4. Qualifications and Experience

Throughout the U.S., ERM provides full-service NEPA support to private sector clients, federal agencies, and state agencies with NEPA-equivalent programs.

One thing that sets ERM apart from our competition is our ability to "think outside of the box". For every project, we tailor our approach to meet specific goals and unique challenges.

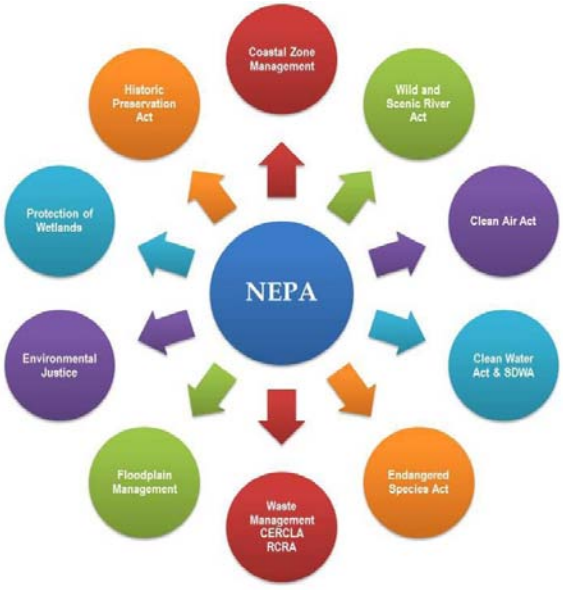
Our experience in both private and public sector work sets ERM apart from other consultancies and gives us key insights into emerging private sector issues and practical knowledge of public agency procedures and requirements.

NEPA Requirements

Major actions that have the potential to affect the human environment and that involve federal funding or require a permit or other authorization from a federal agency are subject to the requirements of the National Environmental Policy Act of 1969 (NEPA). Under NEPA, project proponents must:

1. Evaluate the environmental and social consequences of their proposed actions;
2. Document those effects in a NEPA compliance document, such as an Environmental Assessment (EA) or an Environmental Impact Statement (EIS); and
3. Undertake a public consultation process that informs the public about the project and its potential consequences and offers the public the opportunity to voice concerns or provide input on the project.

NEPA compliance requires consideration of many other Federal regulations.

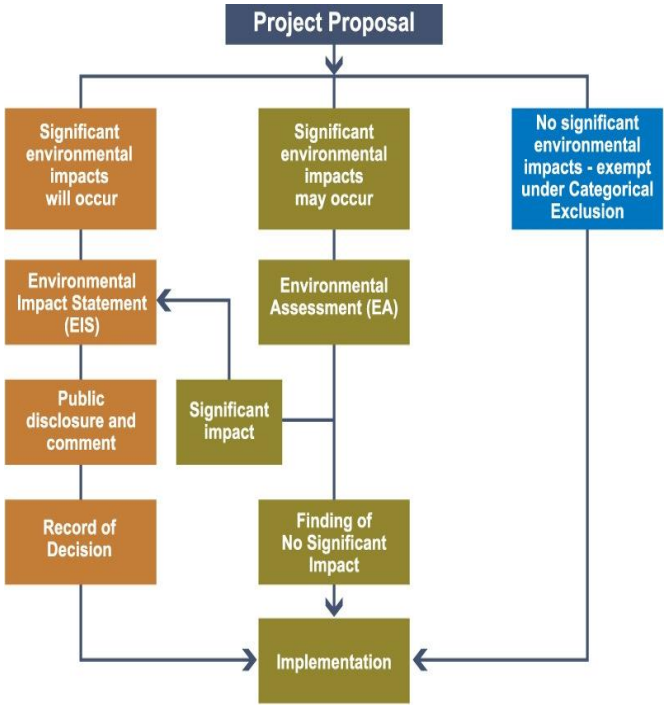


ERM specialist teams have been involved in the successful completion of some of the most complex NEPA projects in the United States.

ERM has conducted NEPA projects in 46 of the 50 states.

NEPA and other Federal Regulations

While each NEPA project is unique, there are three primary paths for NEPA compliance depending on the degree of the project's environmental impact.



State-Level Programs Similar to NEPA

Nineteen states now have some form of state-equivalent to NEPA, such as California's Environmental Quality Act (CEQA) review, or New York's State Environmental Quality Review Act (SEQRA), and others. ERM is highly experienced in coordinating the federal and state requirements to avoid redundancy and potential conflicts and to ensure efficient and successful completion of both the federal and state processes.

States with Programs Similar to NEPA

California	Nevada
Connecticut	New Jersey
District of Columbia	New York
Georgia	North Carolina
Hawaii	Puerto Rico
Indiana	South Dakota
Maryland	Virginia
Massachusetts	Washington
Minnesota	Wisconsin
Montana	

ERM has successfully coordinated federal NEPA and state NEPA-equivalent processes in nine states. Currently, ERM is the third party contractor for a joint federal/state NEPA process for the Northmet Project, a proposed open pit mining operation in northeastern Minnesota. ERM is working closely with the Minnesota Department of Natural Resources, the lead state agency, and the U.S. Army Corps of Engineers, the lead federal agency, to prepare the EIS and to ensure state and federal NEPA and related requirements are met.

Third Party and Applicant Prepared NEPA Processes

In a traditional NEPA process, the lead review agency for a proposed action is responsible for preparation of the required NEPA documentation (i.e., EA or EIS). ERM regularly provides comprehensive NEPA support for lead review agencies, such as our work for the Federal Energy Regulatory Commission presented in the Selected ERM NEPA Experience Table in this section.

Alternative NEPA procedures, such as Applicant Prepared Environmental Assessments (APEA) and third-party contracting, allow applicants and third parties to prepare NEPA documents. These alternative procedures are popular with the private sector because they allow the applicant to have more control over the schedule and more flexibility in structuring the public involvement process. ERM has been at the forefront of these innovative alternative processes.

ERM was the third-party EIS contractor and participated in the Cooperative Consultation Process (CCP), an alternative public involvement approach, for New York Power Authority's St. Lawrence Hydroelectric Project and Portland General Electric's Clackamas River Hydroelectric Project. Both of these projects reached negotiated settlements and gained agency approval and ERM's work was praised by both the applicants and the agencies.

NEPA Experience

ERM's experience preparing EISs and EAs that are fully compliant with NEPA is very broad and includes a wide variety of projects and geographic areas of coverage. We have prepared over 100 NEPA documents for more than a dozen federal agencies in the past five years. Our proposed project management team has managed the preparation of more than 150 EISs and EAs, including over 30 for the FERC. We have extensive experience with related consultation requirements pursuant to the National Historic Preservation Act, the Endangered Species Act, the Clean Water Act, the Clean Air Act, the Coastal Zone Management Act, and others.

Selected ERM NEPA Experience Table

Projects	Project Type (Sector)	State	Lead Agency/ Cooperating Agency	Public Involvement	EA/ EIS	Major Issues

Selected ERM NEPA Experience Table						
Projects	**Project Type (Sector)**	**State**	**Lead Agency/ Cooperating Agency**	**Public Involvement**	**EA/ EIS**	**Major Issues**

Related Project Experience

Following is a brief summary of select projects undertaken by ERM that are relevant to the Proposed Project. References for the first three projects are provided in Section 6 of this proposal.

Processing Facility EIS—NorthMet Mine and Ore

ERM has been selected as the third-party contractor to the Minnesota Department of Natural Resources (DNR), U.S. Forest Service (USFS) and the U.S. Army Corps of Engineers (USACE) for the preparation of an Environmental Impact Statement (EIS) for the PolyMet Mining, Inc., NorthMet Mine and Ore Processing Facility Project (Project). The Project will produce

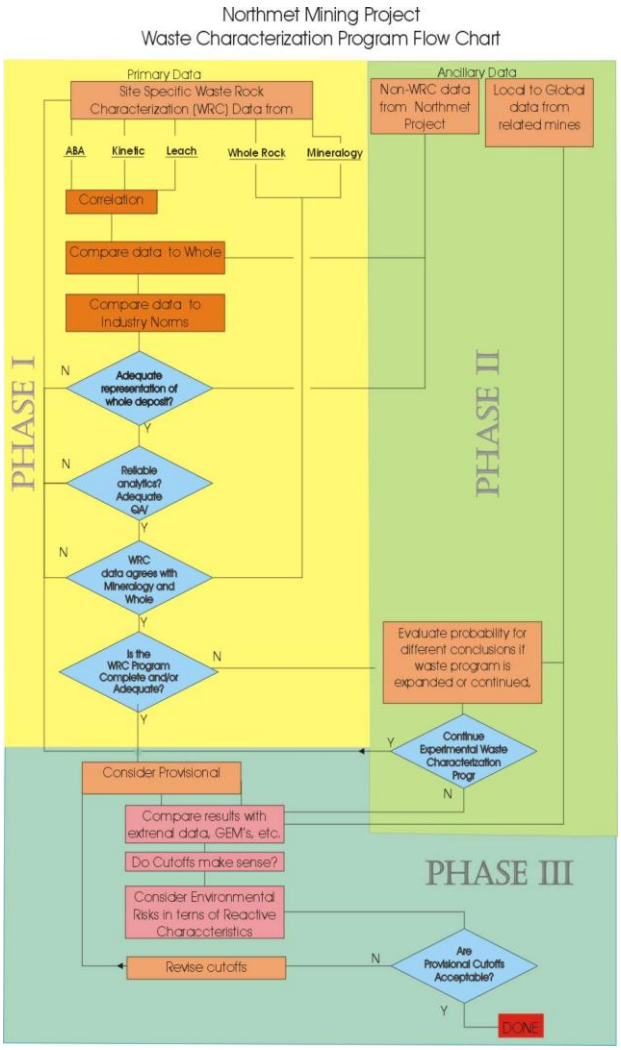
copper metal, and concentrates of nickel, cobalt, palladium, platinum, and gold from three open pits. The Project will include bedrock dewatering, mineral processing, waste rock management, and reuse of a former taconite tailings basin. The primary ore contains sulfides which have the potential to produce acidic waste products, requiring proper management in order to avoid impacts to the environment.

The project also involves construction of support infrastructure, including road, rail, electric transmission, and pipelines. This is the first sulfide mine in Minnesota and is subject to intense agency, tribal, and public scrutiny.

ERM is preparing a joint state/federal EIS that will satisfy the Minnesota Environmental Policy Act (MEPA) and associated Minnesota Rules parts 4410.0200 to 4410.6500, as well as the National Environmental Policy Act (NEPA) and its implementing regulations concurrently. To accomplish this, ERM's team, assembled from across North America, includes technical specialists covering a range of scientific and technical disciplines who are experienced in EIS development in the mining sector.

ERM has reviewed resource documents and project plans; identified additional data needs; coordinate project open houses and public meetings; conducted initial impact assessment; and assisted in the development of an "Agency Alternative" that the Project Sponsor has adopted that provides enhanced environmental protection (e.g., subaqueous disposal of reactive waste rock, improved tailings basin cover, increased water reuse to reduce makeup water demand, enhanced geotechnical stability). USEPA and several tribes (Chippewa bands) have become active participants in the process and ERM is facilitating a series of workgroups with them to review and resolve key project issues.

ERM is currently preparing a detailed EIS to evaluate the new Agency Alternative that meets applicable MEPA and NEPA requirements, includes a robust alternatives and cumulative effects assessment, and will withstand intense public scrutiny and potential public opposition.



ERM's phased approach to characterization of the Project's waste products.

Common Facilities Pipeline System Expansion—

The Midwest has experienced increased demand for natural gas over the past several winters and retail gas demand is projected to continue to grow. Much of this

supply comes from the western U.S. and western Canadian sources that serve natural gas demand in the region. proposed constructing and operating extensions to its existing natural gas pipeline system to meet the needs of its subscribers by providing a reliable and timely supply of natural gas. These extensions would serve the growing demand for residential and industrial uses in southeastern Minnesota, Iowa, and northeastern Nebraska.

The overall project and system expansion included four components. The Ventura North portion of the project included installing about 1 mile of a 36-inch main line extension in northcentral Iowa. The Lacrosse-Tomah portion of the project included installing almost 5 miles of from 6-inch loop lines up to 36-inch main lines in southeastern Minnesota and northcentral Iowa. The East Leg portion of the project included installing about 8 miles of 6-inch loop lines, 8-inch branch lines, and up to 36-inch main lines in northcentral and central Iowa. The West Leg portion of the project included installing about 12 miles of 8-inch branch lines and up to 30-inch main lines in western Iowa and northeastern Nebraska.

ERM was part of the team that conducted the fieldwork for and prepared the four Federal Energy Regulatory Commission (FERC) Prior Notice permit packages for the overall project.

This project was conducted under an extremely fast-track schedule because had to begin construction in the spring of 2008 to meet its contractual obligations with its subscribers. Our contract was not signed until the end of October 2007, essentially at the end of the fieldwork season, and work began in November. Teams were quickly mobilized over a 2-week period, fieldwork was completed prior to Thanksgiving, and the first set of draft resource reports were submitted by December 15. The remaining draft sets of Resource Reports were prepared and submitted to throughout January and February, completing them in only 4 months (typically a 6-month process to complete just one set of reports).

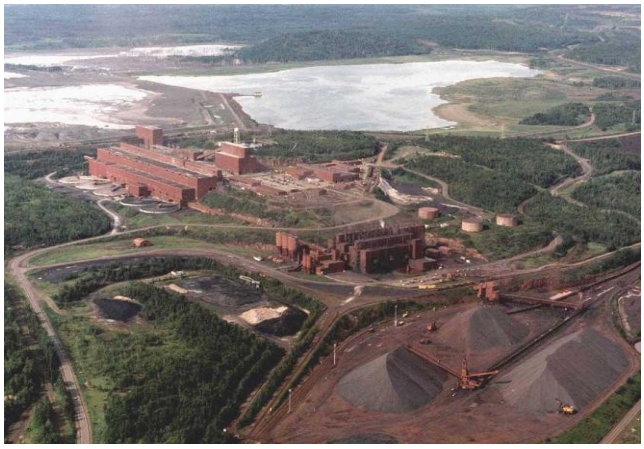
ERM visited the State Historic Preservation Officers (SHPOs) to collect archaeological and historical information, initiated tribal consultation with 22 tribes, and conducted reconnaissance cultural resources field studies. Once the cultural reports were submitted to the SHPOs, the Minnesota SHPO identified an area of concern and requested that systematic shovel testing be conducted. Once again, ERM signed a task order, mobilized staff, and began conducting the shovel testing in a little more than a week in mid-December.

During that time the ground began to freeze and snow fall, so ERM quickly adjusted to the changing conditions by finding, contracting with, and mobilizing a Bobcat with an auger to assist in digging in the frozen topsoil. This shovel testing continued into early January, but was successfully completed and that project component remained on schedule.

ERM prepared the water use and quality; fish, wildlife, and vegetation; cultural resources; land use, recreation, and aesthetics; and the air quality and noise Resource Reports for Prior Notice applications to FERC. FERC staff not only approved these applications without revisions, they complimented by stating that they were some of the best that had been submitted to FERC.

Bemidji-Grand Rapids 230-kV Transmission Line—Minnesota Office of Energy Security

Northern Minnesota has experienced increased demand for electrical energy, and that demand is projected to continue to grow, in a rural part of the state. Additional transmission line capacity is required to meet that growing need. In addition, the area is heavily affected by severe winter weather and additional measures are needed to improve the long-term reliability of the local and regional electrical system (i.e., northwestern Minnesota and eastern North Dakota).



The NorthMet Mine and Ore Processing Facility will be the first commercial scale sulfide metal mine to be evaluated under the Minnesota Environmental Review Program.

To meet these needs, a consortium comprised of Otter Tail Power Company, Minnesota Power, and Minnkota Power Cooperative, Inc. proposes to construct and operate the 68-mile long Bemidji-Grand Rapids 230-kV Transmission Line Project. This project is one of four Group 1 projects in the Capacity Expansion 2020 (CapX2020) initiative in the state. ERM was hired as the Third-Party contractor (TPC) to work with the Minnesota Office of Energy Security (OES) and the U.S. Department of Agriculture Rural Utility Service's (RUS) Development Utilities Program to prepare the joint Environmental Impact Statement (EIS) for the project.

The proposed single-circuit Bemidji-Grand Rapids 230-kV Transmission Line Project would be constructed on wooden 2-pole H-frame structures. These structures would range from 70 to 90 feet tall and would be spaced 600 to 1,000 feet apart. The proposed transmission line would generally follow the Great Lakes Gas Transmission Company's pipeline right-of–way, from the Wilton Substation located west of Bemidji to just east of Deer River, where it then would follow a Minnesota Power 115-kV transmission line to the Boswell Substation located northwest of Grand Rapids, Minnesota. This route would cross portions of the Chippewa National Forest and the Leech Lake Indian Reservation. An alternative route proposed by the consortium generally would follow U.S. Highway 2 and then the pipeline rights-of-way of Enbridge Pipelines LLC.

ERM worked as an extension of the OES's staff to identify issues, collect additional information, and prepare the draft and final Environmental Impact Statements. ERM began by assisting in organizing and participating in the five public scoping meetings for the project, as well as two inter-agency working group meetings. ERM assisted in facilitating those meetings as well as taking notes. A Public Scoping Summary report then was prepared to categorize, by key topic in the EIS, and summarize all verbal and written comments received during the scoping period.

