UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

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ASSISTANT ADMINISTRATOR
FOR ENFORCEMENT AND
COMPLIANCE ASSURANCE

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Economic, Energy and Business Affairs
U.S. Department of State
Washington, DC 20520

Dr. Kerri-Ann Jones
Assistant Secretary
Oceans and International Environmental and Scientific Affairs
U.S. Department of State
Washington, DC 20520

Dear Mr. Fernandez and Dr. Jones:

In accordance with our authorities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, EPA has reviewed the Department of State's draft Supplemental Environmental Impact Statement (DSEIS) for a Presidential Permit application by TransCanada Keystone Pipeline, LP (TransCanada) to construct and operate the Keystone XL Project (Project). This DSEIS builds on the Department of State's August 2011 Final EIS, and includes information regarding a new proposed route in Nebraska.

NEPA serves an important role in the decision making process for federal actions that may have environmental effects. Through the NEPA process, federal agencies disclose and analyze the potential impacts of a proposed action and reasonable alternatives, as well as measures that could mitigate any potential harmful effects. NEPA brings transparency to the federal decision making process, requiring that other federal, state, tribal and local agencies, as well as citizens, are given a meaningful opportunity to provide comments, helping to ensure federal decisions are better informed.

EPA believes this DSEIS strengthens the analysis presented to date in the NEPA process. While we appreciate this effort, we also have several recommendations for improving the analysis and considering additional mitigation as you move forward to complete the NEPA process.

Greenhouse Gas Emissions

We commend the Department of State's efforts to estimate the lifecycle greenhouse gas (GHG) emissions associated with oil sands development and the proposed Project, to analyze the effect of the Project on Canadian oil sands production and to consider measures to reduce GHG emissions. As recognized by the DSEIS, oil sands crude is significantly more GHG intensive than other crudes, and therefore has potentially large climate impacts. The DSEIS reports that lifecycle GHG emissions from oil sands crude could be 81% greater than emissions from the average crude refined in the U.S. in 2005 on a well-to-tank basis, and 17% greater on a well-to-wheels basis.[1] This difference may be even greater depending on the assumptions made.[2] The incremental emissions from oil sands crude transported by the Project would therefore be 18.7 million metric tons CO_2-e (carbon dioxide equivalent) per year when compared to an equal amount of U.S. average crudes, based on the Project's full capacity of 830,000 barrels of oil sands crude per day.[3] To place this difference in context, we recommend using monetized estimates of the social cost of the GHG emissions from a barrel of oil sands crude compared to average U.S. crude. If GHG intensity of oil sands crude is not reduced, over a 50 year period the additional CO_2-e from oil sands crude transported by the pipeline could be as much as 935 million metric tons. It is this difference in GHG intensity - between oil sands and other crudes - that is a major focus of the public debate about the climate impacts of oil sands crude.

Although the DSEIS describes the GHG intensity of oil sands crude, the DSEIS nevertheless concludes that regardless of whether the Project permit is approved, projected oil sands production will remain substantially unchanged. This conclusion is based on an analysis of crude oil markets and projections of oil sands crude development, including the potential for other means of transport to bring oil sands crude to market. One of the alternative transport possibilities discussed in the DSEIS is the potential construction of other pipelines. As part of this discussion, the DSEIS appropriately recognizes that there is uncertainty about when, if ever, additional pipelines will be built. In light of these uncertainties, the DSEIS examines options for transporting oil sands crude by rail, and concludes that scaling up transport by rail is logistically and economically feasible, and that market forces will result in additional rail transport of oil sands crude if the Project is not built. It is this finding that supports the DSEIS' overall conclusion that approval of the permit will not by itself substantially affect GHG emissions or contribute to climate change.

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[1] DSEIS, Table 4.15-22 "GHG Emissions for Producing Gasoline from Different Crude Sources from NETL 2009 and Estimates of the Impact of Key Assumptions on the Oil Sands - U.S. Average Differential." In addition to lifecycle emissions estimates from the Department of Energy's National Energy Technology Laboratory (NETL) study, the DSEIS also provides estimates from other analyses. See discussion in DSEIS section 4.15.

[2] DSEIS, p. 4.15-106, "Adjusting the NETL results to include other product emissions could increase the differential in incremental emissions from WCSB oil sands compared to the 2005 U.S. average crude oils by roughly 30 percent."

