BEFORE THE
PUBLIC SERVICE COMMISSION
OF MARYLAND

IN THE MATTER OF:

APPLICATION OF UNISTAR NUCLEAR ENERGY, LLC	**)**	
AND UNISTAR NUCLEAR OPERATING SERVICES,	**)**	
LLC FOR A CERTIFICATE OF PUBLIC CONVENIENCE	**)**	**Case No. 9127**
AND NECESSITY TO CONSTRUCT A NUCLEAR POWER	**)**	
PLANT AT CALVERT CLIFFS IN CALVERT COUNTY,	**)**	
MARYLAND	**)**	

REBUTTAL TESTIMONY OF PAUL C. MYERS

Q. Please state your name and business address.

A. My name is Paul C. Myers. My business address is Tetra Tech, 451 Presumpscot Street, Portland, ME 04103

Q. Have you previously testified in this proceeding?

A. No, I have not.

Q. Please state the purpose of your testimony in this proceeding.

A. The purpose of my testimony is to provide support for the Co-Applicants' application for a Certificate of Public Convenience and Necessity ("CPCN") authorizing the construction of Unit 3 at the Calvert Cliffs Nuclear Power Plant ("CCNPP") (the "Project"). The application was filed with the Maryland Public Service Commission ("Commission") on

November 13, 2007. I am assuming the role of J. Peyton Doub, whose direct testimony was filed in this case on behalf of Tetra Tech and the Co-Applicants. I agree with his previous testimony. Mr. Doub has left Tetra Tech for a position with the federal government and is no longer available as a witness. My rebuttal testimony responds to filings by the Power Plant Research Program ("PPRP") relating to wetlands delineation, site ecology, and Project impacts to site ecology. Richard Harmon remains the Co-Applicants' primary witness on Project impacts to wetlands.

Q. Please describe your position with Tetra Tech.

A. I am employed by Tetra Tech as a Senior Environmental Scientist.

Q. Please describe your education and experience.

A. My expertise is in the characterization and assessment of impacts to ecological communities and special status/sensitive species. I hold a Bachelors of Science (B.S.) degree in Biology from Western Carolina University where my academic studies focused on eastern forest ecology and botany. I have worked as a consulting ecologist for nearly thirteen years completing wetland delineations, permitting, and mitigation design, forest community and habitat characterizations, wildlife studies, and

ecological impact analyses for development projects throughout the United States including Maryland.

My wetland delineation experience includes completing delineations in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual, jurisdictional evaluations, and wetland habitat functional assessments. I have also developed site wetland restoration/mitigation designs for numerous projects in both eastern and western United States to replace lost wetland functions and values impacted by project activities.

I have conducted numerous flora and fauna surveys in the eastern United States and have characterized vegetation and wildlife habitats. I have also evaluated potential impacts to these resources, including impacts to sensitive species and critical habitat.

A statement of my educational background and professional qualifications is provided as Appendix A to this testimony.

Q. Have you reviewed the wetlands delineation described in section 4.6.3 of the Technical Report of the Application and in the Final Wetland Delineation Report attached to the Application, and J. Peyton Doub's prior testimony?

A. Yes, I have.

Q. Do you agree with the analysis and conclusions contained in those documents and are you assuming his role with respect to same?

A. Yes.

Q. Have you also reviewed PPRP's Initial Recommended Licensing Conditions, PPRP's Draft Environmental Review of Proposed Unit 3 at Calvert Cliffs Nuclear Power Plant (PPRP-ER), and associated testimony submitted on behalf of PPRP?

A. Yes, I have.

Q. What is the purpose of this rebuttal testimony?

A. I will address wetland and ecology issues associated with PPRP's filings including its Initial Recommended Licensing Conditions, specifically Conditions 47 through 55.

Q. Are the Co-Applicants proposing alternative language in Condition 47 of PPRP's Initial Recommended Licensing Conditions, regarding the application of Best Management Practices for Nontidal Wetlands of Special State Concern and Expanded Buffers, and Condition 55

regarding the application of Best Management Practices for Stormwater Management/Erosion and Sediment Control?

A. Yes, they are. The Co-Applicants propose parallel changes to the two conditions to clarify the second sentence of Condition 47, which lists potential "practices and techniques" to be used as part of the Best Management Practices (BMPs) and Condition 55, which similarly lists BMPs. The intention is to more clearly indicate that the practices and techniques are listed only by way of example, and are not intended to serve as a definitive list of the practices and techniques that will be used. The practices and techniques that will actually be applied in Condition 47 will be consistent with the requirements of COMAR 26.23.06.03 and will be tailored to specific site conditions and characteristics. The practices and techniques that will be applied in Condition 55 will be consistent with the site grading plan and any additional requirements associated with any separate wetlands authorizations.

Q. Are the Co-Applicants proposing a change to the language of Condition 48 of PPRP's Initial Recommended Licensing Conditions, regarding

stabilization of portions of the area of disturbance after cessation of construction activities within that portion of the area?

A. Yes, while the Co-Applicants are in agreement with undertaking the stabilization, they seek to clarify that the stabilization will be done "as soon as practicable after the cessation of construction activities within that portion of the footprint and right-of-way," rather than "immediately after." This is appropriate because there may be seasonal issues or logistical or other constraints immediately following cessation of construction activities within a given portion of the footprint or right-of-way.

Q. Condition 49 of PPRP's Initial Recommended Licensing Conditions requires that construction be performed in accordance with a Forest Conservation Plan to be approved by the Maryland Department of Natural Resources ("DNR") Forest Service. Have the Co-Applicants proposed a Forest Conservation Plan?

A. Yes, and the Co-Applicants propose that the Forest Conservation Plan submitted by the Co-Applicants on July 3, 2008 be directly adopted by the CPCN with the following additional requirements:

So as to minimize forest losses, cleared areas that are no longer in use and not anticipated to be in use following project construction shall be replanted with tree species appropriate for the area. Tree planting and maintenance should be conducted in accordance with the State Forest Conservation Technical Manual 3rd edition, 1997, and COMAR 08.19.04.05B(4)(a).

Areas not replanted with trees shall be vegetated with grasses. Grasses will be planted along streams and other open areas where acceptable. If the areas along streams are wetlands or wetland buffers, only grasses listed in Condition 48, or others approved by Maryland Department of Environment, Water Management Administration ("MDE WMA"), shall be used. If areas along streams are uplands, the following grass species may be used: blue joint grass (*Calamagrostis canadensis*), switchgrass (*Panicum virgatum*), little bluestem (*Schizachyrium scoparium*), or Indian grass (*Sorghastrum nutans*). Other non-persistent vegetation may be acceptable, but must be approved by DNR or MDE WMA. Kentucky 31 fescue shall never be used.

Q. Have you reviewed the Forest Conservation Plan and the proposed additional requirements?

A. Yes, I have.

Q. What is your conclusion?

A. I agree with the revisions to the Condition and that the FCP with the additional requirements proposed will meet the requirements of the Maryland Forest Conservation Act.

Q. Are the Co-Applicants proposing a change to the language of Condition 50 of PPRP's Initial Recommended Licensing Conditions, regarding the protection of bald eagles?

A. Yes, the Co-Applicants propose to revise the first sentence to require the consideration of the State's standard guidelines for nest site protection rather than to require that the guidelines be followed. This change is appropriate because the Co-Applicants are separately seeking a State permit and a federal authorization with respect to the bald eagle nests. While these authorizations and conditions under them may not necessarily be inconsistent with the State's standard guidelines, they may be

inconsistent and their specific requirements should be considered to supersede the more general guidelines.

Q. With respect to Condition 51 of PPRP's Initial Recommended Licensing Conditions, do the Co-Applicants propose to avoid showy goldenrod during the proposed construction activities or instead to mitigate the impacts?

A. The Co-Applicants propose to mitigate impacts to the showy goldenrod plants. The Co-Applicants do not propose to entirely avoid impacts to showy goldenrod, therefore Condition 51 of PPRP's Initial Recommended Licensing Conditions should be amended to recognize that the Co-Applicants propose mitigation rather than complete avoidance.

The Co-Applicants propose to mitigate this impact by relocating an adequate number of individual showy goldenrod plants and collected seed to a suitable planting location to preserve the localized gene pool. Showy goldenrod is a rhizomatous plant that is known in the native plant industry to root divide and transplant easily. While the final mitigation/relocation strategy has not been developed, it will likely consist of (1) hand digging and root dividing rhizomes (underground roots) while

the plants are dormant in the fall and immediately relocating these divisions to the mitigation planting site, and (2) collecting seed from the existing population in late fall, cold stratifying for ten days (over winter), and sowing seeds in prepared beds within and adjacent to root divided plantings the following spring.

It would not be necessary to collect all of the seed or dig all of the rhizomes; collecting seed and rhizomes from only a few (10 or more) locations in existing stands of showy goldenrod on the site should adequately preserve the localized gene pool. Once established, the transplanted seedlings and/or rhizomes should gradually spread over the mitigation area until coverage eventually meets or exceeds existing coverage disturbed by construction. In addition, relocation of showy goldenrod at the site will be conducted in accordance with Maryland DNR's Guidelines for Rare, Threatened, and Endangered Plant Reintroductions in Maryland.

Q. Is this mitigation plan appropriate?

A. Yes. As stated previously, showy goldenrod generally root divides and transplants easily. Therefore, assuming that an adequate site is selected

and that an adequate number of divisions are transplanted, it is anticipated that the transplanting would be successful and that the localized gene pool for this species would be retained.

Q. What do the Co-Applicants propose as requirements related to the avoidance of the two species of tiger beetles occurring in the vicinity of the Project site?

A. For the protection of the two species of State endangered, federally threatened tiger beetles (northeastern beach tiger beetle and Puritan tiger beetle) that are known to occur along the Chesapeake Bay shoreline and proximal to the project site, the Co-Applicants propose that no construction activities shall occur within 500 feet of documented suitable habitat for either species with the exception of (1) those activities occurring within the designated Intensively Developed Area, (2) activities associated with the demolition of the Eagle's Den building and removal of related impervious services, and (3) activities associated with Forest Interior Dwelling Species habitat restoration or wetlands mitigation. Proposed areas of construction (both within and outside the 500 foot buffer zone) as

they relate to the identified area of tiger beetle habitat are indicated on the attached map, identified as Exhibit A to my testimony.