ERM also collected additional desktop biological and cultural resources information for three new alternative routes. This information was placed into the GIS databases, along with the two proposed routes, to conduct a comparative screening analysis of all five routes. New maps and tables were then prepared comparing the potential environmental, land use, and socioeconomic impacts of the five routes.

ERM also served as the TPC to assist the OES in complying with the Minnesota Power Plant Siting Act (PPSA) and associated rules, and prepared the EIS. The EIS was prepared as a joint EIS to meet U.S. National Environmental Policy Act (NEPA) requirements. These two processes had different timelines and data needs for evaluation of the proposed alternatives. As such, ERM worked with the state OES along with the RUS, and other federal agencies to ensure that both federal and state requirements and concerns were appropriately addressed.

Water Supply Project—City of Virginia Beach

ERM prepared an Environmental Impact Statement (EIS) for the City of Virginia Beach Water Supply Project. The proposed project involved a 60 million gallon per day (mgd) interbasin transfer of water from Lake Gaston in the Roanoke River Basin of North Carolina via a 76-mile-long pipeline to the City of Virginia Beach and surrounding municipalities. The project was very controversial and had been the subject of several previous environmental impact assessments, several court challenges, and over 15 years of contentious argument regarding its environmental effects.

ERM conducted a detailed water supply and demand analysis evaluating population growth trends, per capita water use, and average water demand by sector through the year 2030. This water demand was compared with the safe yield of existing and programmed water supplies, including raw water sources, distribution systems, treatment capacities, reservoir capacity, and groundwater availability, to confirm a water supply deficit of approximately 60 mgd.

ERM modeled the entire 9,600 square mile basin using HEC-5 to simulate the effects of the withdrawal on river hydrology and reservoir routing. The model also took into consideration existing and future consumptive uses of water within the river basin that would affect flow conditions. ERM evaluated water quality impacts of the withdrawal within Lake Gaston, downstream along the Roanoke River, and in estuarine portions of Albemarle Sound. We reviewed existing NPDES permit conditions within the watershed as well as potential future dischargers to the river in order to determine the basin-wide assimilative capacity of the river. ERM developed a statistical model of river flow, temperature and water quality relationships and concluded that the proposed withdrawal would not compromise the assimilative capacity of the lower Roanoke River.

The key issue was the effect of the withdrawal on the Roanoke River system, including hydrology, water quality, and fisheries.

ERM also analyzed the effect of the reduced river flows resulting from the withdrawal on salinity relationships in Albemarle Sound, focusing specifically on the potential for saltwater intrusion. Our analysis concluded that the combination of relatively high outflow, small cross-sectional area, and low flow augmentation effectively blocked saline water from entering the lower river.

The Roanoke River provides critical spawning habitat for striped bass. Research has indicated that low spring flows result in shortened egg development time and longer travel times for larval striped bass to reach rearing areas. Several resource agencies expressed concern that the proposed withdrawal would increase the frequency of low flows in the spring, adversely affecting striped bass spawning. ERM performed an independent analysis of the relationship between striped bass stock decline and regulated spring flows in the Roanoke River. Using HEC-5, ERM concluded that proposed flow augmentation by the City of Virginia

Beach would offset the effects of the proposed withdrawal and would not adversely affect striped bass spawning. Under worse case conditions, the proposed withdrawal would result in only a 3.3 hour increase in striped bass egg and larval travel time to Albemarle Sound, which is negligible compared to natural variability due to wind and tides.

ERM concluded that the proposed withdrawal would not have any significant adverse effects on the Roanoke River and recommended approval of the project. Although challenged all the way to the U.S. Supreme Court, the EIS was upheld. The project has now been constructed and is in operation.

Environmental Impact Review and Permitting

A multi-state pipeline company wanted to construct a 70-mile-long pipeline across mid-Michigan to provide refined petroleum products to over 25 counties. The project required rapid permitting to support the expedited construction schedule.

ERM completed a comprehensive Environmental Impact Review (EIR), which is a state-level EIS equivalent, to characterize resources and associated impacts. ERM inventoried natural and social resources, conducting research and field and aerial assessments of wetlands, streams and floodplains, wildlife, geology and soils, groundwater and wells, historic cultural resources, aesthetics, noise, natural resource areas, and socioeconomic factors.

ERM also identified resource impacts and developed mitigation measures to facilitate permit approvals. ERM provided permit coordination, application, and follow-up activities with State and local agencies, including the Michigan Public Services Commission, MDEQ, and the State Historic Preservation Office. ERM also provided expert witness services in several contested case hearings to support the findings of the EIR.

A multi-team approach was used to expedite field assessments along the entire 70-mile long corridor in a shortened timeframe.

Environmental permits and clearances were successfully obtained from all agencies to allow construction of the southern half of the pipeline. Permits and approvals obtained included MPSC Certificate of Public Convenience and Necessity, MDEQ wetland and stream crossing, MDNR threatened and endangered species clearance, multi-county soil and sedimentation control and drain crossing permits, and NPDES discharge permits for stormwater and hydrostatic test water.

The southern segment was successfully constructed with ERM staff providing full time on site environmental inspection. ERM provided on-site certified inspectors to ensure contractor compliance with wetland, soil erosion/sedimentation control, stream and drain crossing, and other environmental protection, mitigation and restoration measures. The northern half of the pipeline corridor was revised to accommodate MPSC routing concerns, and similar permits were successfully obtained for the revised route.

Environmental Assessment—Proposed F-16 Beddown

The U.S. Air Force proposes to station up to eighteen new F-16 Model E/F aircraft at the 162 Fighter Wing (FW), based at the Tucson International Airport (TIA), in Tucson, Arizona. The 162 FW is tasked with training

international and domestic pilots in F-16 operations and air-to-air and air-to-ground tactical operations using several military training routes (MTRs), Military Operating Areas (MOAs), and the Barry M. Goldwater Range (BMGR). The proposed action would result in an annual increase of 1,800 sorties. The Air National Guard contracted with ERM to evaluate the environmental effects of the proposed action and to prepare an Environmental Assessment in compliance with the National Environmental Policy Act. NEPA compliance must be completed within 5 months in order to meet internal Air Force decision deadlines.

ERM evaluated the effects of the new aircraft and increased sorties on noise levels in and around TIA and determined that no noise-sensitive uses would be adversely affected. There were no other significant adverse effects at TIA.

ERM prepared a Biological Assessment evaluating the effects of the proposed action on the pronghorn, and concluded that the proposed action is not likely to adversely affect the pronghorn. ERM consulted further with the USFWS and provided some supplemental information on maximum instantaneous aircraft noise levels.

ERM also prepared a draft EA for review by various state and federal agencies and local stakeholders. ERM also evaluated the effects of the increased sorties at environmental resources in the MTRs, MOAs, and on the BMGR. There are several federally-listed threatened and endangered species found at BMGR, in particular the Sonoran Pronghorn antelope. The U.S. Fish and Wildlife Service (USFWS) had just recently prepared a Biological Opinion on the effects of military operations at the range on the Pronghorn, focusing on the effects of aircraft noise and on the use of inert and live munitions. The proposed action would increase the number of sorties and would involve the use of live munitions.

ERM finished the EA ahead of schedule. The Air National Guard has recommended that the EA ERM prepared be their new standard for EAs. ERM is on schedule to finish the EA ahead of schedule.

Environmental Permitting Services for Multi-state Pipeline Network—Confidential Pipeline Client

A multi-state pipeline company needed to perform repairs and other maintenance of a liquids petroleum pipeline network pipeline spanning 700 miles across multiple Midwest states. The multiple projects required rapid federal, state, and local permitting to support the construction schedule.

ERM assembled a team of engineers, biologists, geologists, and GIS experts to support a comprehensive permitting program. Database research and field surveys are being completed for wetlands, threatened and endangered species, wildlife habitat, soils, lakes and streams, and contaminated sites.

Using the results of the surveys and data gathering, ERM is working with the pipeline company to develop project plans and designs to minimize and mitigate environmental impacts. ERM has prepared soil erosion and sedimentation control plans, stormwater pollution prevention plans, wetland protection measures, stream and bank restoration plans, rare species mitigation plans, and NDPES discharge plans. ERM also developed spill response plans, investigated petroleum releases from legacy operators and third-party accidents, and developed and implemented remediation plans. Permit applications have been prepared and submitted

to federal, state, and local agencies. ERM has also provided support to the client to ensure permitting compliance during construction at numerous sites.

On behalf of its client, ERM has obtained local, state, and federal permits and approvals from USACE, USFWS, MDEQ, MDNR, IDNR, IDEM, SHPO, and numerous counties in multiple states. Permits have been obtained to support projects in over 50 locations, and projects have been completed with no violations. Multiple release sites have been closed or are in the process of working toward closure.

Permitting and Development Support

ERM provided permitting and development support for the , a proposed petroleum refinery and integrated gasification combined cycle (IGCC) power plant complex to be located in southeastern South Dakota. ERM prepared a regulatory permitting roadmap for the project, as well as a detailed scope of activities that would be required to prepare an Environmental Impact Assessment for the project (a formal EIS was not required for the project). ERM conducted a critical issues analysis for the selected site to determine, at a screening level, whether there were any environmental, regulatory or socioeconomic issues that could potentially result in a barrier to permitting the .

Following completion of the critical issues analysis, ERM completed or coordinated sub-consultants to complete a number of studies for the project including: an economic impact study with a comprehensive multiplier analysis; a socioeconomic baseline study to assess the current regional setting with respect to labor, housing, and public infrastructure; an ecological reconnaissance to determine the general ecological setting of the proposed site and surrounding areas; a cultural resources survey to assess whether archaeological resources are present within the proposed project development area; a noise impact analysis including modeling of projected noise levels during operation; and an odor analysis which utilized the results of air dispersion modeling to assess the predicted extent of perceivable odor impacts. Additionally, ERM completed a screening-level health impact analysis to assess the predicted carcinogenic risk to nearby receptors due to long-term inhalation of emissions from the facility during operations.

Throughout the project, ERM interacted directly with the engineering services contractor in order to provide input to the environmental considerations of the design. As part of this interaction, ERM assisted with development of a detailed breakdown of projected project construction and operation labor hours and labor and materials costs. This detailed information was used to complete the economic impact multiplier analysis.

ERM provided assistance with public interaction including: preparation of materials for and participation in three kiosk-style open house informational sessions at separate locations in the vicinity of the proposed project; and participation in three public meetings during which members of the community provided comments and questions on the proposed project. ERM also prepared a Green Charter for the project which outlined the approach that the project would take in order to ensure that design and operation is performed in an environmentally and socially sustainable manner. ERM supported engagement with regulatory stakeholders for the project, including consultations with the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, South Dakota Department of Environment and Natural Resources, South Dakota Department of Transportation, and National Park Service.

Manual,

ERM developed a comprehensive environmental compliance manual addressing permitting for natural gas pipeline system.

Northeast Gateway Deepwater Port—Massachusetts Bay

Under contract to , ERM served as the **third-party contractor to assist the U.S. Coast Guard in the environmental review** of the Northeast Gateway Deepwater Port and pipeline. The Port was licensed under the Deepwater Port Act and its associated pipeline lateral received a Certificate of Public Convenience and Necessity from the FERC under section 7(c) of the Natural Gas Act. The U.S. Coast Guard was the Lead Federal Agency for the NEPA review of the Port and Pipeline; the FERC acted as a cooperating agency.

Golden Pass LNG Import Terminal and Pipeline—Texas Gulf Coast

ERM provided siting, licensing, environmental and engineering support for the Golden Pass LNG Import Terminal and associated Pipeline under Section 3 and Section 7 of the Natural Gas Act, before FERC. ERM coordinated the environmental, socioeconomic, and cultural resource assessments necessary to locate, design and permit the facility and pipeline. ERM prepared the RR to be submitted with the FERC Application for the terminal and pipeline, and provided engineering liaison support.

ERM provided licensing, environmental, engineering, economic, and permitting support for a 1.4 BCFD LNG import terminal on the Delaware River in southern New Jersey for . ERM was responsible the entire Environmental Resource Report, including coordination with the cryogenic and coastal design engineers. ERM conducted a detailed alternatives analysis to support facility siting and design, prepared the project Health and Safety Plan. ERM coordinated with the U.S. Coast Guard regarding the Letter of Intent and Project Operations Plan, and was also responsible for securing all necessary permits from New Jersey and Delaware.

Storage Facility—

The proposed to construct and operate a gas storage facility in Martin County, Florida, capable of converting natural gas to LNG for onsite storage and regasifying the LNG for delivery in Southeastern Florida during periods of peak demand without service interruptions in the pipelines.

ERM was the Third-Party contractor working with FERC to perform an environmental review of the project. The NEPA Document was completed on schedule and under budget.

Permitting—

ERM assisted in permitting the "lift and lay" replacement of approximately 2 miles of 30-inch natural gas pipeline in Montgomery County, Maryland. ERM obtained Environmental Resources Management 40 wetland, floodplain, endangered species, forest conservation, cultural resource, stormwater management, and sediment/erosion control permits from various federal, state, and local agencies.

Permitting—

ERM provided wetland assessment, delineation, and permitting services to for pipeline installations, replacements, and maintenance activities. ERM secured individual wetland permits for pipeline installation and replacement activities for throughout central Maryland and eastern Pennsylvania. ERM worked closely with the U.S. Army Corps of Engineers in 2003 to expedite the wetland permit review process so that could minimize pipeline loss of service on pipelines that required maintenance within regulated wetlands.

EIS Services for

ERM completed all services necessary for the environmental permitting of a 7.5-mile natural gas pipeline to supply a new 830 MW merchant electrical generating facility. A complete environmental impact

assessment of the pipeline route was completed, including identification, impact assessment, and development of mitigation measures for wetlands, streams, floodplains, erodible soils, archaeological sites, threatened and endangered species, and other natural resources. On behalf of its client, ERM secured environmental clearances and permits from the state public utilities regulatory agency, U.S. Fish and Wildlife Service, the state environmental regulatory agency, the state historic preservation office, and the local county drain commission. Construction inspection services were also provided to ensure compliance with project specifications and environmental permit conditions.

ERM prepared an Environmental Resource Report for an 89-mile-long, 30-inch natural gas pipeline associated with the Golden Pass LNG Project for submittal to the FERC pursuant to Section 7 of the Natural Gas Act. The RR addressed the full set of environmental issues including wetlands, streams, historic sites, land use, noise, and erodible soils.

EIA— Natural Gas Pipeline

ERM developed engineering and environmental documents to support a competing application for an approximately 90- mile-long natural gas pipeline in Maine, New Hampshire, and Massachusetts.

Environmental Consulting—New York Power Authority

The New York Power Authority (NYPA) retained ERM as a third-party contractor to participate in a Cooperative Consultation Process (CCP) and to prepare an EIS in the relicensing of the St. Lawrence - Franklin D. Roosevelt (FDR) Hydroelectric Project (FERC Project No. 2000) on the St. Lawrence River in St. Lawrence and Franklin Counties, New York. ERM took direction from the Federal Energy Regulatory Commission (FERC) and the New York State Department of Environmental Conservation (NYSDEC, a NEPA Cooperating Environmental Resources Management 41 Agency, regarding any consultation or support services, and in the preparation of the EIS.

Siting—Maryland Department of Natural Resources

ERM conducted a detailed analyses to support the State of Maryland's evidentiary proceeding to site, design, construct and operate a natural gas pipeline related to the Potomac Electric Power Co.'s proposed natural gas fired Combined-Cycle Power Plant along the Potomac River in Charles County, MD.

ERM provided detailed technical engineering, economic and environmental studies to support the certification, public risk and safety review, engineering feasibility and environmental permitting evaluation of an extensive construction and operation plan to expand natural gas pipeline service in the coastal areas of the lower Potomac River. ERM experts reviewed the gas pipeline construction and operations plan, assessed alternative construction techniques for an extensive high quality wetland community that the pipeline would cross, and performed catastrophic risk assessments to identify potential safety risks to materials, human health and the environment in a probabilistic risk assessment analysis.

Permitting— Gulf Coast

ERM developed a Section 404 permit for the on-shore and immediately off-shore portion of an on-shore natural gas pipeline gathering system for Rainbow Pipeline operated by . This pipeline segment was part of a larger 600 mile long system. Field studies included an environmental survey of wetlands and off-shore benthic areas. An investigation of historic shoreline erosion rates was also performed. A comparative environmental assessment of construction alternatives was performed as part of the permit. ERM also assisted the client with regulatory agency negotiations.

5. Project Schedule and Work Plan

ERM uses project planning software such as Microsoft Project as needed to help schedule control.

ERM finished the Environmental Assessment for the Proposed F-16 Beddown ahead of schedule. The Air National Guard has recommended that the EA ERM prepared be their new standard for EAs. ERM is on schedule to finish the EA ahead of schedule.

Schedule and Work Plan

ERM understands the critical need to set and maintain an expedited pre- and post-filing schedule while producing a defensible SEIS, particularly given past project delays and the high level of scrutiny surrounding the Keystone XL Project. We also understand that any delays or unaddressed issues in the process of completing a legally defensible SEIS could affect the implementation of the Project by TransCanada. Therefore, ERM has developed a Project team and expedited schedule under which we will provide a complete and legally defensible Final SEIS.

