to the U.S. Census Bureau population census data and state projections for the years 1990, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2010, 2020, 2030 for each county. For each county, a linear or quadratic equation was selected to best fit the trend line and county population estimates were calculated for each time period (2040, 2050, 2055, 2060, 2070, and 2080).

SECPOP 2000, a code developed for the Nuclear Regulatory Commission by Sandia National Laboratories to calculate populations by emergency planning zone sectors, was used to develop projections of the resident and transient population. Latitude and longitude coordinates for the CCNPP site were entered as the site location in SECPOP 2000. A percent population change was calculated for each county and each time interval. Changes in population for each time interval were entered into the population multiplier user input in SECPOP 2000. The population distribution for counties were projected within SECPOP 2000 population rosette and tables (SECPOP 2000, 2003) in 10 concentric bands at 0 to 1 mi (0 to 1.6 km), 1 to 2 mi (1.6 to 3.2 km), 2 to 3 mi (3.2 to 4.8 km), 3 to 4 mi (4.8 to 6.4 km), 4 to 5 mi (6.4 to 8.0 km), 5 to 10 mi (8.0 to 16 km), 10 to 20 mi (16 to 32 km), 20 to 30 mi (32 to 48 km), 30 to 40 mi (48 to 64 km), and 40 to 50 mi (64 to 80 km) from the CCNPP site, and 16 directional sectors, each consisting of 22.5 degrees.

The results of the recalculated population projections are found in the attached revised ER Tables 2.5-3, 2.5-8, 2.5-9, and 2.5-10.

References:

MSDC, 2008. Projections by Type for All Counties - Historic Census 1970 to 2000, Projected 2005 to 2030, Maryland State Data Center, Maryland Department of Planning, available online: http://www.mdp.state.md.us/msdc/dw_popproj.htm, accessed: July 7, 2008.

SECPOP 2000, 2003. NUREG/CR-6525, Rev. 1, SECPOP2000: Sector Population, Land Fraction, and Economic Estimation Program, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, available online: http://www.nrc.gov/reading-rm/doc-collections/nuregs/contract/cr6525/cr6525.pdf, accessed August 7, 2008.

Delaware, 2008. The Delaware Population Consortium – Annual Projections, State of Delaware, Office of State Planning Coordination, available online: http://stateplanning.delaware.gov/information/dpc_projections.shtml, accessed: July 7, 2008.

USCB, 2008. U.S. Population Projections, State Interim Population Projections by Age and Sex: 2004 - 2030, US Census Bureau, available online: http://www.census.gov/population/www/projections/projectionsagesex.html, accessed: July 7, 2008.

Virginia, 2008. VEC Final Local Population Projections, 2000 - 2030, State of Virginia, Department of the Aging, available online: http://www.vda.virginia.gov/downloadable.asp, accessed: July 7, 2008.

ER Impact:

The following changes will be incorporated into the CCNPP Unit 3 ER in a future COLA revision:

- Tables 2.5-3, 2.5-8, 2.5-9 and 2.5-10 will be updated to include decades from 2040 through 2080.
- Population projections will be revised in Tables 2.5-8, 2.5-9 and 2.5-10.
- ER Section 2.5.1.1.2: (first paragraph) will be revised to change the applicable time period from 1970-2030 to 1990-2080, and population growth percentages will be updated to correspond with revised Table 2.5-3.
- ER Section 2.5.1.1.3.2 (3rd paragraph) will be updated to reflect added decades out to 2080, and to change “exponential” growth to “linear and quadratic equations”. Also, the following text will be deleted, “because it is the most recent decennial data available”.

- ER Section 2.5.1.2.1 will be revised to extend the projection decade from 2060 to 2080, consistent with the data presented in revised Table 2.5-9.
- ER Sections 2.5.1.2.2 and 2.5.1.2.3 will be revised to reflect the updated time period and population growth data in the revised Table 2.5-9.
- ER Section 2.5.1.2.4 will be updated to reflect the updated time period and population growth data in revised Table 2.5-8.