Activities undertaken within the 500 foot buffer zone, as depicted in attached Exhibit A, will not directly disturb or impact any tiger beetle habitat, and will be done so as to avoid and minimize, to the greatest practical extent, any indirect impacts to any suitable adjacent cliff and beach habitats. In addition, administrative controls that restrict personnel access to beaches shall be implemented and, subject to meeting any applicable NRC requirements, the Co-Applicants shall allow DNR reasonable, escorted access to the shoreline as requested to conduct surveys to examine the health of tiger beetle populations.

Q. Do the Co-Applicants propose that these avoidance techniques replace those currently proposed in Condition 52 of PPRP's Initial Recommended Licensing Conditions?

A. Yes. The Co-Applicants propose that the above avoidance techniques replace those currently proposed in Condition 52. As stated previously, Exhibit A to my testimony depicts the areas of tiger beetle habitat, areas of avoidance, and areas where construction activities will take place.

Q. Is it your opinion that the Co-Applicants' proposed avoidance techniques are appropriate for the protection of the tiger beetles?

A. Yes, proposed activities both within and outside of the 500 foot buffer would not directly disturb habitat for either of these species. In addition, the Co-Applicants retained Dr. Barry Knisley of Randolph Macon University, who is an expert on tiger beetles with site-specific experience including preparation of the environmental report attached to the Co-Applicants' Application, titled "Current Status of Two Federally Threatened Tiger Beetles at Calvert Cliffs Nuclear Power Plant, 2006," October 26, 2006. He conducted a survey of the tiger beetle population in the site vicinity and his findings are reflected in the map attached as Exhibit A . His review confirmed that the proposed Project activities within the Intensely Developed Area (development of a heavy haul road down to the barge dock and construction activities associated with the barge slip that would also extend south of the intensively developed area by no more than 100 feet) portion of the 500 foot buffer area will not have any impact on tiger beetles or their habitat and that activities in the Eagle's Den area are unlikely to impact tiger beetles or their habitat. Impacts from

activities in the Eagle's Den area would only be expected if the activities impact the cliff face. The Co-Applicants will manage their activities in the Eagle's Den area by undertaking a geotechnical evaluation of the stability of the area in order to determine appropriate construction loads and methods of construction to complete the proposed work in a safe manner that would avoid and/or minimize impacts to the tiger beetle. Sediment and erosion control best management practices will also be implemented in accordance with the Calvert County approved grading permit.

Q. Condition 53 of PPRP's Initial Recommended Licensing Conditions would require the Co-Applicants to submit a compensation/mitigation plan for the American eel prior to construction. How do the Co-Applicants propose to mitigate potential impacts to the American eel?

A. The Co-Applicants propose to mitigate impacts to the American eel by designing the stream restoration and enhancement portion of the proposed compensatory wetlands mitigation plan in a manner that will not prohibit the passage of migratory fish species and, more specifically, the catadromous American eel. In addition, the stream restoration and enhancement activities will likely provide benefits to the American eel by

incorporating known habitat needs of the American eel, such as vegetative or substrate cover, and will address the physiological needs of the American eel, other migratory fish species, and the remaining resident fish and benthic macroinvertebrate populations. Habitat needs such as base flow hydraulic regimes, appropriate depth, and substrate will also be addressed.

Q. What is your conclusion with respect to the mitigation plan?

A. I agree that the proposed plan would adequately minimize any potential impacts to American eel.

Q. Have you reviewed the status of the Flag Pond Oyster Bar area, referenced in Condition 54 of the PPRP Initial Recommended Licensing Conditions?

A. Yes, I have.

Q. Please describe the Flag Pond Oyster Bar area and its history and status?

A. The Flag Pond Oyster Bar area is located in front of the Calvert Cliffs plant in the Chesapeake Bay. Oysters from approximately 500 acres of the original 680 acres of the oyster bar in front of the plant were removed and transplanted to another oyster bar in Calvert County as part of the

mitigation for construction of Units 1 and 2 of the original plant. This activity was approved by the Board of Public Works on December 17, 1968. The area where oysters were removed appears to have extended up to 1,000 or more feet from the edge of land. The mitigated portion of the oyster bar was slated for closure and removal from the state resource maps. In addition, Baltimore Gas & Electric (BG&E) paid the sum of $200,000 as additional compensation for rehabilitation of natural oyster bars in Calvert County.

A recent survey for American oysters in the Flag Pond Oyster Bar area was conducted by EA Engineering, Science, and Technology. Results of the survey found few individuals representing extremely low oyster density in the Flag Pond Oyster Bar area.

Q. Are there historical documents pertaining to the oyster bar removal and mitigation that you mentioned?

A. Yes, attached to my testimony as are the following: (1) a permit issued by the Board of Public Works, dated December 17, 1968, authorizing the removal and transplant of the oysters from the Flag Pond Oyster Bar, along with correspondence documenting the removal of the oysters from

the Flag Pond Oyster Bar area (attached as Exhibit B); (2) a map, dated August 26, 1968, illustrating the oyster removal area (attached as Exhibit C); (3) an excerpt from the "Supplement to Environmental Report, Calvert Cliffs Nuclear Power Plant," dated November 8, 1971 (attached as Exhibit D); an excerpt from the "Draft Detailed Statement on the Environmental Considerations Related to the Proposed Issuance of an Operating License to the Baltimore Gas and Electric Company for the Calvert Cliffs Nuclear Power Plant, Units 1 and 2, Docket Nos. 50-317 and 50-318," by the U.S. Atomic Energy Commission, dated January 20, 1972 (attached as Exhibit E). These documents support that the Flag Pond Oyster Bar area was already heavily impacted by prior construction activity, which included the removal of most of the oysters in the area and the payment of compensation. As I mentioned previously, the EA study of the area indicates that currently there is an extremely low oyster density in the area.

Q. Given the Flag Pond Oyster Bar area's history and status, what do the Co-Applicants propose with respect to Condition 54?

A. The Co-Applicant proposes that no constraints for construction and dredging be placed on the project. The observed low density may be indicative that the Flag Pond Oyster Bar is no longer a functional oyster bar.

Q. What is your conclusion with respect to this proposal?

A. Based on an apparent lack of oysters in the bar area, and that the results of the recent oyster survey may be indicative that the Flag Pond Oyster Bar is no longer a functional oyster bar, proposed activities are not likely to have a significant impact on the Flag Pond Bar.

Q. In your expert opinion, do you believe that the Project's ecological impacts are reasonable, justified, and properly mitigated?

A. Yes, I do.

Q. Does this conclude your testimony?

A. Yes, it does.

Appendix A

PAUL C. MYERS

Senior Environmental Scientist **Tetra Tech Inc. - Portland, Maine**

EDUCATION/SPECIAL TRAINING

B.S., Biology/Botany, Western Carolina University, 1995

QUALIFICATIONS

Mr. Myers has over 13 years experience as a botanist, wetland scientist, and regulatory compliance specialist. Specific areas of expertise include floral and faunal surveys, vegetation restoration, management and monitoring, wetland permitting and mitigation design, project management, environmental impact analysis, and preparation of EA's EIS's and other NEPA documents. He has served as project manager or lead biologist for a wide variety of natural resource projects and has served on interdisciplinary teams addressing potential impacts to natural resources resulting from federal actions. Mr. Myers has an in-depth working knowledge of Sections 401, 402, and 404 of the Clean Water Act, NEPA, the Endangered Species Act, and numerous other state environmental regulations and permitting requirements and has assisted many clients to develop workable and cost effective compliance strategies for meeting federal and state wetland, special status species, and environmental review regulatory requirements. Mr. Myers has experience in the energy, mining, utility, and transportation industries, as well as with the U.S. Forest Service, Bureau of Land Management, state departments of transportation, and other state and federal government agencies.

RELEVANT EXPERIENCE

Environmental Impact Statement (EIS) Proposed Smokey Canyon Mine Expansion, USFS, Caribou National Forest/J.R. Simplot Corporation, Soda Springs, Idaho. *Senior Biologist/QAQC.* Interdisciplinary team member involved in reviewing all biological resource documents describing the affected environment and potential impacts to sensitive resources including fisheries, water quality (selenium), threatened and endangered species, and rangeland. Consulted with USFS biologists, USFWS, and state agency personnel regarding impact minimization and mitigation measures and regulatory compliance. Assisted in the preparation of the final EIS following agency and public comment.

Environmental Impact Statement (EIS) – USFS, Boise National Forest/Atlanta Gold, Inc. – Atlanta, Idaho. *Senior Biologist/QAQC.* Interdisciplinary team member involved in reviewing all biological resource documents describing the affected environment and potential impacts to sensitive resources including fisheries, water quality, threatened and endangered species, and rangeland. Consulted with USFS biologists, USFWS, and state agency personnel regarding impact minimization and mitigation measures and regulatory compliance. Assisted in the preparation of the final EIS following agency and public comment.

Environmental Impact Statement (EIS) for Proposed Steel Mill and Railroad. Minnesota Steel, Inc. and Itasca County, Minnesota– Grand Rapids, Minnesota. *Senior Biologist and Technical Advisor*. Involved in the planning of a Surface Transportation Board (STB) led EIS for a proposed steel mill and railroad corridor in northern Minnesota. Oversaw the completion of baseline surveys including wetland delineations, T&E species surveys, and habitat mapping. Conducted agency scoping and oversaw the completion of preliminary analyses and document preparation for resources within the affected environment.

Environmental Assessment (EA) and USACE Individual Permit Application for a Proposed Feldspar Mine - I-minerals, Inc. – Bovill, Idaho. *Project Manager*. Mr. Myers is currently managing a USACE led EA for a proposed feldspar mine and processing facility in northern Idaho. Conducted agency consultation and scoping meetings. Oversaw the completion of baseline surveys including wetland delineations, T&E species surveys, and habitat mapping. Overseeing the completion of impact analyses and document preparation for all resources within the affected environment. Overseeing the completion of a USACE Individual Permit Application for unavoidable impacts to waters of the U.S. and preparation of a wetland mitigation and stream relocation design plan.

