

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA**

IN THE MATTER OF THE APPLICATION)	HP 09-_____
BY TRANSCANADA KEYSTONE PIPELINE,)	
LP FOR A PERMIT UNDER THE SOUTH)	
DAKOTA ENERGY CONVERSION AND)	
TRANSMISSION FACILITIES ACT TO)	DIRECT TESTIMONY OF
CONSTRUCT THE KEYSTONE XL PIPELINE)	JON SCHMIDT
PROJECT)	

1. Please state your name and address for the record?

Answer: My name is Jon Schmidt. My business address is 1300 Metropolitan Boulevard, Suite 120, Tallahassee, Florida 32308.

2. What is your role with the Keystone XL Pipeline Project?

Answer: I am an employee of AECOM, the lead environmental contractor for the Keystone XL Project (Project). I serve as the project director for AECOM for this Project.

3. Please state your professional qualifications?

Answer: I have been employed at AECOM, an environmental and engineering consulting company, for the past 13 years. My primary experience has been the preparation of permit applications and regulatory filings for pipelines, power lines, LNG facilities, and natural gas storage facilities throughout the United States. In my 22 years of experience, I have served as a project task leader, project manager, and now project director for large environmental permitting projects covering multiple jurisdictions in the United States. I have worked on the permitting of over 10,000 miles of oil and gas

pipeline projects in over 30 states. My technical background is in the area of biology and I received my doctorate from Florida State University.

4. Have you provided a resume?

Answer: Yes, my resume is attached as Exhibit A of my testimony.

5. What are your responsibilities on the Keystone XL Project?

Answer: As part of a team, I am AECOM's project director for overseeing collection of the required information to prepare applications for federal and state permits needed to construct and operate the Project.

6. Are you responsible for portions of the application which Keystone is filing with the South Dakota Public Utilities Commission seeking a permit under the Energy Conversion and Transmission Facilities Act?

Answer: Yes.

7. For which portions of Keystone's application are you responsible?

Answer: I oversaw or participated in the preparation of the following sections:

- Section 1.8 – Other Required Permits and Approvals;
- Section 2.1.1 – Facility Description Overview;
- Section 2.2.4 – Land Requirements;
- Section 2.2.6 – Special Construction Procedures;
- Section 5.1 – Environmental Information filed with the Department of State;
- Section 5.2 – Summary of Environmental Impacts, including Table 4;
- Section 5.3 – Physical Environment, and its subsections;
- Section 5.4.1 – Surface Water Drainage;

- Section 5.4.3 – Water Use and Sources, including Section 5.4.3.1 – Hydrostatic Testing;
- Section 5.5 – Terrestrial Ecosystems, and its subsections;
- Section 5.6 – Aquatic Ecosystems (with the exception of 5.6.2.2 Operational Impacts);
- Section 5.7 – Land Use and Land Use Controls (with the exception of Section 5.7.4 – Local Land Use Controls);
- Section 5.8 – Water Quality and Uses;
- Section 5.9 – Air Quality;
- Section 6.0 – Community Impacts;
- Section 6.4 – Cultural and Historical Resources;
- Section 6.5.3 – Noise Impacts;
- Section 6.5.4 – Visual Impacts;
- Section 7.1 – Monitoring of Impacts (Construction);
- Section 7.1.1 – Environmental Training;
- Section 7.1.2 – Environmental Inspection;
- Section 7.1.3 – Post-Construction Monitoring and Maintenance Programs;
- Exhibit A – Land Use/Land Cover, Soil Map Units, and Off-ROW Pipe Storage Yard Maps; and
- Exhibit C – Water Crossings Table.

8. Describe the information provided in Section 1.8 – Other Required Permits and Approvals?

Answer: Section 1.8 provides an overview of the permits required to construct and operate the Project. I oversaw the compilation of the table of permits that are required for the Project.

9. Please identify the portion of Section 2.1.1 – Facility Description Overview for which you are responsible?

Answer: Section 2.1.1 provides an overview of the facilities required for the Project. Jointly with Witness Richard Gale, I am responsible for the preparation and production of the map books provided in Exhibit A of the application.

10. Please identify the portion of Section 2.2.4 – Land Requirements for which you are responsible?

Answer: Section 2.2.4 provides a summary of land required to construction the Project. I am responsible for the analysis that led to the development of Table 3 and the reporting of the acreage that will be impacted by the Project in South Dakota.

11. Please identify the portion of Section 2.2.6 – Special Construction Procedures for which you are responsible?

Answer: Section 2.2.6 describes the special construction procedures that will be implemented for the Project. I was responsible for overseeing the collection and analysis of the stream crossing and wetland crossing information that supports the development of construction methods described in the Construction Mitigation and Reclamation (CMR) Plan.

12. Please summarize Section 5.1 – Environmental Information Filed with the Department of State?

Answer: Keystone is required to obtain a Presidential Permit from the Department of State in order to construct pipeline facilities across the international

border. The Department of State is preparing an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA) with respect to the Project. In February 2009, the Department of State held public scoping meetings to collect public and agency comments on the project. A draft EIS is anticipated to be released for public comment in late summer/early fall of 2009. A public comment period will follow the release of the draft EIS. In early 2010, a final EIS is expected to be released. The environmental submittals that Keystone provided to the Department of State, portions of which support the South Dakota siting permit application, are described in Section 5.1 of Keystone's application in this proceeding.

13. Describe the information contained in Section 5.2 – Summary of Environmental Impacts?

Answer: Section 5.2 explains that Table 4 provides an overview summary of the impacts on air quality, geology/minerals/paleontology, soils and agricultural production, water resources, vegetation, wildlife, aquatic resources, sensitive species, land use, cultural resources, socioeconomic conditions, and public health and safety.

