



**Comments of the Sierra Club, et al.,
to the Department of State on the
Supplemental Draft Environmental Impact Statement for the
TransCanada Keystone XL Pipeline**

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League of Conservation Voters * Corporate Ethics International *
Indigenous Environmental Network * Clean Air and Water *
Global Community Monitor * Center for Energy Matters *
Big Thicket Association * Stop Tarsands Oil Pipelines**

June 6, 2011

I. INTRODUCTION

On behalf of the Sierra Club, Sierra Club Nebraska Chapter, National Wildlife Federation, Natural Resources Defense Council, Western Organization of Resource Councils, Friends of the Earth, the Center for Biological Diversity, League of Conservation Voters, Corporate Ethics International, Big Thicket Association, Stop Tarsands Oil Pipelines, Global Community Monitor, Indigenous Environmental Network, Clean Air and Water, and Center for Energy Matters, we submit the following comments regarding the Supplemental Draft Environmental Impact Statement (“SDEIS” or “SEIS”) for the proposed TransCanada Keystone XL Pipeline Project (hereinafter “Keystone XL” or the “Project”).

The Notice of Availability of the Supplemental Draft Environmental Impact Statement for the Proposed TransCanada Keystone XL Pipeline Project was published in the Federal Register on April 22, 2011. 76 Fed. Reg. 22744. The Notice indicated that there would be a 45-day comment period ending on June 6, 2011. *Id.* at 22745.

These comments supplement those that we filed on July 2, 2010 during the comment period for the Draft Environmental Impact Statement (DEIS). Because the SDEIS did little to address many of the concerns that we raised in our earlier comments, we consider all of the points raised previously to remain valid whether or not specifically mentioned in this letter, and not superseded in any way by this document. As such, our comments of July 2, 2010 are herein incorporated by reference in their entirety.

In the comments below, we outline our concerns regarding the need for further environmental analysis and public input before a decision is made on this project. The next round of environmental analysis must include, but not be limited to: a thorough analysis of a no action option, including clean energy alternatives; an analysis of alternative routes that would avoid the Ogallala Aquifer and other important resources; an analysis of expected spill frequency, severity, and emergency response plans in light of the Keystone I spills and the recent Corrective Action Order issued on that pipeline; an analysis of the project’s effect on US petroleum markets; an analysis of the connected Bakken and Cushing

Marketlink projects; an analysis of lifecycle greenhouse gasses throughout the entire life of the project; an analysis of transboundary impacts associated with tar sands development in Canada; an analysis of environmental justice issues; and an analysis of the project's impacts to water resources and sensitive wildlife species.

II. PUBLIC PARTICIPATION ISSUES

A. There are Many Serious Concerns About this Project that Warrant Further Public Participation and Further Analysis

Throughout the NEPA process to date, the level of public involvement and concern over the impacts of Keystone XL has been unprecedented. Nevertheless, even as the dangers of this proposed project are becoming increasingly apparent, the Department of State ("DOS" or the "Department") seems determined to limit meaningful participation and allow this project to proceed as soon as possible.

The very purpose of NEPA is to "ensure that federal agencies are informed of environmental consequences before making decisions and that the information is available to the public," *Citizens to Preserve Better Forestry v. U.S.D.A.*, 341 F.3d 961, 970-71 (9th Cir. 2003). Indeed, meaningful and effective public participation is one of the cornerstones of NEPA. The regulations require that agencies shall "make diligent efforts to involve the public in preparing and implementing their NEPA procedures." 40 C.F.R. § 1506.6(a). And the agency must "provide public notice of NEPA-related hearings, public meetings, and the availability of environmental documents" so that interested persons and agencies can be informed. 40 C.F.R. § 1506.6(b). *See also* 40 C.F.R. § 1500.2(d) (encourage and facilitate public involvement); 40 C.F.R. § 1505.5(a) (make diligent efforts to involve the public); and 40 C.F.R. § 106.6(c) (agency must hold or sponsor public hearings or public meetings whenever appropriate).

Our initial comments on the DEIS described the inadequacies of the public participation process, especially for a project of this scope, including but not limited to an inadequate number of hearings, short notices of hearings, and remote locations of hearings.

Additional public involvement and NEPA analysis would greatly inform the decision-making process in this case, as more and more questions are raised about the project's impacts and the implications to Americans.

Most importantly, it cannot reasonably be disputed that TransCanada's and DOS's estimates on pipeline spill frequencies, spill amounts, and emergency response procedures have been proven false by the recurring spills in TransCanada's Keystone pipeline. As of the time of this writing, there have now been at least 12 spills in Keystone's first year of operation, despite incredibly conservative spill estimates similar to those made for Keystone XL.¹ Many of those spills have been significant, and the spill detection and

¹ *See, e.g.*, <http://www.calgaryherald.com/business/energy-resources/TransCanada+shuts+down+Keystone+pipeline/4868790/story.html>; <http://michiganmessenger.com/48887/keystone-i-pipeline-has-12th-leak-in-first-year>

response times have proven to be inaccurate. There is now no doubt that the analysis for Keystone XL is flawed and must be revisited.

Furthermore, during a recent House Commerce Committee hearing on a Republican bill to prematurely cut off the NEPA process for Keystone XL, serious questions were raised about who stands to benefit from this project- the American people or oil companies and Koch Industries.² In fact, new documents show that the pipeline will actually increase prices at the pump for Americans.³ The public deserves an opportunity to analyze the impacts of this project on gas prices, which DOS has not yet done.

Many other serious questions have recently arisen that require more analysis and public input. Oregon Senator Ron Wyden has begun an investigation into the likelihood that Keystone XL is an example of oil-industry price manipulation.⁴ A new hydrology report reveals that the project's impact on the Carrizo-Wilcox aquifer in Texas, and the real potential for the pipeline to be affected by seismic fault lines in that region, are issues that warrant further analysis.⁵ A group of hydrologists have compiled a list of unanswered questions about the project's potential impacts on Nebraska's Sandhills and Ogallala Aquifer.⁶ A study was released that shows the diluted bitumen to be transported in Keystone XL drastically different from, and more dangerous than, conventional crude oil that is normally transported by pipelines.⁷ It is crucial that these questions are answered before a decision is made on this project.

In light of these new and serious issues that have arisen since the last comment period, the recent events that cast grave doubts on some of the most crucial analyses contained in the DEIS and SDEIS, and the growing level of public concern over Keystone XL, DOS's process violates the letter and intent of NEPA's public participation requirements. DOS has refused to hold any more public hearings, and has refused to allow the public more than the minimum 45 days to comment on the SDEIS. DOS appears determined to permit this project as soon as possible.

The public concern over these issues has been so great that despite DOS refusal to hold any public meetings on these new issues, members of the public decided to hold their own public meetings. On May 12, 2011, hundreds of concerned citizens attended meetings in states along the pipeline route.⁸

The level of public concern over this project and the amount of public involvement have grown since last summer, as more people have learned about the potential environmental, social and health impacts of the proposed project. Elected officials along the pipeline route, voicing the concerns of their constituents, have also become increasingly involved. Nebraska senator Mike Johanns, a conservative Republican, has criticized the

² <http://www.reuters.com/article/2011/05/25/idUS336798587820110525>

³ See *infra* Section IV.C.I.

⁴ Attached as Exhibit A

⁵ Attached as Exhibit B.

⁶ Attached as Exhibit C.

⁷ Attached as Exhibit D.

⁸ See, e.g., <http://www.hastingstribune.com/news0512pipeline.php>.

DOS process and has repeatedly demanded that DOS conduct a meaningful analysis of route alternatives that would avoid the sensitive Ogallala Aquifer and Sandhills.⁹ Senator Ben Nelson of Nebraska has also advocated for increased public participation.¹⁰

On April 5, 2011, over 30 environmental organizations sent a letter to the US State Department asking for a longer comment period.¹¹ On May 25, 2011, a group of Nebraska State Senators wrote to Secretary Clinton, asking to delay a decision on the project until the end of the spring legislative session in May 2012 so that legislation regarding the pipeline and its impacts within the state could be considered.¹² A coalition of faith-based organizations wrote to Secretary Clinton on June 2, 2011, urging Dept. of State to deny the Presidential Permit for Keystone XL.¹³

On May 31, 2011, 34 Members of Congress wrote to Secretary expressing concern about the project and requesting an extension of the comment period to 120 days.¹⁴ The letter expressed concern about the lack of adequate analysis of greenhouse gas emissions, the need for the pipeline and how it fits in with President's goal to reduce our oil imports, alternative routes avoiding Sandhills and Ogallala Aquifer, pipeline safety, and impacts to minority and low income communities.

B. The SDEIS Contains Completely New Information, Making It Necessary for the Comment Period to Be Extended.

The Department should know from experience with the DEIS comment period that a good deal of time is necessary to adequately review and analyze the SDEIS. In response to mounting pressure from commenters, the Department extended the comment period on the DEIS to 73 days. We felt that the 73-day comment period for the DEIS was hardly adequate, and we have been given a meager 45 days to comment on the SDEIS. Forty-five days is simply insufficient.