Table 2.5-3 Historical and Projected Populations in Calvert County, St. Mary's County, and Maryland from 1990 to 2080
(Page 1 of 1)

Year	Calvert County		St. Mary's County		Region Of Influence – Calvert and St. Mary's Combined		State of Maryland	
	Population	Average Annual Growth Percent	Population	Average Annual Growth Percent	Population	Average Annual Growth Percent	Population[(2)]	Average Annual Growth Percent
1990	51,372	--	75,974	--	127,346	--	4,780,753	--
2000	74,563	3.80%	86,211	1.27%	160,774	2.36%	5,296,486	1.03%
2010	95,450	2.50%	107,700	2.25%	203,150	2.37%	5,897,600	1.08%
2015	98,650	0.66%	119,450	2.09%	218,100	1.43%	6,176,075	0.93%
2020	101,750	0.62%	130,750	1.82%	232,500	1.29%	6,386,225	0.67%
2030	105,850	0.40%	151,700	1.50%	257,550	1.03%	6,737,750	0.54%
2040	128,245	1.94%	181,412	1.80%	309,657	1.86%	7,110,558	0.54%
2050	141,127	0.96%	212,317	1.59%	353,444	1.33%	7,503,995	0.54%
2055	147,568	0.90%	228,897	1.52%	376,465	1.27%	7,708,802	0.54%
2060	154,009	0.86%	246,228	1.47%	400,237	1.23%	7,919,200	0.54%
2070	166,891	0.81%	283,145	1.41%	450,036	1.18%	8,357,380	0.54%
2080	179,773	0.75%	323,067	1.33%	502,840	1.12%	8,819,804	0.54%

Table 2.5-8 Current Population and Population Projections for the CCNPP Low Population Zone
(Page 1 of 1)

Year	LPZ Population	Average Annual Percent Change for the 10 Year Period
2000	2,508	N/A
2010	3,210	2.50%
2015	3,318	N/A
2020	3,422	0.64%
2030	3,560	0.40%
2040	4,314	1.94%
2050	4,747	0.96%
2055	4,964	N/A
2060	5,180	0.88%
2070	5,614	0.81%
2080	6,047	0.75%

Notes:

The populations for years 2010 through 2080 have been projected by calculating a growth rate using state population projections for Calvert County as the base.

NA = not applicable.

Table 2.5-9 Population Projections from 2000 to 2060 within 50 mi (80 km) of the CCNPP Site
(Page 1 of 1)

Year	Annual Average Percent Change for the 10 Year Period						
	0 to 10 mi (0 to 16 km)	10 to 20 mi (16 to 32 km)	20 to 30 mi (32 to 48 km)	30 to 40 mi (48 to 60 km)	40 to 50 mi (60 to 80 km)	Total 0 to 50 mi (0 to 80 km)	Annual Average Percent Change for the 10 Year Period
2000	40,745	112,841	162,006	618,907	2,267,761	3,202,260	N/A
2010	46,272	128,170	183,991	703,086	2,576,246	3,637,765	1.28%
2015	49,031	135,788	194,909	744,798	2,729,381	3,853,907	N/A
2020	51,126	141,542	203,279	776,201	2,843,806	4,015,954	0.99%
2030	55,256	152,988	219,647	839,208	3,075,213	4,342,312	0.78%
2040	61,716	170,849	245,359	936,915	3,432,515	4,847,354	1.11%
2050	66,723	184,811	265,321	1,013,675	3,714,072	5,244,602	0.79%
2055	69,214	191,711	275,225	1,051,616	3,853,665	5,441,431	N/A
2060	71,781	198,759	285,436	1,090,176	3,994,214	5,640,366	0.73%
2070	76,764	212,590	305,242	1,165,937	4,272,187	6,032,720	0.67%
2080	81,633	226,166	324,618	1,240,436	4,545,717	6,418,570	0.62%

Notes:

Residential population in 2000, US Census Bureau, Decennial Census.