In the RFP, the Department has provided a project completion period of the first quarter 2013, or 9 months from proposal submittal. ERM is prepared to commit to this schedule subject to certain conditions described below regarding factors outside of ERM's control. However, the ERM Project team proposes a project schedule that will result in completion of the Project within this timeframe. ERM is committed to allocating the necessary resources and manage the Project to meet the task milestones described in the attached schedule in order to drive the Project to the expected completion date.

ERM is currently working on three EISs: Buckeye, a wind farm project in Ohio for the USFWS; NorthMet, a copper and nickel mine in Minnesota for the USACE; and an NEPA Document for Monk Seal habitat in Hawaii for NOAA.

These projects are being managed out of our Annapolis, Minneapolis, and Alaska offices respectively and these obligations will not affect our ability to maintain the Project schedule.

ERM and the key staff assigned to this Project offer highly qualified, experienced professionals, who bring the necessary environmental, regulatory, and technical experience in the application of NEPA to large, complex and often controversial projects. The proposed ERM Project team will provide the Department with a strong

group that can quickly and efficiently assess the Department's previous FEIS and supplemental information and prepare a comprehensive and defensible SEIS within budget and on schedule, satisfying the Department's expectations and all applicable regulatory requirements. ERM has committed our team and has the additional resources necessary to manage work loads as needed to meet the proposed schedule and maintain flexibility if modifications to the proposed schedule are required (see Section 3, Project Organization and Management Approach).

Once the Notice to Proceed has been received, ERM will immediately develop and maintain the master project schedule consistent with the determination and requirements of the Department and the scheduling conditions at that time. ERM uses project planning software such as Microsoft Project as needed to help schedule control. Using Microsoft Project, ERM will develop a resource-loaded schedule that covers the entire life of the Project. In so doing, we have been able to anticipate what skills will be needed and when they will be needed, allowing us to plan for changes in staff loading over the course of the Project. ERM will provide a draft schedule for review at the Kick-off Meeting.

Some key milestones that will inform the SEIS review process are not yet known; these include the results of new field studies along the revised route and the NDEQ evaluation report and permit. ERM understands the need for schedule flexibility and working with the Department will adjust the schedule as needed to accommodate project and process changes.

Schedule Control

ERM uses project planning software such as Microsoft Project as needed to help schedule control. Using Microsoft Project ERM will develop a resource-loaded schedule that covers the entire life of the Project. In so doing, we have been able to anticipate what skills will be needed and when they will be needed, allowing us to plan for changes in staff loading over the course of the Project.

Steve Koster, as Project Manager, will be responsible for planning, scheduling, and progress tracking consisting of startup planning for each task; regular project team meetings to provide real-time update of project status and to facilitate communication regarding changes in schedule, strategy, or project design; detailed project planning and focusing on critical path items and deliverables; and individual task progress review and reports. This level of project planning will be a necessity given the fast track leading to the submittal of PDSEIS to the Department on Day 90.

Organizational Policy and Structure

ERM has a well-established partnership model that forms the foundation of our organizational policy and structure worldwide. We maintain a ratio of approximately one partner per 10 employees, and a partner is assigned to every project. ERM's partner-project manager model allows each partner to stay engaged with our clients, stay in touch with backlog and hiring needs, and provide QA/QC on all proposals and deliverables. ERM has grown organically, and our organizational partnership model has been intact for over 35 years.

ERM stresses a "flat" organizational structure based on the partnership model described above, and collaboration between offices is encouraged and incentivized. The lack of local profit centers ensures that we act in our client's best interest regardless of project location. We recognize the importance of having experienced project managers that are dedicated to our projects at strategic locations, supported by local staff and subcontractors to minimize travel, costs, and associated environmental impacts (i.e., greenhouse gases).

Schedule

Global Management System

Scope, schedule, and budget tracking are critical elements of successful project management. In 2006, ERM implemented a GMS, a secure, web-based project management tool accessible to all of ERM's global employees. GMS is used by the Project Manager to set up each project in concert with the proposed tasks for each authorization. Once a project is entered into GMS, task and subtask budgets are conveyed to staff, who then use their access to track labor and other expenses consistent with the budgets established. On a weekly basis, all of ERM's global employees log their project work hours and expenses into GMS. The ERM Project Manager can then query the system for immediate project status reports. GMS allows projects to be established independent of geographical location, enabling efficient cost tracking and accountability for each authorization.

Subcontractors will typically be selected based on specialty capabilities, geographical presence, or competitive pricing. ERM stresses teamwork with our subcontractors, and integrates their staff into each project though briefings, tailgate meetings, and frequent communications. ERM treats our subcontractors fairly, and pays them within an average of 45 days. At the same time, we hold our subcontractors accountable to the same high standards we expect of our own staff.

Quality Assurance and Quality Control

Client goals and expectations are met through consistent application of ERM's Management System designed to assure that large, complex projects meet or exceed expectations. One element of this system contains project management requirements that cover the three stages of client service delivery including:

- Define and understand client needs and expectations at the proposal stage;
- Manage the Project's agreed to scope, schedule and budget, including any agreed to scope changes; and
- Measure, both along the way and upon completion, how we did and what we learned.

Our requirements are implemented by experienced Project Managers trained in our Management System with required peer review by a Principal at appropriate Environmental Resources Management 33 points in the Project, including review of all deliverables prior to submittal. The result is a set of consistent project management behaviors for the entire project team.

Communications

Clear lines of accountability and reporting are critical to successful project management and communications. Our organizational chart, in Section 3, summarizes roles and lines of reporting for the Project. Key personnel communicate almost continuously about scope, schedule, and budgets related to individual tasks.

Monthly Progress Report

For typical projects, ERM will submit a monthly progress report (MPR) to the Department Project Manager by the 10th of each month. The MPRs will summarize the work completed and problems encountered during the previous month, and projected activities for the coming month. In addition, an updated project schedule and a summary of costs billed-to-date will be included with each MPR.

6. References

Firm Project References

	Client / Project	Name /Phone

Steve Koster, PE — Project Manager References

	Client / Project	Name /Phone

7. Conflicts of Interest

ERM has no business relationship with TransCanada or its affiliates, and in the attached is certifying that no conflict of interest exists for working on this Project.

Pursuant to 40 CFR 1506.5(c), contractor selection is based on ability and absence of conflict of interest. ERM fully recognizes the importance of maintaining the absence of both real and perceived organizational conflicts of interest as an independent third-party contractor. This is certainly true for this Project and for all projects utilizing a third-party contractor role.

ERM has no business relationship with TransCanada or its affiliates, and in the attached is certifying that no conflict of interest exists for working on this Project.

As required by the RFP, ERM is submitting the following completed documents:

Attachment B1—OCI Representation Statement

- Detailed description of the internal processes undertaken to conduct our internal OCI review

Attachment C—OCI Ongoing Obligations Certificate

Attachment D—OCI QUESTIONNAIRE

- OCI Questionnaire Supplement
- OCI Questionnaire Supplement Figure

Attachment E—Contractor CII Non-Disclosure Agreement

ATTACHMENT "B1"

OCI REPRESENTATION STATEMENT

Name of Person or Organization: **Environmental Resource Management (ERM)**

I hereby certify (or as a representative of my organization, I hereby certify) that, to the best of my knowledge and belief, no facts exist relevant to any past, present or currently planned interest or activity (financial, contractual, personal, organizational or otherwise) that relate to the proposed work; and bear on whether I have (or the organization has) a possible conflict of interest with respect to (1) being able to render impartial, technically sound, and objective assistance or advice; or (2) being given an unfair competitive advantage. I provide a detailed description of the internal processes undertaken to conduct our internal OCI review in the attached page(s).

Signature:  Date: June 27, 2012

Name: Steven Koster, PE

Organization: ERM

Title: Senior Associate Partner

ERM Policy and Procedure for Client Representation Checks ("CRC") in North America

At ERM, we maintain strong relationships with our clients. We communicate with each other to prevent perceived impropriety, inappropriate use of confidential information, or the perception that ERM has created a conflict between duties owed to different clients. Toward that end, we have developed a procedure to identify client representation issues arising out of potentially sensitive client engagements. This procedure has been followed to ensure that ERM has no conflict with the proposed Keystone XL Pipeline Project.

- **Step 1:** Internal Research the Target Company of this CRC - as much information as possible is established about the Target Company and context for the project. Global and Key Clients lists are reviewed as well as other internal sales tool resources to see what work (if any) has been done or is ongoing with the Target Company.
- **Step 2:** A CRC email inquiry is sent to key business unit leaders, practice leaders, and other appropriate key personnel throughout ERM.
- **Step 3:** Responders (a) check ERM's client databases, (b) confidentially check ERM's institutional knowledge of the particular company, and (c) respond with information regarding what work ERM has done, or is doing, with the company.
- **Step 4:** "Follow up" communications with ERM staff are completed as needed and any additional research is performed.

ATTACHMENT "C"

OCI ONGOING OBLIGATIONS CERTIFICATION

I recognize that OCI is an ongoing obligation. Should I or my organization become aware of any actual or potential OCIs during performance of this contract, I or my organization will advise the Department of State and (Contractor/Applicant Name) and propose mitigation or explain why none is needed. I provide a description of internal controls for ensuring OCI does not arise during the Project on the attached page(s).

Signature  Date: June 27, 2012

Name: Steven Koster, PE

Title: Senior Associate Partner

Organization: ERM

ATTACHMENT "D"

OCI QUESTIONNAIRE

Name of Person or Organization: **Environmental Resource Management**

1. Will you (or your organization) be involved in the performance of any portion of the proposed work?
   (X) No.
   ( ) Yes. The portion of the proposed work; the proposed hours and dollar value; and the type of involvement are fully disclosed on the attached pages.

2. What is (are) the major type(s) of business conducted by you (or your organization)? Please reply on the attached pages.

3. Do you (or your organization) have any affiliates? [1] All questions in this questionnaire apply to affiliates as well. Whenever possible, each affiliate should submit a separate questionnaire (for instance, to avoid completing a large number of questionnaires), this questionnaire must incorporate information regarding all affiliates.
   ( ) No.
   (X) Yes. The name and a description of the major type(s) of business that each affiliate conducts are disclosed on the attached pages.

4. Will any of the following be involved in performing the proposed work: (a) any entities owned or represented by you (or your organization); (b) your organization's Chief Executive or any of its directors; or (c) any affiliates?[1]
   ( ) No.
   (X) Yes. A full disclosure and discussion is given in the attached pages.

5. Are you (or your organization) an energy concern? [2]
   (X) No.
   ( ) Yes. A full disclosure and discussion is given on the attached pages.

6. Within the past three years, have you (or your organization) have a direct or indirect relationship (financial, organizational, contractual or otherwise) with any business entity that could be affected in any way by the proposed work?
   (X) No. ERM has no existing contract or working relationship with TransCanada.
   ( ) Yes. List the business entity(ies) showing the nature of your relationship (including the dates of the relationship) and how it would be affected by the proposed work under this solicitation.

---

[1] The term "affiliates" means business concerns which are affiliates of each other when either directly or indirectly one concern or individual controls or has the power to control another, or when a third party controls or has the power to control both.

[2] The term "energy concern" includes:

i. Any person significantly engaged in the business of developing, extracting, producing, refining, transporting by pipeline, converting into synthetic fuel, distributing, or selling minerals for use as an energy source, or in the generation or transmission of energy from such minerals or from wastes or renewable resources;

ii. Any person holding an interest in property from which coal, natural gas, crude oil, nuclear material or a renewable resource is commercially produced or obtained;

iii. Any person significantly engaged in the business of producing, generating, transmitting, distributing, or selling electric power;

iv. Any person significantly engaged in development, production, processing, sale or distribution of nuclear materials, facilities or technology; and

v. Any person --
(1) significantly engaged in the business of conducting research, development, or demonstration related to an activity described in paragraphs (i) through (v); or

(2) significantly engaged in conducting such research, development, or demonstration with financial assistance under any Act the functions of which are vested in or delegated or transferred to the Chair of the Commission.

7. What percentage of your total income for the current and preceding fiscal years resulted from arrangements with any of the entities identified in Question 6 above?
_**0**_% For the current fiscal year -- from _____ to _____.
_**0**_% For the preceding fiscal year -- from _____to _____.
_**0**_% For the second preceding fiscal year -- from _____to _____.

8. Do you (or your organization) currently have or have you had during the last 6 years any arrangements (for example, contracts and cooperative agreements) awarded, administered, or funded -- wholly or partly -- by the Department of State or any other Federal agency which relate to the proposed Statement of Work?
(X) No.
( ) Yes. A full disclosure and discussion is given on the attached pages.

9. Do you (or your organization) have or have you ever had any contracts, agreements, special clauses, or other arrangements which prohibit you (or your organization) from proposing work to be performed in this solicitation or any portion thereof?
(X) No.
( ) Yes. A full disclosure and discussion is given on the attached pages.

10. Do you (or your organization) have any involvement with or interest (direct or indirect) in technologies which are or may be subjects of the contract, or which may be substitutable for such technologies?
(X) No.
( ) Yes. A full disclosure and discussion is given on the attached pages.

11. Could you (or your organization) in either your private or Federal Government business pursuits use information acquired in the performance of the proposed work; such as:
(a) Data generated under the contract?
(b) Information concerning Department plans and programs?
(c) Confidential and proprietary data of others?
(X) No.
( ) Yes. A full disclosure and discussion is given on the attached pages.

12. Under the proposed work, will you (or your organization) evaluate or inspect your own services or products, or the services or products of any other entity that has a relationship (such as client, organizational, financial, or other) with you (or your organization)? This could include evaluating or inspecting a competitor's goods and services.
(X) No.
( ) Yes. A full disclosure and discussion is given on the attached pages.

13. To avoid what you perceive as a possible organizational conflict of interest, do you (or your organization) propose to: exclude portions of the proposed work; employ special clauses; or take other measures?
(X) No.
( ) Yes. A full discussion is given on the attached pages.
( ) No possibility of an organizational conflict of interest is perceived. This answer is briefly justified on the attached pages.

I hereby certify that I have authority to represent my organization, if applicable, and that the facts and representations presented on the pages of this questionnaire and on the ____ pages of the attachment(s) to it and my OCI Disclosure Certification are accurate and complete.

Signature:  Date: June 27, 2012

Name: Steve Koster, PE

Organization: ERM

Title: Senior Associate Partner

ATTACHMENT "D"

OCI QUESTIONNAIRE

ERM - Supplement

Question 2 Response

ERM has seven different business areas, yet all fall under a general heading of environmental services. ERM provides environmental services in the private and public oil and natural gas industry in upstream, mid-stream and downstream sectors.

The major business areas for ERM include:

- Impact Assessment Practice (the proposed third-party Department SEIS would fall under this practice area, although specialists would be drawn from other practice areas in developing the proposed SEIS);
- Sustainability and Climate Change Practice;
- Risk Management Practice;
- Performance Assurance Practice;
- Contaminated Site Management Practice;
- Air Quality and Noise Practice;
- Transaction Services Practice.

Additional information on ERM business practice areas can be provided to the Department upon request.

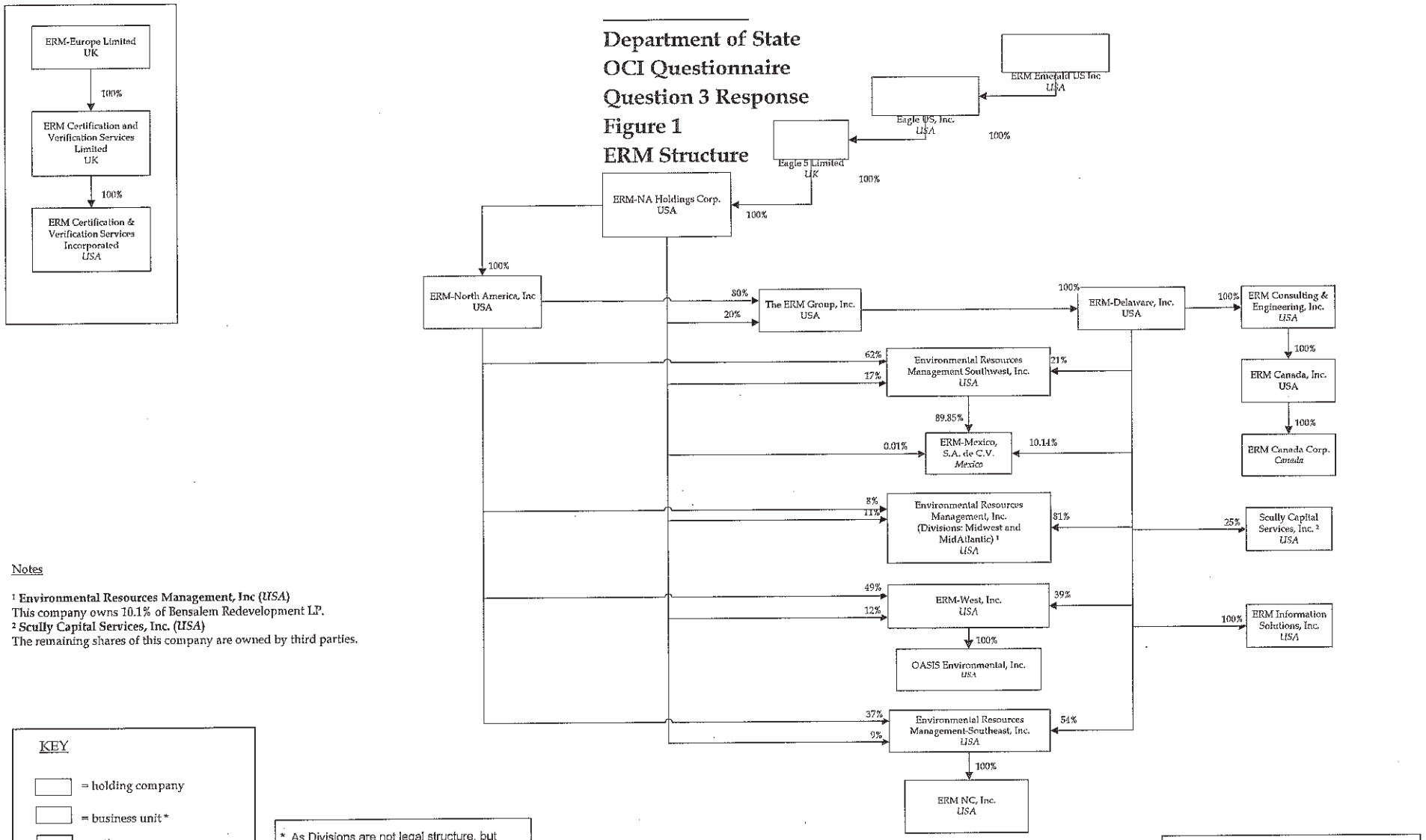
Question 3 Response

All of ERM's affiliates conduct work similar to that described in the response to Question 2. The names and structure of ERM and its affiliates are attached as Figure 1 on the following page.