14. Please describe Section 5.3 – Physical Environment of the application?

Answer: The various subsections of Section 5.3 describe the physical environment through which the Project will pass and delineate the effects of the proposed facility on the physical environment.

15. Describe the information and impact evaluation contained in Section 5.3.1 –

Land Forms and Topography?

Answer: The pipeline will cross the Unglaciaded Missouri Plateau. This physiographic province is characterized by a dissected plateau where river channels have incised into the landscape. Elevations range from just over 3,000 feet above mean sea level in the northwestern part of the state to around 1,800 feet above mean sea level in the White River valley. The major river valleys traversed include the Little Missouri River, Cheyenne River, and White River. Aerial photographic maps and USGS topographic maps of the Project route in South Dakota are provided in Exhibit A to Keystone's application.

16. Describe the information and impact evaluation contained in Section 5.3.2 –

Geology and Paleontology?

Answer: The pipeline route crosses deposits composed of Quaternary alluvium, colluvium, alluvial terraces, and eolian deposits (sand dunes). The bedrock that may be found along the route is composed mainly of sandstone with some marine shale present. No unique geological features protected by federal, state, or local governments will be disturbed by the Project. Construction of the Project will include surface disturbance along the right-of-way (ROW) and at ancillary facilities. Impacts to topography will be relatively minor and short-term since Keystone will restore surface contours and drainage patterns as closely as possible to pre-construction conditions.

There is a potential for discovery of significant fossils in some locations. It is Keystone's understanding that fossils found on private lands are the property of the

landowner. In the unlikely event that a significant fossil was encountered on private property, Keystone will coordinate with the landowner to determine how the fossil shall be preserved. On state lands, Keystone would coordinate with appropriate state agencies, such as the South Dakota Geological Survey within the South Dakota DENR.

No significant operational impacts to geological resources are expected.

**17. Describe the information and impact evaluation contained in Section 5.3.3 –
Economic Mineral Deposits?**

Answer: The pipeline does not cross any active, inactive, or permitted mining operations. While the pipeline route does cross deposits of coal and lignite, none of the deposits are currently mined or permitted to be mined. None of the route crosses historic mining areas. The pipeline ROW is in proximity to existing oil and gas wells. In these areas, Keystone will work with oil and gas well operators to locate and avoid field lines, flow lines, or utility connections. The Project could have very minor and short-term impacts on current mineral extraction activities due to the temporary and localized nature of pipeline construction. Construction of the Project may result in short-term and localized demand for sand and gravel, but these demands will not significantly affect the long-term availability of construction materials in the area.

No significant operational impacts to geological resources are expected.

**18. Describe the information and impact evaluation contained in Section 5.3.4 –
Soils?**

Answer: Soil maps are provided in Exhibit A of Keystone's application. In the northwestern portion of South Dakota, the soils are shallow to very deep, generally well

drained, and loamy or clayey. Fertile soils and smooth topography dominate Meade County. The soils generally are shallow to very deep, somewhat excessively drained to moderately well drained, and loamy or clayey. Cretaceous Pierre Shale underlies almost all of Haakon, Jones, and portions of Tripp counties. In South Dakota, Pierre Shale soils are sometimes referred to as “gumbo” soils. From Tripp County to the Nebraska state line, soils typically are derived from shale and clays on the flatter to moderately sloping, eroded tablelands. Sand dune areas associated with the Sand Hills ecoregion are also found along the southern portion of Tripp County. Characteristics of South Dakota soils crossed indicates that 74 percent of the soil types crossed are compaction prone, 43 percent has low reclamation potential, and about 1/3 are considered prime farmland (according to USDA Soil Conservation Service). During construction these soil constraints will be addressed through adherence to the CMR Plan. During operations, impacts from routine maintenance activities would not be significant.

19. Describe the information and impact evaluation contained in Section 5.3.5 –

Erosion and Sedimentation?

Answer: Approximately 20 percent of the soils crossed by the route in South Dakota are considered droughty, that is susceptible to wind erosion. Thirty-two percent of the surface disturbance of the project will impact soils that are highly erodible by water. Potential impacts to soils will be mitigated through the use of the measures identified in the CMR Plan. During operations, impacts from routine maintenance activities would not be significant.

**20. Describe the information and impact evaluation contained in Section 5.3.6 –
Seismic, Subsidence, and Slope Stability Risks?**

Answer: South Dakota lies within an area considered to be at the lowest possible risk for earthquakes in the US. The route does not cross any identified faults, ground subsidence, or karst hazard areas. Localized ground movement may occur along the route due to the presence of Pierre Shale. Pierre Shale, especially with bentonite layers interspersed in the shale unit, upon weathering can be susceptible to instability in the form of slumps and earth flows. Landslide potential is enhanced on steeper slopes, primarily along river banks and steep slopes. Keystone will adopt special construction measures that are summarized in the CMR Plan for addressing this potential hazard. During operations, impacts from routine maintenance activities would not be significant.

**21. Describe the information and impact evaluation contained in Section 5.4.1 –
Surface Water Drainage?**

Answer: The major hydrological basin crossed by the project in South Dakota is the Missouri River water resource region. The major stream/river crossings include the Little Missouri River, South Fork Grand River, Clark's Creek, North Fork Moreau River, South Fork Moreau River, Pine and Sulphur creeks, the Cheyenne River, Bad River, and the White River. There are approximately 12 perennial waterbodies crossed, 109 intermittent, and 182 ephemeral streams crossed in South Dakota (see Exhibit C of the application). Keystone intends to cross the Little Missouri, Cheyenne, and White rivers using the horizontal directional drilling (HDD) construction method. The remainder will be crossed by the open cut construction method as outlined in the CMR Plan. For

drainages that are open cut during construction, Keystone's mitigation measures identified in its CMR Plan will minimize impacts of suspended solids and sedimentation. During the design phase, engineers will determine the pipeline's burial depth at stream crossings to ensure proper burial depth in channels with the potential for lateral scour. Impacts from routine maintenance activities during operations would not be significant.