The SDEIS was necessary in the first place because commenters felt the DEIS lacked sufficient information to fully assess the KXL project. Environmental justice information, for example, was especially lacking in the DEIS, and we are seeing most of the environmental justice information for the first time now in the SDEIS. Indeed, the Environmental Protection Agency, exercising its special role in NEPA review under Section 309 of the Clean Air Act, rated the DEIS as Category 3 – Inadequate Information. Given that the obvious role of the SDEIS is to provide *new* information that commenters did not have the opportunity to consider in the DEIS, the Department should allow the comment period to remain open 120 days, which is a time period we believe would be more appropriate and more likely to be sufficient to properly engage the public and allow for meaningful public participation.

⁹ <http://johanns.senate.gov/public/?p=trans>

¹⁰ http://bennelson.senate.gov/press/press_releases/Nelson-Statement-On-Keystone-Pipeline.cfm

¹¹ Attached as Exhibit E.

¹² Attached as Exhibit F.

¹³ <http://columban.org/8489/columban-center-for-advocacy-and-outreach/8489/>

¹⁴ Attached as Exhibit G.

Furthermore, DOS released the EnSys Report (2010), discussed in detail below, and stated that it would request public comment on this document specifically and independently.¹⁵ DOS has failed to do that. Accordingly, we request that a separate comment period be held for the EnSys Report as was announced in the Federal Register.

C. The Department Should Hold a Series of Community Meetings or Field Hearings

Meaningful public participation is a cornerstone of achieving environmental justice. CEQ recognized the critical role that public participation plays on the road to environmental justice when it issued its environmental justice guidance governing NEPA compliance. In that guidance, CEQ states unequivocally,

CEQ's regulations require agencies to make *diligent efforts* to involve the public throughout the NEPA process. Participation of low-income populations, minority populations, or tribal populations may require *adaptive or innovative approaches* to overcome linguistic, institutional, cultural, economic, historical, or other potential barriers to effective participation in the decision-making processes of Federal agencies under customary NEPA procedures.¹⁶ (Emphasis added.)

CEQ lists a number of steps to be considered in developing an innovative public participation strategy. Among those steps are the following:

- Coordination with individuals, institutions, or organizations in the affected community to educate the public about potential health and environmental impacts and enhance public involvement; ...
- Provision of opportunities for public participation through means other than written communication, such as personal interviews or use of audio or video recording devices to capture oral comments; ...
- Use of locations and facilities that are local, convenient, and accessible to the disabled, low-income and minority communities, and Indian tribes ...¹⁷

The Department should ensure that communities are able to meaningfully engage in the public participation process by holding public community meetings where residents can ask questions and thoroughly understand the implications of the KXL project. These meetings are especially important in the Gulf Coast region, where residents are at the remotest end of this massive project and may be the most impacted on a daily basis with

¹⁵ 76 Fed. Reg. 8396 (February 14, 2011) (“We will be requesting public comment on this report at an appropriate time.”).

¹⁶ Council on Environmental Quality’s guidance document, “Environmental Justice: Guidance Under the National Environmental Policy Act,” (CEQ 1997 at page 13).

¹⁷ *Id.*

the additional burden of air pollution at Gulf Coast refineries. Furthermore, community meetings would provide the opportunity for the Department to survey the mitigation preferences and needs of impacted low-income, indigenous, and people of color communities. It is imperative that the Department provide sufficient opportunities for public participation and dialogue by holding public meetings along the pipeline route, including in the Gulf Coast region.

Accordingly, we again request that DOS extend the comment period for the SDEIS, hold public hearings in the affected states along the pipeline route, and conduct further analysis in a second supplemental DEIS. We further request that DOS delay taking any action on the Keystone XL Presidential Permit until the investigation initiated by Senator Wyden is completed.

III. DOS HAS FAILED TO MEET TRIBAL CONSULTATION REQUIREMENTS

In addition to the requirements of the NEPA, Executive Order 13175 directs federal agencies to conduct government-to-government consultations with respect to federal actions or “policies that have tribal implications” – meaning “regulations, legislative comments or proposed legislation, and other policy statements or actions that have substantial direct effects on one or more Indian tribes ...”¹⁸ President Obama underscored the importance of E.O. 13175 and the government-to-government consultation process in his November 6, 2009 memorandum to department heads, where he states, among other things, “[m]y Administration is committed to regular and meaningful consultation and collaboration with tribal officials in policy decisions that have tribal implications including, as an initial step, through complete and consistent implementation of Executive Order 13175.”¹⁹

A. Department of State Has Not Met with Tribal Councils

We have serious concerns about the adequacy of consultation process for the Keystone XL project. Though the Department claims in the DEIS to have held several consultation meetings, we question the adequacy of those meetings. (DEIS 1-14) It is our understanding that the State Department has not met with a single full tribal council. In order to respect the sovereignty of Indian nations, the Department should adhere to processes that are culturally and legally applicable to Indian nations. No full tribal council has had an opportunity to hear a presentation on KXL or to vote on it. Rather, the Department has tailored a “consultation” process that meets its own goals of receiving NEPA approval for KXL, and in so doing the Department has failed to seek meaningful input and approvals from the many sovereign Indian nations that may be impacted by

¹⁸ See also, Council on Environmental Quality’s guidance document, “Environmental Justice: Guidance Under the National Environmental Policy Act,” (CEQ 1997 at page 9).

¹⁹ President Obama went on in his memorandum to require federal agencies to create detailed plans on how they will implement E.O. 13175 and to submit those plans to the Office of Management and Budget within 90 days. We were unable to find such a plan for the Department of State and are unaware the Department has developed such a plan.

KXL. We are aware of at least five tribes located in the U.S. that have passed resolutions denouncing the KXL project.²⁰

B. The Programmatic Agreement Improperly Excludes Most Tribes

It is also our understanding that only the Lower Brule tribe in South Dakota has been invited to be a signatory on the Programmatic Agreement and that other tribes are only afforded an opportunity to “concur” on the project, giving them a significantly lower status that disqualifies them from receiving compensation from project impacts. The Department has drawn this distinction between the Lower Brule tribe and other tribes because power lines will cross the Lower Brule reservation and the KXL project will not physically touch the lands of other tribes. We find this distinction arbitrary and inappropriate. Obviously the KXL project has the potential to impact many tribes as well as individual tribal members. The SDEIS, in fact, sets out demographic information that demonstrates that indigenous people live within the Department’s designated four-mile impact zone of the pipeline. SDEIS at 3-27, 3-29, 3-30. Yet the Department has done little to engage in a robust and meaningful public participation process with indigenous communities, whether living on or off reservations, in a manner that is culturally respectful and appropriate. We believe that regardless of whether tribes concur on the Programmatic Agreement or not, and whether they are signatory to the PA or not, indigenous people and tribal nations should be fully engaged, and government-to-government consultations should include briefings with tribal councils. Also, the Department should report in the SDEIS on whether it has sought to actively solicit tribal governments with jurisdiction or special expertise as “cooperating agencies,” as CEQ urged federal agencies to do in its July 28, 1999 memorandum to agency heads²¹ and on what the outcome of those efforts were.

IV. THE SEIS FAILS TO SATISFY NEPA

A. The Purpose and Need of Keystone XL is Flawed

As set forth in our DEIS comments at pages 20-34, the purpose and need of this project is unduly narrow and based on inaccurate data. The DEIS improperly relied on increasing crude oil supply in Canada to justify the project’s need, while projections by the US Energy Information Administration (EIA) show US demand to remain flat in coming decades. In fact, US reliance on foreign oil is expected to decrease, especially as new laws and regulations are being implemented that will dramatically affect the demand for carbon-intensive fuels such as tar sands derived fuel. Furthermore, the stated purpose and need of the project is unduly narrow, which results in a very narrow range of alternatives and the exclusion of many reasonable alternatives that would meet America’s energy needs. None of these concerns have been adequately addressed in the SDEIS.

²⁰This information was provided to us by the Indigenous Environmental Network.

²¹ See CEQ Memorandum for Heads of Federal Agencies dated July 28, 1999 regarding the designation of non-federal agencies to be cooperating agencies in implementing the procedural requirements of the National Environmental Policy Act.

1. The SDEIS Fails to Address EPA's concerns

The Environmental Protection Agency's (EPA) comments on the DEIS highlighted many deficiencies in the project's purpose and need that have not been adequately addressed in the SDEIS.²²

For example, EPA pointed out that:

We are concerned that the Draft EIS uses an unduly narrow purpose and need statement which leads to consideration of a narrow range of alternatives ...By using a narrow purpose and need statement, the Draft EIS rejects other potential alternatives as not meeting the stated project purpose. ... EPA recommends that the State Department frame the purpose and need statement more broadly to allow for a robust analysis of options for meeting national energy and climate policy objectives.²³

In response, DOS modified the SDEIS to include some additional factors that should be considered in the national interest determination. But it failed to amend the purpose and need to include a broader range of alternatives that would meet national energy and climate policy objections. SDEIS p. 1-5. Instead, the SDEIS still explains the primary purpose of the project as transporting crude oil from Alberta to PADD III markets. It also, in a cursory fashion, lays out a number of alternatives and explains why they do not merit full consideration. The narrow purpose and need of the project still results in only one alternative – the proposed pipeline- garnering any serious consideration. This does not meet the requirements of NEPA and the implementing regulations.