Question 4 Response

ERM staff will be involved in performing the NEPA work as specified in the solicitation.

Department of State
OCI Questionnaire
Question 3 Response
Figure 1
ERM Structure



Notes

[1] **Environmental Resources Management, Inc** (*USA*)
This company owns 10.1% of Bensalem Redevelopment LP.
[2] **Scully Capital Services, Inc.** (*USA*)
The remaining shares of this company are owned by third parties.

KEY

= holding company

= business unit *

= active

* As Divisions are not legal structure, but rather business organization structure, Divisions are not reflected in this chart.

Updated as of 1 October 2011

ATTACHMENT "E"

CONTRACTOR CII NON-DISCLOSURE AGREEMENT

On behalf of [*contractor name*], I certify that [*contractor name*] will abide by the following terms with respect to critical infrastructure information (CII) that the company has access to because of its work for the Department of State.

- Only authorized company employees with a need for the information will be given access to CII [contractor name] will maintain a list of each employee who is given access to CII, including a listing of each project for which the employee has been given CII.
- [*Contractor name*] will not provide CII to or discuss CII with anyone outside the company, except that CII may be discussed with the Department and other agencies as directed by the Department, the project's owner, operator, or applicant.
- Any copies made of CII will be marked as CII and treated as CII.
- CII will be used only in performance of [*contractor name*]'s work for the Department of State. When [*contractor name]* has completed work on the Project, all CII will be returned to the Department of State.
- I acknowledge that a violation of this agreement may result in negative consequences and could alter [*contractor name*]'s ability to contract with the Department of State in the future.

By: Steve Koster, PE

Title: Senior Associate Partner

Representing: ERM

Date: June 27, 2012

8. Resumes

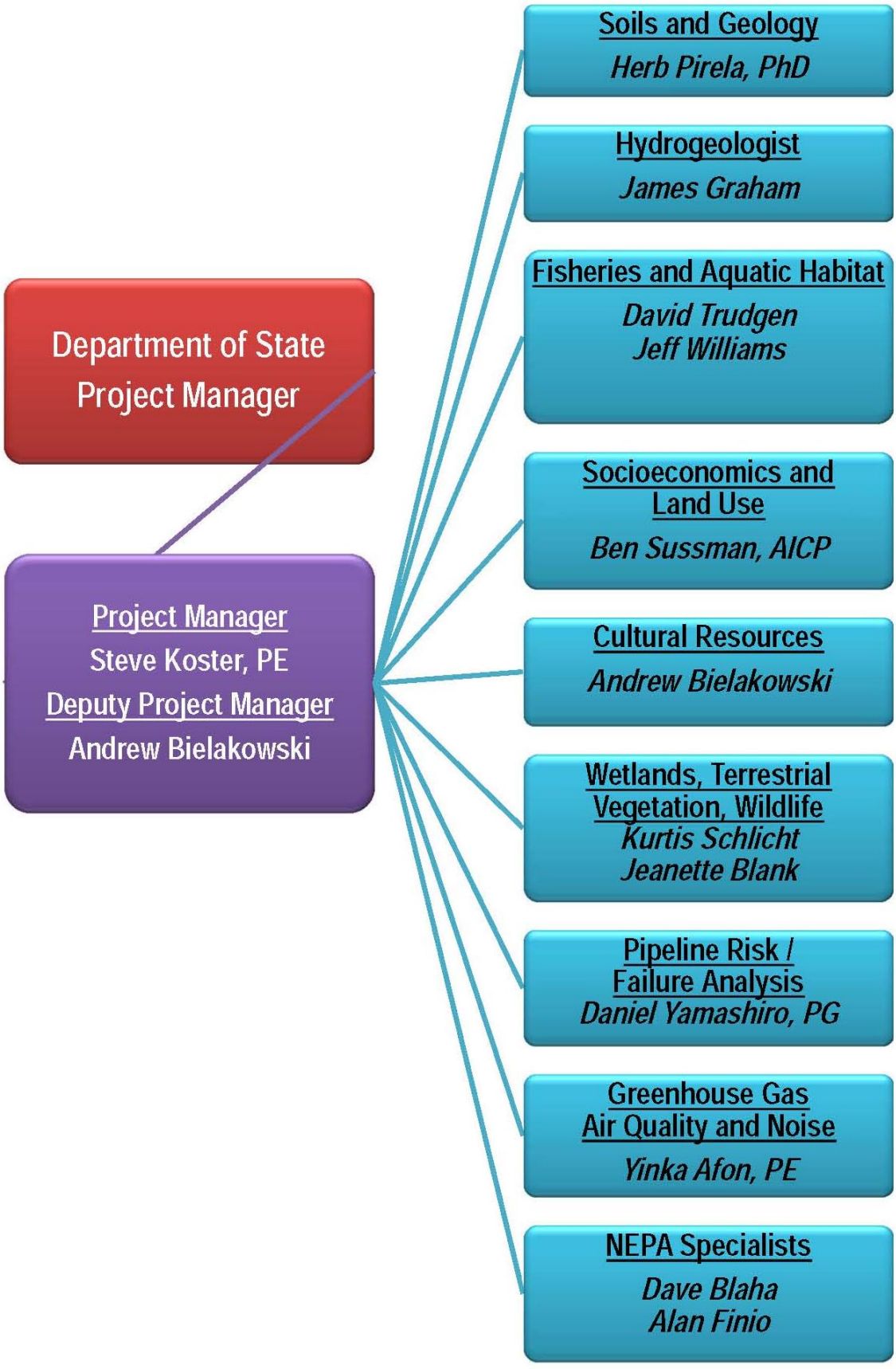
ERM has assembled a Project team consisting of highly experienced key personnel, with deep staff resources across all scope of work disciplines to provide specialized expertise across the Project platform.

ERM is committing Steve Koster, PE as Project Manager and Andrew Bielakowski as Deputy Project Manager for the duration of the Project.

Successful completion of any program or project requires understanding the client's needs, technical competence, managerial skills, and the ability to prepare and execute detailed work plans consistent with applicable goals, regulations, and guidance documents.

ERM has assembled a team of highly qualified and experienced professionals whose skills meet all program requirements, and whose qualifications, education, and responsibilities are tailored to the RFP requirements to successfully accomplish the diverse and complex work that is anticipated under this program.

Resumes for the ERM Team key personnel are included in this section.


Department of State
Project Manager
Project Manager
Steve Koster, PE
Deputy Project Manager
Andrew Bielakowski
Soils and Geology
Herb Pirela, PhD
Hydrogeologist
James Graham
Fisheries and Aquatic Habitat
David Trudgen
Jeff Williams
Socioeconomics and Land Use
Ben Sussman, AICP
Cultural Resources
Andrew Bielakowski
Wetlands, Terrestrial Vegetation, Wildlife
Kurtis Schlicht
Jeanette Blank
Pipeline Risk / Failure Analysis
Daniel Yamashiro, PG
Greenhouse Gas Air Quality and Noise
Yinka Afon, PE
NEPA Specialists
Dave Blaha
Alan Finio

Steven J. Koster, P.E.

Project Manager

Steve Koster has more than 25 years of experience in environmental impact assessment, permitting, and impact mitigation for oil and gas projects.

Mr. Koster has managed multi-disciplinary teams to support development in multiple aspects of the oil and gas sector including pipeline, exploration and production, and retail. His management experience includes environmental impact assessments, environmental studes, and permitting of dozens of liquid petroleum and natural gas pipeline projects. He has overseen baseline studies and impact assessments for federal NEPA and/or state EIS throughout the Midwest; provided community, tribal, and stakeholder engagement support on highly visible and controversial siting and permitting projects; served as expert witness and provided litigation support in various judicial venues; and negotiated permit conditions with regulatory officials.

Mr. Koster has served as Partner-In-Charge or Project Manager for numerous NEPA EIS and EA projects, siting studies, and state/federal permitting projects. Projects have included surface water and groundwater hydrologic studies and modeling, wetland delineations, threatened and endangered species surveys and taking permits, aquatic surveys, wildlife assessments, soil erosion and sedimentation control permitting, air quality assessments, noise and visual studies, socioeconomic analyses, stakeholder mapping and engagement plans, and public meetings and presentations.

Professional Affiliations and Registrations

- Registered Professional Engineer, State of Michigan
- American Society of Civil Engineers
- Air and Waste Management Association

Fields of Competence

- Liquid and natural gas petroleum pipelines
- NEPA compliance
- Scoping, Environmental Impact Statements, and Environmental Assessments
- Groundwater hydrogeological investigations
- Federal and state environmental permitting – wetland, stream, stormwater, and soil
- Ecological studies
- Stakeholder and tribal engagement
- Litigation support and expert witness testimony

Education

- M.S., Environmental Engineering, The University of Michigan, 1985
- B.S., Civil Engineering, The University of Michigan, 1984
- B.S., Letters and Engineering, Calvin College, 1984

Certification and Training

- Environmental Site Assessment, ASTM
- 40-Hour OSHA Health and Safety Training for Hazardous Material Operations and Emergency Response
- Risk-Based Corrective Action
- Certified Storm Water Operator, State of Michigan

Key Projects

Spartan Pipeline EIA and Permitting, 2004. Partner-In-Charge and Project Manager for Environmental Impact Assessment of the Spartan Pipeline, a 63-mile long liquid petroleum pipeline constructed in Michigan. Completed assessments and evaluated potential impacts on natural and cultural resources, including spill impact modeling. Evaluated route alternatives and developed mitigation measures to reduce impacts on wetlands, streams, soils, groundwater supplies, air quality, noise, and socioeconomic aspects. Project included permit coordination and negotiation with multiple federal, state, and local regulatory agencies. Provided community and media relations support and expert testimony in multiple contested case hearings and litigation support for Michigan Supreme Court appeal. Managed team of environmental field staff for permitting compliance monitoring during project construction.

Mariner West Pipeline, ongoing - Partner-in-Charge for environmental studies and permitting support for a crude oil to ethane pipeline conversion project from the Marcellus Shale region through several states in the US Midwest. Project involved wetland delineations, wetland mitigation planning support, Phase I and II environmental site assessment, and cultural resource assessments.

Various Trasmission Line EIS Projects, 2007-2010. Partner-In-Charge for third-party support and preparation of numerous EIS's under a third party contract with the State of Minnesota in coordination with multiple federal and state agencies, including a NEPA EIS for the 68-mile Bemidji-Grand Rapids transmission line through the U.S. Forest Service Chippewa National Forest, a state-level MEPA EIS for the Pleasant Valley-Bryon transmission line EIS, and a MEPA EIS for the Hiawatha transmission line in Minneapolis.

White Pines Wind EIS, 2008-2010. Partner-In-Charge for NEPA EIS and permitting for a new 70 MW wind energy facility and transmission line in the U.S. Forest Service Huron-Manistee National Forest. ERM was responsible for supporting the FS throughout the NEPA process, including scoping, resource studies, impacts analysis, alternatives and mitigation evaluation, EIS preparation, and public comment management.

Various Natural Gas Pipelines, 2000-2005. Partner-In-Charge for Environmental Impact Assessments of multiple natural gas pipelines for landfill gas recovery and construction of power generating plants, focusing on wetland, stream, soil erosion, and historical resource impacts. Projects included preparation and submittal of permit applications to State and local agencies.

Buckeye Wind EIS, ongoing. Partner-In-Charge for NEPA EIS for Habitat Conservation Plan and Incidental Take Permit for Indiana bat for a proposed wind farm in Ohio. Working under the direction of the USFWS and in cooperation with the wind developer, ERM prepared the EIS under a precedent-setting permitting process pursuant to the federal Endangered Species Act. Project included scoping evaluation, HCP review, alternatives evaluation, and impacts and mitigation analysis for draft and final EIS preparation.

Wolverine Pipeline, ongoing. Partner-In-Charge and Project Manager for permitting of multiple projects associated with expansion and maintenance of a 700-mile liquids petroleum pipeline network in Michigan, Indiana, and Ohio. Projects included wetland permitting, threatened and endangered species permitting, soil erosion and stormwater permitting, and hydrogeologic investigations and spill response associated with legacy crude oil and refined liquids releases.

NorthMet Mine (MN) EIS - ongoing. Senior Technical Lead for Third-Party NEPA EIS for the first proposed sulfide mine in Minnesota. This is a joint federal (USACE, USFS) and state (Minnesota DNR) project that also included the U.S. EPA and multiple tribes as Coordinating Agencies. This project required evaluation of impacts, cumulative effects, and alternatives for development of EIS documents, with a particular focus on issues surrounding potential acid rock drainage and approximately 800 acres of wetlands impacts. Lead for biological and social impact analysis.

Marcellus Union Pipeline, 2011. Project Manager for Fatal Flaw Analysis of a planned 400-mile petroleum pipeline in the Midwest. Project identified permitting requirements and constraints, including potentially sensitive environmental and social considerations.

Rail Corridor Alternatives Study, 2007. Partner-In-Charge and Project Manager of a multi-part confidential rail siting study for a major power utility in the Midwest. The project identified preferred alternatives for delivering coal to six existing and new baseload power plant sites by rail and Great Lakes vessels. Rail corridors were identified, evaluated, and prioritized using technical, environmental, and socioeconomic criteria.

Andrew Bielakowski

Deputy Project Manager/Cultural Resources

Mr. Andrew Bielakowski is a Project Manager and Senior Cultural Resources Specialist with more than 12 years of experience. He has managed the permitting and environmental compliance of numerous large-scale energy development and maintenance projects subject to high levels of environmental review and scrutiny.

Mr. Bielakowski has reviewed and negotiated the regulatory requirements of various federal, state, and local agencies associated with these projects in multiple states. He has managed and conducted environmental field surveys. He has prepared various federal, state, and local agency permit applications, including U.S. Army Corps of Engineers Section 404 Authorization, Section 401 Water Quality Certification, Stormwater Pollution Prevention Plans (SWPPP), Federal Energy Regulatory Commission (FERC) Certificate of Public Convenience and Necessity (Certificate)/Section 7(c) applications, applicant-prepared Environmental Assessments (EAs), and third-party Environmental Impact Statements (EISs). He has also managed or supported agency and tribal consultation efforts.

Mr. Bielakowski has worked for several U.S. federal agencies as a Historic Preservation Officer (Department of Army, National Park Service, and Forest Service). He is an accomplished archaeologist familiar with modern and traditional fieldwork techniques and equipment. He has worked on a number of challenging and remote projects and sites. Mr. Bielakowski has conducted fieldwork in the United States, Mexico, Albania, Egypt, South Korea, and the Caribbean.

Additionally, Mr. Bielakowski developed and managed an overall Archaeological Program for a niche service consulting firm. In this role, he was responsible for ensuring technical oversight and quality assurance for fieldwork and reporting; planning, supervising, and conducting cultural resource surveys; preparing project reports, research designs, scopes of work, proposals, budgets, and time/cost estimates on projects for federal, state, local, tribal, and commercial clients.

Fields of Competence

- NEPA compliance
- FERC compliance and resource reports
- Environmental assessments and impact statements
- Federal, state, and local permitting and compliance
- Feasibility and siting studies
- Ecological and cultural resource studies
- Historic Preservation and Section 106 compliance
- Native American and Alaska Native consultation
- Archaeological survey, testing, and data recovery and mitigation
- Expert witness testimony

Professional Affiliations, Registrations, and Training

- FERC Environmental Review and Compliance for Natural Gas Facilities Seminar
- Construction Erosion and Stormwater Installer Certification
- Construction Erosion and Stormwater Site Management Certification
- Design of Construction Stormwater Pollution Prevention Plans (SWPPPs) Certification
- EPA Watershed Management Certification
- NEPA Compliance and Cultural Resources
- Section 106 Review
- Section 106 Advanced Seminar: Reaching Successful Outcomes in Section 106 Review
- Identification and Management of Traditional Cultural Places
- Native American Consultation
- Working Effectively with Tribal Governments Certification
- OSHA 40-hour HAZWOPER General Site Worker Training
- Society for American Archaeology (SAA)
- American Anthropolgical Association (AAA)
- Meets U.S. *Secretary of the Interior's (36-CFR-61)* Professional Standards for Historic and Prehistoric Archaeology.