Environmental Impact Statement (EIS) for Hartsfield International Airport 5th Runway– Atlanta, Georgia. *Senior Biologist*. Responsible for completing the baseline natural resource investigations, analysis of potential impacts, and preparing the affected environment and environmental consequences sections for the proposed Hartsfield International Airport 5th Runway Extension EIS. Assisted in facilitating public and interdisciplinary team meetings. Conducted agency consultations including USFWS Section 7 consultation and preparation of a Biological Assessment (BA).

Environmental Assessment (EA) - Air National Guard – Alpena CRTC — Alpena, Michigan. *Assistant Project Manager*. Assisted in managing the completion of a NEPA EA for proposed threat emitter construction on the Alpena CRTC in northern Michigan. Completed baseline investigations and impact analyses. Prepared the biological and physical resource components of the NEPA EA document. Consulted with the ANG and other federal and state agencies regarding environmental review and regulatory compliance.

Environmental Assessment (EA) – Wyoming Army National Guard – Camp Guernsey — Guernsey, Wyoming. *Project Manager*. Assisted in managing the completion of a NEPA EA for proposed range improvements and changes to the range training program and mission. Completed baseline investigations and impact analyses. Prepared the biological and physical resource components of the NEPA EA document. Consulted with the WYANG and other federal and state agencies regarding environmental review and regulatory compliance.

FERC Application – Environmental Resource Reports for Northern Star Natural Gas LNG Terminal Facility and Pipeline, Astoria, Oregon. *Senior Biologist and Advisor*. Conducted baseline investigations and impact analyses for a proposed LNG terminal and pipeline in northwestern Oregon. Helped coordinate public and agency meetings. Conducted agency

consultation. Prepared Environmental Resource Reports (ERRs) for water and biological resources. Primary issues included potential impacts to spotted owl, marbled murrelet, 13 Evolutionarily Significant Units (ESUs) of salmonids, marine mammals, and coastal zone management concerns.

Programmatic Biological Assessment (BA) for Bull Trout – Montana Department of Transportation, Montana. *Assistant Project Manager*. Provided support for the development of a programmatic BA for Bull Trout for proposed and future projects. The BA was developed to conserve bull trout populations b y recommending impact minimization and mitigation measures to be employed in different biological "zones" (i.e. core spawning habitat or stream reaches, migratory habitat, marginal habitat, etc.) under various construction scenarios including bridge maintenance activities, reconstruction, etc. The programmatic BA was also developed to jointly group actions according to the appropriate effects determinations.

Essex-Middlesex Natural Gas Pipeline Project, Tennessee Gas Pipeline Company, Boston, Massachusetts Responsible for conducting rare species and vernal pool assessment surveys for specified rare species and significant habitats (including vernal pools) along 7.81 miles of proposed pipeline. Surveys were conducted in accordance with Massachusetts Endangered Species Act M.G.L c. 131A and regulations 321 CMR 10.00 and based on consultation with Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program (NHESP). As part of this task, the project team conducted surveys, prepared summary reports, filed rare species and habitat documentation with agencies, and filed appropriate permits.

Saco Industrial Park Natural Resource Permit Application, Intelligent Controls, Inc., Saco, Maine - Responsible for conducting threatened and endangered species investigations to support a Maine Site Location of Development Act (SLDA) permit application for a proposed industrial facility in the town of Saco Maine. Project also involved preparation of the SLDA application and an associated Maine Natural Resource Permit Application (NRPA) that reviewed potential impacts to natural resources including special status state and federally listed species, wetlands, and significant wildlife habitats. Consulted with Maine Department of Inland Fisheries and Wildlife, Maine Natural Areas Program, and the US Fish and Wildlife Service to further evaluate potential impacts to significant natural resources including rare species habitat, wetlands, and tidal streams.

Georgia Department of Transportation (GDOT) Villa Rica Bypass EA – Villa Rica, GA. *Senior Biologist*. Conducted baseline investigations and impact analyses for a proposed highway bypass near Villa Rica, GA. Consulted with GDOT on avoidance and minimization measures and corridor alignment. Consulted with regulatory agencies such as USFWS and the USACE regarding regulatory compliance. Prepared wetland permit application and mitigation plan, Section 7 consultation documents, Ecology Assessment, and EA.

Georgia Department of Transportation (GDOT) Carrolton Connector Roads EA – Carrolton, GA. *Senior Biologist.* Conducted baseline investigations and impact analyses for a proposed highway expansion near Carrolton, GA. Consulted with GDOT on avoidance and minimization measures and corridor alignment. Consulted with regulatory agencies such as

USFWS and the USACE regarding regulatory compliance. Prepared wetland permit application and mitigation plan, Section 7 consultation documents, Ecology Assessment, and EA.

USFS Idaho Panhandle National Forest – Sandpoint, Idaho. *Senior Botanist*. Completed analysis of effects to vegetation resources for a proposed timber sale near Sandpoint, Idaho. Prepared Biological Assessment (BA) and vegetation sections of the Affected Environment and Environmental Consequences chapters for project Environmental Impact Statement (EIS). Participated in USFS agency meetings.

Georgia Department of Transportation (GDOT) – Alpharetta Intersections. *Senior Biologist*. Conducted baseline investigations for several proposed GDOT intersection projects. Completed numerous Categorical Exclusion (CE) documents for these projects.

Georgia Department of Transportation (GDOT) – Southern Georgia Bridge Upgrades. *Senior Biologist* Conducted baseline investigations and impact analyses for proposed bridge expansion projects in southern GA. Consulted with GDOT on avoidance and minimization measures and bridge design. Consulted with regulatory agencies such as USFWS and the USACE regarding regulatory compliance. Prepared permit applications and Categorical Exclusion documents (CE) for the projects.

Georgia Department of Transportation (GDOT) US 27 Realignment – Cuthbert to Bluffton, GA. Senior Biologist. Conducted baseline investigations and impact analyses for a proposed highway extension between Cuthbert and Bluffton, GA. Consulted with GDOT on avoidance and minimization measures and corridor alignment. Consulted with regulatory agencies such as USFWS and the USACE regarding regulatory compliance. Prepared wetland permit application and mitigation plan, Section 7 consultation documents, Ecology Assessment, and EA.

Georgia Department of Transportation (GDOT) McGinnis Ferry Road Upgrades – Forsyth County, GA. *Senior Biologist*. Conducted baseline investigations and impact analyses for highway upgrades in Forsyth County, GA. Consulted with GDOT on avoidance and minimization measures and corridor alignment. Consulted with regulatory agencies such as USFWS and the USACE regarding regulatory compliance. Prepared wetland permit application and mitigation plan, Section 7 consultation documents, Ecology Assessment, and EA.

Georgia Department of Transportation (GDOT) US HWY 400 Upgrade – Cornelia, GA. *Senior Biologist*. Conducted baseline investigations and impact analyses for a proposed highway expansion near Cornelia, GA. Consulted with GDOT on avoidance and minimization measures and corridor alignment. Consulted with regulatory agencies such as USFWS and the USACE regarding regulatory compliance. Prepared wetland permit application and mitigation plan, Section 7 consultation documents, Ecology Assessment, and EA.

Flint Hills Kansas Wind Farm Fatal Flaw Analysis and Natural Resource Studies - Florida Power and Light Energy, LLC. Completed a fatal flaw analysis for a proposed 100-megawatt wind farm in the Flint Hills of Kansas. This included analyzing existing site conditions and

potential environmental and natural resource issues for consideration during turbine siting and project permitting. Conducted baseline biological studies including characterization and mapping of existing tall grass prairie habitats, spring and fall migratory bird surveys, and a greater prairie chicken lek survey and inventory. Consulted with regulatory agencies including the USFWS and various Kansas state agencies regarding strategies for avoidance and minimization of impacts to sensitive resources. Information gathered during both the baseline investigations and agency consultations was used to assist FPL Energy with design and configuration of the wind farm site.

Front Range Colorado Wind Farm Fatal Flaw Analysis - Navitas Energy. Completed a fatal flaw analysis for a proposed 50-megawatt wind farm near Colorado Springs, Colorado. This included analyzing existing site conditions and potential environmental and natural resource issues for consideration during project permitting. Primary issues identified and evaluated included locations of avian migratory pathways and raptor prey sources (primarily black tailed prairie dog towns). Consulted with USFWS migratory bird specialists to determine the significance of the project area for migrating raptors and other birds. Consulted with state and federal regulatory agencies regarding the full range of permitting requirements for the project site. Conducted a baseline investigation of black tailed prairie dog towns and native rangeland habitats that support sensitive grassland bird species.

Alberta and Montana Tie 250 kv Transmission Corridor. Alberta, Canada, and Montana, USA. *Senior Biologist*. Involved in completing baseline studies and impact analyses to support the preparation of a Montana Facility Siting Act Application and Presidential Permit for an approximately 120-mile transmission corridor between Alberta and Montana, USA. Project involved conducting baseline studies including habitat assessments and surveys for special status species including burrowing owl, sharp-tailed grouse, and several listed plant species. Assisted with overseeing the impact analysis, agency coordination and consultation, and preparation of final documents.

Wetland and Stream Restoration Design Plan, Mitigation Bank, and Biological Assessment (BA), Montana Department of Transportation Opportunity Ponds Bank Design– Anaconda, Montana. *Project Manager*. Prepared a wetland and stream restoration design plan for a proposed wetland bank within the Butte-Anaconda Superfund site in western Montana. Design plan included techniques for restoring fluvial and wetland processes, as well as development of a phytoremediation buffer to reduce concentrations of surrounding heavy metal contaminants. An EPA rapid assessment was used to evaluate existing and desired future stream conditions. Consulted with EPA, the USACE, USFWS, and various state agencies to address water quality, threatened and endangered species, and permitting issues and to assess the potential mitigation credit value of the proposed project.

