BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION BY TRANSCANADA KEYSTONE PIPELINE, LP FOR A PERMIT UNDER THE SOUTH DAKOTA ENERGY CONVERSION AND TRANSMISSION FACILITIES ACT TO CONSTRUCT THE KEYSTONE PIPELINE PROJECT	)	HP 07-001 **DIRECT TESTIMONY OF HEIDI TILLQUIST**

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

Answer: Heidi Tillquist, 1601 Prospect Parkway, Fort Collins, Colorado

2. What is your role with the TransCanada Keystone Pipeline project?

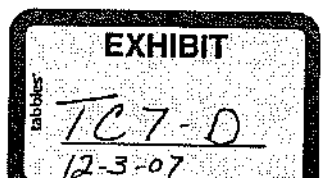
Answer: I am a contractor of TransCanada Keystone. I am employed as an environmental toxicologist and project manager with ENSR in Fort Collins, Colorado. ENSR is providing environmental consulting services to TransCanada Keystone Pipeline, L.P. (Keystone) with respect to the Keystone Pipeline project.

3. Please state your professional qualifications.

Answer: I have 17 years of experience conducting environmental toxicology and risk assessment. I have worked on a number of pipeline projects including crude oil, refined products, natural gas liquid (condensate), and natural gas pipelines. I have conducted risk assessments of pipelines, oil and gas field development, power plants, mining sites, and Superfund sites. I have authored reference texts, including a document discussing the environmental effects of crude oil in freshwater environments.

4. Have you provided a resume?

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



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5. Are you responsible for portions of the application which Keystone has filed with the South Dakota Public Utilities Commission seeking a siting permit for the Keystone Pipeline?

Answer: Yes.

6. Are you responsible for the information provided in Section 5.4.2 of the application?

Answer: Yes.

7. Will you please summarize the information in that part of the application?

Answer: The proposed pipeline route crosses near a water supply well in Marshall County and will cross an aquifer protection area in Kingsbury County. The pipeline corridor also passes through areas where shallow and surficial aquifers exist. Shallow and surficial aquifers have the greatest potential generally speaking for sources of water. Since the pipeline will be buried at a shallow depth, it is unlikely that the construction or operation of the pipeline will alter the water yield of any aquifers used for drinking water purposes. Keystone will investigate shallow groundwater when it is encountered during construction to determine if there are any nearby livestock or domestic wells that might be affected by construction activities. Appropriate measures will be implemented to prevent groundwater contamination and steps will be taken to manage the flow of any groundwater encountered. Pipeline construction in the area of any known surficial aquifers or wetlands will be performed according to current industry best management practices to minimize adverse impacts potentially associated with pipeline construction. Keystone's Construction Mitigation and Reclamation Plan (CMR Plan) addresses this topic in further detail.

Reductions in the quality of ground water from spills, leaks, or disposal practices during construction are not anticipated. Most of the aquifers will be at least temporarily isolated from spills which might occur on the land surface. In the unlikely event of an incident, attending personnel will be able to respond before contaminants migrate into groundwater. Impacts to deep aquifers are not expected. In areas with near-surface ground water, or areas adjacent to surface waterbodies, additional procedures and measures will be implemented. See elsewhere in Keystone's application and the CMR plan.

8. Are you responsible for the information provided in Table 4 of the application?

Answer: Yes.

9. Will you please summarize the information in that part of the application?

Answer: Table 4 shows the eight named waterbodies within 10 miles of proposed Keystone pipeline crossings in South Dakota.

10. Are you responsible for the information provided in Table 5 of the application?

Answer: Yes.

11. Will you please summarize the information in that part of the application?

Answer: Table 5 shows the two public water supplies existing within one mile of the centerline of the pipeline.

12. Are you responsible for the information provided in Section 5.8 of the application?

Answer: Yes.

13. Will you please summarize the information in that part of the application?

Answer: The Clean Water Act (CWA) requires each state to review, establish and revise water quality standards for surface water. Those requirements are found at Section 303(c) of the CWA. South Dakota has developed its own beneficial use classification system. The water quality standards in place in South Dakota are found at Administrative Rules of South Dakota (ARSD) Chapters 74:51:01 through 74:51:03.

A permit for hydrostatic test water discharges is expected to impose limits on discharges which will protect receiving water bodies. Construction methods for stream crossings detailed in Section 7 of the CMR plan (Exhibit B of Keystone's application), protects those streams and waterbodies. Keystone expects that the one-time construction and hydrostatic test water use will result in no short or long-term impacts to water quality along the proposed route.

14. Have you prepared a risk assessment and environmental analysis of the Keystone Pipeline?

Answer: Yes I have.

15. Please describe generally what a risk assessment and environmental analysis is?

Answer: Risk assessments evaluate the probability of an event (such as a pipeline spill), determine if receptors (humans, wildlife, fish) could be exposed in the event of a spill (exposure route), and analyze its potential consequences (exceedence of drinking water criteria).