**22. Describe the information and impact evaluation contained in Section 5.4.3 –
Water Use and Sources?**

Answer: Keystone will need to use surface water during construction to hydrostatically test the installed pipeline and to obtain water for dust control during construction. Water volumes required will vary by location and waterbody to be used. Keystone has preliminarily identified 11 surface waterbodies for hydrostatic test water use. Water will be withdrawn and discharged in accordance to applicable state permits, and water will be returned to the source it was obtained from (or in the adjacent uplands). Keystone will follow the requirements of permits and their CMR Plan to minimize impacts to waterbodies. Water for dust control typically will be purchased as needed from landowners or municipalities near the construction ROW.

Routine maintenance activities will have no significant impacts to water quantity or quality.

**23. Describe the information and impact evaluation contained in Section 5.5.1.1 –
General Vegetation?**

Answer: The route traverses six major vegetation types in South Dakota. This includes grassland/rangeland, agriculture, palustrine emergent/scrub-shrub wetlands, previously disturbed, riverine/open water, and upland forest. The dominant vegetation traversed is grassland/rangeland (223 miles) and agriculture (80 miles). Only 1.7 miles of emergent or scrub-shrub wetlands are crossed by the project. There are no forested wetlands impacted, and only 0.8 miles of upland forest crossed.

Grasslands/rangelands will be temporarily impacted during construction. Keystone will adhere to their CMR Plan to restore these areas and allow vegetation to recover in the ROW. There will be no permanent impact to, nor maintenance of, the vegetation along the route in this community type except shrubs will not be allowed to grow over 15 feet high within 15 feet of either side of the centerline.

In agricultural lands, construction will result in relatively small, temporary loss of crops during construction. Keystone will repair or restore any drain tiles, fences, and land productivity that are temporarily disturbed during construction.

Temporary impacts to emergent and scrub-shrub wetland vegetation will occur during construction. To mitigate for the potential impacts, Keystone will implement specific procedures as outlined in the CMR Plan. Pipeline construction through wetlands must comply, at a minimum, with US Army Corps of Engineers (USACE) Section 404 permit conditions.

Construction of the pipeline will disturb approximately 0.8 miles of forested land in South Dakota. Construction of the pipeline will necessitate clearing of the ROW and permanent conversion of the affected wooded areas for the life time of the project.

During operations, the majority of the ROW will be allowed to revert to pre-construction conditions. Woody vegetation in forested areas will be removed periodically above the pipeline (approximately 15 feet on each side of the centerline) to maintain visibility of the area above the pipeline for aerial pipeline observation and to permit access to all areas along the pipeline in the event of an emergency. Routine maintenance activities would not result in long-term alterations of vegetation since disturbances would be isolated, short-term, and infrequent.

**24. Describe the information and impact evaluation contained in Section 5.5.1.2 –
Noxious Weeds?**

Answer: Disturbance to soil is an opportunity for weeds to colonize areas. Keystone consulted with state and local agencies to identify noxious weeds that could be found in the project area. Surveys conducted to date have identified locations where two species have been found. In those areas, Keystone will implement the mitigative measures outlined in the CMR Plan to prevent the spread of noxious weeds. Maintenance activities during operations would not increase noxious weed conditions.

**25. Describe the information and impact evaluation contained in Section 5.5.2 –
Wildlife?**

Answer: Much of the habitat crossed by the route consists of agriculture or grassland/rangeland. Impacts in these habitats will be short-term and represent a small

fraction of the total available habitat in the Project area. Consequently, the effects of long-term habitat loss on native wildlife populations will be minor. Since the Project involves very little forest or tree clearing, the potential for disturbance to raptors is minor. Impacts from increased noise and human presence during construction also will be temporary and minor. Noise from operations (pump stations) will also be minor.

Big and small game wildlife will experience temporary impacts as they move away from the construction ROW. After construction, the majority of the habitat will be restored to the previous vegetative cover and land use. Very little forested area will be converted that would displace species using this habitat. Since the amount of habitat temporarily affected during construction represents a small fraction of the total available habitat, impacts to game species will be minimal.

To mitigate impacts to non-game species, Keystone will work with the regulatory agencies on the application of their recommended seasonal timing restrictions and buffer zone sizes for the sage grouse, sharp-tailed grouse, greater prairie chicken, and raptors. Keystone will also work with wildlife agencies on the structural designs of the pump stations to reduce the potential use of these structures as raptor roosts during operations.

Routine maintenance activities would not result in significant impacts to wildlife or its habitat.