Education

- M.A., Archaeology, University of Toronto, Toronto, Canada, 2000
- B.S., B.A., Anthropology, Classical Civilizations, Philosophy, Loyola University, Chicago, Illinois, 1998

Key Representative Projects

Northern Natural Gas Company - Northern Lights 2009-2010 Zone EF Expansion Project - 2007-2010
Project Manager for 52 miles of 16-, 20-, and 30-inch-diameter natural gas pipeline, and various ancillary facilities in Minnesota. Responsible for overseeing all environmental permitting, survey, and agency consultations for construction. Managed and contributed to the preparation of the FERC Section 7(c) Environmental Report Application and applicant-prepared EA.

Present - Xcel Energy – Big Stone South to Brookings County Project - 2011
Project Manager for 70 miles of 345 kV electric transmission line and two substations in South Dakota. Responsible for siting/routing studies; stakeholder engagement and public involvement; field studies and surveys; agency coordination and consultation; state licensing; and permitting.

TransCanada USA Operations, Inc. – Various Natural Gas Pipeline Projects - 2007-2010
Project Manager for various length and diameter natural gas pipeline projects in Iowa, Kentucky, Michigan, Minnesota, Missouri, North Dakota, and Wisconsin. Prepared federal, state, and local permit applications, developed SWPPPs, managed environmental field surveys, and conducted tribal and agency consultations.

CenterPoint Energy – Various Natural Gas Pipeline Projects - 2007-2010
Project Manager/Cultural Resource Manager for various length and diameter natural gas pipeline projects in Arkansas, Illinois, Louisiana, Minnesota, Mississippi, Oklahoma, and Texas. Prepared federal, state, and local permit applications, developed SWPPPS, managed environmental field surveys, and conducted tribal and agency consultations.

ExxonMobil and TransCanada – Alaska Pipeline Project - 2010-2011
FERC Technical Lead for strategizing and implementing the FERC's Pre-filing Process and drafting Resource Report 4 (Cultural Resources) of the FERC Section 7(c) Environmental Report Application for 750 miles of 48-inch-diameter pipeline from the North Slope of Alaska to the U.S.-Canada border.

British Petroleum and ConocoPhillips - Denali – The Alaska Gas Pipeline - 2009-2010
FERC Technical Lead and Cultural Resource Manager for 730 miles of 48-inch-diameter natural gas pipeline, one gas treatment plant, and four compressor stations in Alaska. Responsible for managing cultural resource surveys, tribal consultation, and NHPA compliance.

Enbridge Pipelines L.L.C. – LSr, Alberta Clipper, and Southern Lights Diluent Projects - 2006-2010
Cultural Resource Manager for 324 miles of 36-inch-diameter diluent/crude oil pipelines in Wisconsin, Minnesota, and North Dakota. Responsible for managing cultural resource surveys, tribal and agency consultation, and NHPA compliance.

Minnesota Pipe Line Company - MinnCan Project - 2004-2009
Cultural Resource Manager for 300 miles of 24-inch-diameter petroleum pipeline in Minnesota. Responsible for managing cultural resource surveys and NHPA compliance.

MnDNR/USACE/USFS – NorthMet Project 2011-Present
Tribal Liasion and Cultural Resources Manager for the third party preparation of a state-federal (MEPA/NEPA) EIS for Polymet Mining Corp.'s proposed copper-nickel-precious metals mine in the Mesabi Iron Range of northeastern Minnesota.

El Paso Corporation – Ruby Pipeline - 2010-2011
Third-party cultural resource compliance monitor for 680-mile, 42-inch interstate natural gas pipeline in Oregon, Nevada, Utah, and Wyoming. Reviewed and monitored variance requests and alternative mitigations to assure a high level of environmental and cultural resource compliance during construction.

TransCanada Pipelines Limited - Wisconsin 2007 Expansion Project - 2005-2006
Cultural Resource Manager for 70 miles of 8-, 16-, 30-, and 42-inch-diameter natural gas pipeline in Wisconsin and Illinois. Responsible for managing cultural resource surveys, tribal consultation, and NHPA compliance.

Federal Energy Regulatory Commission - Spectra Energy Transmission's New Jersey-New York Expansion Project - 2010
Cultural Resource Manager for 21 miles of large-diameter natural gas pipeline, two compressor stations, and three metering stations in New Jersey and New York. Responsible for review of cultural resources report of the FERC Section 7(c) Environmental Report Application, development and preparation of preliminary, administrative, drafting draft and final versions of the EIS, and agency coordination.

Rockies Express LLC - Rockies Express Pipeline-East Project - 2007-2009
Project team member for 639 miles of 42-inch-diameter natural gas pipeline in Missouri, Illinois, Indiana, and Ohio. Responsible for assisting in management of cultural resource surveys, NHPA compliance, and agency consultation.

David W. Blaha, AICP

NEPA Specialists

Mr. Blaha has 30 years of experience in environmental impact assessment, natural and cultural resource management, and land planning for local, state, regional, and federal governments in the U.S. and internationally. He is thoroughly familiar with the regulatory/procedural requirement of NEPA and has extensive experience with Section 7 of the Endangered Species Act, Section 106 of the Natural Historic Preservation Act, and Executive Orders for wetlands, floodplains, and environmental justice. He has extensive experience in multi-media permitting of large (>$1billion) and often controversial infrastructure projects. Special expertise in evaluating energy, mining, military, water resource, telecommunication, transportation, and land use projects.

Professional Affiliaions & Registration

- American Institute of Certified Planners, 1986
- American Planning Association
- American Water Resources Association
- National Association of Environmental Professionals

Fields of Competence

- Environmental impact assessment for a wide variety of projects including pipelines, military operations, mining, airports, reservoirs, marinas, hydroelectric power projects, LNG import terminals, gas pipelines, highways, transit, housing, parks, and industrial development.
- Water resources, including water supply planning and water quality management. Analyses of sources, quantities, types, transport, and fate of pollutants. Skilled in the development of watershed and wellhead protection plans for surface and groundwater supplies and comprehensive river basin studies.
- Wetland ecology, including wetland delineation, functional assessments, mitigation design, permitting, and protection planning.

Education

- Master of Environmental Management, Duke University, 1981
- Bachelor of Arts, Biology, Gettysburg College, 1978

Key Projects

Crown Landing Liquefied Natural Gas Project, New Jersey - 2006. Project Manager for a 1.4 BCFD LNG Import terminal for BP consisting of a marine terminal and an on-shore regasification facility on the Delaware River. Responsible for preparing the Environmental Report portion of the application for filing with the Federal Energy Regulatory Commission under Section 3 of the NGA and state permitting in NJ/DE.

Liquefied Natural Gas Project, U.S – 2006. Project Manager for a 4 MMTPA LNG Import Project for a confidential client consisting of a marine terminal and an on-shore regasification facility. Responsible for preparing the Environmental Report for FERC under Section 3 of the Natural Gas Act, Project Health and Safety Plan, Phase II due diligence investigation, and federal and state permitting.

FGS Natural Gas Storage Project (FL) EIS - 2009. Project Manager for preparation of EIS for construction of natural gas liquefaction facilities with a capacity of 100 MMscfd, two LNG storage tanks with a capacity of 8 Bcf, and natural gas vaporization and a 4-mile 20-inch-diameter send-out pipeline capacity of 800 MMscfd on a 145 acre brownfield site in Martin County, FL as a 3rd Party EIS contractor with the Federal Energy Regulatory Commission (FERC). Key issues included effects on endangered species, wetlands, and public safety.

Buckeye Wind Project (OH) EIS - ongoing. Senior Technical Advisor and author of the cumulative effects assessment for a 3rd Party EIS for a 250 MW windfarm in Ohio on behalf of the USFWS. The EIS was triggered by the need for an Incidental Take Permit (ITP) for impacts to the Indiana bat, a federally listed endangered species. If issued, this ITP would be the first issued for Indiana bats for a windpower project in the US.

Condor Airspace Modification (ME/NH) EIS - ongoing. Project Director responsible for preparing an EA evaluating the effects of modifying the Condor 1 and 2 Military Operations Area (MOA) for the 102nd Fighter Wing based at Otis AFB in Falmouth MA for the Air National Guard with the Federal Aviation Administation as a cooperating agency. Proposal involved lowering the floor to 500 feet above ground level to improve air-to-ground training. Key issues involved noise effects on recreational uses along the Appalachian Trail and rural areas of ME and NH.

Lake Gaston (VA) EIS - 1998. Project manager for the development of an EIS evaluating alternative water supply sources for the City of Virginia Beach. Major issues include downstream effects on shortnose sturgeon (an endangered species), water quality and reduced waste assimilative capacity from the proposed 60 mgd water diversion. Mobilized and coordinated 30 multidisciplinary staff from 3 offices in order to expedite high priority project. Completed DEIS on schedule in 6 months. The FEIS and ROD were appealed to the US Supreme Court, which upheld the agency decision.

U.S. Army Corps of Engineers, Baltimore District – 1997 - 2002. Program Director for $4 million multi-year environmental planning contract involving NEPA documentation, base master planning and environmental restoration studies

Middle Cuyahoga River Flow Study, Ohio - 2004. Analyzed effects of 42 MGD water iversion by the City of Akron for water supply purposes on downstream water quality, assimilative capacity, aquatic community, recreation, and aesthetics. Calculated natural 7Q10 flow using flow data from a surrogate watershed. Testified as an expert at a trial in state court.

Clackamas River Hydropower (OR) EIS - 2003. Project Coordinator for third party EIS contract for the 187 MW Clackamas project for Portland General Electric using the FERC collaborative process option. Serving as facilitator for Land Use and Recreation Worgroups. Key issues are endangered salmonids and U.S. Forest Service 4 (e) authority.

Air National Guard, Andrews Air Force Base, MD - ongoing. Environmental Planning (NEPA) Program Manager for 10 year contract with ANG providing NEPA, master planning, GIS, and wetland services nationwide. Supervised preparation of over 20 EA's addressing various airport construction projects, aircraft conversions, and training exercises.

Camp Murray (WA) EA - 1999. Coordinated completion of an EA assessing the environmental impacts of 9 various construction activities for the Air National Guard. Prepared Biological Assessed potential impacts to Bald Eagles under Section 7 of the Endangered Species Act and obtained USFWS concurrence in less than one month in order to preserve construction funding.

Jeannette Blank

Wetlands, Terrestrial Vegetation, Wildlife

Jeannette has 14 years of experience as a biologist, and compliance and permitting specialist for multi-disciplinary projects throughout Alaska and the Rocky Mountain west. She has conducted numerous vegetation surveys and functional assessments for wetland, riparian, sage-steppe, grassland and mixed forest communities within arid, temperate and arctic ecosystems.

Jeannette also has expertise in environmental permitting and compliance, with special emphasis on the Federal Clean Water Act and National Environmental Policy Act. She has T/E Species evaluation experience. Other areas of expertise include wetland mitigation, contaminated soil investigations, revegetation plans, water quality, wildlife studies, and project health and safety.

Through her biological and permitting work, she has a strong foundation in agency collaboration at the federal, state and local level. At the federal level, she has worked closely with FHWA, FERC, EPA, USCOE, USFWS, NPS, USFS, USDA, DOD, NOAA, and BLM. At the state and local level, she regularly works with natural resource agencies who oversee water quality, water quantity, vegetation, wildlife, and habitat conservation.

Fields of Competence

- Wetland delineation & functional assessment
- Wetland mitigation
- Plant ecology & revegetation
- Permitting & Compliance (Clean Water Act)
- Biological Assessments & Effects Determinations (National Environmental Policy Act)
- T/E Species Studies
- Treatment wetlands
- Saline & sodic soils
- Water quality
- Project health & safety
- GIS

Education

- MS, Earth Science
  Montana State University, 2004
- BS, General Science (Biology emphasis)
  University of Oregon, 1997

Training and Certifications

- Constructed Wetlands for Water Quality Treatment (Institute for Water Quality Education)
- Wetland Delineation (Wetland Science Institute)
- Wetland Regulations: Federal, State and Local Regulations & Permitting in MT (MDEQ/MSU)
- BLM Certified Wildlife Biologist
- HAZWOPER
- DOT/IATA

Key Industry Sectors

- Mining
- Oil & Gas
- Power
- Transportation & Construction

Key Projects

Alaska Pipeline Project Wetland Delineation and Functional Assessment, AK. Senior wetland scientist and field team lead. 2011.
Mapped and evaluated wetland function along 800-mile proposed natural gas pipeline corridor for a preliminary FERC license application. Mapped wetlands using U.S. Army Corps protocol and survey-grade GPS units with sub meter accuracy. Assessed wetland function using hydrogeomorphic methods and mapped associated hydrologic features. Worked in remote locations for multiple weeks per field rotation following bear awareness and remote team communication protocols. Performed technical data QA/QC and digitized wetland maps using ESRI ArcGIS®. Assisted in development of GIS-based wetland functional assessment model to quantitatively evaluate wetland function and value throughout pipeline corridor. Collaborated on development and implementation of independent wetland mapping study tailored to FERC specifications to evaluate the quality of wetland mapping generate by the primary project mapping method. Co-authored final project reports for FERC and USCOE review. Provided recommendations to Project Engineers regarding winter and summer wetland construction techniques.

Biological Assessment for Alaska's Unified Plan. Biologist and T/E species specialist. 2012.
Biologist and co-author of T/E species effects and determination of effects section of a Biological Assessment report that assesses the potential impacts oil and hazardous spill response actions may have on Alaska's T/E species. Species evaluated include birds, marine mammals and fish. In the event of a spill or release, the US Coast Guard and EPA will use this BA to support consultation with the USFWS and NOAA in accordance with Section 7(c) of the ESA.

ANGDA Wetland Delineation and GPS Mapping, Alaska Natural Gas Development Authority, AK. Field team lead and wetland scientist. 2008.
Completed wetland mapping and functional assessments for project wetland occurring in a 400+-mile proposed natural gas line corridor in Alaska. Delineated and mapped wetlands using U.S. Army Corps protocol and survey-grade GPS units with sub meter accuracy. Assessed wetland function using hydrogeomorphic methods, and mapped associated hydrologic features for assistance in submittal of a preliminary jurisdictional determination permit to the Corps. All wetland data, NRCS soils data and NWI data were assimilated into ESRI's ArcGIS® and used to prepare reports and project shapefiles. Field effort required working in remote locations for multiple weeks per field rotation. Field personnel required to use all-terrain vehicles and follow bear awareness and remote team communication protocols.

Wetland Mapping and Permitting, Oil Development North Slope Alaska. Wetland Scientist. 2012.
Senior wetland scientist and permitting specialist assisting with the completion of wetland mapping, functional assessment evaluation and permit development for a proposed oil well and associated infrastructure on the North Slope, Alaska. Final wetland maps and functional assessment model were developed using ESRI ArcGIS®. Co-authored the following documents for regulatory review and approval: Jurisdictional Determination Report; Wetland Technical Report; Wetland Functional Assessment Report; Compensatory Mitigation Statement; Section 404 Application; Section 404(b)1 Analysis; and the alternatives impact analysis portions of the Environmental Report (EIS). Project reports and applications will be reviewed by the U.S. Army Corps of Engineers, USFWS and other agencies for compliance and consistency with the Clean Water Act (CWA), the National Environmental Protection Act (NEPA), and the Endangered Species Act (ESA).

Vegetation & Habitat Mapping, Natural Gas Development Baseline Assessment, WY. Lead vegetation ecologist. 2010.
Mapped arid uplands, wetlands and riparian communities within a 60-square-mile area using high resolution aerial photography in ArcGIS. Vegetation polygons were classified using WYGAP and NatureServe ecological community types. Responsible for developing a Sampling and Analysis Plan, four-year monitoring plan and project health and safety plan. Served as vegetation technical lead and field team lead. Performed preliminary T/E species evaluation, field data collection, and created final map. Prepared a final report that described existing conditions and included an impact analysis, Section 404 (CWA) and State water quality compliance review, and recommendations for future analysis and restoration. Study results will be incorporated into an ongoing EIS document.

Alan J. Finio

NEPA Specialists

Mr. Finio is a Senior Consultant in the Impact Assessment and Planning practice at ERM. He has more than 25 years of management and technical experience with permitting, environmental impact assessment, habitat restoration, natural resource inventories, monitoring and evaluation of terrestrial, freshwater, coastal and offshore ecosystems; risk assessment support; wetland delineations, analysis, permitting, and impact mitigation; and site selection studies. Extensive experience with federal regulatory processes including National Environmental Policy Act (NEPA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), National Pollution Discharge elimination System (NPDES), Federal Energy Regulatory Commission (FERC) and Resource Conservation and Recovery Act (RCRA) regulations, and related state environmental regulations. His planning project experience includes zoning, land use, coastal zone management, and socioeconomic analysis. He has developed emergency plans for dams, natural disasters, and Spill Prevention control Discharge Prevention Containment and Countermeasure (DPCC) plans and applications, and has extensive experience with biological, soil, water, and sediment sampling.