16. Was a spill analysis conducted for the Keystone pipeline?

Answer: A preliminary spill analysis was conducted for the Keystone Pipeline. A spill frequency and spill volume analysis was conducted by DNV, an independent firm recognized as an industry expert on spill frequency and volume assessments. DNV used information from a number of sources including the national database that is controlled by the Pipeline Hazardous

Materials Safety Administration (PHMSA) within the U.S. Department of Transportation. Based on the results of DNVs assessment, ENSR subsequently used the spill frequency and volumes to estimate environmental consequences, which was also part of the Risk Assessment.

17. What were the results of the spill analysis?

Answer: The project-specific results provided by DNV were derived from historical data obtained from the USDOT databases. DNV estimated the chance of a leak from the Keystone Pipeline to be no more than once every seven to 11 years over the ENTIRE length of the pipeline in the U.S., depending on product and throughput. Using the most frequent seven year interval, this equates to a spill no more than once every 41 years at any location along the 220 miles of pipeline in South Dakota.

18. Is this spill frequency a conservative figure?

Answer: By design, the frequency/volume statistics are conservative (i.e., they overestimate risk) since the intent was to use the assessment for planning purposes. Specifically, the objective of the risk assessment was threefold: 1) it provided a range of potential effects for the NEPA process; 2) it provided a preliminary evaluation of risk as required for Integrity Management program (49 C.F.R. Part 195); and 3) it is used for Emergency Response planning (49 C.F.R. Part 194).

19. At the PUC public input sessions held in June, a member of the public commented that the Keystone Pipeline will definitely leak. Is that true?

Answer: The statistical frequencies cited in the DNV study should not be interpreted as confirmation that spills will definitely occur. Rather, these statistical estimates are similar to statistics that the auto insurance industry uses. For example, your insurance agent might state that you are likely to have 1.5 crashes in ten years. That does not mean that you will crash

during that ten year period. In fact, as a good driver, you'll do everything you can to minimize the chance of a crash. Similarly, Keystone will adopt a number of measures to minimize the chance of a pipeline leak or spill.

20. Discuss the probable size of a spill from the Keystone pipeline.

Answer: For the Risk Assessment analysis, DNV utilized data based on a reporting criteria of 50 barrels or more. So the assessment, by design, overemphasizes the probable spill size. This is done to ensure conservatism in emergency response planning and other objectives. Data from actual spills reveals that Keystone's assessment is highly conservative. Since the PHMSA reporting criteria changed in 2002 to require reporting of spills of five barrels or more, the average size of a reported pipeline spill has been 12 barrels, equivalent to approximately 500 gallons. If a spill were to occur on the Keystone Pipeline, these recent data affirm that the spill is very likely to be small.

21. In broad terms, how susceptible are aquifers along the Keystone Pipeline Project route to a crude oil spill?

Answer: Not all aquifers are equally vulnerable to contamination from a pipeline spill. The majority of the pipeline (approximately 80%) is underlain by low permeability soils (including fine-grained glacial deposits and confining materials) that inhibit the infiltration of released crude oil into aquifers. Additionally, most aquifers are more than 50 feet deep, which significantly reduces the chance of contamination reaching the aquifer.

The chance of a spill occurring over a shallow aquifer with highly permeable soils is low. Consequently, the majority of aquifers crossed by the pipeline have low susceptibility to contamination and the chance of a spill from the Keystone pipeline that would affect an aquifer anywhere along the route is very low.

22. How susceptible are the aquifers in South Dakota?

Answer: Most South Dakota aquifers are located at depths at more than 100 feet and, consequently, are less susceptible to oil contamination. However, the Middle James (also known as the Brampton) and Oakes aquifers in Marshall and Brown counties are shallow lake bed or buried channel aquifers with depth to water generally less than 50 feet. While the Oakes and Middle James aquifers are generally overlain by isolating surficial silts and clays (thereby restricting the penetration of oil to the underlying aquifer), permeable sands and gravels do occur in the extreme northeastern portion of Brown County and in Marshall County. Keystone's proposed Hecla Sandhills reroute, discussed in Mr. Koski's testimony, significantly reduces the amount of shallow groundwater aquifers crossed in Brown and Marshall counties. The original proposed route crossed approximately 20.4 miles of shallow water supply aquifers, of which 12.7 miles were high-yielding aquifers. Sandy soils, which have more permeability, occur along 21.6 miles of the original proposed route. The reroute overlies 5.2 miles of shallow water supply aquifers, all of which have high-yielding aquifers. Sandy soils occur along 11.2 miles of the reroute.