Wetland Permitting and Mitigation for CSXT, Inc., Mainline Sidings Projects, Indiana, Kentucky, Tennessee, and Alabama. *Senior Wetland Scientist.* Prepared individual and nationwide wetland permit applications including wetland and stream mitigation plans for over 20 siding projects in five states. Project also involved consulting with client attorneys and regulatory personnel regarding potential impacts, mitigation plans, and property acquisition.

City of Superior Special Area Management Plan (SAMP) – Superior, Wisconsin. *Senior Biologist*. Conducted rare plant surveys, wetland delineation, and monitoring of the wetland mitigation complex for the City of Superior, Wisconsin SAMP. Prepared threatened and endangered species and wetland monitoring technical report.

Wetland Delineation, Permitting, and Mitigation, Minneapolis/St. Paul Area Private Developments, Minnesota. *Project Manager/Wetland Biologist*. Conducted wetland assessments and delineations, prepared wetland permits, and developed wetland mitigation designs and monitoring plans for over 50 planned developments in the Twin Cities area. Coordinated sub-contractor activities and consulted with both state and federal regulatory agencies to gain permit approvals.

Wetland Mitigation and Bank Design, Knauer Wetland Bank – Cologne, Minnesota. *Project Manager/Wetland Scientist*. Completed the construction design plan for a acre wetland bank complex in southern Minnesota. Developed the wetland bank design plan, preparation of the wetland banking credit application, and preparation of the required easement documents for final state and federal approval. Conducted meetings with various regulatory agencies to gain final bank approval and establishment of wetland credits.

Canadian National Railroad Natural Resource Assessment – Wisconsin. *Wetland Scientist/Lead Botanist*. Conducted rare plant surveys and wetland delineations for several segments of the Chicago to Superior rail line. Prepared rare plant and wetland delineation baseline reports. Consulted with USFWS, USCOE, and state agencies.

Air National Guard – 182nd Airborne Wetland/Stream Delineation – Peoria, Illinois. *Wetland Biologist*. Conducted stream and wetland delineations for the Air National Guard in central Illinois. Prepared wetland permit application for proposed impacts to support an Environmental Assessment (EA) for construction activities.

Watershed Level Wetland Functional Analysis, Minnehaha Creek Watershed District – Minneapolis, Minnesota. *Wetland Scientist*. Responsible for assisting in the development and implementation of a functional assessment for the Minnehaha Creek watershed. Assisted in the implementation of the watershed wide assessment. Prepared wetland mapping indicating functional categories and maintained Access database containing data for wetlands and streams evaluated.

Wetland Delineation and Permitting – West Virginia Army National Guard – Martinsburg, West Virginia – Conducted wetland delineation of the airstrip portion of the WV ANG base near Martinsburg, West Virginia. Completed wetland delineation report and permit application. Consulted with regulatory agencies regarding mitigation planning.

Yellowstone Development Wetland Delineation and Permitting – Big Sky, Montana. *Project Manager/Wetland Biologist.* Responsible for managing and conducting a large-scale wetland delineation effort for a 15,000 thousand acre planned development. Acted as primary

client and agency contact for wetland delineation and permitting issues. Managed and coordinated the field activities of several wetland biologists. Prepared wetland delineation reports and impact assessments.

Gaia Inc. – Stream Restoration Project,. Brevard, NC - Project Botanist - Worked with the North Carolina Natural Resources Conservation Service (NRCS) to prepare a plan to restore 2+ linear miles of Class A trout waters in Transylvania County, North Carolina. Prepared a riparian vegetation restoration plan.

McNeil Island Wetland Delineation and Critical Areas Inventory – Washington Department of Corrections, Olympia, Washington. *Wetland Scientist/Senior Biologist*. Conducted wetland delineations, wetlands ratings, and wetlands classification for the McNeil Island Correctional Facility. Delineated wetlands in accordance with the Washington State Wetlands Delineation Manual; evaluated the quality and condition of wetlands using the Washington Wetlands Rating System (Western Region); classified wetland and surrounding upland vegetative community types; evaluated the project area for special status species (state and federal threatened, endangered, and candidate species, as well as Department of Fish and Wildlife priority species and habitats); prepared a wetland delineation report in accordance with Title 18 for Pierce County, WA.

Bee Hive Basin Subdivision Wetland Delineation and Permitting – Bee Hive Development – Bozeman, Montana. *Project Manager/Wetland Scientist.* Conducted wetland assessment and delineation, prepared section 404 wetland and Montana State 310 stream crossing permit application, and consulted with both state and federal regulatory agencies to gain permit approval.

Agrium Phosphate Mine Wetland Delineation – Soda Springs, Idaho. *Wetland* Biologist. Conducted a wetland delineation of a proposed railroad extension corridor in southeastern Idaho. Prepared the wetland delineation report. Consulted with USACE regarding site hydrology and other site data to evaluate jurisdictional status.

Agrium Phosphate Mine, Tailings Pond Wetland Delineation – Soda Springs, Idaho. *Wetland Scientist*. Conducted a wetland delineation of a proposed tailings pond site at Agrium's Conda Phosphate Operations Facility. Prepared the wetland delineation report. Consulted with USACE regarding site hydrology and other site data to evaluate jurisdictional status.

Norem Wetland Bank Monitoring Plan, Big Timber, Montana. *Wetland Scientist*. Developed and prepared a site-specific wetland monitoring protocol including a quantitative sampling scheme using vegetative cover data collected along linear transects to evaluate the establishment of wetland vegetation and other features at the wetland bank site. Conducted a wetland delineation of a proposed tailings pond site at Agrium's Conda Phosphate Operations Facility. Prepared the wetland delineation report. Consulted with USACE regarding site hydrology and other site data to evaluate jurisdictional status.

Wetland Delineation and Permitting – Federal Highways Administration – Six Rivers National Forest, California – Conducted wetland delineation for an approximately 8 mile railroad corridor and several bridge crossings in northern California. Completed threatened and endangered species surveys and wetland permit application to support project Environmental Assessment.

Wetland Delineation and Permitting – NC Army National Guard – Raleigh, North Carolina – Conducted wetland delineation for a proposed road corridor and bridge crossing for the NC Army National Guard in central North Carolina. Completed wetland permit application and stream buffer zone protection survey.

Rare Plant Survey and Floristic Inventory – US Army National Guard, Butner, North Carolina. *Lead Botanist*. Characterized and mapped vegetation communities in accordance with the NC Natural Heritage Program and International Vegetation Classification systems. Identified and documented rare plants and community types including several rare plant occurrences within Piedmont basic mesic forest and mafic outcrops occurring on the approximately 5,000 acre camp.

Rare Plant Survey and Floristic Inventory – US Army National Guard, Smyrna and Gorman VTS, Nashville, Tennessee. *Lead Botanist*. Characterized and mapped vegetation communities in accordance with the TN Natural Heritage Program and International Vegetation Classification systems. Identified and documented rare plants and community types including several rare plant occurrences within cedar glade and western mesophytic forest communities on both training sites.

Rare Plant Survey - Threatened and Endangered Species Survey, Georgia Transmission Company - Valdosta Transmission Line – Southern Georgia. *Lead Botanist*. Characterized vegetation and identified rare plant species and habitats within a forty-mile corridor in southern Georgia. Project involved field reconnaissance to identify and classify vegetative community types, identification of rare plant species and/or suitable habitat, determination of habitat quality and condition, and Section 7 consultation with the USFWS. Identified several rare plant occurrences within longleaf pine savanna communities including yellow pitcher plant (*Sarracenia flava*), parrot pitcher plant (*S. psittacina*), honeycomb (*Balduina atropurpurea*), and plum leaf azalea (*Rhododendron prunifolium*).

Quantitative Vegetation Survey of Overton Park - The National Audubon Society, Memphis, Tennessee. *Project Botanist*. Conducted a vegetation assessment and rare plant survey of remnant old growth forest communities in Overton Park, Memphis, TN. Quantitatively sampled vegetation and analyzed data using multivariate analysis techniques to classify community types. Prepared a site conservation and management plan.

Vegetation Survey - Meadowcreek Land Trust, Nashville, Tennessee. *Project Ecologist/Botanist*. Conducted baseline documentation, including a rare plant survey for a 2000-acre property conservation easement property located in central Tennessee. Prepared a site management plan addressing road density and recreational use.

Vegetation Survey and Community Classification - North Carolina Natural Heritage Program – Conducted a botanical inventory of portions of the Pigeon River Gorge bordering Great Smoky Mountains National Park. Documented several new rare plant occurrences including several stands of *Buckleya distichophyll*a, considered one of the rarest shrubs in North America. Mapped vegetation community types and prepared documentation to be included in the statewide database.

Botanical Survey for the H.P. Fuller Preserve – H.P. Fuller Company - St. Paul, Minnesota. *Project Manager/Lead Botanist*. Conducted a rare plant survey and characterized and mapped vegetative habitats. Evaluated habitat quality and condition. Prepared a vegetative resources report. Unique features encountered included several remnant prairie communities containing species considered uncommon in the region.

Elk River Planned Unit Development (PUD) – Elk River, Minnesota. *Project Manager/Lead Botanist*. Conducted a rare plant survey and characterized and mapped vegetative habitats. Evaluated habitat quality and condition. Prepared a biological survey report. Unique features encountered included several remnant Hill's oak savannah communities containing species considered uncommon in the region.

Baseline Botanical Survey for City of Boise Land Exchange Project – North Idaho. *Lead Botanist*. Characterized vegetation resources and identified rare plant species within several U.S. Forest Service (USFS) and Bureau of Land Management (BLM) parcels proposed for exchange with the state of Idaho. Project involved compiling existing information and performing field reconnaissance to identify and classify vegetative community types, identify rare plant species and/or suitable habitat, and determine habitat quality and condition. Unique features identified included several rare plant species within old growth mesic forest communities, including Pacific starflower *(Trientalis latifolia),* the state endemic Case's fumitory *(Corydalis caseana var. hastata*), chickweed monkeyflower (*Mimulus alsinoides*), and Constance's cardamine (*Cardamine constancei*).