[3] DSEIS p. 4.15-105

The market analysis and the conclusion that oil sands crude will find a way to market with or without the Project is the central finding that supports the DSEIS's conclusions regarding the Project's potential GHG emissions impacts. Because the market analysis is so central to this key conclusion, we think it is important that it be as complete and accurate as possible. We note that the discussion in the DSEIS regarding energy markets, while informative, is not based on an updated energy-economic modeling effort. The DSEIS includes a discussion of rail logistics and the potential growth of rail as a transport option, however we recommend that the Final EIS provide a more careful review of the market analysis and rail transport options. This analysis should include further investigation of rail capacity and costs, recognizing the potential for much higher per barrel rail shipment costs than presented in the DSEIS. This analysis should consider how the level and pace of oil sands crude production might be affected by higher transportation costs and the potential for congestion impacts to slow rail transport of crude.

In its discussion of practicable options for mitigating GHG emissions, the DSEIS outlines ongoing efforts by the government of Alberta to reduce the GHG emissions associated with development of oil sands crude in Alberta. EPA recommends that the Final EIS complement this discussion with an exploration of specific ways that the U.S. might work with Canada to promote further efforts to reduce GHG emissions associated with the production of oil sands crude, including a joint focus on carbon capture and storage projects and research, as well as ways to improve energy efficiency associated with extraction technologies. With regard to the estimated GHG emissions from construction and operation of the proposed Project - primarily emissions associated with electrical generation for the pumping stations - we recommend that the Department of State explore specific commitments that TransCanada might make to implement the mitigation measures recommended in the DSEIS. This would complement the significant efforts already made to reduce the risk of spills and ensure community safety. Specifically, we recommend a focus on pumping station energy efficiency and use of renewable energy, as well as investment in other carbon mitigation options.

Pipeline Safety

We have learned from the 2010 Enbridge spill of oil sands crude in Michigan that spills of diluted bitumen (dilbit)[4] may require different response actions or equipment from response actions for conventional oil spills. These spills can also have different impacts than spills of conventional oil. We recommend that these differences be more fully addressed in the Final EIS, especially as they relate to the fate and transport of the oil and the remediation that will be required. The Enbridge spill involved a 30-inch diameter pipeline, smaller than the 36-inch diameter pipeline for proposed Project, and 20,000 barrels of oil sands crude were released. In that spill, oil sands crude sank to the bottom of the Kalamazoo River, mixing with the river bottom's sediment and organic matter, making the oil difficult to find and recover. After almost three years of recovery

[4] As noted in the DSEIS, transporting oil sands crude via pipeline requires that it be mixed with a petroleum-based product (called a diluent), such as benzene, naphtha or natural gas condensate, to make a less viscous liquid called dilbit (diluted bitumen).

efforts, EPA recently determined that dredging of bottom sediments will be required to protect public health and welfare and the environment. This determination was based in large part on demonstrations that the oil sands crude associated with the Enbridge spill will not appreciably biodegrade.[5] We recommend that the Final EIS more clearly acknowledge that in the event of a spill to water, it is possible that large portions of dilbit will sink and that submerged oil significantly changes spill response and impacts. We also recommend that the Final EIS include means to address the additional risks of releases that may be greater for spills of dilbit than other crudes. For example, in the Enbridge spill, the local health department issued voluntary evacuation notices based on the level of benzene measured in the air. Given these concerns, it is important to ensure that the future response and remediation plans will protect communities from impacts due to spills.

The DSEIS also outlines specific measures that the Department of State would require TransCanada to undertake to prevent and detect oil discharges. The measures include commissioning an independent engineering analysis to review TransCanada's risk assessment of the potential impacts from oil discharges to surface and groundwater resources, as well as TransCanada's current proposals for placing mainline valves along the pipeline route and installing leak detection equipment. The DSEIS also notes that the Department of State will obtain concurrence from both EPA and PHMSA on both the scope of the engineering analysis and decisions regarding the need for any additional mitigation measures. We recommend that the Department of State provide an opportunity for public review and comment on the scope of the analysis, and an opportunity for public comment on a draft of the analysis when it is completed. We also recommend that the Final EIS consider requiring TransCanada to establish a network of sentinel or monitoring wells along the length of the pipeline, especially in sensitive or ecologically important areas, as well as where water supply wells are located and at stream crossings to provide a practical means for early detection of leaks that are below the proposed detection limit (1.5 – 2%) of the pipeline flow rate.

In addition to prevention measures, we agree with the DSEIS's suggestion that additional mitigation measures regarding preparedness to reduce the impacts of a spill may be appropriate (DSEIS, p. 4.13-79). For example, we recommend including the following measures as permit conditions:

- Requiring that the emergency response plan, as well as contingency plans address submerged oil, as well as floating oil, including in a cold weather response;

- Requiring pre-positioned response assets, including equipment that can address submerged oil;

- Requiring spill drills and exercises that include strategies and equipment deployment to address floating and submerged oil; and

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[5] Order for Removal under Section 311(c) of the Clean Water Act, March 14, 2013 (http://www.epa.gov/enbridgespill/ar/enbridge-AR-1720.pdf)

- Requiring that emergency response and oil spill response plans be reviewed by EPA.