EPA also complains that the demand scenarios in the needs analysis are insufficient:

[W]e also recommend that the discussion include consideration of different oil demand scenarios over the fifty-year project life.... We recommend that this discussion be expanded to include consideration of proposed and potential future changes to fuel economy standards and the potential for more widespread use of fuel-efficient technologies, advanced biofuels and electric vehicles as well as how they may affect demand for crude oil.²⁴

In response, DOS adds the analysis of the EnSys (2010) report commissioned by DOE. However, DOS' market analysis falls far short of EPA's recommendation. The SDEIS only analyzes an arbitrary 20 year demand scenario—far short of the 50 year recommendation made by EPA, which was based on the project life of the pipeline. SDEIS

²² See Exhibit H. for a more detailed discussion of how the SDEIS fails to address EPA's concerns.

²³ EPA Comment letter, at 2.

²⁴ *Id.*

p. 3-178. The SDEIS includes one “low-demand outlook” projection, but that projection does not include the range of potential policies outlined in EPA’s comments. SDEIS p. 4-16.

2. The Purpose and Need must be Amended in Light of the Bakken and Cushing Marketlink Projects

As discussed in more detail below,²⁵ TransCanada has announced that it will move forward with the Bakken Marketlink and Cushing Marketlink Projects, which are designed to allow domestic oil producers to upload crude oil onto Keystone XL in Montana and Oklahoma. Together, the two Marketlink projects will allow up to 250,000 barrels per day (bpd) of domestic crude oil to be transported via Keystone XL.

The Marketlink projects significantly change the nature, scope, and purpose of the larger Keystone XL project. The stated purpose and need of Keystone XL is to transport 700,000 to 900,000 barrels per day of Western Canadian Sedimentary Basin (WCSB) crude oil from Alberta to PADD III refineries and Cushing, Oklahoma, and the entire DEIS is based on that purpose.²⁶ The purpose of Keystone XL, as explained in the SDEIS, does not involve transporting domestic crude oil and hence the new configuration does not fit within the stated purpose.

The announcement that Keystone XL will now carry up to 250,000 bpd of domestic crude oil significantly changes the NEPA analysis to date, as it reduces the pipeline’s capacity to transport WCSB to the Gulf Coast in accordance with the project’s stated purpose. If the overall purpose and need of the project has changed, it must be discussed in a second supplemental EIS. There may be other reasonable alternatives that fit within the project’s amended purpose that should be considered in a new DEIS or a supplemental EIS.

The Draft EIS should be amended to reflect any changes that may have occurred as a result of the Bakken and Cushing Marketlink additions, such as changes to economic projections regarding oil supply and demand, local impacts associated with the additional facilities, and impacts from increased domestic oil production in Montana, North Dakota, and Oklahoma.

B. The SDEIS Fails to Adequately Analyze Reasonable Alternatives

As set forth in our DEIS comments at pages 34-40, DOS failed to analyze all reasonable alternatives to this project, including alternatives that would meet the perceived future energy demands of the U.S. (other than expanding capacity to import tar sands oil). Fuel efficiency, alternative fuels, electric vehicles, other clean transport technologies, and public transportation were not considered as alternatives. The Draft EIS also fails to examine agency-specific alternatives, such as alternatives related to river crossings and wetland fills, system alternatives, alternate routes, and alternatives that would reduce impacts to wetlands and water resources. Finally, the project’s narrow purpose and need

²⁵ See *infra* Section IV.C.5.

²⁶ DEIS, at 1-3.

results in many reasonable project alternatives, including the no action alternative, being either excluded from consideration or rejected. None of these concerns have been adequately addressed by the SDEIS.

1. NEPA requires that the State Department Rigorously Explore and Objectively Evaluate all Reasonable Alternatives

The requirement to analyze alternatives is included twice in NEPA itself.²⁷ The NEPA regulations applicable to executive branch agencies state that alternatives are “the heart of the environmental impact statement.” An EIS must present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision-maker and the public.²⁸ This analysis must “rigorously explore and objectively evaluate all reasonable alternatives” to the proposed project.²⁹

The EIS must “provide full and fair discussion of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.”³⁰ This discussion must include an analysis of “direct effects,” which are “caused by the action and occur at the same time and place,” as well as “indirect effects which . . . are later in time or farther removed in distance, but are still reasonably foreseeable.”³¹ As explained by the White House Council on Environmental Quality (CEQ), the agency with the responsibility to interpret NEPA must consider reasonable alternatives using the following guidelines:³²

“Section 1502.14 requires the EIS to examine all reasonable alternatives to the proposal. In determining the scope of alternatives to be considered, the emphasis is on what is ‘reasonable’ rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are *practical* or *feasible* from the technical and economic standpoint and using common sense, rather than simply

²⁷ Agencies shall include in EISs “alternatives to the proposed action”, 42 U.S.C. § 4332 (C) (iii) and shall “study, develop, and describe appropriate alternatives to recommended course of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources;” 42 U.S.C. § 4332 (E). Both statutory references are applicable here.

²⁸ 40 C.F.R. § 1502.14.

²⁹ 40 C.F.R. § 1502.14(a). In addition, “for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated...; [and] [d]evote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.” *Id.*

³⁰ 40 C.F.R. § 1502.1.

³¹ 40 C.F.R. § 1508.8.

³² The Supreme Court has stated in several NEPA decisions that CEQ’s interpretation of NEPA is owed “substantial deference” by the lower courts. *Department of Transportation v. Public Citizen*, 541 U.S. 752 (2004); *Andrus v. Sierra Club*, 442 U.S. 347 (1979); *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332 (1989).

desirable from the standpoint of the applicant.” “Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations”³³

2. The SDEIS’s Analysis of Major Route Alternatives is Inadequate

a. The use of a border crossing facility near Morgan, Montana as a screening criterion arbitrarily eliminates reasonable route alternatives from consideration

The SDEIS excludes reasonable alternative routes from consideration by including screening criteria that do not relate to the project’s purpose and need. The objectives for the Keystone XL are defined in the SDEIS purpose and need statement.³⁴ The primary purpose and need for Keystone XL as defined in the SDEIS is “to provide the infrastructure necessary to transport WCSB heavy crude oil from the border with Canada to delivery points in PADD III in response to the market demand of refineries in PADD III for heavy crude oil.”³⁵ An additional purpose of the proposed Project is “to transport WCSB heavy crude oil to the proposed Cushing tank farm in response to the market demand of refineries in PADD II for heavy crude oil.”³⁶ NEPA requires the State Department to rigorously explore and objectively evaluate all reasonable alternatives, or alternatives that meet the purpose and need for the proposed action as defined by the agency in the EIS.³⁷ However, the SDEIS improperly screens reasonable route alternatives from consideration because they do not enter the United States near Morgan, Montana.

The SDEIS uses control points, or “locations where alternatives would have to begin and end to meet the Project objectives” to screen alternatives.³⁸ The SDEIS includes the U.S./Canadian border crossing between Saskatchewan and Montana near the town of Morgan, Montana as a control point.³⁹ The Morgan, Montana border crossing facility does not meet the SDEIS definition as “a location where alternatives would have to begin and end to meet the Project objectives.”⁴⁰ Route alternatives exist that would meet the Project’s objectives of transporting WCSB heavy crude from Canada to delivery points in PADD III and the Cushing tank farm while using border crossing facilities in locations other than Morgan, Montana. Screening alternatives that do not use a border crossing facility near Morgan, Montana arbitrarily eliminates reasonable routes from consideration in violation of NEPA.

³³ Vol. 46 Federal Register 18028, Question 2a; available at www.nepa.gov, *emphasis in original*.

³⁴ [San Juan Citizens Alliance v. Norton](#), 586 F.Supp.2d 1270

D.N.M.,2008; National Environmental Policy Act of 1969, § 102, [42 U.S.C.A. § 4332](#).

³⁵ SDEIS, at 1-5.

³⁶ SDEIS, at 1-5.

³⁷ *Natural Resources Defense Council, Inc. v. U.S. Forest Service*, 634 F.Supp.2d 1045, 1059 E.D.Cal.,2007; *Ilio'ulaokalani Coal. v. Rumsfeld*, 464 F.3d 1083, 1097 (9th Cir. 2006) (citing *Nw. Coalition for Alternatives to Pesticides (NCAP) v. Lyng*, 844 F.2d 588, 591-592 (9th Cir.1988)).

³⁸ SDEIS, at 4-31.

³⁹ SDEIS, at 4-32.

⁴⁰ SDEIS, at 4-32.