Fields of Competence

- Environmental impact assessment
- NEPA and state-equivalent NEPA compliance
- Project permitting, documentation and compliance
- Ecological baseline studies and habitat restoration
- Planning, land use and coastal zone management
- Emergency planning
- Biological, soil, water, sediment sampling
- Cumulative impact assessment

Education

- B.S., Environmental Science, Biology, Long Island University, 1985

Credentials

- Wetland Delineation Training (40-hours), Wetland Training Institute, Inc., 1989
- FERC Natural Gas Pipeline Environmental Compliance Training, FERC, 1996 and 2002
- EPA Course 165.5: Hazardous Materials Incidence Response Operations, US EPA, 1986
- OSHA 40-hour Health and Safety Training: Hazardous Waste Operations, 29 CFR 1910.120: WCC, 1988 and 1991; FWENC 2002
- Site Management Training, HLA, 1995; FWENC, 2002
- NEPA Process Training, Shipley Group, 2002
- USCG NEPA Training, Shipley Group, 2004 and 2005
- USCG Natural Resources Management Training, 2005

Publications and Presentations

Wetlands and Remediation. New Jersey Environmental Law Letter, October 1993, vol. 2, no. 8.
Ecological Risk Assessment. New Jersey Environmental Law Letter, February 1993, vol. 1, no. 12.

Ecological Risk Assessment. Presentation to the PENJERDEL Council, Environmental Improvement Committee, March 18.

Ecological Risk Assessment - A Remediation Cost Control Tool. Presentation to the Chemical Industry Council (CIC) of New Jersey, Regulatory Conference, June 28, 1995.

April 2005 National Association of Environmental Professionals (NAEP) Conference - Bridging Competing Environmental Interests. Using the NEPA Process to Meet New Challenges: Presentation -Adapting the NEPA Process to the Deepwater Port LNG Port Licensing. – Presentation Summary U.S Department of Energy, National Environmental Policy Act, Quarterly Report, Lessons Learned.- June 1, 2005, Issue No. 43. < http://nepa.energy.gov/documents/June_2005_LLQR.pdf

Representative Projects

FERC Third-Party EA, Columbia Natural Gas Pipeline, Maryland (2012 -Ongoing). Task lead for identification and screening of alternatives. Eighteen-mile natural gas pipeline expansion generally parallel to Columbia's MA line north of Baltimore. The expansion would require new and expanded Row in state parks and through a number of affluent subdivisions that had been developed adjacent to the existing ROW.

NorthMet Mine EIS, Cumulative Impacts (2011-Ongoing). Task lead for development of cumulative impacts assessment for the NorthMet Mine EIS.

Tennessee Gas Pipeline (El Paso) Environmental Permitting and Compliance (2011-2012). Task Manager/Technical Lead for State permitting of TGP's Northeast Upgrade Loops in New Jersey. The two 30-inch loops totaled approximately 18 miles in northwestern New Jersey generally paralleling TGP's existing 24 in. 300-Line and the associated above ground facilities.

Deepwater Port Application Liberty Natural gas LLC, 2009-2011). Task and technical lead for development and submittal of Resource Reports for the offshore components of the Liberty Deepwater Port License Application to USCG/MARAD.

Transcontinental Gas Pipe Line Corporation's (Transco). FERC Resource reports and Permitting Federal and State, PA and NJ (2008-2010). Project Manager for Transco's Sentinel Expansion Project to increase natural gas delivery capacity on its existing mainline pipeline system in PA and NJ.

U.S. Coast Guard, Environmental Impact Statement (EIS) for USCG Pacific Operations Protected Living Marine Resources Initiative, Pacific Area (PACAREA) (2007-2008).
Project Manager for development of the EIS and NEPA compliance to evaluate the potential impacts associated with current USCG PACAREA marine operations (vessel and aircraft) and implementation of a Protected Living Marine Resources Initiative (PLMRI) for the USCG's District 11 and District 13 (California, Oregon and Washington).

U.S. Coast Guard, NEPA Compliance, EIS, Gulf of Mexico (2006-2007). Technical Lead for various components of the EIS for the Freeport McMoRan Main Pass Energy Hub LNG Deepwater Port. Included responsibility for onshore natural gas pipeline component and maintaining/technical oversight for FERC compliance in the EIS for the onshore pipeline.

U.S. Coast Guard, NEPA Compliance, EIS, Gulf of Mexico (2002-2004). Project Manager for development of this precedent setting EIS was developed for the first LNG Deepwater Port License Application received by the U.S. Coast Guard under the Deepwater Port Act in over 20 years

NEPA Compliance, EA, TIME Pipeline Loop Project, PA (2005). Task Leader for formal third party EA filings for a five-loop, 35-mile natural gas pipeline expansion and associated facility upgrades.

Habitat and Wetland Evaluation and Permitting Requirements Report for an 80-mile Gas Pipeline Route from New Jersey to Queens, NY (1992). Project Manager; work included inventory and impact assessment of fresh water, tidal and deep-water marine systems.

NEPA EIS Review and Assessment, Confidential Client Pharmaceutical Manufacturing (2011). Project Manger for review and evaluation of EIS developed by the regional utility in South Carolina for a sewer line to be dedicated to a proposed chicken processing facility. . ERM's client included this evaluation in their comments to the EIS and the projects have been suspended pending additional assessment.

Koch Gateway Pipeline Company, Resource Reports, Wetland Delineation, and Permitting, LA (1998). Task Leader, Senior Scientist; developed natural resource assessment sections of formal EA filings for submittal to FERC for several gas pipelines.

Environmental Resource Reports for the EastCo Gas Pipeline Project, PA and NY (1991). Work included field survey of natural resources and land use and development of ecological inventory and analysis for Resource Reports and resource impact assessment sections for state permits.

Resource Reports for Pipeline Right-of-Way, New York, Ontario, Canada (1989-1990). Team Leader; prepared natural resources Resource Reports for the 156-mile Empire pipeline; served as field team leader for Natural Resource delineation.

James E. Graham, P.G.

Hydrogeologist

Mr. James E. Graham is a Partner with ERM and based in the

Mr. Graham has over 28 years of experience nationwide managing the permitting, compliance, investigation and remediation of oil and gas facilities (pipelines, terminals, bulk oil plants and service stations), proposed and operational wind energy facilities and expansions of existing wind energy facilities. His experience includes: management of federal, state, municipal and private sector projects at rail yards, nuclear and coal-fired power plants, trucking terminals, airports, mines, water supply wellfields (wellfield management, wellhead protection programs, pumping tests, aquifer tests, specific capacity tests, hydrogeologic evaluations, etc.), military bases, warehouse complexes, manufacturing plants, steel foundries, landfills, agrichemical plants and petroleum terminals, pipelines and retail stations. His other experience includes: NEPA permitting of a commercial 144 MW wind energy project on BLM-administered and privately leased properties; permitting of 1,000 MW wind energy facility expansion project; assessment, evaluation, investigation and remediation of multiple wind energy facilities nationwide; preparation of an environmental impact statement (EIS) for a 640 ton/day solid-waste mass burn incinerator facility; evaluation of permitting for deep well injection of hexavalent chromium impacted ground water; and management of NPDES permit and acid rock drainage (ARD) at former underground sulfide mine. He has also managed five state contracts for the States of Kansas and Missouri related to regulatory compliance, permitting, geologic assessment, hydrogeologic investigation and remediation (soil and ground water) of various industrial, commercial, rural, agricultural and retail properties. Other experience includes feasibility studies, risk characterization, litigation support (despositions and expert witness testimony), stormwater permitting and preparation of SPCC Plans.

Fields of Competence

- NEPA and regulatory compliance
- Environmental Impact Assessment
- Investigation and remediation of oil and gas sites
- Wind energy facility permitting
- Protocol plans for biological studies
- SPCC Plans and SWPP Plans
- Public outreach, open houses and public meetings
- Development Plans, Decommissioning Plans
- Interagency coordination and negotiation
- Brownfield assessments and development
- Hydrogeologic investigations and evaluations

Education

- B.S. in Geology, Texas Tech University, Lubbock, Texas, 1984

Registrations

- Registered Professional Geologist (Kansas, Missouri and Wisconsin)
- Risk-Based Corrective Action Certification (Kansas and Missouri)

Key Industry Sectors

- Oil and Gas (terminals, pipelines, stations)
- Energy (wind, coal and nuclear)
- Water supply (industrial and municipal)
- Transportation (rail, trucking and air)
- Mining and Manufacturing

Publications

- Presentations and papers available upon request

Key Projects

Oil and Gas Facilities, Kansas, Missouri, Iowa and Nebraska. Senior Project Manager and Program Director, 1993 - Present. Managed the investigation and remediation of 52 retail petroleum stations and 7 terminal/pipeline facilities with responsibility for coordination, sampling and preparation of ground water quality reports, evaluation of remediation technologies, client liaison for regulatory negotiations, emergency response, operation and maintenance (O&M) of remediation systems, development and negotiation of remediation strategies with regulatory agencies, completion of risk-based corrective action evaluations, and system performance evaluations. Provided litigation support and expert witness testimony in Federal District Court.

Nuclear Power Plant, Hydrogeologic Assessment, Kansas, 2008. Senior technical reviewer. Provided technical review of work plans and hydrogeologic reports for tritium investigations of groundwater and surface water bodies. Investigation included evaluation of existing hydrogeologic data associated with ground water network and interconnection with nearby lake, installation of monitoring wells for evaluating ground water quality, sampling of wells and preparation of comprehensive report.

Former Chemical Manufacturing Plant, Kansas. Senior project geologist, 2006 - Present. Developed hydrogeologic investigation strategy at former chemical plant and responsible for evaluation of site geology and design of monitoring well clusters for multiple aquifer system overlying bedrock including preparation of work plan and implementation of well construction activities utilizing rotasonic drilling techniques and telescoping wells in confining layers.

Former Manufacturing Plant, Deep Well Injection, Kansas. Senior Project Manager, 2004. Evaluated feasibility of deep well injection of impacted ground water at Superfund site and coordinated supply of alternate drinking water supply for impacted private water supply wells. The feasibility study included evaluation of applicable regulations and compliance issues, cost benefit analysis, review of geologic and complex hydrogeologic interaction, well construction requirements and alternatives. Also, prepared corrective action plans, bid documents and routing plans for 1-mile municipal water line extension.

Brownfield Targeted Assessments, Kansas and Missouri. Senior Project Manager, 1995 - 2006. Managed Phase 1 and 2 Brownfield Targeted Assessments (BTAs) at over 70 brownfield properties throughout Kansas and Missouri including compliance assessment with existing state regulations and preparation of comprehensive reports. Responsible for establishing protocols and strategies for soil and ground water sampling, evaluation of applicable regulations, historical land use, identification of threatened and endangered species, wetlands and surface water bodies and interagency coordination with state, municipal and local stakeholders. Brownfields included rail corridors, rail yards, warehouses, salvage yards, grain elevator complexes, former firing ranges, hospital complex, refineries, abandoned oil field, schools, former dumps, steel foundries, dry cleaners, service stations and riverfront development parks.

State of Kansas Contracts. Contract and Program Manager, 1996 - 2006. Managed 5 year service contracts for sites statewide in Kansas and responsible groundwater and soil remediation design, procurement, supervision of process and evaluation of data to determine effectiveness, and preparation of comprehensive reports documenting achievement of remediation goals at 25 sites. Responsible for managing investigation of impacts to soil and ground water at 20 municipal facilities.

Commercial 144-MW Wind Energy Project, NEPA EA, Wyoming 2008-Present. Senior Project Manager and Program Director. Managing project for private developer and responsibilities include preparation of Protocol Plan for biological studies, Plan of Development, interagency coordination with various state, county and federal agencies (BLM, USFWS, USACE, FAA, FCC, DoD), socioeconomic studies, cultural resource surveys, biological studies (bat, avian, wildlife, big game, vegetation mapping and sensitive habitats including hibernacula, raptor nests and sage grouse leks), wetlands, meetings with BLM, state and county, public involvement and open houses, preparation of management plans (SWPP, SPCC, HASP, etc.) to complete the requirements for completing an Environmental Assessment tiered to the Programmatic EIS, and securing the permits and licenses to construct a commercial wind farm on BLM land. The proposed wind energy facility will consist of 95 turbines in two parallel arrays, electrical substation and interconnect, maintenance facility and transmission lines.

Herbert Pirela

Soils and Geology

Dr. Pirela has over 20 years of experience in designing, conducting, and managing major environmental investigations and permitting projects. The major focus of his work has been on impact analyses for soils and geology, and includes environmental assessments under the National Environmental Act (NEPA) and other United States and international regulations. Dr Pirela has extensive experience with Federal regulatory processes including Federal Energy Regulatory Commission (FERC) application requirements, and related state environmental regulations. He has been the lead soils and geology scientist in the preparation numerous EIAs under FERC fillings.

Fields of Competence

- Environmental, social, and health impact assessment (ESHIA)
- ESHIA project management
- World Bank/IFC standards and guidelines
- Project permitting and documentation
- Alternatives analysis
- Cumulative impact assessment

Credentials

- Ph.D, Soil Chemist (Soil Scientist), Iowa State University, 1987
- M.Sc, Soil Fertility, Colorado State University, 1982
- B.S, Agronomy –Soil Resources and Conservation–Colorado State University, 1980

Professional Affiliations

- Society of Environmental Toxicology and Chemistry
- Soil Science Society of America

Honors and Awards

- Graduate Research Excellence Award, Iowa State University, 1987.

Key Projects

He also characterized wildlife and plant communities and identified potential impacts on sensitive species and plant communities. He coordinated with biologists of federal and state agencies regarding impacts on riparian and stream habitat, developed mitigation measures, and evaluated alternative routes to minimize or avoid impacts. Dr. Pirela also conducted a noxious weed evaluation and addressed concerns of farmers and state agencies concerning weed proliferation as a result of pipeline development.

Tenneco, Inc. West-East Crossover Pipeline, Louisiana and Mississippi, 1999. As the soil and geology task leader for the preparation of an ER for he was responsible for compiling all required environmental data concerning project-area soil and geology. He reviewed the wetland delineation and developed a comprehensive soil erosion and restoration control plan for the entire, 10-county pipeline route. He also evaluated soil stratigraphy at river crossings to assist the cultural resource team in determining the need for archaeological testing at each site. The application of soil stratigraphy evaluations—a procedure that was accepted by both the Louisiana and Mississippi State Historic Preservation officers (SHPOs)—significantly reduced the number of river crossings that had to be tested with deep soil borings.

Harper-Joliet Pipeline Expansion, Iowa and Illinois, 1977. He was the soil and geology task leader in the preparation of the ER for pipeline expansion on behalf of the Natural Gas Pipeline Company of America. He collected background information on soil and geology, identified areas designated as prime farmlands, evaluated the potential for geologic hazards, and assessed pipeline construction and operation impacts on soil and geology.

ANR Pipeline Company. SunShine Pipeline, Alabama, Florida, Louisiana, Mississippi, and Gulf of Mexico, 1995. To determine if deep soil boring archaeological tests were required, Dr. Pirela analyzed and interpreted soil sediment at potential river crossings for ANR Pipeline Company's proposed 760-mile natural gas pipeline system. The analysis—accepted by the Florida and Alabama SHPOs—enabled a significant reduction in the number of river crossings that had to be tested. In addition, Dr. Pirela prepared the soil section of environmental documentation for the intrastate pipeline segment in Florida, for filing with the Florida Public Service Commission under the state's new Natural Gas Transmission Pipeline Siting Act; as well as the soil section of the ER for the interstate segment in Alabama and Mississippi, for filing with FERC.

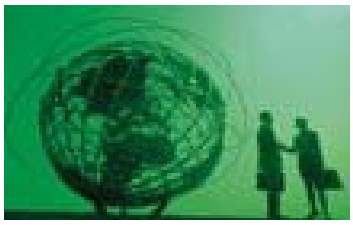
Transcontinental Gas Pipe Line Corporation. Southeast Mainline Expansion, Alabama, Georgia, and North Carolina, 1993. In support of the preparation of an ER for Transcontinental Gas Pipe Line Corporation, he collected and evaluated all available soil information and prepared Resource Report 7 (Soil Resources), which included an evaluation of potential project impacts and guidelines for erosion control and revegetation.

Naval Facilities Engineering Command (NAVFACENGCOM), F/A-18 Super Hornet EIS, US East Coast, 1999. For the Atlantic Division (LANTDIV), Dr. Pirela managed the preparation of the Habitat Assessment and Crop Mapping Report for the Supplemental Environmental Impact Statement (SEIS) for the Introduction of F/A -18 E/F to the east coast. The preparation of this report involveed the collection of crop data at regional and site-specific levels by conducting field surveys, gathering agency data, and attending meetings. To expedite the mapping of crops grown in a particular farm field, Dr. Pirela developed a strategy that used a laptop equipped with a global positioning system (GPS) and a customized application interface to directly record observations in the field. The results of this work supported the assessment of impacts on migratory waterfowl associated with construction and operation of a Outlaying Landing Field. These results were also used in conjunction with data collected on waterfowl habits and habitats and the population size, distribution, and movement of waterfowl in eastern North Carolina.