23. How much groundwater would be affected if oil were to reach the aquifer?

Answer: Whenever crude oil accumulates on the groundwater surface, an area of dissolved crude oil constituents will develop, forming a contaminant plume that will migrate in the direction of groundwater flow. Groundwater moves faster than the contaminant compounds (Benzene, Toluene, Ethylbenzene, and Xylene or "BTEX") due to natural attenuation processes, which is the natural degradation of hydrocarbons by microbes. A recent report evaluated over 500 sites with BTEX contamination in groundwater and found that the contaminant plume was within 250 feet of its source in 75% of the cases. In 80% of the cases, the contamination plume

was stable or decreasing in size (MN PCA). Therefore, it is a misconception that a crude oil spill would contaminate an entire aquifer. In reality, if a spill from the Keystone Pipeline were to reach an aquifer, the areal extent of contamination would be quite small.

24. At the PUC public comment sessions held in June, reference was made to a crude oil spill site at Bemidji, Minnesota. Have you investigated the Bemidji oil spill site?

Answer: Yes I have. Because there were comments from the public about the extent of the groundwater contamination and absence of vegetation at the Bemidji site, I went to Minnesota, spoke with the lead USGS researcher, Geoff Delin, and conducted a site visit, in July 2007.

25. What did you learn from your site visit to the Bemidji Oil spill site?

Answer: In 1979, a crude oil spill occurred along Lakehead Pipeline near Bemidji, Minnesota. Approximately 10,600 barrels spilled. While most crude oil was cleaned up, approximately 2,515 barrels remained. The groundwater in the area is susceptible to contamination because the soils in this area are sandy (high hydraulic capacity) and the groundwater is shallow (ranging from zero (surface water) to 35 feet below ground surface).

The USGS has conducted research at the site to determine how crude oil affects groundwater. I learned that the BTEX front moves about five times slower than the groundwater. Over 20 years, the BTEX had moved a total of 170 yards from the crude oil source. The limited movement of the contamination was due to natural attenuation.

26. At the public comment session there was a comment that a crude oil spill will make the ground sterile forever. The Bemidji site was used as an example of this impact. Do you agree with that statement?

No, it is not accurate, nor is it supported by the Bemidji site. Remediation techniques currently available commonly restore vegetation within a few years. Attached to my testimony are some photographs I took at the Bemidji site this past July, as Exhibit B. The first photograph is of the pipeline ROW, where several pipelines are co-located (Photo 1). The spill was caused by defective pipe that was manufactured in the 1950s. The oil sprayed about 120 meters into what is called the "spray zone." The oil from the spray zone then flowed along the soil surface, following the terrain contours, and drained into a wetland approximately 100 meters away, forming the South Pool. The North Pool was located along the ROW.

As part of the cleanup in 1980, all the topsoil was stripped from the spill area. As shown in the first photograph of the ROW, vegetation has re-established and is indistinguishable from the surrounding area (Photo 1). The next photo (Photo 2) is a view of the North Pool area. Again, vegetation has been successfully re-established throughout this area. Photo 3 is an overview of the spray zone. Most of the area has vegetation growing on it. However, Photo 4 shows an area (20 m x 15 m) within the spray zone where vegetation regrowth is limited. The limited revegetation is due to two things: 1) hydrophobic soils (where the oil forms a water repellent crust at the soils surface); and 2) lack of topsoil (it is difficult for vegetation to grow in subsoils). If this area in Photo 4 were to be actively remediated, the ground would be tilled to disrupt the hydrophobic crust and topsoil would be replaced. Photo 4 is the South Pool area. This is the only area where topsoil was replaced. As you can see, the wetland and surrounding vegetation is very lush.

In summary, vegetation at the Bemidji site has largely re-established despite lack of topsoil and any active remediation to the soil. There is a small area where vegetation has not

completely re-established and that is attributable to the hydrophobic soils and lack of topsoil. Tillage and topsoil replacement would resolve this issue.

27. Are you responsible for the information provided in Section 6.4.2 of the application?

Answer: Yes, in part.

28. Will you please summarize the information in that part of the application for which you are responsible?

Answer: Pipelines are the safest, most reliable, and most efficient mode of transporting large volumes of crude oil. Pipeline transportation of crude oil enjoys an excellent safety record. Keystone has submitted a preliminary risk assessment and environmental consequence analysis to the Department of State. The preliminary risk assessment evaluates the likelihood of a crude oil release and potential for environmental impacts.

29. Do you adopt the portions of Keystone's application discussed above as your testimony in this proceeding, as well as the additional testimony above and the attached exhibits?

Answer: Yes, I do

30. Do the portions of the application for which you are responsible support the granting of a permit by the Commission for the Keystone Pipeline Project?

Answer: Yes they do.

31. Does this conclude your testimony?

Answer: Yes it does.

Dated this 21 day of September, 2007.

Heidi Tillquist

HEIDI TILLQUIST

Heidi Tillquist, M.S.