Baseline Vegetation Survey to Support Proposed Smokey Canyon Mine Expansion EIS – Simplot Corporation/USFS - Soda Springs, Idaho. *Botanist.* Project involved completing threatened and endangered species surveys and vegetation characterization and mapping. Sagebrush communities were quantitatively sampled and characterized across an elevation gradient using the line intercept method to provide baseline conditions for future affects analysis and monitoring.

Rare Plant Survey – Atlanta Gold, Inc. – Atlanta, Idaho. *Botanist.* Project involved completing threatened and endangered species surveys and vegetation characterization and mapping of a USFS tract proposed for mine expansion. Targeted surveys included those for Ute's ladies Tresses (*Spiranthes diluvialis*), a federally threatened species. Vegetation in riparian areas was quantitatively sampled using a riparian classification protocol developed by the Idaho Natural Heritage Program.

Quantitative Vegetation Analysis of Remnant Old Growth Forest Communities in Overton Park, Tennessee - The National Audubon Society, Memphis, Tennessee. Senior Ecologist responsible for conducting a quantitative vegetation analysis of remnant old growth forest communities in Overton Park, Memphis, Tennessee. Project involved developing a sampling design to identify and classify vegetation community types/associations along several environmental gradients. Project goals/objectives included gaining insight into the full range of vegetation diversity within the park. Data were analyzed using Detrended Correspondence and Cluster Analysis techniques. Project also included preparation of a site Conservation and Management Plan (CMP) based on the findings of the investigation. The CMP was presented and submitted to city managers.

Vegetation Sampling and Analysis, Smokey Canyon Mine Expansion EIS – United States Forest Service - Soda Springs, Idaho. Senior Ecologist responsible for characterizing existing vegetation and evaluating potential impacts to vegetation communities and habitat resulting from activities related to expansion of an existing phosphate mine. Project involved sampling various shrub-steppe and bunch grass communities along an elevation gradient using the line intercept method to provide baseline conditions and information for impact analysis and monitoring. Consulted with federal biologists and managers regarding mitigation of impacts to vegetation communities.

Assessment of Existing Riparian Vegetation Diversity and Proper Functioning Condition, Atlanta Gold, Inc. – Atlanta, Idaho. *Senior Ecologist*. Responsible for quantitatively sampling riparian vegetation to determine the range of existing plant associations and habitat functions and values along high gradient stream channels proposed to be relocated during expansion of an existing gold mine in central Idaho. Project involved using the Rapid Riparian Classification as well as BLM Proper Functioning Condition evaluation methods. Data collected were summarized in technical reports and used to establish baseline targets for future restoration of vegetation diversity and riparian functions and values.

Gorham Substation Facility, Central Maine Power, Gorham, Maine
Responsible for conducting threatened and endangered species investigations and significant habitat assessments. Habitat assessments included evaluation of vernal pools and associated vernal pool obligate species including wood frog, and spotted and blue spotted salamanders. Consulted with Maine Department of Inland Fisheries and Wildlife, Maine Natural Areas Program, and the US Fish and Wildlife Service to further evaluate potential impacts to significant natural resources including rare species habitat, wetlands, and tidal streams. Completed a USACE Maine General Permit application for unavoidable impacts to wetlands and waterbodies resulting from project activities.

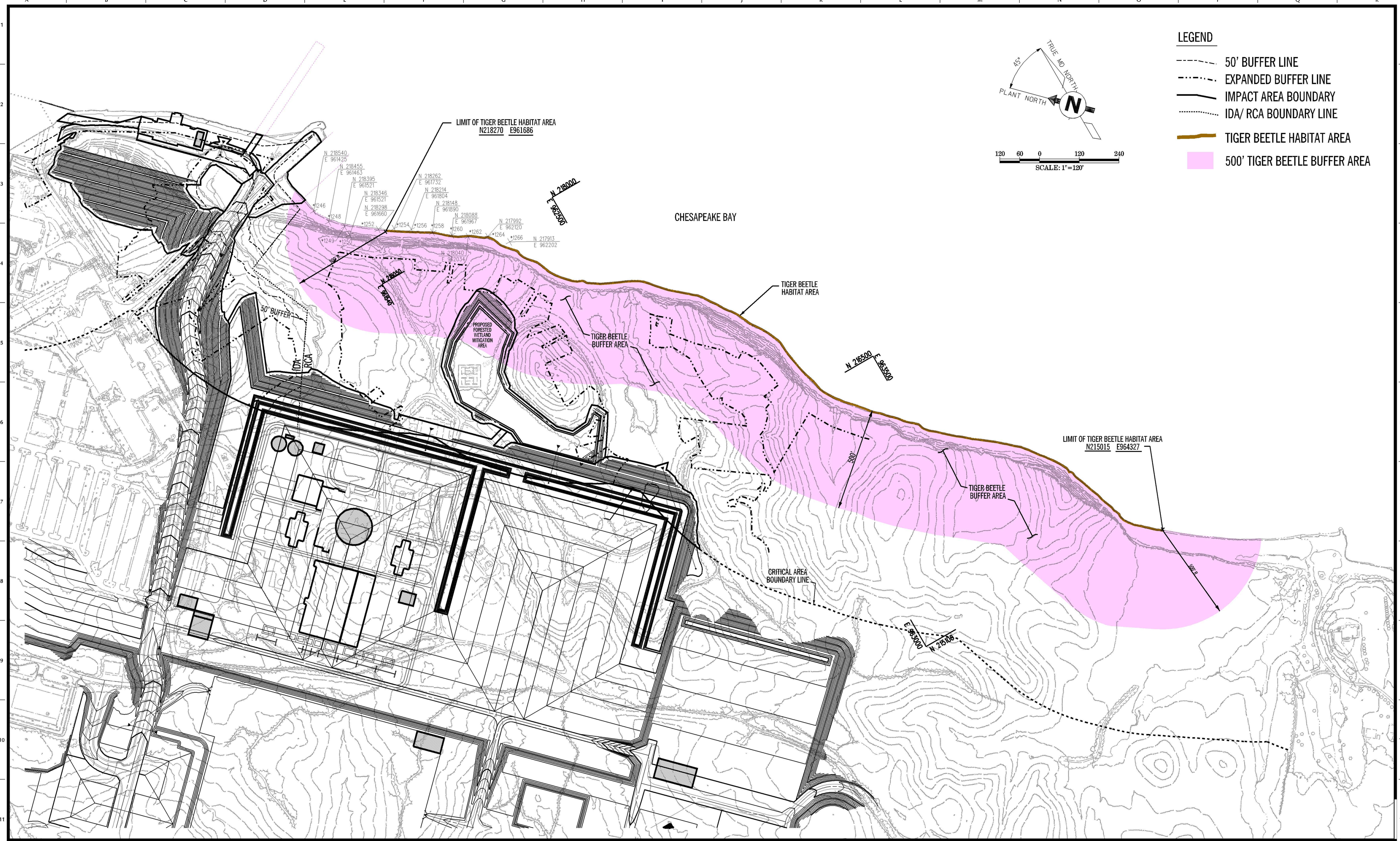
PUBLICATIONS

Myers, P.C. 1996. Multivariate Analysis of Mixed Mesophytic Forest Communities in the Southern Blue Ridge Physiographic Province, North Carolina. University of North Carolina Research Compendium

EMPLOYMENT HISTORY

2006- Present	Tetra Tech, Inc. 451 Presumpscot Street Portland, ME 04103
2004 - 2006	AMEC Earth and Environmental 210 Broadway Helena, MT 54601
2002 - 2004	Tetra Tech – Maxim Technologies, Inc. Helena, MT 54601
1995 - 2001	Appalachian Ecological Consultants, Inc. Ashville, NC 28404

Exhibit A



OWNER/DEVELOPER:

CALVERT CLIFFS 3
NUCLEAR PROJECT, LLC
100 CONSTELLATION WAY
BALTIMORE, MD 21202
(410) 470-5857

No.	REVISION	DATE	BY

GREENHORNE & O'MARA
CONSULTING ENGINEERS
6110 FROST PLACE, LAUREL, MARYLAND 20707
PHONE: (410) 266-0066 FAX: (410) 266-0067
www.g-and-o.com
FLORIDA • GEORGIA • MARYLAND • NORTH CAROLINA • PENNSYLVANIA • VIRGINIA • WEST VIRGINIA

© LATEST DATE HEREON

TIGER BEETLE HABITAT AREA EXHIBIT
for
CALVERT CLIFFS

DESIGN	KET
DRAWN	GRK
CHECKED	
DATE	07/14/2008
SCALE	1" = 200'
SHEET	1 OF 1
PROJ No.	3017
FILE No.	

Exhibit B

FILING DEPT.
FILE NO. 805.

CALVERT CLIFFS NUCLEAR POWER PLANT

MARYLAND, STATE OF

BOARD OF PUBLIC WORKS

DECEMBER 17, 1968

PERMIT

1. Remove the oysters from Flag Pond natural oyster bar and transplant said oysters on a natural oyster bar.

2. Construct a revetment and a jetty and to dredge and place fill in Chesapeake Bay near Lusby, Calvert County, Maryland.

000059721

10-00-00-1D-00-00 000059721
BGE PRESIDENT'S OFFICE
ASSET MANAGEMENT SERVICES DIV

MD, STATE OF BOARD OF PUBLIC WORKS (12/17/1968)
PERMIT TO REMOVE OYSTERS FROM FLAG POND

Box#: 000017717 Shelf Location:

√Maryland, State of
Board of Public Works
Permit dated 12/17/68.

FILING DEPT.
FILE NO. 805.

STATE OF MARYLAND
DEPARTMENT OF CHESAPEAKE BAY AFFAIRS
STATE OFFICE BUILDING
ANNAPOLIS, MARYLAND 21404

JOSEPH H. MANNING
DIRECTOR
LOUIS N. PHIPPS, JR.
DEPUTY DIRECTOR

May 15, 1969

Mr. Austin E. Penn
Chairman of the Board
Baltimore Gas and Electric Company
Gas and Electric Building
Baltimore, Maryland 21203

Dear Mr. Penn:

I am advised by the Natural Resources Management Division that no significant quantity of oysters now remains in that area of Flag Pond Natural Oyster Bar from which the Baltimore Gas and Electric Company agreed to remove the oyster population. Accordingly, no additional effort is required of the Baltimore Gas and Electric Company to meet the terms of our agreement.