The populations for years 2010 through 2080 have been projected by calculating a growth rate using state population projections (by county) as the base

Table 2.5.10 Population Projections by Sector and Distance from the CCNPP Site from 2000 to 2080

		Population Projection by Year										
Sector	**Radius in mi (km)**	**2000**	**2010**	**2015**	**2020**	**2030**	**2040**	**2050**	**2055**	**2060**	**2070**	**2080**
N	0-1 Mi (0-2 km)	0	0	0	0	0	0	0	0	0	0	0
NNE		0	0	0	0	0	0	0	0	0	0	0
NE		0	0	0	0	0	0	0	0	0	0	0
ENE		0	0	0	0	0	0	0	0	0	0	0
E		0	0	0	0	0	0	0	0	0	0	0
ESE		0	0	0	0	0	0	0	0	0	0	0
SE		0	0	0	0	0	0	0	0	0	0	0
SSE		0	0	0	0	0	0	0	0	0	0	0
S		0	0	0	0	0	0	0	0	0	0	0
SSW		0	0	0	0	0	0	0	0	0	0	0
SW		0	0	0	0	0	0	0	0	0	0	0
WSW		0	0	0	0	0	0	0	0	0	0	0
W		30	34	36	38	41	45	49	51	53	57	60
WNW		0	0	0	0	0	0	0	0	0	0	0
NW		0	0	0	0	0	0	0	0	0	0	0
NNW		0	0	0	0	0	0	0	0	0	0	0
Total		**30**	**34**	**36**	**38**	**41**	**45**	**49**	**51**	**53**	**57**	**60**
N	1-2 mi (2-3 km)	0	0	0	0	0	0	0	0	0	0	0
NNE		0	0	0	0	0	0	0	0	0	0	0
NE		0	0	0	0	0	0	0	0	0	0	0
ENE		0	0	0	0	0	0	0	0	0	0	0
E		0	0	0	0	0	0	0	0	0	0	0
ESE		0	0	0	0	0	0	0	0	0	0	0
SE		0	0	0	0	0	0	0	0	0	0	0
SSE		0	0	0	0	0	0	0	0	0	0	0
S		67	76	81	84	91	102	110	114	118	126	134
SSW		43	49	51	55	58	65	70	73	76	80	86
SW		329	374	396	414	446	497	538	560	581	620	660
WSW		857	972	1,032	,1074	1,165	1,297	1,403	1,455	1,508	1,613	1,715
W		432	492	520	542	585	654	707	733	761	814	866
WNW		55	62	66	69	74	84	90	93	97	103	110
NW		432	491	520	542	586	654	708	734	761	814	866
NNW		0	0	0	0	0	0	0	0	0	0	0
Total		**2,215**	**2,516**	**2,666**	**2,780**	**3,005**	**3,353**	**3,626**	**3,762**	**3,902**	**4,170**	**4,437**

Table 2.5.10 Population Projections by Sector and Distance from the CCNPP Site from 2000 to 2080