The SDEIS notes that the Morgan, Montana border crossing facility is where the portion of the pipeline which has been permitted by Canada would terminate.⁴¹ The statement of purpose and need for Keystone XL does not include the need to use a route approved by Canadian regulators in a process that did not consider environmental impacts in the United States. Therefore, an otherwise arbitrary criterion which screens reasonable alternatives on this basis is impermissible. Under NEPA's reasonable alternatives provision, the State Department "may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency's power would accomplish the goals of the agency's action, and the EIS would become a foreordained formality."⁴² The Canadian portion of the pipeline has not been built. The approval of a route from Hardesty, Alberta to Morgan, Montana by Canadian regulators at the National Energy Board (NEB) does not suggest that a route using another border crossing facility is technically infeasible. On the contrary, in 2007 the NEB approved another route from Hardesty, Alberta to Pembina, North Dakota for the Keystone I pipeline.⁴³ Finally, the NEB did not consider environmental impacts in the United States or consult with federal agencies when permitting a Hardesty, Alberta to Morgan, Montana. The approval of a border facility in Morgan, Montana by the Canadian government does not diminish the State Department's responsibilities under NEPA to rigorously explore and objectively evaluate all reasonable alternatives.⁴⁴

The State Department tacitly confirmed this point by briefly considering the Express-Platte Alternative 1, an alternative that originated at Hardesty, Alberta and extended into the United States at a point other than near Morgan, Montana. This route used a border crossing facility in the Port of Wild Horse, Montana, located west of Morgan, Montana. The State Department screened this route alternative on two grounds. First, State Department found it did not offer an environmental advantage over the proposed route because its greater length would cause it to impact more acres than the proposed route.⁴⁵ Second, it found that because it would require TransCanada "submitting a new permit application to NEB for a revised route in Canada, and the approval process would not be completed in a time frame that would meet the proposed Project objectives."⁴⁶ However, the SDEIS does not include any discussion of concrete time constraints and how they would impact the Project's objectives. Moreover, the legal requirement to rigorously explore and objective analyze all reasonable alternatives must be more than "pro forma ritual; rather, the agency must seriously consider alternative actions to avoid environmental costs."⁴⁷ For an analysis of alternate routes to be anything other than a pro forma ritual, it would have to countenance the possibility that an alternative might exist which would have

⁴¹ SDEIS, at 4-32.

⁴² *National Parks & Conservation Ass'n v. Bureau of Land Management*, 606 F.3d 1058, 1070 (9th Cir. 2010).

⁴³ <http://www.transcanada.com/3115.html>

⁴⁴ 40 C.F.R. § 1502.14(a). In addition, "for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated...; [and] [d]evote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits." *Id.*

⁴⁵ SDEIS, at 4-36.

⁴⁶ SDEIS, at 4-36.

⁴⁷ *Southern Utah Wilderness Alliance v. Norton*, 237 F.Supp.2d 48, 52 (D.D.C. 2002).

a lower environmental impact – a finding which would necessarily impact an applicant’s timeline. Screening out all reasonable alternatives that might adversely impact an applicant’s timeline would effectively render the NEPA alternative analysis meaningless.

b. The SDEIS did not consider reasonable route alternatives

i. The SDEIS did not consider the Pembina, North Dakota to Steele City, Nebraska route

The purpose and need statement for the project only includes the need to transport WCSB crude from the border with Canada to existing delivery points in PADD III and supplement deliveries to the Cushing Oil Terminal in PADD II.⁴⁸ This purpose and need does not require the exclusive use of a control point in Morgan, Montana and could be met from a border facility near Pembina, North Dakota. By limiting its evaluation of alternatives to those crossings at or west of Morgan, Montana the SDEIS impermissibly eliminated from consideration all reasonable routes that both avoid the Ogallala Aquifer and are not longer than the proposed alternative.

The SDEIS did not consider any route alternative along the most direct route between the Canadian border and Steele City, Nebraska. Such a route would enter the United States in the vicinity of Pembina, North Dakota and avoid the Nebraska Sandhills and the majority of the Ogallala Aquifer. At approximately 640 miles, it would be shorter than any route analyzed by the SDEIS, including the proposed Keystone XL route. The alternative proposed in the DEIS, which takes the shortest route from Morgan, Montana to Steele, City, would be 840 miles in length. In addition, the majority of this route would parallel the existing right-of-ways for TransCanada’s Keystone I pipeline.

The route from Pembina County to Steele City was determined to be a viable route by the State Department in the final EIS it issued for the Keystone I pipeline on January 11, 2008.⁴⁹ At that time, the State Department determined that this route follows the shortest route possible between the Canadian border and Cushing.

Under NEPA, the existence of reasonable but unexamined alternatives renders an EIS inadequate.⁵⁰ An alternative route beginning in the vicinity of Pembina, North Dakota, is reasonable as it would meet the project’s stated purpose and need by allowing the transport of up to 700,000 bpd of WCSB crude oil by Pipeline to PADD III refineries and to the Cushing Oil Terminal in Cushing, Oklahoma.⁵¹ Therefore, it is a reasonable alternative under NEPA and the State Department is required to consider it in detail.⁵² An

⁴⁸ SDEIS, at 1-5.

⁴⁹ Department of State, Final EIS for Keystone XL, Jan. 11, 2008 (<http://www.keystonepipeline.state.gov/clientsite/keystone.nsf?Open>).

⁵⁰ *Center for Biological Diversity v. U.S. Dept. of Interior*, 623 F.3d 633, 642 (9th Cir. 2010); National Environmental Policy Act of 1969, § 102(2)(C), 42 U.S.C.A. § 4332(2)(C); 40 C.F.R. § 1502.14(a).

⁵¹ SDEIS, at 1-5.

⁵² *BioDiversity Conservation Alliance v. Bureau of Land Management*, 608 F.3d 709, 714 (10th Cir. 2010).

EIS must devote substantial treatment and rigorously examine this alternative with the detailed analysis necessary to permit a reasoned choice between it and the proposed route.⁵³

ii. Gulf Coast segment without the Steele City segment

In addition, the SDEIS does not discuss a reasonable project alternative for the proposed project that only includes the Gulf Coast segment without the Steele City segment. This alternative would also meet the test of feasibility within the project's stated purpose and need by facilitating the movement of WCSB crude to refineries in PADD III. It should be noted that under NEPA, the State Department "must consider such alternatives to the proposed action as may partially or completely meet the proposal's goal."⁵⁴ NEPA requires a rigorous and objective consideration of this reasonable route alternative.

c. The SDEIS contained insufficient consideration of identified alternative routes

The SDEIS did not consider alternatives to the proposed project in sufficient detail. An EIS must study reasonable alternatives to a proposed action under NEPA in detail. Federal regulations require that the State Department devote "substantial treatment" to and "rigorously explore and objectively evaluate all reasonable alternatives."⁵⁵

The SDEIS considered five alternatives for the "Steele City Segment," including the Express-Platte alternative, Steele City alternative A (SCS-A), SCS alternative A1A, SCS alternative B (SCS-B) (the proposed project route), the Keystone Corridor Alternative, the I-90 Corridor Alternative and the Baker alternative.⁵⁶ However, the limited examination of each alternative other than the proposed route, SCS-B, does not meet NEPA's requirement to rigorously explore these alternatives. The CEQ NEPA regulations explicitly require an agency to "devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits"⁵⁷ and has explicitly warned against uneven treatment of alternatives in its answer to the question of whether the "analysis of the 'proposed action' in an EIS is to be treated differently from the analysis of alternatives":

"The degree of analysis devoted to each alternative in the EIS is to be substantially similar to that devoted to the 'proposed action. Section 1502.14 is titled, 'Alternatives including the proposed action' to reflect such comparable treatment. Section 1502.14(b) specifically requires 'substantial treatment' in the EIS of each alternative including the proposed action. . . ."⁵⁸

⁵³ *Sierra Club v. Federal Highway Admin.*, 715 F.Supp.2d 721, 729 (S.D. Texas 2010).

⁵⁴ *Fund for Animals v. Norton*, 365 F.Supp.2d 394, 428 (S.D.N.Y. 2005).

⁵⁵ See 40 C.F.R. § 1502.14(a) & (b) (2000). *Center for Biological Diversity v U.S. Dept. of Interior*. 623 F.3d 633, 642 (9th Cir. 2010).

⁵⁶ SDEIS, at 4-35.

⁵⁷ 40 C.F.R. § 1502.14(b).

⁵⁸ 40 Most Asked Questions, *Id.*, Question 5b.

Furthermore, the SDEIS does not adequately analyze routes that would avoid impacts to the Sandhills or the Ogallala Aquifer. This area is a key area of environmental concern, as evidenced by the intense public opposition from the Nebraska public and the elected officials there.

The SDEIS also does not analyze how each route would impact the endangered American burying beetle (ABB), and analyze an alternative that would avoid known areas of burying beetle populations. The Draft Biological Assessment for Keystone XL concluded that the Project “may affect and is likely to adversely affect” the beetle.⁵⁹ As a result, formal consultation has been initiated with the United States Fish and Wildlife Service (FWS) regarding potential impacts to the beetle.⁶⁰ The ABB has lost nearly 90% of its habitat, and the two remaining areas of habitat are in east central Nebraska and southern South Dakota; and in eastern Oklahoma, southern Nebraska, and western Arkansas. The SEIS should rigorously explore routes that would avoid these important areas.