We wish to express our appreciation for the excellent cooperation we have had from the Baltimore Gas and Electric Company in the removal operations.

Sincerely yours,

Joe Manning

Joseph H. Manning
Director

JHM:bsf

cc: Mr. Frederick W. Sieling
Mr. Paul W. McKee

STATE OF MARYLAND
DEPARTMENT OF CHESAPEAKE BAY AFFAIRS
STATE OFFICE BUILDING
ANNAPOLIS, MARYLAND 21404

JOSEPH H. MANNING
DIRECTOR
LOUIS N. PHIPPS, JR.
DEPUTY DIRECTOR

January 20, 1969

Mr. ~~Hermuth~~
Mr Reppland
General File ✓
1/22

Mr. Austin E. Penn
Chairman of the Board
Baltimore Gas and Electric Company
Gas and Electric Building
Baltimore, Maryland 21203

Dear Mr. Penn:

Receipt of your letter of January 16 and the check for $200,000 in accordance with the agreement reached at the meeting of the Board of Public Works on December 17, 1968 is acknowledged.

As stipulated in your letter, if the Baltimore Gas and Electric Company does not receive from the U. S. Army Corps of Engineers a permit for construction of a revetment and jetty and to dredge and fill in the Chesapeake Bay near Lusby, Maryland, the payment of $200,000 would be refunded to the Baltimore Gas and Electric Company.

Received 1/22/69

Sincerely yours,

Joseph H. Manning
Director

JHM:bsf

State of Maryland

Board of Public Works

Annapolis, Maryland

January 9, 1969

Spiro T. Agnew
Governor
Louis L. Goldstein
Comptroller
John A. Luetkemeyer
Treasurer
Andrew Henbeck, Jr.
Secretary

Mr. Austin E. Penn
Chairman of the Board
Baltimore Gas and Electric Company
Baltimore Gas and Electric Building
Baltimore, Maryland

Dear Mr. Penn:

The Board of Public Works at its meeting on December 17, 1968, considered your request that the Board approve the application for a permit requested by you from the Corps of Engineers to construct a revetment and a jetty and to dredge and place fill in the Chesapeake Bay near Lusby, Calvert County, Maryland.

After considerable discussion by the representatives of the Baltimore Gas and Electric Company and the Department of Chesapeake Bay Affairs, the following agreement was approved by the Board of Public Works:

1. Baltimore Gas and Electric Company will immediately remove the oysters from Flag Pond natural oyster bar and transplant said oysters on a natural oyster bar designated by the Department of Chesapeake Bay Affairs under supervision of that Agency.

2. The Company is authorized to proceed with construction of a revetment and a jetty and to dredge and place fill in Chesapeake Bay near Lusby, Calvert County, Maryland as described in Public Notice dated 5 November 1968, Department of Army, Baltimore District Corps of Engineers NABOP-P (Baltimore Gas and Electric Company) 112.

3. Baltimore Gas and Electric Company will immediately deposit $200,000 to the credit of the Department of Chesapeake Bay Affairs, to be expended exclusively by that Agency for rehabilitation of natural oyster bars of Calvert County for loss from the destruction of Flag Pond natural oyster bar by construction of the Nuclear Power Plant (including the construction referred to in #2 above, and the intake and discharge channels to be applied for later).

4. Baltimore Gas and Electric Company and the Department of Chesapeake Bay Affairs will each appoint one representative to an Arbitration Board. These two representatives will then select a third, neutral member of said Board.

5. Arbitration will take place three years after the Calvert Cliffs Nuclear Power Plant has commenced normal operation.

6. The Arbitration Board is limited only to the determination of damages. It will determine what allowance in excess of $200,000, if any, is warranted by the damage to Flag Pond Oyster Bar resulting from all the construction and the operation of the nuclear power plant.

7. In no event will such allowance in excess of the initial $200,000 exceed an additional $200,000, i.e., in no event will the total possible allowance be less than $200,000 or more than $400,000.

It is, therefore, in order for you to proceed to make arrangements with the Department of Chesapeake Bay Affairs for the removal of oysters from Flag Pond and to transplant them.

Very truly yours,

Andrew Heubeck, Jr.
Secretary

AH:blk

cc: Mr. Joseph H. Manning

MEMORANDUM
Re:
Agreement Between
Baltimore Gas and Electric Company
and State of Maryland

On Tuesday, December 17, 1968, the Board of Public Works held a public meeting to consider, among other things, the issuance of a permit to the Baltimore Gas and Electric Company for the construction of a revetment and jetty and to dredge and place fill in the Chesapeake Bay. Mr. Joseph H. Manning, Director of the Department of Chesapeake Bay Affairs, and Mr. Edward S. Digges, Special Assistant Attorney General, appeared to advise the Board that the plans of the Company to dredge and fill on Flag Pond natural oyster bar, would, if carried out, result in destruction of a natural oyster bar estimated to be worth approximately $500,000 to the State as a capital asset. Mr. George W. Della, III, legislative counsel to the Company, and Mr. Austin E. Penn, Chairman of the Board and Chief Executive Officer, expressed willingness to provide reasonable compensation to the State, but objected to the computation producing the $500,000 sum on the ground that it excluded several relevant factors from consideration. Since the parties' opening statements revealed their basic disagreement to be over the amount of compensation and procedures, the Governor directed that the parties retire to his office for negotiation of these points.

This negotiation resulted in the adoption by the two parties of the following agreement which was submitted to and approved by the Board of Public Works:

1. Baltimore Gas and Electric Company will immediately remove the oysters from Flag Pond natural oyster bar and transplant said oysters on a natural oyster bar designated by the Department of Chesapeake Bay Affairs under supervision of that Agency.

2. The Company is authorized to proceed with construction of a revetment and a jetty and to dredge and place fill in Chesapeake Bay near

FILE
PUBLIC RELATIONS

Lusby, Calvert County, Maryland as described in Public Notice dated 5 November 1968, Department of Army, Baltimore District Corps of Engineers NABOP-P (Baltimore Gas and Electric Company) 112.

3. Baltimore Gas and Electric Company will immediately deposit $200,000 to the credit of the Department of Chesapeake Bay Affairs, to be expended exclusively by that Agency for rehabilitation of natural oyster bars of Calvert County for loss from the destruction of Flag Pond natural oyster bar by construction of the Nuclear Power Plant (including the construction referred to in #2 above, and the intake and discharge channels to be applied for later) shall be expended for oyster repletion in that County.

4. Baltimore Gas and Electric Company and the Department of Chesapeake Bay Affairs will each appoint one representative to an Arbitration Board. These two representatives will then select a third, neutral member of said Board.

5. Arbitration will take place three years after the Calvert Cliffs Nuclear Power Plant has commenced normal operation.

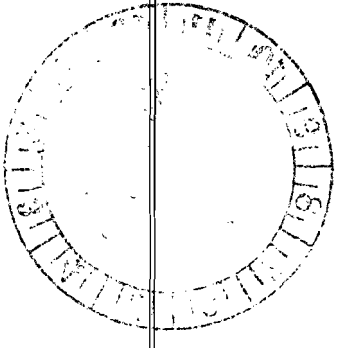
6. The Arbitration Board is limited only to the determination of damages. It will determine what allowance in excess of $200,000, if any, is warranted by the damage to Flag Pond Oyster Bar resulting from all the construction and the operation of the nuclear power plant.

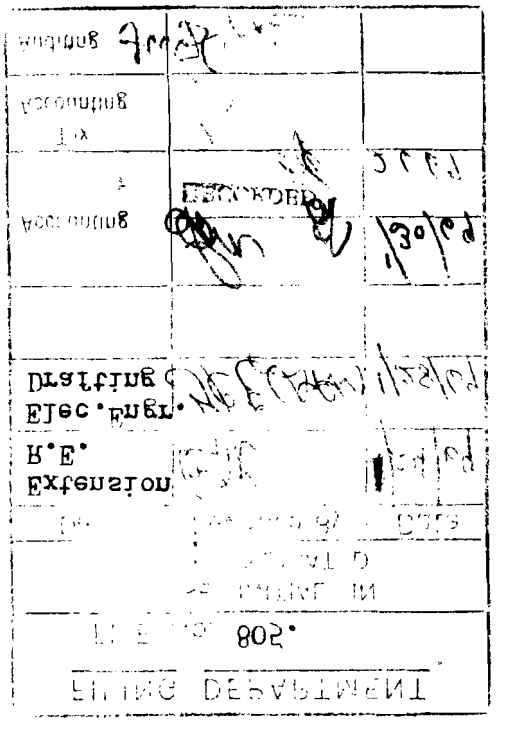
7. In no event will such allowance in excess of the initial $200,000 exceed an additional $200,000, i.e., in no event will the <u>total</u> possible allowance be less than $200,000 or more than $400,000.

8. An arbitration agreement will be drafted by the Baltimore Gas and Electric Company and submitted to the Department of Chesapeake Bay Affairs for approval by the Attorney General.

Austin E. Penn
Chairman of the Board

1/2/69





January
Sixteenth
1969

Mr. Joseph H. Manning, Director
Department of Chesapeake Bay Affairs
Annapolis, Maryland

Dear Mr. Manning:

Enclosed is check for $200,000 payable to the order of the State of Maryland for the use of the Department of Chesapeake Bay Affairs covering damages to the Flag Pond oyster bar resulting from construction and operation of this Company's Calvert Cliffs nuclear power plant, in accordance with the agreement reached at the meeting with the Board of Public Works for the State of Maryland on December 17, 1968.