		Population Projection by Year										
Sector	**Radius in mi (km)**	**2000**	**2010**	**2015**	**2020**	**2030**	**2040**	**2050**	**2055**	**2060**	**2070**	**2080**
N	2-3 mi (3-5 km)	0	0	0	0	0	0	0	0	0	0	0
NNE		0	0	0	0	0	0	0	0	0	0	0
NE		0	0	0	0	0	0	0	0	0	0	0
ENE		0	0	0	0	0	0	0	0	0	0	0
E		0	0	0	0	0	0	0	0	0	0	0
ESE		0	0	0	0	0	0	0	0	0	0	0
SE		0	0	0	0	0	0	0	0	0	0	0
SSE		33	37	40	41	45	50	54	56	0	62	66
S		28	32	34	35	38	42	46	48	118	53	56
SSW		207	235	249	259	281	312	339	351	76	390	415
SW		0	0	0	0	0	0	0	0	581	0	0
WSW		612	695	737	767	830	927	1,002	1,040	1,508	1,153	1,226
W		289	329	346	362	391	439	475	491	761	545	578
WNW		59	67	71	74	81	90	96	100	97	111	118
NW		1,006	1,144	1,208	1,260	1,362	1,524	1,646	1,709	1,761	1,896	2,014
NNW		0	0	0	0	0	0	0	0	0	0	0
Total		**2,234**	**2,539**	**2,685**	**2,798**	**3,028**	**3,384**	**3,658**	**3,795**	**3,902**	**4,210**	**4,473**
N	3-4 mi (5-6 km)	0	0	0	0	0	0	0	0	0	0	0
NNE		0	0	0	0	0	0	0	0	0	0	0
NE		0	0	0	0	0	0	0	0	0	0	0
ENE		0	0	0	0	0	0	0	0	0	0	0
E		0	0	0	0	0	0	0	0	0	0	0
ESE		0	0	0	0	0	0	0	0	0	0	0
SE		0	0	0	0	0	0	0	0	0	0	0
SSE		439	498	528	551	596	664	718	746	774	828	880
S		189	215	227	236	255	286	310	321	333	356	379
SSW		143	162	172	180	194	217	234	242	252	270	286
SW		165	187	198	207	224	250	269	280	290	311	330
WSW		65	74	78	81	88	98	106	110	114	122	130
W		175	199	211	219	237	265	287	297	308	330	351
WNW		85	97	102	107	115	129	139	144	150	160	170
NW		1,037	1,177	1,248	1,302	1,407	1,570	1,697	1,760	1,827	1,955	2,079
NNW		0	0	0	0	0	0	0	0	0	0	0
Total		**2,298**	**2,609**	**2,764**	**2,883**	**3,116**	**3,479**	**3,760**	**3,900**	**4,048**	**4,332**	**4,605**

Table 2.5.10 Population Projections by Sector and Distance from the CCNPP Site from 2000 to 2080

		Population Projection by Year										
Sector	**Radius in mi (km)**	**2000**	**2010**	**2015**	**2020**	**2030**	**2040**	**2050**	**2055**	**2060**	**2070**	**2080**
N	4-5 mi (6-8 km)	0	0	0	0	0	0	0	0	0	0	0
NNE		0	0	0	0	0	0	0	0	0	0	0
NE		0	0	0	0	0	0	0	0	0	0	0
ENE		0	0	0	0	0	0	0	0	0	0	0
E		0	0	0	0	0	0	0	0	0	0	0
ESE		0	0	0	0	0	0	0	0	0	0	0
SE		188	214	226	239	253	289	306	318	331	354	377
SSE		3,242	3,681	3,903	4,065	4,398	4,909	5,307	5,508	5,709	6,107	6,497
S		1,504	1,705	1,811	1,886	2,040	2,280	2,462	2,553	2,650	2,834	3,014
SSW		204	232	246	257	276	309	334	346	360	384	409
SW		57	65	69	73	76	86	94	97	102	107	114
WSW		85	96	102	106	115	129	140	145	150	160	170
W		357	406	429	448	485	541	584	606	629	672	716
WNW		506	575	609	635	687	766	828	860	891	954	1,015
NW		287	328	346	361	390	435	470	488	505	540	574
NNW		0	0	0	0	0	0	0	0	0	0	0
Total		**6,430**	**7,302**	**7,741**	**8,070**	**8,720**	**9,744**	**10,525**	**10,921**	**11,327**	**12,112**	**12,886**
N	5-10 mi (8-16 km)	0	0	0	0	0	0	0	0	0	0	0
NNE		0	0	0	0	0	0	0	0	0	0	0
NE		1	1	1	1	1	2	2	2	2	2	2
ENE		198	224	238	250	268	301	324	335	349	373	396
E		35	40	42	44	48	54	57	59	62	66	70
ESE		0	0	0	0	0	0	0	0	0	0	0
SE		0	0	0	0	0	0	0	0	0	0	0
SSE		4,664	5,302	5,612	5,855	6,325	7,059	7,640	7,922	8,217	8,784	9,349
S		5,843	6,630	7,028	7,339	7,924	8,847	9,565	9,928	10,293	11,006	11,698
SSW		5,318	6,041	6,405	6,670	7,212	8,055	8,712	9,040	9,367	10,021	10,657
SW		2,380	2,703	2,863	2,985	3,228	3,604	3,900	4,044	4,192	4,487	4,766
WSW		2,290	2,598	2,757	2,872	3,108	3,471	3,751	3,887	4,038	4,315	4,589
W		1,330	1,512	1,598	1,669	1,804	2,014	2,177	2,259	2,344	2,505	2,665
WNW		2,345	2,665	2,823	2,941	3,182	3,551	3,842	3,985	4,132	4,417	4,702
NW		2,416	2,742	2,908	3,031	3,275	3,662	3,958	4,106	4,259	4,553	4,842
NNW		718	814	864	900	971	1,091	1,177	1,218	1,263	1,354	1,436
Total		**27,538**	**31,272**	**33,139**	**34,557**	**37,346**	**41,711**	**45,105**	**46,785**	**48,518**	**51,883**	**55,172**