Years Experience: 17

Technical Specialties

- Risk Assessment
- Environmental Toxicology
- Fisheries Biology
- Wildlife Biology

Professional History

- ENSR
- U.S. Fish and Wildlife Service
- Lovelace Inhalation Research Institute
- U.S. Forest Service

Education

- MS (Environmental Toxicology) Colorado State University
- BS (Fishery and Wildlife Biology) Colorado State University

Professional Registrations and Affiliations

- Certified Fisheries Professional, American Fisheries Society
- Certified Wildlife Biologist, The Wildlife Society

Representative Project Experience

Pipeline Experience

Keystone Pipeline Project, North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Missouri, and Illinois. Keystone is proposing to construct a 1,372 mile pipeline system in the U.S. to transport Canadian crude oil to refinery destinations in the mid-western U.S. Keystone has prepared technical documents that were filed with the Department of State, the lead federal agency for the EIS. Ms. Tillquist is responsible for conducting a risk assessment for accidental releases from the pipeline system, including estimates of the probability of occurrence base on Office of Pipeline Safety data bases and sensitive area maps; estimates of potential toxicological effects on wildlife, fisheries, domestic livestock, and humans from crude oil releases; and estimates of oil spill recovery rates in terrestrial and aquatic systems.

Shell Pipeline Company, New Mexico Products Pipeline EIS, New Mexico and Texas. Shell proposed to convert and reverse the flow of an existing 406-mile crude oil pipeline to transport refined petroleum products (i.e., gasoline, diesel, jet fuel). System conversion also entailed the construction of two new pipeline extensions (about 100 miles total), pump stations, pressure reducing stations, miscellaneous appurtenances, and associated electrical transmission lines. The project would affect portions of New Mexico and Texas, involving many local, state, federal, and tribal jurisdictions. Due to public concern, a probabilistic risk assessment evaluated risk to humans and the environment that could result from the accidental release from the pipeline and its facilities. Pipeline safety was identified as one of the key issues due to the existing pipe's age (45 years old) and its composition (pre-1970 electric resistance welded [ERW] pipe). Historically, pre-1970 ERW pipe has a higher than expected rate of failure. Due to the extreme scrutiny of this project and high probability for litigation, the BLM requested that the pipeline's structural integrity be carefully evaluated. Information from various sources (e.g., previous hydrostatic test; leak history; pipeline repairs; magnetic particle inspection; burst test; close interval survey) were compiled and integrated into a risk assessment where the time-to-failure was calculated, based on Shell's proposed hydrostatic test pressures and proposed operating cycles (frequency and magnitude). The probability of a failure due to pressure reversal and stress-induced cracking was determined to be low. Presuming the pipe passes the pre-operational hydrostatic test and in-line inspection, the elevated hydrostatic test pressures and low frequency, low-magnitude operating cycles proposed by Shell in High Consequence Areas would provide sufficient protection to reasonably ensure the safety of nearby residences and environmental resources.

The EIS also evaluated the potential consequences of a release. Risk statistics were generated from the Office of Pipeline Safety (OPS) database and the potential impacts to sensitive resources were identified. Results indicate that alternatives to the proposed project, including No Action, Pipe Replacement, and Pipe Reroute, would pose greater risks to the public and environment. Moreover, the risk was not distributed equally along the pipeline route. For the pipeline alternatives, risk to environmentally sensitive areas (e.g., groundwater aquifers, residential areas) was disproportionally higher than for other less-sensitive areas along the pipeline. Ms. Tillquist conducted the risk assessment for the EIS, served on the Pipeline Safety Technical Panel, and acted as the Project Manager for this project.

Questar, Williams, Kern River Pipeline Companies, Environmental Impact Statement Preparation for Natural Gas and Crude Oil Pipelines, Utah, Colorado, New Mexico. This EIS incorporated information from three different pipelines, In the first proposal, Williams proposed to convert an existing crude oil pipeline to refined petroleum product service as well as construct new pipeline extensions. The entire project would extend about 500 miles through portions of New Mexico, Colorado, and Utah. In the second and third proposals, Questar and Kern River proposed to simultaneously build natural

gas transmission pipelines within a portion of the same corridor in Utah. ENSR prepared a third-party EIS for the BLM, the lead agency. Primary issues included petroleum spills, natural gas releases, and conflicts with inventoried roadless areas in National Forests. Due to increased public concern regarding the safety of pipelines, national US Department of Transportation incident databases were assessed and used to estimate the probability of future releases. Additionally, adverse effects to sensitive environmental receptors, including residential areas and endangered fish species, were evaluated.