This payment is being made at this time with the understanding that it will be refunded to the Baltimore Gas and Electric Company in the event that the Corps of Engineers, U.S. Department of the Army, does not grant the necessary permit to this Company for construction of a revetment and jetty and permission to dredge and place fill in the Chesapeake Bay near Lusby, Calvert County, Maryland, in connection with the construction and use of this Company's Calvert Cliffs plant at the above location. I am sure that you understand that, if such permit were not issued by the Corps of Engineers, this Company could not proceed with the construction of its Calvert Cliffs plant and, hence, there would be no destruction nor damages to the Flag Pond oyster bar and, therefore, no reason for this Company making such payment.

Accordingly, it is requested that you acknowledge receipt of this payment and the above understanding on the part of the Department of Chesapeake Bay Affairs.

Very truly yours,

Chairman of the Board

cc: Messrs. Paul W. McKee
Andrew Hasbeck, Jr.

FILE
CHAIRMAN OF BOARD

January 16, 1969

TO Mr. C. L. Nixon

FROM G. W. Gephart

SUBJECT Order to Have a Check Drawn

Please pay to the order of:

NAME State of Maryland
For the use of the
ADDRESS Department of Chesapeake Bay Affairs
State Office Building
Annapolis, Maryland 21401
AMOUNT $200,000.00

REASON As per agreement made before the Board of Public Works on December 17, 1968, $200,000.00 is hereby paid to the Department of Chesapeake Bay Affairs to be expended exclusively by that Agency for rehabilitation of natural oyster bars of Calvert County for loss from the destruction of Flag Pond natural oyster bar by construction of the Nuclear Power Plant. Such payment is subject to refund in the event the payor is unable to secure the required permit from the Corps of Engineers, U.S. Army.

DEPARTMENT 44-Electric Construction
CHARGE ACCOUNT EC 11260-2

Public Relations Dept.

APPROVED

January 9, 1969

Mr. Joseph H. Manning, Director
Department of Chesapeake Bay Affairs
State Office Building
Annapolis, Maryland

Dear Mr. Manning:

The Board of Public Works at its meeting on December 17, 1968 considered a request that the Board approve the application for a permit requested by the Baltimore Gas and Electric Company from the Corps of Engineers to construct a revetment and a jetty and to dredge and place fill in the Chesapeake Bay near Lusby, Calvert County, Maryland.

After considerable discussion between representatives of the Baltimore Gas and Electric Company and the Department of Chesapeake Bay Affairs, the following agreement was approved by the Board of Public Works:

1. Baltimore Gas and Electric Company will immediately remove the oysters from Flag Pond natural oyster bar and transplant said oysters on a natural oyster bar designated by the Department of Chesapeake Bay Affairs under supervision of that Agency.

2. The Company is authorized to proceed with construction of a revetment and a jetty and to dredge and place fill in Chesapeake Bay near Lusby, Calvert County, Maryland as described in Public Notice dated 5 November 1968, Department of Army, Baltimore District Corps of Engineers NABOP-P (Baltimore Gas and Electric Company) 112.

3. Baltimore Gas and Electric Company will immediately deposit $200,000 to the credit of the Department of Chesapeake Bay Affairs, to be expended exclusively by that Agency for rehabilitation of natural oyster bars of Calvert County for loss from the destruction of Flag Pond natural oyster bar by construction of the Nuclear Power Plant (including the construction referred to in #2 above, and the intake and discharge channels to be applied for later).

4. Baltimore Gas and Electric Company and the Department of Chesapeake Bay Affairs will each appoint one representative to an Arbitration Board. These two representatives will then select a third, neutral member of said Board.

5. Arbitration will take place three years after the Calvert Cliffs Nuclear Power Plant has commenced normal operation.

6. The Arbitration Board is limited only to the determination of damages. It will determine what allowance in excess of $200,000,

if any, is warranted by the damage to Flag Pond Oyster Bar resulting from all the construction and the operation of the nuclear power plant.

7. In no event will such allowance in excess of the initial $200,000 exceed an additional $200,000, i.e., in no event will the total possible allowance be less than $200,000 or more than $400,000.

Very truly yours,

Andrew Heubeck, Jr.
Secretary

AH:blk

cc: Baltimore Gas and Electric Company

General File

January 16, 1969

Mr. Andrew Heubeck, Jr.
Secretary
Board of Public Works
Annapolis, Maryland

Dear Mr. Heubeck:

I acknowledge your letter of January 9 confirming the agreement reached on December 17 between the Department of Chesapeake Bay Affairs and Baltimore Gas and Electric Company concerning the effect on Flag Pond Oyster Bar of the construction of the Calvert Cliffs Nuclear Power Plant, and advising that it is in order to proceed with arrangements with the Department for removal and transplanting of oysters from the Bar.

I also acknowledge copies of your letters of January 9 to the Department of the Army and to Mr. Manning regarding this subject.

My sincere appreciation is extended for your cooperation in bringing this matter to a satisfactory conclusion.

Sincerely,

(Signed) A. E. Penn

Chairman of the Board

Copies to Messrs. G. W. Gephart
J. A. Biddison

FILE
CHAIRMAN OF BOARD

BOARD OF PUBLIC WORKS
STATE OFFICE BUILDING
ANNAPOLIS, MARYLAND

January 9, 1969

Mr. John L. Reynolds, Chief
Operations Division
Department of the Army
Baltimore District
Corps of Engineers
P. O. Box 1715
Baltimore, Maryland

Dear Mr. Reynolds:

The Board of Public Works at its meeting on December 17, 1968 considered the application of the Baltimore Gas and Electric Company for a permit to construct a revetment and a jetty and to dredge and place fill in the Chesapeake Bay near Lusby, Calvert County, Maryland. At that meeting the Baltimore Gas and Electric Company and the Department of Chesapeake Bay Affairs reached the following agreement:

1. Baltimore Gas and Electric Company will immediately remove the oysters from Flag Pond natural oyster bar and transplant said oysters on a natural oyster bar designated by the Department of Chesapeake Bay Affairs under supervision of that Agency.

2. The Company is authorized to proceed with construction of a revetment and a jetty and to dredge and place fill in Chesapeake Bay near Lusby, Calvert County, Maryland as described in Public Notice dated 5 November 1968, Department of Army, Baltimore District Corps of Engineers NABOP-P (Baltimore Gas and Electric Company)112.

3. Baltimore Gas and Electric Company will immediately deposit $200,000 to the credit of the Department of Chesapeake Bay Affairs, to be expended exclusively by that Agency for rehabilitation of natural oyster bars of Calvert County for loss from the destruction of Flag Pond natural oyster bar by construction of the Nuclear Power Plant (including the construction referred to in #2 above, and the intake and discharge channels to be applied for later).

4. Baltimore Gas and Electric Company and the Department of Chesapeake Bay Affairs will each appoint one representative to an Arbitration Board. These two representatives will then select a third neutral member of said Board.

5. Arbitration will take place three years after the Calvert Cliffs Nuclear Power Plant has commenced normal operation.

6. The Arbitration Board is limited only to the determination of damages. It will determine what allowance is excess of $200,000, if any, is warranted by the damage to Flag Pond Oyster Bar resulting from all the construction and the operation of the nuclear power plant.

7. In no event will such allowance in excess of the initial $200,000 exceed an additional $200,000, i.e., in no event will the total possible allowance be less than $200,000 or more than $400,000.

The Board of Public Works, therefore, has no objection to a permit being requested by the Baltimore Gas and Electric Company.

Very truly yours,

Andrew Heubeck, Jr.
Secretary

AH:blk

cc: Mr. George Gephart

MEMORANDUM
Re:
Agreement Between
Baltimore Gas and Electric Company
and State of Maryland

On Tuesday, December 17, 1968, the Board of Public Works held a public meeting to consider, among other things, the issuance of a permit to the Baltimore Gas and Electric Company for the construction of a revetment and jetty and to dredge and place fill in the Chesapeake Bay. Mr. Joseph H. Manning, Director of the Department of Chesapeake Bay Affairs, and Mr. Edward S. Digges, Special Assistant Attorney General, appeared to advise the Board that the plans of the Company to dredge and fill on Flag Pond natural oyster bar, would, if carried out, result in destruction of a natural oyster bar estimated to be worth approximately $500,000 to the State as a capital asset. Mr. George W. Della, III, legislative counsel to the Company, and Mr. Austin E. Penn, Chairman of the Board and Chief Executive Officer, expressed willingness to provide reasonable compensation to the State, but objected to the computation producing the $500,000 sum on the ground that it excluded several relevant factors from consideration. Since the parties' opening statements revealed their basic disagreement to be over the amount of compensation and procedures, the Governor directed that the parties retire to his office for negotiation of these points.

This negotiation resulted in the adoption by the two parties of the following agreement which was submitted to and approved by the Board of Public Works:

1. Baltimore Gas and Electric Company will immediately remove the oysters from Flag Pond natural oyster bar and transplant said oysters on a natural oyster bar designated by the Department of Chesapeake Bay Affairs under supervision of that Agency.

2. The Company is authorized to proceed with construction of a revetment and a jetty and to dredge and place fill in Chesapeake Bay near

Lusby, Calvert County, Maryland as described in Public Notice dated 5 November 1968, Department of Army, Baltimore District Corps of Engineers NABOP-P (Baltimore Gas and Electric Company) 112.

3. Baltimore Gas and Electric Company will immediately deposit $200,000 to the credit of the Department of Chesapeake Bay Affairs, to be expended exclusively by that Agency for rehabilitation of natural oyster bars of Calvert County for loss from the destruction of Flag Pond natural oyster bar by construction of the Nuclear Power Plant (including the construction referred to in #2 above, and the intake and discharge channels to be applied for later) shall be expended for oyster repletion in that County.

4. Baltimore Gas and Electric Company and the Department of Chesapeake Bay Affairs will each appoint one representative to an Arbitration Board. These two representatives will then select a third, neutral member of said Board.

5. Arbitration will take place three years after the Calvert Cliffs Nuclear Power Plant has commenced normal operation.

6. The Arbitration Board is limited only to the determination of damages. It will determine what allowance in excess of $200,000, if any, is warranted by the damage to Flag Pond Oyster Bar resulting from all the construction and the operation of the nuclear power plant.