Table 2.5.10 Population Projections by Sector and Distance from the CCNPP Site from 2000 to 2080

	Population Projection by Year										
Sector	**Radius in mi (km)**	**2000**	**2010**	**2015**	**2020**	**2030**	**2040**	**2050**	**2055**	**2060**	**2070**	**2080**
N	0-10 mi (0-16 km)	0	0	0	0	0	0	0	0	0	0	0
NNE		0	0	0	0	0	0	0	0	0	0	0
NE		1	1	1	1	1	2	2	2	2	2	2
ENE		198	224	238	250	268	301	324	335	349	373	396
E		35	40	42	44	48	54	57	59	62	66	70
ESE		0	0	0	0	0	0	0	0	0	0	0
SE		188	214	226	239	253	289	306	318	331	354	377
SSE		8378	9,518	10,083	10,512	11,364	12,682	13,719	14,232	14,758	15,781	16,792
S		7631	8,658	9,181	9,580	10,348	11,557	12,493	12,964	13,443	14,375	15,281
SSW		5915	6,719	7,123	7,421	8,021	8,958	9,689	10,052	10,419	11,145	11,853
SW		2931	3,329	3,526	3,679	3,974	4,437	4,801	4,981	5,165	5,525	5,870
WSW		3909	4,435	4,706	4,900	5,306	5,922	6,402	6,637	6,887	7,363	7,830
W		2613	2,972	3,140	3,278	3,543	3,958	4,279	4,437	4,605	4,923	5,236
WNW		3050	3,466	3,671	3,826	4,139	4,620	4,995	5,182	5,374	5,745	6,115
NW		5178	5,882	6,230	6,496	7,020	7,845	8,479	8,797	9,123	9,758	10,375
NNW		718	814	864	900	971	1,091	1,177	1,218	1,263	1,354	1,436
Total		**40,745**	**46,272**	**49,031**	**51,126**	**55,256**	**61,716**	**66,723**	**69,214**	**71,781**	**76,764**	**81,633**
N	10-20 mi (16-32 km)	0	0	0	0	0	0	0	0	0	0	0
NNE		403	461	484	506	545	609	662	684	710	761	807
NE		1020	1,157	1,224	1,283	1,381	1,549	1,669	1,732	1,799	1,924	2,042
ENE		1668	1,895	2,007	2,094	2,258	2,531	2,735	2,828	2,939	3,146	3,338
E		236	268	283	297	319	358	387	401	416	445	472
ESE		709	804	850	891	960	1,076	1,164	1,201	1,251	1,339	1,420
SE		183	207	220	231	248	277	299	311	324	344	366
SSE		477	541	574	599	647	721	780	810	840	899	955
S		20464	23,249	24,631	25,666	27,746	30,976	33,525	34,774	36,049	38,553	41,024
SSW		16134	18,326	19,415	20,228	21,882	24,428	26,419	27,413	28,418	30,391	32,348
SW		8487	9,636	10,211	10,656	11,510	12,858	13,901	14,412	14,954	15,989	17,003
WSW		7558	8,584	9,095	9,476	10,242	11,448	12,377	12,841	13,309	14,239	15,150
W		11560	13,135	13,916	14,505	15,672	17,505	18,932	19,645	20,356	21,777	23,177
WNW		11857	13,469	14,269	14,875	16,079	17,947	19,416	20,148	20,883	22,336	23,764
NW		11561	13,127	13,911	14,498	15,677	17,503	18,932	19,647	20,366	21,787	23,172
NNW		20524	23,311	24,698	25,737	27,822	31,063	33,613	34,864	36,145	38,660	41,128
Total		**112,841**	**128,170**	**135,788**	**141,542**	**152,988**	**170,849**	**184,811**	**191,711**	**198,759**	**212,590**	**226,166**