26. Describe the information and impact evaluation contained in Section 5.5.3 – Threatened and Endangered Species?

Answer: Keystone coordinated with the USFWS, the SDGFP, and the South Dakota Natural Heritage programs in order to develop survey protocols. Survey plans were

developed and provided to the USFWS and SDGFP for review and approval. Once approved, Keystone initiated biological surveys in the summer of 2008 and winter of 2008-2009. Field surveys were undertaken for the identification of species habitat and species presence:

- General raptor and bald eagle nest surveys. A spring raptor nest survey was conducted by helicopter along the proposed route in South Dakota in April 2008 and again in February 2009. Observed nest structures in trees were located with Global Position System (GPS) instruments and mapped. A total of 28 raptor nests were identified along the ROW. No bald eagle nest or roost sites were identified within 0.25 mile of the ROW. Survey results were submitted to the Department of State in November.
- Western prairie fringed orchid. Surveys for suitable habitat were conducted in 2008 for this species. Habitat was found in 6.8 miles of the route along stream and river drainages. Follow-up surveys for species presence will be conducted during the appropriate flowering period in 2009 and prior to construction in 2011.
- Interior least tern surveys. A nesting season survey was conducted along the Cheyenne River as requested by the USFWS. No nesting terns were recorded. Surveys will be conducted again prior to construction in 2011.
- Swift fox and river otter. The agencies recommended that surveys for these species be limited to suitable den habitat prior to construction.
- Black-footed ferret. The USFWS indicates that South Dakota has been block cleared for black-footed ferrets and no surveys were needed.

- American burying beetle. Both the USFWS and South Dakota Game, Fish and Parks will require off-site mitigation to enhance American burying beetle habitat in southern Tripp County.

Routine maintenance activities will be isolated, short-term in duration, and infrequent. Consequently, significant impacts to sensitive species or their habitats are not anticipated.

27. Describe the information and impact evaluation contained in Section 5.6 – Aquatic Ecosystems (exclusive of Section 5.6.3.3 – Pipeline Operations)?

Answer: Wetlands, riparian areas, and rivers/streams were identified along the route by completing field surveys of the route, reviewing aerial photography for areas where landowner permission was denied and/or where re-routes were developed but not yet surveyed. Less than 6 miles of the route in South Dakota (less than 2 percent) crosses wetlands or riverine habitats. Over 95 percent of the wetlands crossed are characterized as palustrine emergent wetlands. The remainder is scrub-shrub wetlands. To mitigate the potential for impacts, Keystone will implement procedures outlined in the CMR Plan.

The project will cross 12 perennial streams in South Dakota. Keystone will directional drill the Little Missouri, Cheyenne, and White rivers. Open-cut trenching used at the other perennial streams can cause the following impacts: loss of in-stream habitat through direct disturbance, loss of bank cover, disruption of fish movement, direct disturbance to spawning, water quality effects, and sedimentation effects. Impacts will be mitigated through implementation of procedures outlined in the CMR Plan.

Hydrostatic testing and water use for dust control also will have minor effects on 11 streams in South Dakota. Relatively small, one-time withdrawals will occur in accordance with withdrawal permits. The discharge of hydrostatic test water will follow state permit requirements, reducing potential effects on water quality or aquatic organisms.

As a result of consultation with the USFWS and SDGFP, four sensitive aquatic species (sturgeon chub, blacknose shiner, northern redbelly dace, and pearl dace) could potentially occur within suitable habitat along the route in South Dakota. The use of directional drilling of the Cheyenne and White rivers will minimize impacts to the sturgeon chub since this is the only location where it is found. Surveys for the other three species and their habitats are recommended within tributaries of the Keya Paha River. Once these surveys are completed, construction method selection and/or construction timing restrictions will be implemented to minimize impacts to these species.

Impacts to aquatic species or their habitats are not anticipated from routine maintenance activities.

28. Has a Biological Assessment (BA) been submitted to the U.S. Fish and Wildlife Service for this project?

Answer: A draft Biological Assessment (BA) will be prepared after the spring 2009 survey season and submitted to the Department of State. The Department of State will review, revise, and submit the draft BA to the USFWS for concurrence under Section 7 of the Endangered Species Act. The comments from the USFWS will be used to revise

the BA and will possibly be included as a part of the draft EIS that the Department of State is expected to produce in the late summer/early fall of 2009.

**29. Describe the information and impact evaluation contained in Section 5.7.1 –
Existing Land Use?**

Answer: Of the approximate 313 mile route in South Dakota, 21.6 miles are state-owned and managed by the Commissioner of School and Public Lands. The remainder of the lands crossed are privately owned. No tribal or federal lands are crossed by the pipeline route.

Land uses were interpreted from field surveys and aerial photo-interpretation. The categories are consistent with those outlined in the PUC guidelines. The land uses are shown on maps provided in Exhibit A. Most (>309 miles) of the route traverses land used primarily for pasturelands and rangelands and row and non-row crops in rotation. Almost 3 miles crosses existing rights-of-way (road, powerline, highway, railroad).

**30. Describe the information and impact evaluation contained in Section 5.7.2 –
Displacement?**

Answer: No homes or residents will be displaced as stated in Section 5.7.2 of the application. Only one residence (Meade County) is found within 500 feet of the pipeline route in South Dakota.

**31. Describe the information and impact evaluation contained in Section 5.7.3 –
Compatibility with Existing Land Use Measures to Ameliorate Adverse
Impacts?**

Answer: Since the predominant land use crossed by the project is rural agriculture, and because the pipeline will be buried a depth of four feet below pasture/rangeland and agricultural fields, the pipeline project will be compatible with the current land uses crossed.

Pump stations also will be located in areas of rural agriculture land use. There are very few residential areas along the pipeline. The nearest structure to a proposed pump station is over 1,000 feet away. Based on aerial photography, Keystone was unable to determine whether this structure is a residence, but will verify this structure's use during field studies in 2009. Other structures are over 4,000 feet away. Noise from the pump stations is expected to be minimal since the pumps are electrically driven. The pump stations will be designed to meet any applicable local and state noise requirements.

Transmission lines for transmitting power to the pump stations will be permitted and built by local power providers. Transmission lines likely will follow existing roads and property section lines to minimize impacts to current land uses and farming operations.