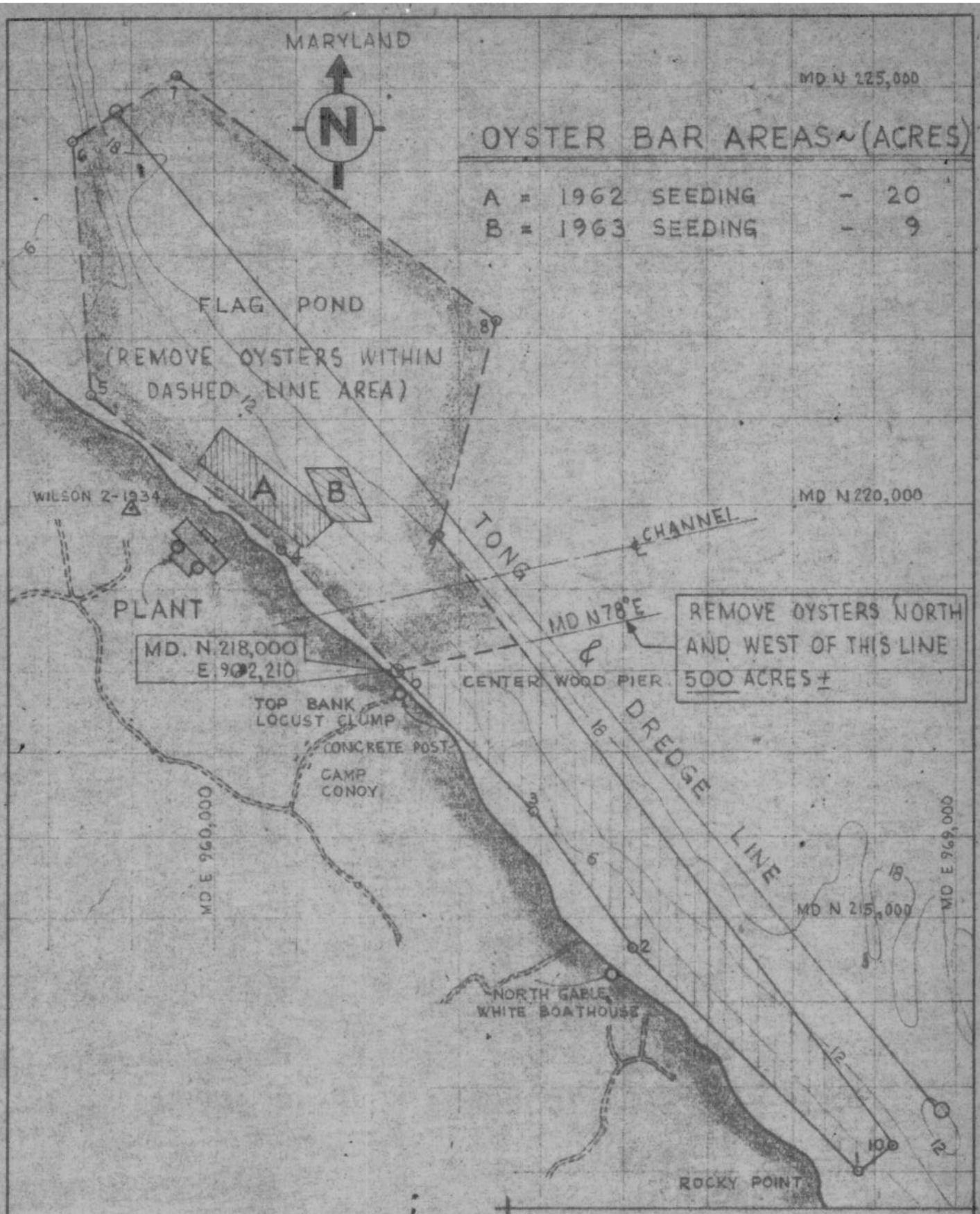
7. In no event will such allowance in excess of the initial $200,000 exceed an additional $200,000, i.e., in no event will the <u>total</u> possible allowance be less than $200,000 or more than $400,000.

8. An arbitration agreement will be drafted by the Baltimore Gas and Electric Company and submitted to the Department of Chesapeake Bay Affairs for approval by the Attorney General.

Austin E. Penn
Chairman of the Board

1/2/69

Exhibit C



OYSTER REMOVAL AREA	
COUNTY CALVERT	STATE MARYLAND
APPLICATION BY: BALTIMORE GAS AND ELECTRIC COMPANY	
DRAWING No: SK-C-137	
DATE: 8/26/68	REV: A.

Exhibit D

SUPPLEMENT TO
ENVIRONMENTAL REPORT

CALVERT CLIFFS NUCLEAR POWER PLANT

BALTIMORE GAS AND ELECTRIC COMPANY
BALTIMORE, MARYLAND

NOVEMBER 8, 1971

FILE COPY
ENVIRONMENTAL SECTION

9.2.2 Structures On Previously Open Or Wooded Land

Approximately 300 acres of the 1135-acre site are currently being used in some phase of the construction work. When the plant is completed, approximately 100 acres will be occupied by the plant and switching station complex. The other 200 acres being used in connection with construction will be restored by reseeding and replanting.

9.2.3 Loss Of Recreational Use Of Adjacent Shoreline and Waters

The shoreline in the area of the plant is such that there is a very limited beach area and this exists only under low tide conditions. Also, the continuous erosion of the cliffs presents a significant hazard to anyone who might utilize the limited beach area for recreational purposes. There has been no previous recreational benefit associated with the shoreline in the area of the plant and, therefore, the plant does not create a loss of recreational use in this area.

The plant will not preclude the use of the adjacent waters of the Chesapeake Bay for recreational purposes.

9.2.4 Removal Of Oyster Bar

Since a portion of the Flag Pond oyster bar, located in the Chesapeake Bay in front of the Calvert Cliffs plant, was in the area to be dredged for the intake and discharge channels and the barge slip for the plant, the Company entered into an agreement with the State of Maryland, which was approved by the Board of Public Works on December 17, 1968, whereby the Company agreed to remove the oysters from the relatively unproductive natural oyster bar and to transplant them onto a natural oyster bar designated by the Department of Chesapeake Bay Affairs. In addition, the Company agreed to deposit the sum of

$200,000 with the Department of Chesapeake Bay Affairs to be expended by that agency for rehabilitation of natural oyster bars in the waters of Calvert County. The agreement further provided for an additional sum to be paid as the result of arbitration to be conducted three years after the Calvert Cliffs plant had commenced normal operation, in the event that it was determined by an arbitration board that any damage to marine life had occurred.

The oyster removal operation, conducted under the supervision of the Department of Chesapeake Bay Affairs, was completed in April 1969. A total of 8,756 bushels of oysters were removed and transplanted to a natural oyster bar in the Patuxent River. The original bar consisted of 680 acres. Oysters were removed from the 500 acres in the area to be affected by the dredging operations. However, the majority of the oysters moved were located on 29 acres which had been seeded in 1962 and 1963. One hundred eighty acres of the original bar remain undisturbed. The 500-acre portion has been closed and taken off the State oyster bar charts.

The environmental "costs" associated with this oyster bar removal have been balanced by the transplantation of the bar and the rehabilitation of natural oyster bars in the waters of Calvert County.

9.2.5 Increase In School Population

There will undoubtedly be an increase to the school population in Calvert County as a result of the movement into the county of families of members of the permanent plant staff. Based on the discussion in Section 9.1.2 it is estimated that about 80 plant employees will be moving into the county. It is not expected that this number of new families will create a burden on the capacity of the Calvert County school system.

Exhibit E

DRAFT DETAILED STATEMENT ON THE ENVIRONMENTAL CONSIDERATIONS RELATED TO THE PROPOSED ISSUANCE OF AN OPERATING LICENSE TO THE BALTIMORE GAS AND ELECTRIC COMPANY FOR THE CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2

DOCKET NOS. 50-317 AND 50-318

BY THE

U.S. ATOMIC ENERGY COMMISSION

DIVISION OF RADIOLOGICAL AND ENVIRONMENTAL PROTECTION

Issued: January 20, 1972

100 acres of forest bordering a deep ravine which was set aside for the disposal of 3,000,000 cubic yards of bottom material dredged from the Bay. The spoil material is diked and saline water pumped back into the Bay. The applicant will re-vegetate the spoil as soon as practical after dredging ceases. Clearing of the forest has been confined to the actual construction site and to the roads needed for access to the site. In those places where forest cover has been removed the exposed soil has been successfully planted with bluegrass. Also, in a number of instances, access roads were routed around large trees and groves of trees so that these would be preserved and adjacent areas would remain scenically attractive.

Most of the impact of construction activities on the upland biota has already taken place. Clearing of forest acreage has resulted in the loss of some nesting sites for certain kinds of song birds as well as a loss of habitat for certain small mammals. At the same time, the opening of the forest has encouraged more diverse vegetation that is attractive to other kinds of birds and mammals.

Dredging operations necessary for the establishment of the cooling water intake channel and outfall conduits will disturb about 50 acres of the bottom of the Bay near the site. Additional dredging has been done to permit barges to unload onshore. The dredging involves 500 acres of the 680-acre Flag Pond oyster bar immediately offshore from the plant. Baltimore Gas and Electric Company has paid $200,000 to the Department of Chesapeake Bay Affairs of the State of Maryland as compensation for damage to this oyster bar and has transplanted many of the oysters from the bar to a site on the nearby Patuxent River which was selected by the State. Additional compensation may be paid to the State of Maryland by Baltimore Gas and Electric Company if, after three years of plant operation, it is determined that marine life has been damaged.

Production records of the Flag Pond bar range from 122 bushels in 1964-1965 to a maximum of 6,772 bushels in 1967-1968; the latter figure partially represents the number of oysters removed from the bar and transplanted by the applicant.

Sampling by the Academy of Natural Sciences of Philadelphia at near-shore stations within one mile of the plant site indicated that the abundance of bottom fauna was depressed in 1968 and 1969. This depression may be the result of silting from the dredging. Continued biological sampling in this area should better establish the interaction of the dredging with the alteration.