3. The SDEIS Fails to Address EPA’s Concerns Regarding Alternatives

EPA’s comments described many deficiencies in the DEIS alternatives analysis. Those problems have not been adequately addressed in the SDEIS.⁶¹

For example, EPA explained:

We are concerned that the Draft EIS does not fully analyze the environmental impacts of the no-action and other alternatives, making comparison between alternatives and the proposed project more difficult.⁶²

The SDIES, however, still does not thoroughly analyze any alternative except the proposed project. The only arguable “analysis” is where the SDEIS excludes them from a detailed analysis. To the degree that other alternatives, including no action, are analyzed, it is in the context of their exclusion from detailed analysis. EPA’s comment regarding comparison of alternatives “on an equal footing” is utterly ignored.

EPA was also concerned with the insufficient analysis of the “no action” alternative based on a narrow statement of purpose and need. To that end, EPA requested a thorough analysis of the no action alternative, including the long-term benefits of avoiding heightened reliance of high-carbon tar sands fuel:

EPA believes it is important to ensure that the differences in the environmental impacts of non-Canadian crude oil sources and oil sands crude be discussed. Alongside the national security benefits of importing crude oil from a stable trading partner, we believe the national security implications of expanding the Nation’s

⁵⁹ Keystone XL Project Applicant – Prepared Biological Assessment, pp. 1-6, 3-24, Table 1.3-1.

⁶⁰ Keystone XL Project Applicant – Prepared Biological Assessment, pp. 1-3.

⁶¹ See Exhibit H.

⁶² EPA Comment letter, at 2.

long-term commitment to a relatively high carbon source of oil should also be considered.⁶³

The SDEIS's is still based on short-term demand analysis that downplays the long term benefits of not granting a permit. SDEIS p. 4-20. The SDEIS does state that there are differences between tar sands oil and conventional crude oil, but downplays some of those impacts and ignores others.

The EPA was also concerned that no alternatives that would mitigate the project's greenhouse gas emissions were considered, including both relatively minor alternatives (more efficient pump stations) as well as major project alternatives (use of renewable and efficiency measures):

[W]e recommend that the State Department expand the discussion of alternatives or other means to mitigate the [GHG] emissions... there are a number of other mitigation opportunities to explore, including control of fugitive emissions, pumping station energy efficiency, and use of renewable power, where appropriate... alternatives that could significantly reduce extraction-related GHG emissions... could include a smaller-capacity pipeline or deferring the project until current efforts to reduce extraction-related GHG emissions... are able to lower GHG emissions to levels closer to those of conventional crude.⁶⁴

Similarly, we raised these issues in our DEIS comments.⁶⁵

The SDEIS does not consider these types of alternatives. The SDEIS states that there is "likely to be a market demand for substantial increases in the volume in crude oil from the oil sands over the next 20 to 25 years" and concludes that "use of alternative energy sources and energy conservation in meeting needs for transportation fuel are not considered an alternative to the proposed Project." SDEIS p. 4-18. The SDEIS does mention some federal and state programs regulating GHGs, but there is no substantive discussion of aggressive standards could truly reduce demand.

The SDEIS' discussion of Low Carbon Fuel Standards (LCFS) is entirely unsatisfactory, as it cites an industry-commissioned report that says that California's LCFS might result in fuel shuffling which could in fact end up increasing emissions. This analysis is incorrect or misleading on several levels. First, it fails to account for the market signal for oil companies to reduce upstream production emissions and to receive credit under a LCFS. Crude oils with lower emissions will be at a premium with respect to crude oils with high emissions. Second, transport of crude oils represents approximately 1-2% of the entire fuel lifecycle. This is marginal compared to the overall savings from a LCFS program. Finally, the goal of the low carbon fuel standard is not to continue reliance on marginally lower-carbon fossil fuels, but rather, to encourage the development of ultra-low

⁶³ *Id.*

⁶⁴ EPA comment letter, at 3.

⁶⁵ *See* DEIS Comments, at 34-40.

carbon fuels such as advanced biofuels, transportation electricity, biomethane, and hydrogen. These issues must be re-analyzed in a new SEIS.

EPA was also concerned with the lack of alternative routes analysis:

Pipeline routing alternatives that avoid Sole Source Aquifers, SWPAs [Source Water Protection Areas], and wellhead protection zones are preferred.⁶⁶

The SDEIS does provide a brief discussion of alternative routes, but presents them in such a way that they are necessarily excluded from meaningful consideration.⁶⁷ The SDEIS also fails to analyze – even in a cursory manner – several reasonable alternatives.⁶⁸ Again, the narrow statement of purpose and need serves to exclude alternatives that might otherwise be considered reasonable and worthy of detailed analysis. The result is that the decision maker has no reasonable alternatives to weigh against the preferred alternative—the only decision contemplated is an up or down vote on the proposed project.

4. The SDEIS Fails to Discuss Alternatives that Satisfy the new Project Purpose

As discussed below,⁶⁹ TransCanada has announced that it will move forward with the Bakken Marketlink and Cushing Marketlink Projects, which are designed to allow domestic oil producers to upload up to 250,000 bpd of crude oil onto Keystone XL. This announcement changes the nature, scope, and purpose of the Keystone XL project. The stated purpose and need of Keystone XL— to transport 700,000 to 900,000 barrels per day of WCSB crude oil from Alberta to PADD III— is no longer accurate and must be updated. Furthermore, reasonable alternatives that fit within the project's amended purpose that must be considered.

If the new purpose is to alleviate a bottleneck in the pipeline system at Cushing, Oklahoma and eliminate a glut of WCSB crude in the PADD II market, that purpose must be disclosed and alternatives that fit within that purpose must be analyzed. For example, the Gulf Coast section of the Keystone XL was not considered on its own as a lesser alternative, presumably because it would not fit within the project's overall purpose of transporting WCSB crude from Canada to PADD III refineries. If a purpose of the project is now to transport domestic crude to PADD III refineries, the Gulf Coast section should be analyzed as a reasonable alternative.

Similarly, the project should be analyzed in conjunction with the cumulative effects of other reasonably foreseeable pipelines that are planned to alleviate the Cushing bottleneck. For example, Enbridge's proposed Monarch Pipeline would transport up to

⁶⁶ EPA Detailed Comments (attached to letter), at 8.

⁶⁷ See *supra*, section IV.B.2.

⁶⁸ See *supra*, section IV.B.2.

⁶⁹ See *infra*, Section IV.C.5.

350,000 bpd from Cushing to PADD III; and Energy Transfer Partners' proposed Double E pipeline would transport up to 450,000 bpd from Cushing to PADD III.⁷⁰

C. The SEIS Fails to Adequately Analyze all Direct, indirect, and Cumulative Impacts of the Keystone XL Project

1. SDEIS Does Not Adequately Analyze the Effect of the Proposed Project on the Crude Oil Market

In Section 1.4 of the SDEIS, DOS discusses its “assessment of the market dynamics of the crude oil market” as it relates to the “purpose and need of the proposed Project.”⁷¹ In addition to the EnSys report and other documents that the SDEIS relies upon, in order to fully analyze the market dynamics of the proposed Project the SDEIS also should have assessed 1) the pricing effects documented in TransCanada’s own documents and testimony, and 2) the effects on oil exports in light of actual refinery capacity. Because the SDEIS does not include a complete analysis of these issues in its assessment of market dynamics, both this assessment and the SDEIS’s analysis of the purpose of and need for the Project (which is predicated on this market assessment) is deficient.

a. The SDEIS does not adequately analyze the effect of the proposed project on oil prices

The SDEIS does not adequately address concerns regarding price increases in the oil market due to the shift of refining from PADD II to PADD III as a result of the proposed Project.

In documents supporting its application to the Canadian National Energy Board, TransCanada projected that Keystone XL would increase transportation costs incurred by Canadian oil producers, reducing their netback prices by \$0.65 per barrel.⁷² The same document references another model that projects that the Keystone XL pipeline would increase the cost of crude delivery to Houston from \$4.21 to \$6.55, or \$2.04 per barrel.⁷³ In addition, the withdrawal of oil from Enbridge pipelines to Keystone XL is expected to increase Enbridge tolls to Chicago by about \$0.65 per barrel.⁷⁴ Absent any other effects, these additional shipping costs would result in oil producers receiving lower netback prices for their crude production in the short-term.⁷⁵ However, TransCanada documents indicate that in the long term, by affecting market supply, “this strategy would be intended to raise the price in PADD II [the Midwest] and raise the average netback price.”⁷⁶

⁷⁰ <http://online.wsj.com/article/BT-CO-20110511-711147.html>

⁷¹ SDEIS, at 1-6.