The route crosses through two rural water system districts. The West River/Lyman – Jones Rural Water District and the Tripp Rural Water District. Keystone met with these rural water districts to discuss the Project and will continue to coordinate with these districts. During construction and maintenance, Keystone will coordinate with the One-Call system to avoid impacts to underground utilities, including water lines.

32. Describe the information and impact evaluation contained in Section 5.8 – Water Quality and Uses?

Answer: Keystone will comply with all permit conditions for the hydrostatic test water withdrawal and discharge. This will result in minor impacts to water availability for the period of testing, but the water will be returned to the source (or in the adjacent uplands) after testing. Water quality will not be impacted because of the nature of using a new pipeline and the adherence to permit requirements. Groundwater will not be used for hydrostatic testing purposes.

Pipeline construction crossings of streams and rivers will not contribute to the degradation of beneficial use classifications because of the one-time, temporary impact of pipeline installation. Adherence to Keystone's CMR Plan will mitigate any short-term impacts. Routine maintenance activities will be isolated, short-term in duration, and infrequent, resulting in insignificant impacts to water quality and its uses.

33. Describe the information and impact evaluation contained in Section 5.9 – Air Quality?

Answer: While there will be fugitive and tailpipe emissions from the construction equipment during construction, construction equipment will be required to comply with EPA standards for fuel type (low sulphur diesel) and tailpipe emissions. Therefore impacts expected during construction from construction equipment emissions will be minor. Fugitive sources include road dust and dust generated by construction activities along the right-of-way. Keystone will limit dust impacts in residential areas adjacent to the pipeline construction by utilizing the dust minimization techniques in accordance

with the CMR Plan. Because the pump stations are electrically driven, no impacts to air quality are expected during operations.

**34. Describe the information and impact evaluation contained in Section 6.0 –
Community Impact?**

Answer: Section 6.0 describes the general population densities of the land crossed by the Project.

**35. Describe the information and impact evaluation contained in Section 6.4 –
Cultural and Historical Resources?**

Answer: The Department of State has the lead federal role to ensure compliance with Section 106 of the National Historic Preservation Act (NHPA) and other statutes regarding cultural and historical resources. To comply with the NHPA and other federal guidelines, Department of State will consult with the South Dakota State Historic Preservation Office (SHPO) and Native American tribes in the region.

Keystone conducted site file research in May, 2008 with the SHPO to identify existing cultural resources along the proposed route. Based upon this research and comments from the SHPO's office, Keystone developed a proposed survey protocol providing for pedestrian surveys of 100% of the pipeline route and discussed this protocol with the SHPO's office. It is Keystone's understanding that the SHPO is satisfied with this survey protocol. Based on these discussions, Keystone began field surveys in the summer of 2008 to identify and document known or previously unknown cultural resources within a 300 foot-wide survey corridor centered over the proposed route.

Cultural surveys to date have covered 233 miles of the 313 mile route in South Dakota (74 percent). None of the ancillary facility sites have been surveyed at this time, but these will be completed in 2009. To date, Keystone has identified one previously known site and nine new undiscovered sites. Of the new sites found, one is prehistoric, seven are historic, and one is of unknown age. The previously recorded site is a prehistoric site.

The newly recorded prehistoric site is recommended as ineligible for inclusion in the National Register of Historic Places (NRHP) and the previously recorded site remains as unevaluated. Five of the newly recorded historic sites are recommended as not eligible for inclusion in the NRHP, and 2 of the newly recorded sites as recommended as eligible for inclusion in the NRHP. The remaining site of unknown age remains unevaluated at this time.

Reports on the field investigations have been filed with the Department of State (the lead federal agency for Section 106 consultation) and the SHPO's office. The Department of State will determine site eligibility in consultation with the SHPO's office.

Keystone will continue to complete remaining surveys, including remaining site evaluations and re-routes. This additional information will be filed with the Department of State and SHPO's office in early summer, 2009.

If previously undocumented sites are discovered within the construction corridor during construction activities, all work that might adversely affect the discovery will cease until Keystone, in consultation with the appropriate agencies such as Department of State and SHPO, can evaluate the site's eligibility and probable effects. If a previously unidentified site is recommended as eligible for inclusion to the NRHP, impacts will be

mitigated pursuant to an Unanticipated Discovery Plan, which will be submitted to the SHPO and Department of State for approval. Treatment of any discovered human remains, funerary objects, or items of cultural patrimony found on federal land will be handled in accordance with NAGPRA. Construction will not resume in the area of the discovery until the authorized agency has issued a notice to proceed. If human remains and associated funerary objects are discovered on state or private land during construction activities, construction will cease within the vicinity of the discovery and the county coroner or sheriff will be notified of the find. Treatment of any discovered human remains and associated funerary objects found on state or private land will be handled in accordance with the provisions of applicable state laws.

Keystone's preference is to avoid impacting any eligible sites during routing and will continue to do so through field investigations through 2009 and up to construction. Native American consultation is the responsibility of the Department of State, although Keystone has engaged in outreach to Native American tribes in the Project area.

36. Describe the information and impact evaluation contained in Section 6.5.3 – Noise Impacts?

Answer: Because the project is predominantly in rural agricultural lands, noise impacts from peak construction will be short-term and minor. There is only one residence within 500 feet of the route in South Dakota. Pump station electrical pumps will be long-term noise sources. Keystone will attenuate noise levels at any nearby residences to insure that noise from these facilities will comply with applicable state and local noise regulations.