Table 2.5.10 Population Projections by Sector and Distance from the CCNPP Site from 2000 to 2080

	Population Projection by Year										
Sector	**Radius in mi (km)**	**2000**	**2010**	**2015**	**2020**	**2030**	**2040**	**2050**	**2055**	**2060**	**2070**	**2080**
N	20-30 mi (32-48 km)	7,848	8,916	9,443	9,844	10,636	11,883	12,850	13,325	13,816	14,782	15,715
NNE		6,479	7,356	7,788	8,141	8,783	9,815	10,609	10,998	11,425	12,210	12,969
NE		8,948	10,155	10,763	11,239	12,130	13,560	14,655	15,193	15,772	16,862	17,916
ENE		17,492	19,871	21,042	21,944	23,722	26,491	28,653	29,714	30,819	32,961	35,028
E		468	532	560	590	634	713	767	792	827	885	936
ESE		594	675	711	745	806	901	975	1,007	1,050	1,120	1,188
SE		0	0	0	0	0	0	0	0	0	0	0
SSE		795	902	956	1,001	1,076	1,210	1,303	1,347	1,401	1,498	1,591
S		2,277	2,586	2,738	2,864	3,091	3,455	3,731	3,869	4,019	4,295	4,561
SSW		4,340	4,920	5,215	5,454	5,875	6,588	7,106	7,368	7,654	8,178	8,689
SW		2,985	3,383	3,589	3,753	4,044	4,531	4,892	5,072	5,265	5,628	5,979
WSW		4,213	4,778	5,062	5,295	5,705	6,399	6,899	7,148	7,427	7,946	8,436
W		8,962	10,176	10,788	11,255	12,155	13,580	14,672	15,226	15,796	16,884	17,956
WNW		54,835	62,305	65,997	68,765	74,356	82,998	89,805	93,194	96,586	103,295	109,939
NW		19,014	21,594	22,882	23,845	25,784	28,786	31,138	32,311	33,496	35,826	38,106
NNW		22,756	25,842	27,375	28,544	30,850	34,449	37,266	38,661	40,083	42,872	45,609
Total		**162,006**	**183,991**	**194,909**	**203,279**	**219,647**	**245,359**	**265,321**	**275,225**	**285,436**	**305,242**	**324,618**
N	30-40 mi (48-64 km)	91,036	103,420	109,561	114,165	123,437	137,816	149,109	154,667	160,363	171,478	182,399
NNE		13,477	15,310	16,214	16,906	18,277	20,403	22,073	22,896	23,738	25,387	27,008
NE		19,513	22,165	23,463	24,489	26,455	29,555	31,949	33,126	34,388	36,766	39,078
ENE		9,015	10,231	10,832	11,333	12,217	13,675	14,757	15,298	15,893	16,996	18,041
E		4,739	5,378	5,702	5,949	6,419	7,187	7,767	8,044	8,351	8,928	9,480
ESE		3,635	4,127	4,369	4,568	4,925	5,512	5,952	6,166	6,405	6,846	7,275
SE		1,030	1,172	1,241	1,293	1,392	1,560	1,692	1,749	1,815	1,941	2,062
SSE		1,136	1,284	1,362	1,435	1,539	1,731	1,859	1,928	2,007	2,152	2,273
S		5,420	6,140	6,515	6,823	7,345	8,223	8,872	9,191	9,573	10,225	10,858
SSW		8,751	9,943	10,526	10,980	11,866	13,252	14,337	14,868	15,422	16,493	17,538
SW		3,412	3,872	4,102	4,284	4,625	5,172	5,592	5,792	6,014	6,425	6,835
WSW		13,953	15,845	16,775	17,523	18,910	21,133	22,858	23,695	24,588	26,287	27,947
W		8,346	9,480	10,042	10,466	11,308	12,642	13,669	14,177	14,698	15,725	16,728
WNW		67,423	76,586	81,139	84,554	91,429	102,053	110,420	114,573	118,742	127,024	135,130
NW		272,660	309,789	328,181	341,869	369,758	412,679	446,573	463,377	480,230	513,631	546,610
NNW		95,361	108,344	114,774	119,564	129,306	144,322	156,196	162,069	167,949	179,633	191,174
Total		**618,907**	**703,086**	**744,798**	**776,201**	**839,208**	**936,915**	**1,013,675**	**1,051,616**	**1,090,176**	**1,165,937**	**1,240,436**