⁷² TransCanada Keystone Pipeline GP LTD., Application for Certificate of Public Convenience and Necessity, Keystone XL Pipeline, Sept. 3, 2009, Appendix A, at 18 (Adobe pg. 36), available at [https://www.neb-one.gc.ca/ll-eng/Livelink.exe/fetch/2000/90464/90552/418396/550305/556487/569072/B-23b_Keystone_Reply_Evidence_-_A1L1T6_.pdf?nodeid=569189&vernum=0&redirect=.](https://www.neb-one.gc.ca/ll-eng/Livelink.exe/fetch/2000/90464/90552/418396/550305/556487/569072/B-23b_Keystone_Reply_Evidence_-_A1L1T6_.pdf?nodeid=569189&vernum=0&redirect=)

⁷³ *Id.*, Appendix A, at 11.

⁷⁴ *Id.*, Appendix A, at 13.

⁷⁵ *Id.*, Appendix A, at 16.

⁷⁶ *Id.*, Appendix A, at 17.

A TransCanada report indicates that “[r]emoving volumes from the PADD II market could cause PADD II demand to exceed the available supply.”⁷⁷ But cooperation with a large percentage of the Canadian heavy oil production market, or at least 380,000 bpd, is necessary to increase the PADD II and Ontario prices.⁷⁸ As recognized in the SDEIS, the proposed Project has obtained this necessary capacity through long-term contractual commitments from Canadian producers.⁷⁹ As a result, the Keystone XL pipeline is expected to increase the cost of Canadian crude by \$3.00 per barrel in the Gulf Coast market (PADD III) and by \$6.55 in the Midwest crude market (PADD II).⁸⁰

In short, it is estimated that the increased transportation costs for Canadian crude producers of \$1.37 billion in 2013⁸¹ would be offset by higher prices for Canadian heavy crude, resulting in an increase in gross revenue to Canadian oil producers of \$1.8 billion to \$3.4 billion⁸² and a net increase in profit for Canadian oil producers of between \$400 million and \$2 billion.⁸³ Another TransCanada estimate projects an increase of \$2 billion and \$3.9 billion in revenue in 2013.⁸⁴ Put another way, TransCanada estimates that U.S. consumers will suffer up to an additional \$4 billion in oil costs as a result of the proposed Project. The SDEIS fails to account for these pricing effects in its assessment of the oil market dynamics that underlies its analysis of the purpose of and need for the proposed Project. As such, both are deficient.

b. The SDEIS does not adequately analyze the effect of the proposed project on oil exports

The SDEIS does not adequately address the effect of the proposed Project on oil exports in light of actual refinery capacity, leading to an inaccurate assessment of the need for the Project.

As noted in the SDEIS, “[t]he volume of future U.S. imports of WCSB crude oil will be dependent on the available capacity of domestic pipelines, the level of demand for WCSB crude oil from Asian refiners, and the overall level of crude oil demand in the U.S.”⁸⁵ However, additional economic analyses indicate that U.S. refinery capacity and the

⁷⁷ TransCanada Report to NEB, Appendix 3-1: Supply and Market Assessment, Purvin & Gertz Inc., at 26, available at https://www.neb-one.gc.ca/liv-Link/Livelihood.exe/fetch/2000/90464/90552/418396/550305/556487/549220/B-If_Supply_and_Markets_%28Tab_3%29_incl_Appendix_3.1_A1I9R7?nodeid=549324&vernum=0&redirect=3.

⁷⁸ Canadian National Energy Board, Hearing on TransCanada Keystone Pipeline GP Ltd. Keystone XL Pipeline, Sept. 17, 2009, at 92, available at https://www.neb-one.gc.ca/liv-Link/Livelihood.exe/fetch/2000/90464/90552/418396/550305/570526/570650/A1L3V6_Vol.3-ThuSep17.09?nodeid=570651&vernum=0.

⁷⁹ *Id.*; see also SDEIS at 1-11 and 1-12.

⁸⁰ TransCanada Report to NEB, Appendix 3-1, at 28.

⁸¹ TransCanada Application for Public Convenience and Necessity, Appendix A, at 18.

⁸² *Id.*

⁸³ *Id.*

⁸⁴ TransCanada Report to NEB, Appendix 3-1, at 29.

⁸⁵ SDEIS, at 1-9.

effect on exports is also an important factor – one that is not analyzed by the SDEIS.

The SDEIS, citing the 2010 EnSys report, states that “PADD III Gulf Coast refineries have the capacity to refine over 5 million bpd of heavy crude oil.”⁸⁶ The SDEIS suggests that these refiners would be willing to purchase and, in the face of predicted declining or uncertain production from other suppliers, would purchase Canadian crude.⁸⁷ But the SDEIS does not account for the fact that “the potential market is [actually] smaller, probably no more than 1.7 million barrels per day.”⁸⁸ This is “because other oil producers have longterm supply agreements with Gulf refiners. These contracts effectively tie up more than half the refining capacity on the Gulf. The refiners that have made these arrangements will be unable to buy significant quantities of Canadian crude.”⁸⁹ But because the proposed Project “would push between 500,000 and one million barrels per day of crude on these buyers[, p]rice reductions must be expected”⁹⁰ due to the resulting “surplus in the U.S. Gulf.” Because “existing importers are not likely to concede market share to Canada,” “some Canadian oil will need to be exported from the Gulf” to deal with this surplus, and the likeliest clearing market is China.⁹¹

The SDEIS states that “[t]he primary purpose and need of the proposed Project is to provide the infrastructure necessary to transport WCSB heavy crude oil from the border with Canada to delivery points in PADD III in response to the market demand of refineries in PADD III for heavy crude oil. This market demand is driven by the need of refiners in PADD III to replace current feed stocks of heavy crude oil obtained from other foreign sources with crude oil from a more stable and reliable source.”⁹² However, the economic analysis above indicates a much lower PADD III refinery capacity, and therefore lower PADD III demand, which the SDEIS analysis does not address.

The SDEIS fails to address fully the pricing effects and refinery capacity and export issues discussed above in its assessment of oil market dynamics that underlies its analysis of the purpose of and need for the proposed Project. Because the SDEIS does not address this relevant information, its analysis is deficient.

2. The SDEIS’s Oil Spill Risk and Environmental Consequence Analysis is Insufficient and Flawed

The SDEIS consideration of the Keystone XL spill risk contains a number of technical and analytical flaws which lead to an inaccurate assessment of the project’s impacts. The SDEIS underestimates in increasing size and costs of pipeline spills in the United States, contains flawed projections of Keystone XL’s spill risk as well as technical inaccuracies regarding the properties and risks of diluted bitumen.

⁸⁶ SDEIS, at 1-10.

⁸⁷ SDEIS, at 1-10 – 1-11.

⁸⁸ Philip K. Verleger, Jr., PKVerleger LLC, “The Tar Sands Road to China,” (May 2011), at 10, attached as Exhibit I.

⁸⁹ Verleger at 11.

⁹⁰ Verleger at 10.

⁹¹ Verleger at 9.

⁹² SDEIS, at 1-5.

a. The SDEIS draws faulty conclusions when considering the U.S pipeline spill incident history

i. The SDEIS draws incorrect conclusions regarding average pipeline spill volume statistics

The SDEIS underestimates average pipeline spill volume statistics. The SDEIS contradicts its own analysis when considering decreases in the average pipeline spill volume. The analysis correctly states that after 20002, the Pipeline and Hazardous Materials Safety Administration (PHMSA) lowered the spill release volume necessary to trigger a report from 50 barrels to 5 gallons.⁹³ The SDEIS then notes that because of this reporting change, “PHMSA data prior to 2002 likely... lead to over estimates of average spill volumes.”⁹⁴ It immediately follows this statement with the contradictory conclusion that the higher spill volumes for the 20 year period from 1991-2010 when compared to the 5 year (2006-20010) or the 10 year period (2001-2010) likely reflect “the higher level of integrity for newer pipelines and the effects of increasingly stringent regulatory requirements.”⁹⁵ On the contrary, the recent decline in the average spill volume is more likely due to the fact that PHMSA changed its spill recording criteria to include smaller volume spills.

In fact, PHMSA data taken from a time period when the 5 gallon spill minimum reporting requirement where in place show that average spill volume released and net barrels lost in significant incidents on the U.S. onshore hazardous liquid pipeline system have increased. The U.S. on-shore hazardous liquid pipeline system spilled more product in the five year period from 2006 to 2010 than during the prior five year period from 2002-2006.⁹⁶ As Table 1 shows, gross spill volume increased by 6.5%, net volume lost (or product that was not recovered) increased by 22.1%, average gross volume lost per spill increased by 17.6%, and average net volume lost per spill increased by 34.9%.

⁹³ SDEIS, at 3-87

⁹⁴ *Id.*

⁹⁵ SDEIS, at 3-88

⁹⁶ PHMSA Onshore Hazardous Liquid Spill Data, http://primis.phmsa.dot.gov/comm/reports/safety/SigPSI.html?nocache=117#_liquidon

	2002-2006	2006-2010	Increase in 2006-2010
Gross volume spilled (bbl)	104,786	111,599	6.5%
Net volume lost (bbl)	56,685	69,219	22.11%
Gross volume per spill (bbl)	174	205	17.6%
Net volume lost per spill (bbl)	94.2	127	34.8%

- ii. *The SDEIS does not analyze the impact of increasing property damage costs per pipeline spill*

The economic costs of property damage caused by pipeline spills are an important impact of the proposed Keystone XL project. While the SDEIS includes data showing that the cost of property damage caused by the U.S. on shore hazardous liquid pipeline system has been steadily increasing over the last twenty years, it does not comment on this information or consider the project's economic impacts in context of this data.⁹⁸ PHMSA data show that after adjusting for the inflation, the average property damage caused by a significant pipeline spill has increased nearly six fold from over the last twenty years while the overall costs of significant pipeline spills have increased almost four fold (Table 2).⁹⁹

⁹⁷ PHMSA Onshore Hazardous Liquid Spill Data, http://primis.phmsa.dot.gov/comm/reports/safety/SigPSI.html?nocache=117#_liquidon

⁹⁸ SDEIS, at 3-90.