**37. Describe the information and impact evaluation contained in Section 6.5.4 –
Visual Impacts?**

Answer: An analysis of recreational data bases did not identify any designated public scenic outlooks or viewing areas crossed by the pipeline route. Visual resource impacts from construction activities will be of short duration due to the implementation of soil stabilization and revegetation measures contained in the CMR Plan. Pump stations and valves will be the only aboveground facilities. They will occupy a small footprint and low relief building in the context of rural agricultural land.

**38. Describe the information and impact evaluation contained in Section 7.1 –
Monitoring of Impacts (Construction only)?**

Answer: During construction, Keystone will develop and implement a training program for all employees to increase awareness of environmental requirements and permit conditions, as well as monitor pipeline construction activities for compliance with said conditions and requirements.

**39. Describe the information and impact evaluation contained in Section 7.1.1 –
Environmental Training?**

Answer: Keystone will implement detailed environmental training, inspection, and monitoring programs. Keystone will require construction personnel to undergo environmental training on the project-specific requirements prior to being allowed to work on the project. Contractor personnel will attend a 1-2 hour awareness training session. Supervisory personnel will undergo a full-day comprehensive environmental training session providing more details on a spread-by-spread basis. Training will be

designed to ensure awareness of environmental issues and regulatory conditions and commitments. A record of employees trained will be kept and maintained throughout the construction period. Each successfully trained individual will receive a hard hat sticker to show they have been trained. Inspectors on the project will not allow personnel on the construction ROW unless they have this sticker visible on their hard hats.

Following construction, Keystone personnel will complete post-construction monitoring of the ROW to ensure compliance with regulatory commitments and monitor reclamation of the ROW.

40. Describe the information and impact evaluation contained in Section 7.1.2 – Environmental Inspection?

Answer: Environmental inspectors -- third-party personnel hired by Keystone -- will be responsible for overseeing the contractor's compliance with environmental requirements, Project specifications, permits and landowner requirements during construction activities. The environmental inspector's duties include observing construction-related activities and monitor compliance with, and provide interpretation of the environmental requirements for the Project.

41. Could you briefly summarize the information in Section 7.1.3 – Post-Construction Monitoring and Maintenance Programs?

This section summarizes the post-construction monitoring and maintenance programs that Keystone will implement.

42. Describe the information contained in Exhibit A – Land Use/Land Cover, Soil Map Units, and Off-ROW Pipe Storage Yard Maps.

Answer: There are three sets of maps provided in Exhibit A of the application. The first map set identifies land use and land cover types and is overlaid onto aerial photography. The second is a set of soil map units overlaid onto aerial photography of South Dakota. The third is a set of maps identifying the location of off-ROW pipe storage yards overlaid onto aerial photography of South Dakota. The first and second map sets were prepared under my supervision and direction, and in coordination with Witness Richard Gale. Witness Richard Gale oversaw the preparation of the third set of maps in this Exhibit.

43. Describe the information contained in Exhibit C – Water Crossings.

Answer: Exhibit C of the application contains a listing, by milepost, of all perennial, ephemeral, and intermittent streams crossed by the route. Included in this listing is the South Dakota beneficial use designation of each of these waterbodies and whether or not that use designation is being met.

44. Based on your testimony above, do you have an opinion as to whether, taking into account the mitigative practices and techniques described above, the construction of the Project would pose a threat of serious injury to the environment nor to the social and economic condition of inhabitants or expected inhabitants in the siting area?

Answer: Yes, in my opinion, taking into account the mitigative practices and techniques described above, and set forth in the CMR Plan, the construction of the project

would not pose a threat of serious injury to the environment nor to the social and economic condition of inhabitants or expected inhabitants in the siting area. Further, the Project will not unduly interfere with the orderly development of the region.

45. Do you adopt the sections of the application identified above as your testimony in this case?

Answer: Yes, with the caveat that some sections are the joint responsibility of myself and other witnesses.

46. Does this complete your prepared direct testimony?

Yes, it does.

Dated this 26 day of February, 2009.



Jon Schmidt

Exhibit A

Resume for Jon Schmidt

Jon A. Schmidt, Ph.D.

Sr. Vice President, Pipeline and LNG Services

Years Experience: 22

Technical Specialties

- International Energy Project Impact Assessment
- Project Planning from Conception through Construction
- Environmental Impact Assessments and Regulatory Compliance
- NEPA Document Preparation
- FERC Filings for the Natural Gas Industry
- Offshore EFH Assessment and Permitting through NMFS
- Freshwater & Coastal Wetlands--Delineation, Permitting, & Mitigation

Professional History

- AECOM Environment
- Ecology and Environment, Inc.

Education

- PhD (Biological Sciences) Florida State University
- MS (Biological Sciences) University of Bridgeport
- BS (Marine Biology) University of Massachusetts - Dartmouth

Representative Project Experience

Keystone Pipeline Company, LP, Environmental Management of permitting and construction inspection for the 1,280 mile crude oil pipeline in North Dakota, South Dakota, Nebraska, Kansas, Missouri, Illinois, and Oklahoma.

Jon served as Project Director of AECOM's environmental efforts to support the routing, siting, management of environmental field surveys, staffing and management of environmental issues at the project office in Kansas City, agency coordination, preparation of an Environmental Report for submittal to the US Department of State in support of the Presidential Permit application and Environmental Impact Statement preparation. Supported TransCanada in public open houses, EIS comment preparation and data request submittals, and permitting in all 7 states. AECOM also provided environmental inspection training and inspectors to ensure compliance during construction. Also supported the development of and oversight of development of mitigation to support permitting efforts for wetlands, bat habitat loss, and other environmental issues.