Table 2.5.10 Population Projections by Sector and Distance from the CCNPP Site from 2000 to 2080

		Population Projection by Year										
Sector	**Radius in mi (km)**	**2000**	**2010**	**2015**	**2020**	**2030**	**2040**	**2050**	**2055**	**2060**	**2070**	**2080**
N	40-50 mi (64-80 km)	144,479	164,125	173,874	181,180	195,922	218,681	236,615	245,505	254,480	272,183	289,551
NNE		9,394	10,664	11,294	11,795	12,732	14,241	15,381	15,948	16,542	17,709	18,816
NE		14,160	16,076	17,026	17,798	19,197	21,463	23,183	24,040	24,965	26,697	28,341
ENE		29,169	33,109	35,073	36,634	39,535	44,180	47,771	49,528	51,405	54,953	58,405
E		77,460	87,967	93,207	97,178	105,036	117,302	126,849	131,593	136,448	145,955	155,142
ESE		15,217	17,284	18,304	19,093	20,628	23,047	24,924	25,855	26,809	28,677	30,489
SE		7,158	8,128	8,615	8,985	9,699	10,849	11,725	12,157	12,618	13,482	14,333
SSE		1,855	2,107	2,225	2,335	2,512	2,817	3,036	3,143	3,270	3,500	3,713
S		7,210	8,177	8,641	9,081	9,770	10,956	11,813	12,225	12,735	13,620	14,438
SSW		6,820	7,747	8,199	8,568	9,244	10,338	11,171	11,586	12,016	12,861	13,653
SW		5,020	5,703	6,038	6,296	6,803	7,602	8,223	8,529	8,844	9,459	10,054
WSW		7,842	8,907	9,437	9,836	10,630	11,885	12,841	13,327	13,813	14,781	15,714
W		25,052	28,458	30,150	31,418	33,967	37,923	41,032	42,576	44,129	47,203	50,219
WNW		346,300	393,439	416,837	434,233	469,619	524,107	567,169	588,508	609,926	652,343	694,298
NW		1,285,806	1,460,774	1,547,654	1,612,230	1,743,683	1,946,050	2,105,862	2,185,135	2,264,575	2,422,224	2,577,585
NNW		284,819	323,581	342,807	357,146	386,236	431,074	466,477	484,010	501,639	536,540	570,966
Total		**2,267,761**	**2,576,246**	**2,729,381**	**2,843,806**	**3,075,213**	**3,432,515**	**3,714,072**	**3,853,665**	**3,994,214**	**4,272,187**	**4,545,717**
N	0-50 mi (0-80 km)	243,363	276,461	292,878	305,189	329,995	368,380	398,574	413,497	428,659	458,443	487,665
NNE		29,753	33,791	35,780	37,348	40,337	45,068	48,725	50,526	52,415	56,067	59,600
NE		43,642	49,554	52,477	54,810	59,164	66,129	71,458	74,093	76,926	82,251	87,379
ENE		57,542	65,330	69,192	72,255	78,000	87,178	94,240	97,703	101,405	108,429	115,208
E		82,938	94,185	99,794	104,058	112,456	125,614	135,827	140,889	146,104	156,279	166,100
ESE		20,155	22,890	24,234	25,297	27,319	30,536	33,015	34,229	35,515	37,982	40,372
SE		8,559	9,721	10,302	10,748	11,592	12,975	14,022	14,535	15,088	16,121	17,138
SSE		12,641	14,352	15,200	15,882	17,138	19,161	20,697	21,460	22,276	23,830	25,324
S		43,002	48,810	51,706	54,014	58,300	65,167	70,434	73,023	75,819	81,068	86,162
SSW		41,960	47,655	50,478	52,651	56,888	63,564	68,722	71,287	73,929	79,068	84,081
SW		22,835	25,923	27,466	28,668	30,956	34,600	37,409	38,786	40,242	43,026	45,741
WSW		37,475	42,549	45,075	47,030	50,793	56,787	61,377	63,648	66,024	70,616	75,077
W		56,533	64,221	68,036	70,922	76,645	85,608	92,584	96,061	99,584	106,512	113,316
WNW		483,465	549,265	581,913	606,253	655,622	731,725	791,805	821,605	851,511	910,743	969,246
NW		1,594,219	1,811,166	1,918,858	1,998,938	2,161,922	2,412,863	2,610,984	2,709,267	2,807,790	3,003,226	3,195,848
NNW		424,178	481,892	510,518	531,891	575,185	641,999	694,729	720,822	747,079	799,059	850,313
Total		**3,202,260**	**3,637,765**	**3,853,907**	**4,015,954**	**4,342,312**	**4,847,354**	**5,244,602**	**5,441,431**	**5,640,366**	**6,032,720**	**6,418,570**