At the BLMs request, ENSR conduct a detailed risk assessment as part of the NEPA process. The structural integrity of the existing pipe and the operational procedures proposed for the entire pipe system were evaluated to ensure the protection of public safety and the environment. The assessment process integrated operational and environmental factors that could affect the safe operation of the pipeline (e.g., cathodic protection measures, internal inspections, ongoing surveillance, leak detection capabilities, operational pressures and cycles, designed safety features, and emergency response capabilities). Geological hazards (e.g., seismicity, landslides) were examined to identify areas along the pipe that might be exposed to additional physical stress. Environmentally sensitive areas (e.g., drinking water recharge area, residential areas, threatened and endangered species habitat) were also incorporated into the analysis. This information was integrated into a comprehensive risk assessment framework that also estimated the probability of an incident (spill, injury, fatality, fire, or explosion) based on the existing pipe's leak history and national statistics. Once the probability of an event was estimated, the potential consequences of a release to sensitive resources were quantified. Based on the assessment, the potential risks to public safety and drinking water sources were considered among the highest priority risks. While no additional safety mitigation was required for the natural gas pipelines, the BLM and Williams met to jointly discuss the analysis, the areas of potential risk from a liquid spill, and discuss potential mitigation. Ultimately, Williams modified their operational plans to further reduce the hazard to these sensitive areas to the satisfaction of BLM technical staff. Ms. Tillquist conducted the risk assessment for the EIS and acted as the Assistant Project Manager for this project.

Entrega Gas Pipeline Inc., Entrega Pipeline Project EIS, Colorado, Wyoming. Entrega Gas Pipeline Inc. (a subsidiary of EnCana Oil and Gas) proposed to construct and operate a 327.5-mile 36- to 42-inch-diameter natural gas transmission pipeline. The pipeline would transport up to 1.5 Bcfd of natural gas from the Piceance Basin in Colorado to interconnections in Wamsutter and near Cheyenne, Wyoming. ENSR was preparing the EIS as a third-party contractor to the FERC and the BLM was a cooperating agency. Major issues included potential impacts to threatened and endangered species (water depletion issues), noxious weed management, and socioeconomic impacts. Because Western Interstate Company (a subsidiary of El Paso Corporation) also proposed to build a large diameter pipeline from the Piceance Basin to

Wamsutter, cumulative impacts were also an issue. Ms. Tillquist served as the Project Manager on this project.

Wyoming Interstate Company, Piceance Basin Expansion Project EIS, Colorado, Wyoming. Wyoming Interstate Company (WIC, a subsidiary of El Paso Corporation) proposes to construct and operate a 141.7-mile 36-inch-diameter natural gas pipeline. The pipeline would transport up to 350 MMcfd of natural gas from the Piceance Basin in Colorado to interconnections near Wamsutter, Wyoming. ENSR is preparing the EIS as a third-party contractor to the FERC and the BLM is a cooperating agency. Major issues include potential impacts to threatened and endangered species (water depletion issues), noxious weed management, and socioeconomic impacts. Because Entrega Pipeline Company Inc.(a subsidiary of EnCana Oil and Gas) also proposes to build a large diameter pipeline from the Piceance Basin to Wamsutter, cumulative impacts are also an issue. Ms. Tillquist serves as the Project Coordinator for this project.

Questar Natural Gas Company, Preparation of the Southern Trails Natural Gas Pipeline Environmental Impact Statement (EIS)/Environmental Impact Report (EIR), California, Arizona, Utah, and New Mexico. Questar proposed to convert a 600-mile crude oil pipeline to the Southern Trail natural gas pipeline. Construction resulting from the proposed extensions, reroutes, realignments, and replacements affected portions of California, Arizona, Utah, and New Mexico and involved many local, state, federal, and tribal jurisdictions. ENSR prepared this third-party EIS/EIR for the Federal Energy Regulatory Commission (FERC). Ms. Tillquist participated in project coordination, wrote several technical sections, and provided technical review of the EIS.

El Paso Energy, Federal Energy Regulatory Commission (FERC) Application to Convert a Crude Oil Pipeline to Natural Gas Pipeline, Texas, New Mexico, Arizona. ENSR coordinated El Paso Energy's Line 2000 application to the FERC for the conversion of an existing approximately 800-mile crude oil pipeline to natural gas service. This conversion project affected lands within Texas, New Mexico, and Arizona. ENSR's duties included the preparation of FERC resource reports, an applicant-prepared biological assessment (BA), applicant-prepared environmental assessment (EA), and 404 permit. Project management activities including project budgeting, coordinating office staff and field survey crews, and creation and maintenance of a database detailing over 300 construction sites and activities.

Newfield Exploration Company, Castle Peak and Eightmile Flat Oil Expansion Project, Utah. ENSR was contracted by the BLM's Vernal Field Office to prepare a third-party EIS for a proposed expansion of oil field development operations in the Unitah Basin area of northeastern Utah. The study area covers approximately 110 sections or 65,500 acres. Inland is proposing to expand its existing waterflood oil recovery operations by drilling up to 900 additional wells in the Castle Peak and Eightmile Flat areas of the greater Monument Butte-Myton Bench oil and gas

production region. Important issues associated with this project included cumulative effects to raptor species in the Unitah Basin, air quality, and effects on sensitive species, such as the mountain plover and hookless cactus. ENSR also prepared a Biological Assessment for the U.S. Fish and Wildlife Service as part of the project permitting requirements. Ms. Tillquist evaluated the effects of habitat fragmentation on wildlife resources.