Ingleside Energy Center, LLC and San Patricio Pipeline, Environmental Management of Field Surveys, FERC Licensing and Permitting of an LNG receiving terminal and pipeline in Ingleside, Texas. Project Director for the compilation of the FERC application, environmental field surveys onshore and offshore in the proposed LNG carrier turning basin, pipeline surveys, and permitting

for the new LNG terminal to be co-located with Occidental's chemical facility near Ingleside, Texas.

Gulfstream Natural Gas System, L.L.C., Environmental Management of Permitting through construction, Gulf of Mexico, Mississippi, Alabama, Florida.

Project Director for siting, routing, field surveys, and permitting for 775-mile pipeline construction project. To-date, the project has involved the coordination of over 100 regulatory agencies, and over 15 public meetings with landowners, the general public and over 30 environmental groups. Project was unique in that it utilized an informal collaborative approach with all regulators and NGOs to facilitate approvals in 2 years from start of project to allow construction to begin on schedule. FERC touts this project as the proper way to handle the public and agencies in getting rapid FERC approval.

Compass Port LLC, LNG Terminal Deepwater Port Application and Environmental Reports, Gulf of Mexico and Alabama.

Project Manager for the 2003–2004 development of the DWP Environmental Report for a proposed offshore LNG terminal and its pipeline to shore, along with a FERC Environmental Report for an onshore pipeline to interconnect with the national transmission grid. Led team permitting meetings with regulatory agencies having jurisdiction over the project.

Beacon Port LLC, LNG Terminal Deepwater Port Application and Environmental Reports, Gulf of Mexico.

Project Director for the 2004–2005 development of the DWP Environmental Report for a proposed offshore LNG terminal and its pipelines to interconnect with the national transmission grid. Led team permitting meetings with regulatory agencies having jurisdiction over the project.

Major Energy Company, Onshore LNG Terminal, Texas. Project Manager for FERC environmental report and associated permitting for an onshore LNG terminal and associated pipeline in Texas.

Destin Pipeline Company, LLC (Southern Natural Gas Affiliate), Destin Pipeline Project - Construction of Natural Gas Pipeline, Gulf of Mexico to Clarke County, Mississippi. Project Manager for environmental aspects of construction project which included the installation of 206 miles of 36-in outside-diameter (OD) and 30-in OD pipeline, installation of 2.4 miles of 16-in OD pipeline in Mississippi, installation of four meter stations, construction of a platform in the Gulf of Mexico, and construction of two new compressor stations in Mississippi. Tasks included Alternatives Analysis for selection of a preferred route, environmental surveys, permitting, and on-site environmental inspection.

Etowah LNG Company, LLC, Etowah LNG Peakshaving Facility and Pipeline Construction Project, Polk County, Georgia. Project Director for all environmental aspects of project related to construction of a new 2.5-billion cubic ft liquefied natural gas peakshaving facility and 12.49 miles of 12.75-in OD natural gas pipeline. Directed team responsible for: preparation of FERC 7(c) filing and Biological Survey Report; conducting biological field surveys of the jurisdiction and non-jurisdictional facilities (including wetlands, species of concern, and surveys for construction constraints); assisting in the siting of the Etowah Pipeline; preparing Land Disturbing Activity; permitting for the construction of the jurisdictional facilities; preparing the application to the USACE for Section 404 permit; coordinating with surveyors to quickly complete field surveys; and performing agency consultations and negotiations

Southern Natural Gas Company, Southern Natural Zone III Expansion Project, Alabama and Georgia. Project director for the Southern natural Zone III Expansion Project (27 miles looping in 3 states with compression), FERC Section 7(c) Environmental Report (ER), field Surveys, permitting, and environmental inspector's manual preparation.

Southern Natural Gas Company, Southern Natural East Tennessee Expansion Project, Alabama, Georgia and Tennessee. Project Director for the project. On a fast track basis, ENSR conducted biological field surveys, completed the FERC ER and survey reports, agency consultation for filing with the FERC and state and federal agencies in 45 days. Completed all permitting and construction implementation plans. Provided EIS and managed environmental inspection.

Southern Natural Gas Company, North Alabama Pipeline Project, Alabama. Project Manager for Southern Natural's 122-mile North Alabama pipeline project in Tuscaloosa, Fayette, Walker, Cullman, Morgan, and Madison counties, Alabama. Project involves route alternatives analysis, FERC 7(c) ER, field surveys using GPS/GIS, and public meeting/FERC support through the EIS process, permitting, and agency negotiation. Currently providing EIS and inspection services.

Southern Natural Gas Company, Approximately Fifteen 7(c) Projects Totaling 600 Linear Miles, LA, MI, AL, GA, TN, SC, NC, FL and Gulf of Mexico. Project Manager and Director providing air permitting, contamination assessment, audit and environmental inspection services for regulated facilities.

ANR Pipeline Company, Patterson Looping Project, Gulf of Mexico and Louisiana. Project director for 37-mile project which included FERC ER preparation, federal and state permitting, and agency negotiation.

ANR, LSP Power Project, Mississippi. Project includes the field surveys, permitting and FERC ER preparation for the 12-mile lateral.

Viking Voyageur Pipeline Company, Viking Voyageur Pipeline Project, Minnesota, Wisconsin and Illinois. Project Director for 800+-mile project which included providing siting, biological and cultural resource field surveys, FERC ER preparation, and permitting support and coordination for the joint TransCanada and NSP Power project.

Chandeleur Pipeline Company, Chandeleur Destin Extension Project and Chandeleur Expansion Project, Mississippi and Gulf of Mexico and Louisiana. Project director for Chandeleur Destin Extension project (4 miles) and Chandeleur Expansion project (30 miles). ENSR provided field survey, FERC ER preparation and permitting support until the project was removed from consideration by Chandeleur.