New York State Department of Transportation. Route 219 Extension, Erie and Cattaraugus Counties, New York, 1998. For the New York State Department of Transportation, in support of an EIS for the proposed 28-mile extension and upgrading of Route 219 from Springville to Salamanca, he was task leader for the evaluation of impacts on farmland and soil. The work involved the identification of sensitive land uses and incorporation of the data as overlays in a geographic information system database. Dr. Pirela led extensive field surveys to identify agricultural resources in the project area and collected data to evaluate potential project-induced impacts. He inventoried prime farmland soil and statewide important soil traversed by the proposed routes.

Kurtis K. Schlicht

Wetlands, Terrestrial Vegetation, Wildlife



Mr. Schlicht has over 18 years experience serving industry, private businesses and government based clients in delivering project specific knowledge related to environmental and regulatory compliance. He has provided a wide range of consulting services including NEPA compliance for multiple business sectors including oil and gas, power, and pipeline all in support of the EA/EIS processes.

Over the past ten years Mr. Schlicht has managed projects in Impact Assessment and Planning responsible for completing FERC 7(c) filings, Nuclear Regulatory Commission Combined Operating License Applications (COLA), supporting over 22 power facilities through the CWA 316(b) regulatory framework, wastewater permitting, wetlands permitting and Section 7 Endangered Species Act studies. He brings a strong regulatory background working directly with federal agencies such as the NRC, FERC, USACE, USCG, USFWS, US EPA, DOT, DOE, and NOAA, and state agencies such as the TCEQ, TxGLO, TxRRC, LDEQ, LDNR, and LDWF. Mr. Schlicht has project experience working in multiple states including: Texas, Arkansas, Louisiana, Mississippi, Oklahoma, Alabama and Michigan.

Fields of Competence

- Biological monitoring
- FERC 7(c)
- NEPA (EA and EIS Development)
- Permitting (USACE 404, Section 10, CWA 401)
- Environmental assessments
- NPDES permitting
- Threatened and Endangered Species Studies – Section 7 ESA compliance
- Wetlands determination and delineation studies

Education

- BS, Biology, Texas Tech University, 1990

Professional Affiliations

- Wetland Training Institute
- Galveston Bay Estuaries Program
- TX Corporate Wetlands Restoration Partnership-Coastal America
- Texas Chapter of the American Fisheries Society
- Galveston Bay Foundation

Training and Certifications

- Texas A&M Extension Program - Plant Identification Class
- Wetlands Delineation
- General Site Training Required by OSHA 29 CFR 1910.120
- Contractors Safety Council Basic Plus Training
- Contractors Safety Council Site Specific - Oxy Ingleside Site
- Completed Federal Energy Regulatory Commission Environmental Compliance and Environmental Report Preparation Seminar
- USACE Wetland Permitting Seminar

Key Projects

Oil and Gas, and Pipeline

2008 to 2010. Served as assistant project manager and field team coordinator for a 465 mile oil pipeline from Texas to Oklahoma under the authority of the DOE (Keystone KXL Project). Coordinated agency meetings and Section 404 permitting within three different USACE districts(Ft Worth, Galveston and Tulsa) and three different USFWS(Houston, Ft Worth and Tulsa) service areas. Established project specific survey protocols working with the agencies which helped reduced survey coverage by more than 35%. Designed and completed aerial bald eagle and raptor surverys for three winter and spring seasons. Assisted in the completion of the Environmental Reports and worked with 3rd party contractor through the development of the DEIS.

2008 to 2010. Developed 15 mile pipeline expansion(Pascagoula Expansion Project) project in Mississippi and Alabama. Project included FERC 7(c) filing and completion of applicant prepared EA. Served as Project Manager overseeing field surveys, reporting, agency applications, FERC ERR preparation and EA preparation.

2006 to 2007. Served as team lead overseeing field data collection and drafting of the FERC ERR for the 16.5 mile Potomac Expansion Project. Worked with project staff to ensure in the completion of the each RR and to ensure QA/QC of the documents.

2003 to 2005. Completed FERC application for a 36 mile pipeline and LNG facility (Ingleside Energy Center Project). Prepared all corresponding environmental data required for the completion of FERC Environmental Resource Reports and the subsequent filing of the FERC Application. Conducted environmental investigations and evaluated potential impacts associated with proposed LNG regasification process. Investigations included wetlands and threatened and endangered species assessments for the pipeline and terminal locations. Participated in Public Scoping meetings and public hearings. Worked with 3rd party contractor in the development of the DEIS. Developed USACE Section 404 Permit through the Galveston District-Corpus Christ Office.

2004 to 2005. Developed 45 mile pipeline and LNG project in Galveston, TX. Project included preparing alternative analysis evaluation and routing report of pipeline, Phase I Assessment for terminal site, conducting wetland and threatened and endangered species biological studies associated with Terminal location and final Pipeline route selection. Development of biological reports required for USACE 404 permitting and FERC 7(c) filing. Coordinate agency team meetings and development of project specific materials. Participated in public scoping meetings. Project was suspended in 2005.

2005. Project manager for 31 mile pipeline project in Brazoria County, Tx which included alternative analysis of route selection, conducting biological surveys including wetlands and threatened and endangered species, coordinating agency team meetings, and completing necessary USACE 404 permit requirements for the Galveston District Office.

2005. Developed 26 mile 36" pipeline project (Pine Prairie) located in Louisiana. Served as project team lead for all field surveys related to biological assessments and wetlands. Coordinated agency meetings and development of all permits and applications to the state and federal agencies.

2005 to 2006. Served as project team lead for all field surveys related to biological assessments and wetlands for 25 mile gas pipeline in Mississippi and Alabama. Coordinated field activities with civil survey and land ROW agents. Met with state and federal agencies to discuss avoidance and mitigation along the ROW. Obtain state and federal clearances and Section 404 permit.

2003. Conduct wetlands delineations and threatened and endangered species surveys for two tracts of land associated with the proposed Beacons Port and Kiewit Projects. Surveys included a 100 acre and 38 acre tracts. Wetland delineation report was submitted as part of EA report filed with Galveston District-Corpus Christi -USACE and the U.S. Coast Guard for obtaining necessary permits for the project.

2002. Project manager for a 5-mile pipeline relocation project in Port Arthur, Texas. Performed field reconnaissance and prepared wetland delineation report. Completed required paperwork and application for Galveston District Office USACE Section 10 and Section 404 wetland permitting. Examined natural resource data pertaining to Threatened and Endangered species that could potentially occur within the project area.

2010. Provided regulatory oversite for the East Texas Gas Gathering System Project. The project included development and construction of over 80 miles of gathering pipeline. Completed hydrostatic test discharge permits, water use permits, Railroad Commission Notifications on discharges of drilling mud, remediation of several identified HCA's.

Benjamin Sussman, AICP

Socioeconomics and Land Use

Mr. Ben Sussman is a consultant with ERM based in . He has more than thirteen years' experience in impact assessment, local and regional comprehensive planning, transportation planning, and urban design. He has prepared and managed Environmental Impact Statement (EIS) and Environmental Assessment (EA) documents for natural gas development projects, pipelines, and terminals, hydroelectric projects, military facilities and airspace, and other facilities. He specializes in analysis of impacts on land use, transportation, visual/aesthetic, and socioeconomic resources (including environmental justice studies).

Mr. Sussman has prepared comprehensive plans and community plans for small and large cities and unincorporated communities, with emphasis on the linkages between land use, growth, and water resources. As a transportation planner, Mr. Sussman has evaluated vehicular and rail transportation options for industrial, commercial, and residential land uses. He has prepared EIS documentation in support of FTA New Starts authorizations, and also has considerable airport planning experience.

Mr. Sussman places emphasis on public presentations and public engagement as a critical part of impact assessment and planning projects. He is adept at managing public meetings, stakeholder interviews, and other forms of information gathering. He also is an accomplished GIS user, and employs GIS for both display (i.e., maps) and analysis in a variety of projects.

Professional Affiliations & Registrations

- American Institute of Certified Planners (2003)
- American Planning Association

Fields of Competence

- Environmental and Social Impact Assessments (ESIA, ESHIA, EIS)
- NEPA
- Comprehensive planning/land use planning
- Transportation planning
- Brownfields
- Policy and research
- Geographic information systems

Key Industry Sectors

- Mining
- Oil and Gas
- Transportation
- Government

Education

- MCRP (City and Regional Planning), Georgia Tech, USA, 2002.
- B.S., Science, Technology, and Society, Stanford University, USA, 1998.

Languages

- English, native speaker
- French, proficient
- Spanish, basic

Key Projects

NorthMet Mine EIS, Minnesota, U.S., Minnesota Department of Natural Resources, US Army Corps of Engineers, and US Forest Service, Ongoing.
Author of Socioeconomics, Land Use, and Recreation/Visual Resources chapters. Responsible for thematic response to more than 3,800 public and agency comments on the Draft EIS as Third-party Contractor for the USACE, USFS, and Minnesota DNR, with the active involvement of USEPA and USFWS.

Social Impact Assessment and EIS Socioeconomics Chapter, Western U.S., Confidential Client, Ongoing.
Primary author of a Social Impact Assessment (SIA) that will evaluate the impacts of a new precious metals mine on nearby communities in a remote area of the Western US. The project involved extensive stakeholder engagement and analysis of economics, public health, water resources, cultural resources, and issues related to Native American tribes. The SIA is being adapted and incorporated into a full EIS for the project.

EA for Construction Activities, Pennsylvania Air National Guard Base, Pittsburgh, PA, National Guard Bureau, Ongoing.
Project Manager for development of an Environmental Assessment evaluating the impacts of 20 proposed construction projects for the 171st Air Refueling Wing's base at Pittsburgh International Airport. Responsible for interagency consultation.

Comprehensive Plans in Maryland, U.S.
Project manager, task manager, and senior planner involved in the preparation of comprehensive plans for local governments in six Maryland jurisdictions. Comprehensive Plans are the basis for laws and decisions related to land use and investment in public infrastructure and services.

Hermosa West Wind Farm Transportation Study, Wyoming, U.S., Shell Wind Energy, 2010.
Prepared a Transportation Study in support of an application to the Wyoming Industrial Siting Division, evaluating the impacts of a proposed 300 MW wind farm on the road, rail, and air transportation network in a two-county area in southeastern Wyoming. Evaluated peak hour levels of service (LOS) and safety concerns related to the movement of turbine components on public roads.

Environmental Impact Statement for an HCP and ITP for the Buckeye Wind Power Project, Ohio, U.S., US Fish and Wildlife Service, 2010.
Transportation and Visual Resources specialist. Prepared EIS chapters assessing transportation and visual resources impacts of the proposed 250 MW Buckeye Wind Power Project. ERM successfully executed the third party EIS and public consultation process under an extremely expedited timeframe.

Regional Landfill Siting Study, Confidential Client, Maryland, 2010.
Developed GIS based screening criteria to identify land suitable for a solid waste landfill in Maryland. Prepared evaluation criteria to rate candidate sites against each other. Prepared graphics to illustrate the visual impact of various landfill heights and locations, relative to viewers.

Remedial Investigation and Feasibility Study, 68th Street Landfill Site, Baltimore, MD, U.S., 2006-2010.
Planner and GIS Specialist for the investigation and evaluation of cleanup options for a 270-acre study area, following the USEPA Superfund Alternative Site (SAS) process. Prepared the Land Re-Use section of the Sitewide Program Management Plan (SWPMP), and prepared project maps in GIS.

Star Spangled Banner National Historic Trail Water Trails Plan, Maryland Department of Business and Economic Development, 2010.
Responsible for all data collection and analysis, and author of portions of the Water Trails Plan. Mapped water proximate resources related to the War of 1812 in Maryland., Virginia, and DC. Developed and applied an extensive criteria system to identify high priority water trail segments and specific projects along the water trails.

Rail Siting Study, Confidential Client, US, 2007. Transportation Planner.
As part of two separate but related studies, evaluated alternatives to increase fuel delivery capacity for a Midwest power provider. Each study focused on a distinct portion of the utility's service area. The project involved development of criteria and GIS and CAD mapping to identify and rank candidate rail alignments from multiple points of origin to multiple power plant destinations. The analysis also considered water borne fuel deliveries in conjunction with rail options.

Dave Trudgen

Senior Fisheries Scientist

Mr. Trudgen brings over 36 years of environmental experience to all of his projects. He specializes in managing interdisciplinary environmental programs and designing and conducting field studies. He has broad experience with state and federal regulations including the National Environmental Policy Act (NEPA), Endangered Species Act, Marine Mammal Protection Act, Essential Fish Habitat evaluations, Clean Water Act, Migratory Bird Species Act, State of Alaska Fish and Game Regulations and State of Alaska Water Quality Regulations. He has designed and implemented programs for fish evaluations along the 800 mile TAPS pipeline, managed teams of scientists collecting baseline fish, benthic, plankton, sediment and physical riverien habitat parameters for a variety of projects, and has lead teams of subcontractors during the production of several environmental assessment documents. He has worked with diverse groups in the public and private sectors to help resolve environmental and biological study issues.

Mr. Trudgen has recently managed: the production of a Permitting Plan, USACE Section 404 permit, pipeline right-of-way permit application, and update of an existing Environmental Report (equivalent to a NEPA Environmental Assessment in content and organization) for ; wetlands delineations and wildlife sensitive habitat evaluations for the Alaska Natural Gas Development Authority (ANGDA) proposed gas pipeline from Fairbanks to Beluga, Alaska; biological study oversight and production of an Environmental Report for the , working closely with U.S. Minerals Management Service to produce the Biological Report in a format and style that could be directly imported into a supplemental EIS; has been the lead on a number of teams conducting environmental and permitting analysis for nearly every in-state and international (Canada) natural gas pipeline route alternatives; and was a principle author for preparation of two environmental reports summarizing the potential effects of Strategic Reconfiguration of the Trans-Alaska Pipeline System (TAPS) and the Valdez Marine Terminal (VMT) in which the environmental reports were developed, organized and written with all EA components and submitted to BLM for use as the basis of the project's EAs. Mr. Trudgen understands the intricacies of construction and operation of long pipelines.

Professional Affiliations & Registrations

- The Wildlife Society
- The American Fisheries Society

Fields of Competence

- Freshwater Habitats of Anadromous and Resident Fish
- Environmental Impact Assessment
- NEPA Documentation and Compliance
- Endangered Species Act Compliance
- Regulatory Permitting and Compliance
- Oil Spill Response and Training
- Project Management and Design

Education

- Secondary Education, University of Alaska Anchorage, 1983-1984
- BS, Wildlife Biology and Management, Michigan State University, 1976

Key Industry Sectors

- Government
- Oil & Gas
- Mining

Key Projects

ExxonMobil. Point Thomson Project. 2011 - Current. *Program Manager.* Under Subcontract to URS prepared the U.S. Army Corps of Engineers Section 404 application for the project. Associated work included wetland surveys and mapping; conducted a wetland value assessment and categorization of the wetlands into four categorical rankings for use in replacement value calculations; reviewed sections of the DEIS and provided comments; prepared most of the major drawings and figures for the project; conducted water quality sampling, data will be used in permit application and pipeline hydrotesting; provided input to the mine site rehabilitation plan; conducted disturbed site vegetation analyses and proposed corrective measure to restore the site; and drafted a compensatory mitigation paper and wetland prioritization paper for use in the selection of compensatory wetland properties to replace the wetlands impacted by the project.

Brooks Range Petroleum Company. Environmental Documentation. 2012 - Current. *Program Manager.* Program manager for the preparation and production of several documents to support permitting of the Mustang Development Project on the North Slope. Documents include an Environmental Report (EA type document), Wetland Delineation and report, preparation of a US Army Corps of Engineers 404 application, Biological Assessment for spectacled and Steller's eiders and polar bears, and prepare a letter of authorization for polar bears.

ExxonMobil. Point Thomson Project. 2008-2009. *Program Manager.* Program Manager for production of a Permitting Plan, US Army Corps of Engineers (Corps) Section 404 permit application, pipeline right of way permit application and update of an existing Environmental Report for ExxonMobil's Point Thomson Project on Alaska's North Slope. OASIS is part of the WorleyParsons team that was awarded the pre-engineering contract for Point Thomson development by ExxonMobil Development Company. The project is undergoing design modifications and OASIS was asked to develop a new Permitting Plan for the updated project and to modify existing documents to match the current project design. The Permitting Plan discusses permits required for the project and scheduling to obtain the permits, key permitting issues and strategies, environmental studies and communication plans for discussions with engineering staff and interested third parties. The Environmental Report is equivalent to a NEPA Environmental Assessment in content and organization.

Brooks Range Petroleum Company. Environmental Documentation. 2009-2010. *Program Manager.* Program Manager for the development of a project Environmental Report (equivalent to an applicant prepared Environmental Assessment, [EA]), wetlands delineation, Letter of Authorization application to the US Fish and Wildlife Service (USFWS) for polar bears, and production of a biological report for submittal to the USFWS for use as the basis for their biological opinion for threatened spectacled and Steller's eiders for Brooks Range Petroleum Company's (BPRC) North Shore Development Project on the North Slope of Alaska. Authored BPRC's polar bear interaction plan. Ensured the USFWS included BPRC's project area in their annual Forward Looking Infrared Radar surveys to locate polar bear dens. Coordinated with the USFWS to insure BPRC was adequately protected under Section 7 of the Endangered Species Act for both eiders and polar bears.