The DSEIS also recognizes that dissolved components of the dilbit that may be transported through the pipeline, such as benzene, polycyclic aromatic hydrocarbons (PAHs), and heavy metals, could be slowly released back to the water column for many years after a release and could cause long-term chronic toxicological impacts to organisms in both the benthic and pelagic portions of the aquatic environment. We recommend that the Final EIS more clearly recognize that this characteristic of dilbit is different from the fate and transport of oil contaminants associated with conventional crude oil and refined product spills from pipelines. For that reason we recommend that as a permit condition TransCanada be required to develop a plan for long term sampling/monitoring in the event of an oil discharge to assess and monitor these impacts as part of the spill response plan. In addition, we recommend that the permit require TransCanada to provide detailed Material Safety Data Sheets and information about the diluent and the source crude oil to support response preparations and address safety concerns in advance of any spills.

Alternative Pipeline Routes

CEQ regulations implementing NEPA require the consideration of project alternatives in an EIS, and characterize the alternatives analysis as the "heart" of an EIS.[6] The DSEIS has been significantly improved by considering more alternative routes, including an alternative that would avoid crossing the Sand Hills Region in Nebraska, reducing impacts to this fragile ecosystem. Another significant issue in the consideration of alternative routes for this Project has been the potential for impacts to the Ogallala Aquifer in the event of a spill. The alternative route in Nebraska has avoided most of the impacts to the Sand Hills Region, but still crosses the Ogallala Aquifer. The alternative laid out in the DSEIS that would avoid the Ogallala Aquifer is the I-90 Corridor Alternative, which largely follows the path of existing pipelines. The I-90 Corridor Alternative would significantly reduce the length of pipeline crossing the Northern High Plains Aquifer system, which includes the Ogallala formation, and would further reduce the potential for adverse impacts to critical groundwater resources.

We are concerned, however, that the DSEIS does not provide a detailed analysis of the Keystone Corridor Alternative routes, which would parallel the existing Keystone Pipeline and likely further reduce potential environmental impacts to groundwater resources. By determining that these routes are not reasonable, the DSEIS does not provide an analysis of their potential impacts sufficient to enable a meaningful comparison to the proposed route and other alternatives. The Keystone Corridor Alternatives were determined not to be reasonable alternatives primarily on the basis that these routes are longer than the proposed Project's route, and that additional pipeline miles would be needed to connect to Bakken MarketLink project, which would allow the proposed Project to also transport crude from North Dakota and Montana. As we have indicated in the past, we believe these alternative routes could further reduce risks to

[6] 40 C.F.R. 1502.14

groundwater resources. We recommend that the Final EIS either provide more detailed information as to why these alternatives were not considered reasonable or analyze these alternatives in more detail.

Community and Environmental Justice Impacts

The DSEIS provides a comprehensive analysis of community demographics, including minority, low-income, and tribal populations, along TransCanada's proposed pipeline route. We are especially appreciative of the effort to identify and contact each of the Local Emergency Planning Committees regarding the status of their emergency response plans, and to provide that information in the DSEIS. We also commend your recognition that environmental justice communities may be more vulnerable to health impacts from a spill, and appreciate your efforts to consider communities' access to health care, including consideration of "Health Professional Shortage Areas and Medically Underserved Areas" located along the proposed pipeline route.

EPA appreciates TransCanada's commitment to conduct cleanup and restoration and to provide alternative water supplies to affected communities in the event of an oil discharge affecting not only surface waters, but also groundwater. We recommend that these commitments be clearly documented as proposed permit conditions. We believe this would give important assurances to potentially affected communities of TransCanada's responsibilities in the event of an oil discharge that affects either surface or groundwater resources.

Conclusion

Based on our review, we have rated the DSEIS as EO-2 ("Environmental Objections – Insufficient Information") (see enclosed "Summary of Rating Definitions and Follow-up Actions").

We look forward to continuing to work with you and to provide assistance as you prepare the Final EIS. We also look forward to working with you as you determine whether approving the proposed project serves the national interest under Executive Order 13337 "Issuance of Permits With Respect to Certain Energy-Related Facilities and Land Transportation Crossings on the International Boundaries of the United States".

Please feel free to contact me or have your staff contact Susan Bromm, Director, Office of Federal Activities, at (202) 564-5400 if you have any questions or would like to discuss our comments.

Sincerely,

Cynthia Giles

Cynthia Giles

Enclosure

Summary of Rating Definitions and Follow-up Action

Environmental Impact of the Action

LO--Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC–Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO--Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU--Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1--Adequate
EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2--Insufficient Information
The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3–Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.