Risk Assessment – Oil and Gas Emphasis

Inland Resources, Natural Gas Liquid Pipeline Environmental Assessment, Wyoming. Inland Resources plans to develop an area for natural gas liquids extraction. As part of the development, a new pipeline would be constructed which would cross a tributary to the Green River in Utah, which contains several endangered fish species. At the request of the BLM and US Fish and Wildlife Service, the potential hazard posed by the pipeline was evaluated by assessing the likelihood of a spill, attenuation rates, and dilution potential. Additionally, cumulative risk from other natural gas liquid pipelines within the same drainage was also estimated. Based on the pipelines location, volume of natural gas liquids, probability of failure, and likelihood of downstream transport, the assessment showed that no impacts to endangered fish species would be anticipated.

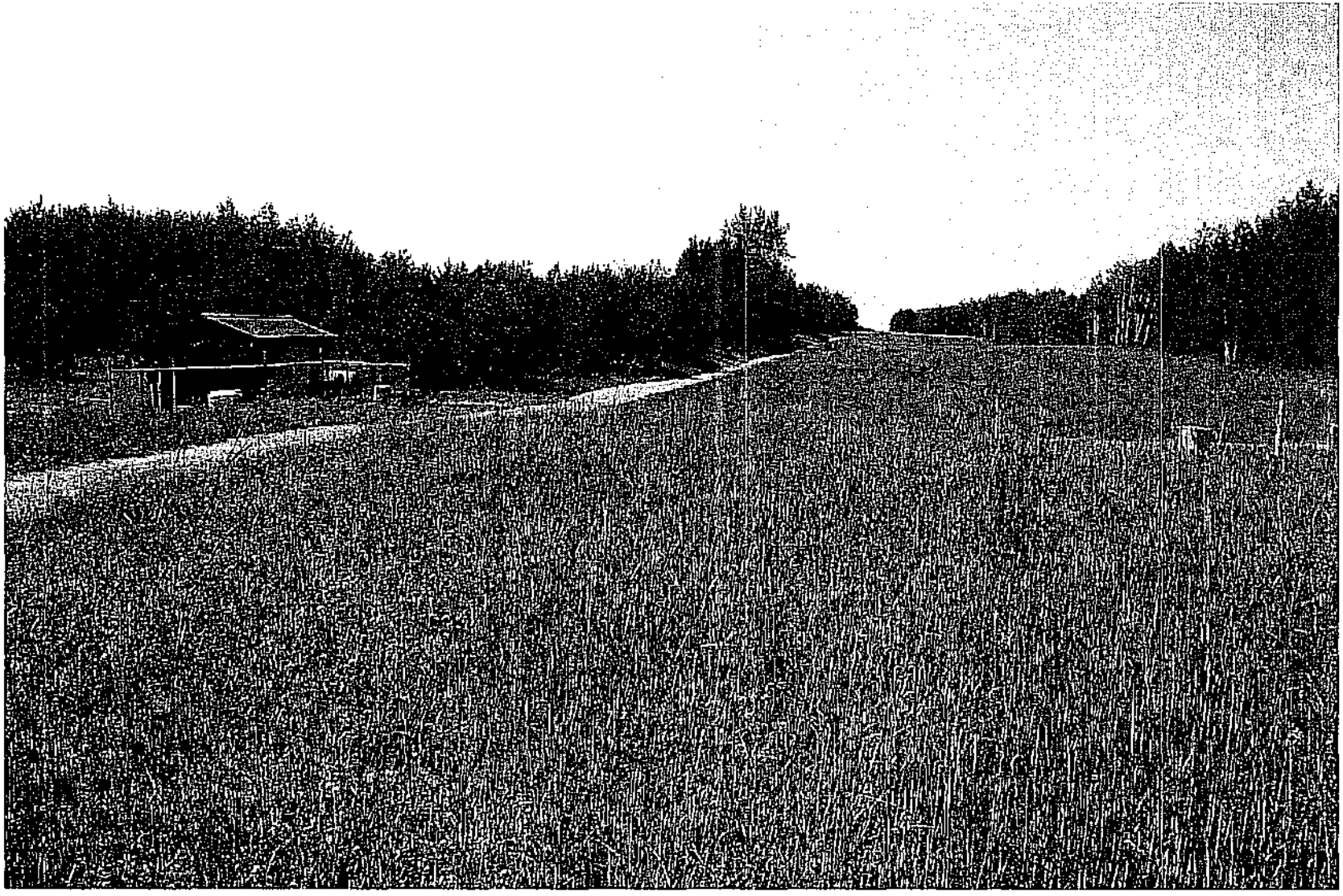
American Petroleum Institute (API), Fate and Environmental Effects of Oil Spills in Freshwater Environments. ENSR prepared a report for API describing the fate and effects of oil spills in freshwater environments. This report summarizes and documents potential environmental effects from inland oil spills into fresh surface waters. It identifies, describes, and compares the behavior, fate, and ecological implications of crude oil and petroleum products in inland waters. The document is intended to provide basic information necessary for the formulation of spill response strategies that are tailored to the specific chemical, physical, and ecological constraints of a given spill situation. The report describes the relevant features of various inland spill habitat types, discusses the chemical characteristics of oils and the fate processes that are dependent thereon, summarizes reported ecological and toxicological effects results both generally and with specific reference to distinct organism groupings, and, finally, in the context of case histories from past spills, highlights some of the considerations, difficulties, and elements of success of presently available spill response techniques.