Item Number SE-3 **ER Section 2.5.1**

Request:

Clarify the process used to project populations into the future (2010 through 2060) by decade using the above determined growth rate. Was growth rate by county determined above used to project population into future as exponential basis or linear basis?

Response:

The previous population projections for CCNPP reported in the ER have been recalculated based on a revised methodology, as described in the response to RAI Item Number SE-2.

ER Impact:

The ER will be updated to describe the methodology used to project population growth in a future revision of the CCNPP Unit 3 COLA.

Item Number SE-5 **ER Section 9.3**

Request:

Regarding the Crane alternative site, provide present population, projections, and density determinations. If this exceeds 500 persons/mi^2, provide a justification for considering this site as an alternative and present rationale for selecting this as more advantageous than others considered.

Response:

The Crane site is no longer being considered as an alternative site for CCNPP Unit 3. A supplemental brownfield site in Maryland (i.e., a former Thiokol Site) has been evaluated and will be incorporated into ER Section 9.3, and the Crane site description will be removed.

ER Impact:

Information relevant to the former Thiokol Site will be added to ER Section 9.3.2.1, as described in the response to RAI Item Number 201, and the Crane site description will be removed, in a future revision of the CCNPP Unit 3 COLA..

Item Number SE-6 **ER Section 9.3.2**

Request:

On page 9.3-10, the second line in this discussion of CCNPP refers to Baltimore County. Verify that the correct county is Calvert County.

Response:

The proposed site for CCNPP Unit 3 is located in Calvert County, Maryland. ER Section 9.3 will be updated to correctly present this information.

ER Impact:

ER Section 9.3.2.2.1.6 will be updated in a future revision of the CCNPP Unit 3 COLA to reflect the correct location for the CCNPP Unit 3 site.

Item Number SE-7 **ER Section 9.3.2**

Request:

The discussions in the Environmental Justice sections (9.3.2.1.9, 9.3.2.2.1.9, 9.3.2.2.2.9, 9.3.2.2.3.9) for Baltimore County, Calvert County, Oswego County, and Wayne County state that "These data demonstrate that the population of this area is similar in composition to the State of Maryland [New York for Ginna and NMP sites] and to the U.S. as a whole." Resolve these statements with the data presented in Tables 9.3-1 through 9.3-4 or revise the tables appropriately.

Response:

The Crane site is no longer being considered as an alternative site for CCNPP Unit 3. A supplemental brownfield site in Maryland (i.e., a former Thiokol Site) has been evaluated and will be incorporated into ER Section 9.3, and the Crane site description will be removed.

ER Impact:

Information relevant to the former Thiokol Site will be added to ER Section 9.3.2.1, as described in the response to RAI Item Number 201, and the Crane site description will be removed, in a future revision of the CCNPP Unit 3 COLA.