⁹⁹ PHMSA Onshore Hazardous Liquid Spill Data, 2011 http://primis.phmsa.dot.gov/comm/reports/safety/SigPSI.html?nocache=117#_liquidon

TABLE 2. Increasing cost of significant incidents on the U.S. onshore hazardous liquid pipeline system (adjusted for 2010 dollars) ¹⁰⁰		
	Average annual property damage	Average property damage per incident
1991-1995	\$54,500,000	\$336,000
1996-2000	\$102,000,000	\$705,000
2001-2005	\$116,000,000	\$960,000
2006-2010	\$202,000,000	\$1,860,000

b. The SDEIS underestimates the risk of incidents on Keystone XL

- i. The SDEIS draws unsupported conclusions regarding the impact of the fifty-seven special conditions on the safety of Keystone XL*

The SDEIS states that the incorporation of the fifty-seven condition that Keystone XL had agreed to in its application for a special permit to operate at higher pressures “would result in a Project that would have a degree of safety over any other typically constructed domestic oil pipeline system under current code and a degree of safety along the entire length of the pipeline system.”¹⁰¹ However, the SDEIS does not contain the analysis necessary to support this assertion. First, the SDEIS does not compare the Keystone XL operating under these conditions with a typically constructed domestic oil pipeline system under current code. Many of these conditions appear to be substantive restatements of regulations pipeline operators already must follow. For example, special condition 13 requires that Keystone XL ensure that its fittings and components have a pressure rating commensurate with the Maximum Operating Pressure of the pipeline.¹⁰² It would be troubling if PHMSA didn’t already require this of Keystone XL and other pipeline operators in 49 CFR § 195.118. Special provision 33 appears to require that Keystone XL restate PHMSA regulation 49 § 195.120 which requires operators of large pipelines to ensure their pipelines are compatible with in-line inspection tool. Special provision 34 mandates that Keystone XL limit basic sediment and water to 0.5% by volume, a regulation that pipeline operators already must meet under Federal Energy Regulatory Commission regulations.¹⁰³ The assertion that these conditions will increase Keystone XL’s safety relative to other pipelines must also show 1) how these conditions actually differ from those already required by regulation or used in industry practice and 2) how those differences meaningfully address the risks posed by Keystone XL.

¹⁰⁰ PHMSA Onshore Hazardous Liquid Spill Data, 2011, http://primis.phmsa.dot.gov/comm/reports/safety/SigPSI.html?nocache=117#_liquidon

¹⁰¹ SDEIS, at 3-84

¹⁰² SDEIS, at 3-7

¹⁰³ SDEIS, at 3-19

Finally, it is not clear that these conditions are legally enforceable. Appendix C of the SDEIS includes a recommendation by PHMSA that the Department of State require TransCanada to incorporate the fifty-seven conditions into Keystone XL's "written design, construction, and operating and maintenance plans and procedures."¹⁰⁴ While the State Department may include these as conditions for granting TransCanada a Presidential Permit under E.O. 13337. However, E.O. 13337 does not provide a means for State Department to enforce conditions after a Presidential Permit has been granted. Moreover, outside of the context of a special permit, it is not clear that PHMSA has the regulatory authority to enforce a higher regulatory burden on Keystone XL than other similar hazardous liquid pipelines. The SDEIS cannot reasonably claim that Keystone XL will be safer than other typically constructed pipelines on the basis of an unenforceable agreement TransCanada made with the Department of State and PHMSA. The SDEIS should establish the legal authority that would allow PHMSA to enforce these voluntary conditions and ensure that TransCanada maintains them throughout the life of the project.

ii. *The SDEIS makes unsupported conclusions regarding the Project's risk of outside force damage*

The SDEIS makes unsupported conclusions regarding the Project's risk of outside force damage. In its analysis, it concludes that because "older pipelines contain a disproportionate number of smaller diameter pipes with reduced wall thicknesses" they will be "more easily crushed or broken by mechanical equipment or earth movements than larger diameter pipelines such as that of the proposed Project."¹⁰⁵ The SDEIS does not provide information that would support this conclusion. First, the SDEIS does not provide a basis for its assertion that 1) older pipelines contain a disproportionate number of smaller diameter pipes, 2) that these pipeline have wall thicknesses which are less than the 0.465 inch pipe walls proposed for the Project or 3) that they have a greater rate of incidents related to outside forces. In fact, a 2004 report by the Transportation Research Board concluded its treatment of third-party risk to pipelines by saying that while the 2% of the U.S. pipeline system built before 1930 has a higher likelihood of problems, "the differences from one decade to the next since then is not very significant."¹⁰⁶ Second, in assessing the risk of outside force damage, the SDEIS ignores the impact of differences in operating pressures between the Project and smaller pipelines. Thinner walled pipelines will also generally operate at lower pressure.

iii. *The SDEIS's analysis of corrosion rates is flawed*

The SDEIS's treatment of historic corrosion rates conflates internal and external corrosion, stating that new pipe generally uses more advanced coatings and cathodic protection to reduce corrosion potential.¹⁰⁷ However, internal corrosion is not mitigated by

¹⁰⁴ SDEIS, Appendix C at 1.

¹⁰⁵ SDEIS, at 3-91.

¹⁰⁶ Transportation Research Board, *Transmission Pipelines and Land Use: A Risk-Informed Approach*, Special Report 281, 2004, pg. 105.

¹⁰⁷ SDEIS, at 3-91.

cathodic protection or external coatings and is largely a result of in-service conditions.¹⁰⁸ As such, the study by Kiefer and Trench cited by the SDEIS showed that with the exception of the 2% of pipelines built before 1930, newer pipelines did not exhibit lower rates of internal corrosion.¹⁰⁹ Recent reports have suggested that diluted bitumen transport may subject pipelines to higher risks of internal corrosion.¹¹⁰ The SDEIS should assess the Project's risks due to internal corrosion and due to external corrosion separately, and should include factors which would increase its susceptibility to these processes.

The SDEIS does not include corrosion as a potential cause of very large spills, or those greater than 210,000 gallons, in section 3.13.2. Stress corrosion cracking is difficult to detect and known to cause catastrophic failures in pipeline systems. The recent pipeline failure in Kalamazoo, Michigan involved a spill of over 840,000 gallons. Initial investigations suggest that stress corrosion cracking may be the cause of that failure. The SDEIS should be updated to include this risk.

While the SDEIS includes corrosion as an event which might cause a maximum volume spill in section 3.13.4.2, it mistakenly dismisses indications that diluted bitumen increases the risk of corrosion.¹¹¹ First, the SDEIS suggests that a failure would require a high level of corrosion and an external force.¹¹² However, potential variations in pipeline pressure in the course of ordinary operations could provide sufficient internal force to cause catastrophic failure of a highly corroded pipeline. Second, the SDEIS states that comparisons between the ERCB incident database and the PHMSA spill frequency dataset are complicated by differences in spill reporting requirements – specifically, that “in the U.S., spills of 5 barrels or more are reported at this time.”¹¹³ This misstates U.S. regulations and contradicts prior analysis in the SDEIS – which on page 3-87 states “as of 2002, PHMSA required reports of hazardous liquid releases of greater than or equal to 5 gallons (0.1 bbl).” It also overestimates the difficulty of comparing spills of the same volume between the Alberta and U.S. pipeline systems. A recent report compared the frequency of spills 26.3 gallons or greater in both the U.S. and Alberta systems.¹¹⁴ It found that between 2002 and 2010, internal corrosion caused sixteen times as many spills of 26.3 gallons or more per mile than the U.S. hazardous liquid pipeline system.¹¹⁵ This information is readily available and verifiable. The SDEIS should include an analysis of the failure rate of diluted bitumen pipelines compared to conventional crude pipelines.

¹⁰⁸ Klefner and Trench, 2001, pg. 32, <http://www.scribd.com/doc/47675286/evolution-of-pipe-line>

¹⁰⁹ *Id.*

¹¹⁰ Anthony Swift, Susan Casey-Lefkowitz & Elizabeth Shope, Natural Resources Defense Council, Tar Sands Pipeline Safety Risks (2011) [hereinafter NRDC Pipeline Study].

¹¹¹ SDEIS, at 3-99.

¹¹² SDEIS, at 3-99.

¹¹³ SDEIS, at 3-100.