BPXA Liberty Project, Environmental Report. 2007-2008. *Project Manager.* Worked closely with U.S. Minerals Management Service to produce the Biological Report in a format and style that could be directly imported into an NEPA Environmental Assessment. Coordinated production of two Biological Reports for use in Endangered Species Act Section 7 consultations with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. Coordinated implementation of field studies including fish, bird and vegetation studies directly related to the Liberty Project. Discussed study designs with resource agency personnel insuring agency agreement before field implementation.

State of Alaska Division of Oil and Gas. Best Interest Findings: Healy and Holitna Basin. 2005 *Project Manager.* Project manager for development of two best interest findings prepared for the State of Alaska, Division of Oil and Gas, for the Healy and Holitna basins. Best interest findings are similar to a NEPA Environmental Assessment in scope and content and are prepared for oil and gas areas leased by the state.

Jeff Williams

Fisheries and Aquatic Habitat

Mr. Williams has over 18 years of experience in the aquatic biology and natural resource management field. Specialties include field assessments, permitting compliance, and EIS/ EIA preparation in support of oil/gas pipelines, alternate energy, telecommunications, and mining projects; Most recently Mr. Williams has managed permitting compliance issues for a refined petroleum pipeline client in the downstream sector of the pipeline business where permitting for pipeline maintance projects was required for wetland, stream, and road crossings impacts. Mr. Williams has experience with federal, state, and local regulatory requirements in the states of Illinois, Indiana, Michigan, Minnesota, Ohio, and Pennsylvania.

Fields of Competence

- Oil/ gas Pipeline Regulatory Assurance in IL, IN, MI, PA, and OH (federal, state, and local)
- Oil/ gas Pipeline SESC Plan Design and Inspection Experience for Stream and Wetland Crossings
- Oil/gas Pipeline Siting for New Construction
- Oil/gas Pipeline Wetland, Stream, and T&E Species Assessments
- EIS/ EIA preparation and chapter writing
- Environmental Baseline Assessments: freshwater fish, macroinvertebrates, mussels, and habitat
- Intensive GPS User Capabilities in Support of Natural Resource Management Projects
- Demolition oversite- Air monitoring
- Waste Manifesting in support of oil spill decontamination and recycle/ waste efforts

Credentials

- Pre-Medical Curriculum, Kalamazoo College, 1988 - 1992
- B.S., Biology, Grand Valley State University, 1994

Professional Affiliations

- Society of Wetland Scientists
- Michigan Wetland Association

Certification and Training

- Army Corps of Engineer Wetland Delineation and Management Training, April 2006.
- Institute of Botanical Training Wetland Flora Class 0607, 32 – Hour Course, June 2006.
- Completed 72 Hours towards Society of Wetland Scientist Professional Scientist Certification.

Key Projects

2012 - Managed project and secured permits for a 1,000 feet long HDD new pipeline construction project where new refined petroleum pipeline will be directionally bored under a large tributary to Lake Michigan. Successfully established relationships with United States Army Corps of Engineers (USACE), Michigan Department of Environmental Quality (MDEQ), and Ottawa County, MI drain commision to secure permits in an efficient manner. Tributary is a USACE Section 10 classified waterway where a Nationwide Permit was required along with a MDEQ Part 303 wetland permit and Ottawa County Part 91 Soil Erosion permit.

2012 - Managed project and conducted wetland, cultural resources, and threatened and endangered species field assessments at 11 potential natural gas pump station facilities within Michigan, Ohio, and Pennsylvania.

2012 - Managed project and secured USACE, Indiana Department of Environmental Management (IDEM), and Lake County, IN Surveyor permits to temporarily bypass water using Aqua-barriers in a large county drain to perform routine pipeline maintenance adjacent to the county drain. Provided Soil Erosion and Sedimentation Control Plans to contractor and instructed pipeline area supervisors on correct methods to inspect SESC controls during a planned one year inspection process.

2011/2012 – Aquatic species chapter writer for Third-Party NEPA EIS for the first proposed sulfide mine in Minnesota. This is a joint federal (USACE, USFS) and state (Minnesota DNR) project that also included the U.S. EPA and multiple tribes as Coordinating Agencies. This project required evaluation of impacts, cumulative effects, and alternatives for development of EIS documents, with a particular focus on issues surrounding potential acid rock drainage and approximately 800 acres of wetlands impacts.

2011/2012 - Technical staff support and field assessment lead for a Fargo to St. Cloud 345 kV Transmission Line Project. The project involves a new double circuit 345 kV electric transmission line extending from near Fargo, North Dakota to near St. Cloud, Minnesota. The project is approximately 180 miles in length and involves the siting of a new substation and expansion of an existing substation. ERM's scope of services includes routing, stakeholder engagement and public involvement, agency consultation, field studies, licensing and permitting, and miscellaneous environmental support.

2011 - Successfully performed field work and secured all federal and state permits necessary for multiple pipeline arial span/ stream crossing maintenance locations in Indiana and Michigan. Field work component included determing wetland locations/type and eleveation of the Ordinary High Water Mark (OHWM).

2011 - Lead a team of surveyors through the mountains of Pennsylvania to initially site a pre-construction pipeline route in the support of future natural gas delivery. Overall objectives were to provide the straightest line from sub-station to sub-station with the least environmental impacts to lower construction costs and regulatory review time. Wetlands and streams were avoided where possible but determined the best place to cross feature in the event an impact was unavoidable.

2006 to 2012 - Conducted several wetland, habitat, and species assessments across the Midwest for the oil/gas pipeline, transmission line, windfarm/alternate energy, telecommunications, mining, and industrial sectors. Site locations included the States of Illinois, Indiana, Michigan (including Michigan's Upper Peninsula), Minnesota, New York, Ohio, Pennsylvania and Wisconsin.

Daniel A. Yamashiro, P.G.

Pipeline Risk/Failure Analysis

Supervised, managed, and participated in assessments and remediation projects in the United States, Europe, and Latin America for 30 years. Directly involved with on-site restoration of ground water, surface water and soil utilizing integrated environmental equipment systems and applying innovative and cutting edge technology. Developed pipeline leak risk assessements and high consequence area analysis for pipeline routing and pipeline reconfiguration. Assessed potential marine spill consequence due to marine traffic in the Aleution Islands.

Past manager on projects involving large-scale product recovery systems, above-ground and in-situ bioremediation, and natural attenuation. Conducted geophysical evaluations as part of stratigraphic analyses to assess ground water and product migration pathways in the subsurface. Conducted hydrogeologic studies for semiconductor, petroleum, mining companies, and local and state governments. Managed projects concerning human health risk assessments.

Project management experience ranges from sampling underground storage tank (UST) pits to designing and supervising the installation of complex integrated remediation systems applying chemical oxidation, bioremediation, as well as environmental forensics to distinguish source areas. Project consultant on long-term ground water monitoring programs under RCRA, VCP, Compliance and Enforcement authority. Conducted project management training programs emphasizing budget control, on-time delivery, and maintaining the agreed scope of work.

Developed assessment programs and remedial strategies for mining facilities, petroleum terminals and refineries. Managed one of the largest UST petroleum-related clean-up projects in Arizona. Developed and implemented the remedial strategy for one of the largest product releases (greater than 600,000 bbls) in Texas. Experience involved PCE, TCE, DCA, acetone, methylene chloride, petroleum, and other VOC releases to the environment

Registration

- Registered Professional Geologist in the State of Texas
- Registered Professional Geologist in the State of Tennessee

Fields of Competence

- Project management
- Pipeline leak assessment and HCA analysis
- Pipeline release fate assessment
- Stratigraphic analysis and facies analysis
- Downhole wireline log analysis
- Environmental site assessments
- Soil and ground water remediation
- In-situ and above-ground bioremediation
- Monitored natural attenuation
- Product/DNAPL evaluation and recovery

Education

- M.S. Geology, California State University, 1986
- B.S. Geology, California State University, 1982

Countries Worked

- United States
- United Kingdom
- Belgium
- Bermuda
- Barbados
- Brazil
- Italy
- Germany
- Mexico
- Netherlands
- Portugal
- Sweden

Recent Key Projects

2006 - Conducted feasibility and cost-benefit risk management analysis to provide infrastructure or operations alternatives for companies to assess as part of their overall business strategy. Projects involved an assessment of the cost benefit of utilizing larger load helicopters verses an existing fleet of smaller helicopters for emergency response actions; an assessment of the number and location of permanent oil spill containment site locations to reduce response time and expense in the event of a major oil spill; an assessment of frequency/consequence of release causes along a pipeline to identify mitigation measures, develop a prioritization plan, and cost/liability reduction.

2004 - Developed a risk management strategy to identify potential worst-case leak locations along the 800 mile trans-Alaskan pipeline and evaluate where emergency teams could intercept an oil spill based upon transit times between response bases and containment sites. Developed algorithms for a screening fate and transport model integrating estimated spill response times and assisting in preparing computer code for the final screening model. The resulting information was then used to assist Alyeska in assessing pipeline operation and staffing reconfiguration options.

2004-2005 - Assisted with the development of a baseline-risk assessment to identify spill response, remediation, and monitoring costs from 1200 potential leak locations along the 800 mile trans-Alaskan pipeline. The evaluation built upon earlier work and required development of a response time model and upgrading a screening fate and transport model to address oil spreading, infiltration, downriver flow, and different hole sizes in the pipeline. Integration of spill response time model with the spill fate and transport model identified the potential magnitude of a release and potential consequences upon which cost could established. 1213 pipeline segments where used in the assessment with risk, consequence, and remediation cost developed for each segment. Results of the assessment identified variation of risk along the pipeline.

2004 - Assisted client in developing and implementing hybrid procedures to analyze High Consequence Areas (HCA) under DOT regulations for the trans-Alaskan pipeline. The final procedures integrated fate and transport modeling with geographical information systems (GIS) and custom computer code to identify the risk of affecting an HCA in the event of a release from the trans-Alaskan pipeline.

2007 - Evaluated remedial options for a crude oil release from an above ground storage tank at a pipeline pumping station. The evaluation was based upon a product migration assessment through fractured mudstone, natural attenuation parameters indicating aerobic biodegradation, and applicable technologies available to remove crude from the subsurface. The crude oil reached ground water and volatile constituents dissolved into ground water ahead of the plume. The remedial options evaluation included skimming via recovery wells, steam injection, hot air injection, recovery trenches to address the crude oil, and an oxygen release com-pound (ORC) curtain to address the down gradient dissolved components.

2012 - Conducted a product forensics study related to the release of a historic crude oil release. Site remediation was ongoing but due to an increase in product thickness at the site, a subsequent release was suspected from either a nearby tank farm or from crude oil and product pipelines within an adjacent pipeline corridor. The forensics study involved a soil vapor survey and product-fingerprinting program. The soil vapor survey identified anomalies suggesting potential sources of a subsequent release. The fingerprinting program included sampling product from several wells across the site and identifying biomarkers and other key forensic ratios to identify different product types.

2000 - The impact of two crude oil pipeline releases was evaluated as to environmental impact to a nearby creek. The evaluation consisted of review of the analytical results from ground water sampling events, assessment of hydrocarbon plume stability, and demonstrated natural attenuation conditions. In addition, a risk assessment was conducted utilizing the Domenico and Schwartz transport equation which quantified a worst case benzene concentration assuming that no mixing between creek water and shallow ground water occurred.

2010 - Completed site investigation for cargo pipeline and identified impact to soil and ground water within an ecological sensitive area. Remedial options were evaluated and project costs identified for each alternative using root mean squared estimation method. The selected remedial approach was to employ chemical oxidation into the affected soil and groundwater and reduce the mass loading so that a natural attenuation program could used. The strategy was designed to reduce short-term capital costs and enable management of long-term client cash flow.

Yinka Afon, P.E.

Greenhouse Gas, Air Quality, and Noise

Mr. Afon is ERM Regional Technical Discipline Lead for acoustics based in . Yinka has over 9 years of consulting experience in natural and physical resources management, impact assessment and planning, ambient noise measurements, noise and vibration modeling and control, air quality and greenhouse gas evaluations, air conformity analysis, natural hazards, public safety, and regulatory compliance (IFC EHS Guidelines and Performance Standards, NEPA compliance).

Mr. Afon has experience preparing EAs, EISs, and ESIAs for multiple linear infrastructure (pipelines and transmission lines) and oil and gas projects. Aside from the experience in the United States, Yinka has international ESIA experience in countries such as Suriname, Dominican Republic, Guatemala, Argentina, Chile, Bahamas, Greenland, Guinea, and Nigeria. Yinka was one of the Environmental Leads for the preparation of a FERC application for the development of 14-mile natural gas pipline across Iowa, Minnesotta, and Nebraska.

Professional Affiliations & Registrations

- Registered Professional Engineer #33760, MD, 2009.
- Member of the American Institute of Chemical Engrs
- Member of the Air & Waste Management Association

Fields of Competence

- Impact assessment and planning
- Noise and vibration
- Air quality, greenhouse gases, and meteorology
- Water quality
- Natural hazards
- Regulatory compliance

Key Industry Sectors

- Pipelines and transmission lines
- Oil and Gas
- Power Generation
- Mining and metals

Education

- M.S.E., Environmental Process Engineering, Johns Hopkins University, Baltimore, 2004
- B.S., Chemical Engineering, Ladoke Akintola University of Technology, Nigeria, 2001

Languages

- English (native speaker) and Yoruba

Publications

- Afon Y. and Ervin D., *An Assessment of Air Emissions from Liquefied Natural Gas Ships Using Different Power Systems and Different Fuels* . Journal of Air & Waste Management Association No.3, Vol 58, 404 – 411 (2008).

Key Projects

M&NE Pipeline, LLC - Maritimes & Northeast Pipeline Phase IV Project, ME, 2006.
As Project Engineer and 3rd Party EIS contractor with FERC, provided noise and air resource expertise and reporting for the development of five new compressor stations, modifications to two existing stations, and construction of 146 miles of gas pipelines in Maine.

Northern Natural Gas Company - Common Facilities Pipeline System Expansion, IA, MN, and NE, 2008.
Project Engineer for a FERC application evaluating noise and air quality effects of constructing a 14-mile natural gas pipline across Iowa, Minnesotta, and Nebraska.

Confidential Client, Maryland, 2009-2011.
Completed annual emissions certification reports and potential to emit calculations for multiple tank breakout terminal stations and pipelines for a confidential client.

SMECO - Holland Cliffs to Helen Creek Transmission Line Project, Southern Maryland, 2008-2009.
Acoustic Specialist for evaluating the noise impact for an Environmental Review Document (ERD) for construction and operation of 230 kV transmission line and substation in southern Maryland.

BP - Crown Landing LNG Project, NJ, 2004 -2007.
Project Engineer for preparation of a FERC application for the development of a 1.2 Bscf per day onshore LNG facility in Logan Township, NJ, and associated pipeline extending under the Delaware River into PA. Evaluated project impacts on noise, air quality, and water resources. Prepared air conformity analysis report in accordance with NJ, DE, and PA State Implementation Plans.

Excelerate Energy - Northeast Gateway Deepwater Port LNG Terminal and Pipeline, Massachusetts Bay, 2006.
As Project engineer and 3rd Party EIS contractor with U.S Coast Guard, provided noise (in-air and underwater) and air resource expertise and reporting for development of a 400 MMscfd per day LNG deepwater port with specially-designed regasification vessels and associated pipelines in Massachusetts Bay. Prepared air conformity analysis report in accordance with MA State Implementation Plans. The Maritime Administration issued a Record of Decision for the project in 2006. The deepwater port is currently in operation.

Floridian Natural Gas Storage Company - Floridian Natural Gas Storage Project, FL, 2007 - 2008.
As Project Engineer and 3rd Party EIS contractor with FERC, provided noise and air resource expertise and reporting for development of a 100 MMscf per day natural gas storage and liquefaction facility and a 4-mile pipeline in Martin County, Florida. Final EIS approved by FERC in 2008 with some licensing conditions.

AES Corporation - Sparrows Point Onshore LNG and Power Plant Project, Baltimore, MD, 2006 - 2008.
As Project Engineer, reviewed and provided comments to noise and air quality sections of applicant's resource reports and EIS for a proposed 1.5 Bscf per day onshore LNG facility and power plant in Baltimore, MD. Final EIS approved by FERC in 2008 with some licensing conditions.

Hyperion Resources - Hyperion Oil Refinery and Power Plant Project, SD, 2007.
Acoustics Specialist for a re-zoning application for constructing and operating an oil refinery and IGCC power plant in South Dakota. Coordinated the modeling of noise emissions from over 4,000 noise sources.

BP Alt. Energy - White Pines Wind and Transmission Line Project, Huron-Manistee National Forest, MI, 2009.
Project Engineer for an EIS evaluating public safety and security issues for a 70 MW wind farm and associated transmission lines near Manistee, Michigan. Addressed public safety issues such as ice shedding and throws from turbine blades, turbine collapse, blade failure, lightening strikes, stray voltage, fire and fuels, and electromagnetic fields (EMF) from transmission lines and underground cables.

Shell Petroleum Development Company (SPDC), Port Harcourt, Nigeria, 2001.
Working as a chemical engineer for SPDC, supervised oil well clean-ups for an oil production facility in Port Harcourt, Nigeria.