Bolivian National Government, Evaluation of the Transredes Petroleum Product Spill, Bolivia. Following a pipeline rupture on the Rio Desaguardero, the spatial extent and environmental effects of hydrocarbon contamination was evaluated by chemical analysis of environmental media and laboratory toxicity tests. These data were then used in a risk assessment to evaluate the potential risk to aquatic biota, terrestrial herbivores (cattle, sheep, and endangered vicunas), and human receptors.

Reliant Energy, Pipeline and Facility Decommissioning Evaluation, New Jersey and Pennsylvania. Reliant owned a 10-mile pipeline that had been used to transport fuel oil #6 (historically) and fuel oil #2 (currently). The company also owned a related facility with breakout tanks and aboveground piping. Reliant was considering temporarily (1 to 3 years) suspending the transport of oil through the pipeline and facility and, perhaps, totally abandoning these assets. Alternatively, Reliant could chose to reactivate the pipeline after a temporary suspension. Ms. Tillquist evaluated the federal, state, and local regulations that govern the temporary suspension, reactivation, and abandonment processes. Additionally, she identified technical issues that would be associated with each process. Finally, ENSR provided Reliant with a range of anticipated costs associated with each of these activities.

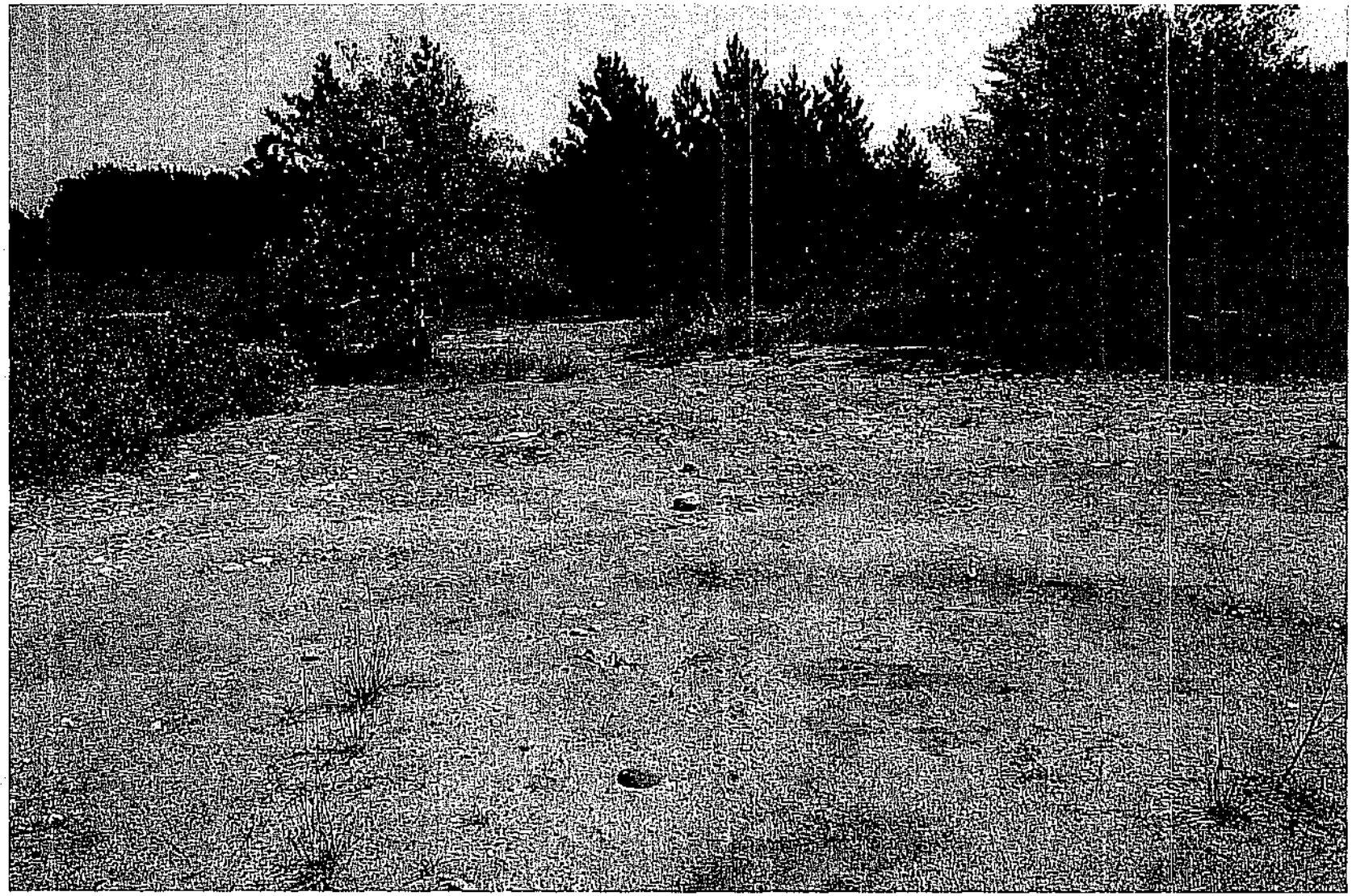
EXHIBIT B

Photograph 1. Pipeline ROW at Bemidji (7/30/07)

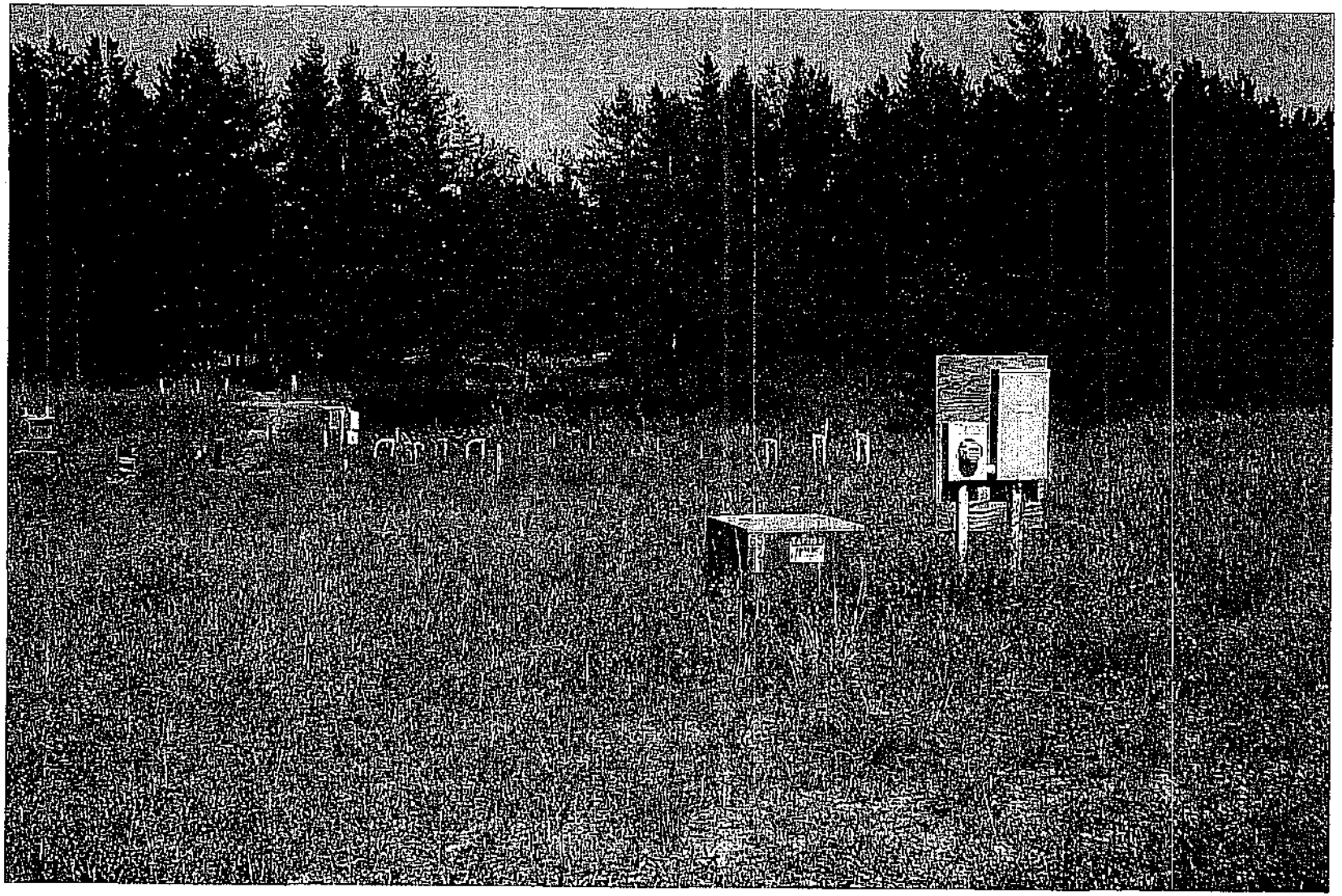


Photograph 2. Spray Zone Overview (7/30/07)

Photograph 3. Hydrophobic soils within Spray Zone showing little revegetation. (07/30/07)



Photograph 4. North Pool and monitoring wells. (07/30/07)



Photograph 5. Wetland and South Pool (07/30/07).