Discovery Pipeline Company LLC, Discovery Pipeline Project, Gulf of Mexico and Louisiana. Project manager for 80-mile project where ENSR was asked to provide a fast track ER for filing with the FERC and support to Discovery through the FERC review and certification process.

TransCanada/ANR partnership, 800+ mile SunShine Pipeline Project, Florida and Alabama. Technical Project Manager. Managed the technical team to put together the state of Florida Siting Application as well as directed the effort for the

FERC ER. Managed the technical efforts and data analysis for the cultural resource and biological surveys using GPS/GIS. Participated in the 36 public meetings and coordinated with 80 regulatory agencies from local, regional, state and federal agencies to coordinate comments and simplify licensing/permitting conditions. Put together a regulatory and technical Mitigation Task Force to constructively deal with the impact to over 1,000 wetland crossings.

Tenneco, Tenneco West-East Pipeline Project, Louisiana and Mississippi.

Project management involved preparation of the ER for a 225-mile project, management of the biological and cultural resource surveys in Tennessee's Vicksburg field office, and coordination with state and federal agencies and FERC.

TransContinental Pipe Line Company, Southeast Mainline Looping Project, Alabama, Georgia and North Carolina. Directed the biological field survey efforts, FERC ER preparation, and provided support to TransContinental for FERC interrogatories.

Florida Power Corporation, Environmental Master Services Agreement, Florida.

Projects included jurisdictional wetland delineations at the Higgins Power Plant, waste water monitoring at the Monticello facility,

US Navy, Environmental Assessments, Puerto Rico, Florida and Atlantic

Seaboard. Project manager for several US Navy EAs that were completed for proposed facilities or Navy actions. Projects included the Camp Pendleton Warfare Training facilities, the Naval Warfare Training Facilities on Isla Pincros, Puerto Rico, and the ecological risk assessment at the Naval Air Training Center in Pensacola, Florida. Managed the efforts to conduct a siting alternatives analysis study along the Atlantic seaboard for the shock testing for the new class of submarine, the Sea Wolf. Project utilized satellite imagery to create databases and a GIS to manage the information.

Pangue Corporation, Pangue Hydroelectric Dam, Southern Chile. Team member for the EIA prepared for the Pangue hydroelectric dam in southern Chile. The project was the first Category A project to be funded by the IFC, receiving international scrutiny for the damming of a premier Class V white water river. Completed the aquatic resources sections of the EIA. Project Manager for the follow-up downstream impact analysis study and development of a flow release management plan. Led a team of Chilean and US experts in hydrology, water quantity and quality modeling, and aquatic ecology to assess the impacts of dam operations to downstream water users and ecology.

TransCanada Pipe Line Company, Marquiti-Cali Pipeline Project, Central Columbia. Led a US team hired by TransCanada to provide pipeline construction expertise. The team worked with local contractors to ensure that reasonable permit conditions were applied to this project.

Lagoven, Caripito-Guiria Oil Pipeline Project, Eastern Venezuela. Managed E&E's subsidiary staff to evaluate the alternative pipeline routes for Lagoven. Participated in an evaluation of potential construction methods with Wilbros Construction Company through the sensitive estuarine and freshwater wetland.

Publications

Schmidt, J.A., S.W. Ellsworth, R.A. Brooks, D.F. Bishop, M.C. Aubele, H.E. Watkins. 2007. Limestone boulders, artificial reef modules provide seafloor mitigation. *Oil and Gas Journal* 105.

Schmidt, J.A., S.W. Ellsworth, R.A. Brooks, D.F. Bishop, M.C. Aubele, H.E. Watkins. 2007. Monitoring, analysis show rapid Gulf of Mexico seafloor recovery. *Oil and Gas Journal* 105.

Schmidt, Jon A. 2005. Improving ESIA Quality through Early Engagement of Stakeholders. 25th Conference of the International Association for Impact Assessment, Boston, Massachusetts.

Schmidt, J.A., and Steve Ellsworth. 2003. Managing the CZMA Process for Pipeline Projects. International Offshore Pipeline Workshop, New Orleans, Louisiana.

Case Study: Gulfstream Natural Gas Pipeline System. co-author, Ron Hoepner, VP Williams Pipelines. 2002 Onshore Pipelines Conference, Amsterdam, Netherlands.

Scott, Dawn R., and Jon A. Schmidt, 1997. Integration of GIS, GPS and Satellite Imagery to Provide Support Tools for Natural Gas Pipeline Siting: Costs and Benefits, 6th International Conference & Exhibition on GIS for the Oil and Gas Industry, Houston, Texas.

Schmidt, J.A., and K. Kiefer, 1994, GIS/GPS Data Acquisition for the SITCO/SunShine Pipeline Projects, in Geographic Information Systems for the Pipeline Industry, 3rd Annual Conference Proceedings, Houston, Texas, pp. 15-1 to 15-18.

Gallagher, G.A., D.W. Heatwole, J.A. Schmidt, and P.V. Witt, 1993. Applications of GIS in Siting of Linear Facilities in Current and Future Priorities for Environmental Management, 18th Annual NAEP Conference Proceedings, Raleigh, North Carolina, pp. 451-549.

Schmidt, J.A., M. MacLaughlin, and S.O. Sanborn, 1992. Performance of Habitat/Biota Surveys of Sensitive Ecosystems as Part of Multi-site Investigation at the Naval Air Station Pensacola, paper presented to the American Defense Preparedness Association, 18th Annual Symposium, Washington, D.C.

Schmidt, J.A., 1987. Dynamics of Benthos in Vegetated Marine and Freshwater Communities, *Bulletin of the Ecological Society of America*, 68(1): 53-54.