¹¹⁴ NRDC Pipeline Study

¹¹⁵ *Id.*

iv. *The SDEIS's consideration of TransCanada and Keystone's operating history is incomplete*

In considering TransCanada's operating history, the SDEIS ignores material events in the company's experience operating crude oil transportation systems in the United States. The SDEIS does not consider the spill record for the Keystone pipeline beyond January 8th, 2011.¹¹⁶ The SDEIS ignored five spills which occurred on the Keystone pipeline before the SDEIS was released for public comment, including the following:

- January 31, 2011: 10 gallons spilled at in Clinton, Missouri¹¹⁷
- February 3, 2011: 15 gallons spilled from a vapor separator in Payne, Oklahoma¹¹⁸
- February 23, 2011: 10 gallons spilled from a drain valve on a discharge line in Cowley, Kansas. TransCanada didn't report it the day the leak occurred because pipeline operators did not know it exceeded the volume required for reporting until remediation.¹¹⁹
- March 8, 2011: 5 gallons spilled at the main pump in Bramtton, North Dakota.¹²⁰
- March 16, 2011: 126 gallons spilled in the Seneca Pump Station in Kansas.¹²¹

In addition to these leaks, after the SDEIS was made available for public comment, the Keystone pipeline had two significant leaks, including:

- May 7, 2011, the Keystone pipeline spilled approximately 21,000 gallons of crude in Sargent, North Dakota.¹²² This spill was reported to have been caused by a break in a ¾-inch pipe fitting.¹²³
- May 29, 2011, TransCanada reported a 2,100 gallon (50 bbls) spill of crude in Bendeba, Kansas due to a leak on a pressure transmitter fitting.¹²⁴

¹¹⁶ SDEIS, at 3-92.

¹¹⁷ National Response Center, Jan. 31, 2011 Spill Report, http://www.nrc.uscg.mil/reports/rwservlet?standard_web+inc_seq=966126

¹¹⁸ National Response Center, Feb. 3, 2011 Spill Report, http://www.nrc.uscg.mil/reports/rwservlet?standard_web+inc_seq=966497

¹¹⁹ National Response Center, Feb. 23, 2011 Spill Report, http://www.nrc.uscg.mil/reports/rwservlet?standard_web+inc_seq=968357

¹²⁰ National Response Center, March 8, 2011 Spill Report, http://www.nrc.uscg.mil/reports/rwservlet?standard_web+inc_seq=969483

¹²¹ National Response Center, March 16, 2011 Spill Report, http://www.nrc.uscg.mil/reports/rwservlet?standard_web+inc_seq=970232

¹²² National Response Center, May 7, 2011 Spill Report, http://www.nrc.uscg.mil/reports/rwservlet?standard_web+inc_seq=975573

¹²³ Argus Leader, *Valve Failure at Pump Station along Keystone Causes Spill*, May 10, 2011 <http://www.argusleader.com/article/20110510/NEWS/105100315/Keystone-pipeline-ruptures-just-north-S-Dakota-border>

¹²⁴ National Response Center, May 29, 2011 Spill Report, http://www.nrc.uscg.mil/reports/rwservlet?standard_web+inc_seq=977695

In support of its Presidential Permit application, TransCanada provided a frequency-volume study which produced a frequency for spills or leaks greater than 2,100 gallons (50 bbls) of 0.143 spills per year.¹²⁵ When generating probabilities based from the study, TransCanada estimated spills of less than 50 barrels occurring anywhere along the entire route once every 65 years. A 21,000 gallon (500 barrel) spill is considered a “large spill” by PHMSA.¹²⁶ The final EIS for Keystone stated that “large to very large spills are highly unlikely to occur.”¹²⁷ Given the numerous spills just in the first year of the Keystone pipeline, the operating history of Keystone to date should be considered in the projections for Keystone XL. TransCanada’s operating history should be updated and accurately reflected in the spill risk analysis for the Keystone XL pipeline.

In light of these recent spills, on June 3, 2011, PHMSA issued TransCanada with a Corrective Action Order (CAO) after finding that Keystone posed an immediate “threat to life, property and the environment.”¹²⁸ This order includes fourteen conditions, many of which will provide federal regulators with more information regarding the risks to Keystone’s integrity. CAOs are a relatively rare enforcement action. Regulators have only issued forty-eight to hazardous liquid pipeline operators since 1995.¹²⁹ These CAOs are generally issued on older pipelines – the average age of pipelines issued a CAO is forty-six years.¹³⁰ Before Keystone, the youngest hazardous liquid pipeline to be issued a CAO was a pipeline constructed by Marathon Oil Company in 1975, which was issued a CAO in 2000.¹³¹ Such a significant enforcement action against a new pipeline suggests the existence of serious design and/or operational flaws in TransCanada’s Keystone pipeline. As part of the CAO, PHMSA has required TransCanada to provide additional information which will support its investigation of the Keystone pipeline, including:

1. By July 18th, 2011, TransCanada must provide pipeline regulators with a report documenting all issues and incidents on the Keystone since it began operation.¹³²
2. By August 2nd, 2011, TransCanada must compile all available data on small diameter pipeline and components, root cause failure analysis.¹³³
3. By September 1st, 2011, must submit a remedial work plan that verifies the integrity of the pipeline and addresses all factors known or suspected to have

¹²⁵ Keystone FEIS, at 3.13-10,

http://www.entrix.com/keystone/project/eis/17_Section%203.13%20Reliability%20and%20Safety.pdf.

¹²⁶ Keystone XL DEIS, at 3-93.

¹²⁷ Keystone FEIS, at 3.13-10.

¹²⁸ PHMSA, Corrective Action Order, June 3, 2011,

http://blog.nwf.org/wildlifepromise/files/2011/06/320115006H_CAO_06032011.pdf, and attached as Exhibit J.

¹²⁹ PHMSA, Summary of Enforcement Actions, Corrective Action Orders 1995-2011,

http://primis.phmsa.dot.gov/comm/reports/enforce/Actions_opid_0.html?nocache=6462

¹³⁰ *Id.*

¹³¹ PHMSA, Corrective Action Order, 10-17-2000,

http://primis.phmsa.dot.gov/comm/reports/enforce/documents/220005011H/220005011H_Corrective%20Action%20Order_10172000.pdf

¹³² *Id.*

¹³³ *Id.*

contributed to Keystone's twelve spills and any other integrity threatening conditions.¹³⁴

Based on the information that these reports bring to light, federal regulators may determine new measures are necessary to ensure that Keystone can be operated safely. PHMSA's findings should be incorporated into the environmental review of TransCanada's Keystone XL pipeline, as it is similar in design and operation to the Keystone pipeline.

These recent leaks have also led state regulators to investigate the operation of the Keystone pipeline. The North Dakota Public Service Commission began an investigation of the Keystone spill in response to potentially inconsistent accounts of TransCanada's leak detection and spill response times.¹³⁵ Its findings suggested that the incident was due to insufficient pipeline design requirements.¹³⁶ The North Dakota PSC investigation found that there was no material or manufacturing defects in the failed pipe fitting.¹³⁷ The report went on to state that preventing similar failures on the pipeline would require 1) stronger, thicker materials and 2) the installation of engineered pipe supports.¹³⁸ The SDEIS should consider the findings the North Dakota PSC's findings in its assessment of Keystone XL's leak detection and spill response system.

In addition, over half of the steel in the Keystone pipeline was manufactured from Welspun Power and Steel, an India based manufacturer which has been linked to defective pipe steel which stretched under pressure.¹³⁹ Tests conducted by PHMSA identified 47 anomalies where the Keystone pipeline may have expanded beyond agency-stipulated limits.¹⁴⁰ The SDEIS should also document and analyze the origin and quality of the steel in the Keystone XL project, especially for fittings and other critical pipeline parts.

v. *The SDEIS includes incident frequency projections without providing their methodology*

The SDEIS includes a highly optimistic projection of incident frequency for Keystone XL provided by TransCanada without providing the methodology used.¹⁴¹ The frequency of pipeline failure for the project were listed by cause as follows: corrosion every 3,400 years; excavation damage every 8,200 years; materials and construction failure every 3,300 years; hydraulic surge every 6,800 years; ground movement, every 81,500

¹³⁴ *Id.*

¹³⁵ Argus Leader, *ND Commission Opens Investigation into Keystone Pump Station*, May 13, 2011 <http://www.argusleader.com/article/20110513/UPDATES/110513027/1001/rss>

¹³⁶ Argus Leader, *Summary of the Keystone Release Incident for North Dakota Public Service Commission*, <http://www.argusleader.com/assets/pdf/DF174518518.PDF>.

¹³⁷ *Id.*

¹³⁸ *Id.*

¹³⁹ Plains Justice, *Letter regarding TransCanada' Use of Substandard Steel*, June 28, 2010, http://plainsjustice.org/files/Keystone_XL/Steel/Letter_re_TransCanada_Use_of_Substandard_Steel_2010-06-28.pdf

¹⁴⁰ FuelFix, *TransCanada forced to check pipeline for faulty steel*, Dec. 10, 2010, <http://fuelfix.com/blog/2010/12/10/transcanada-forced-to-check-oil-pipeline-for-faulty-steel/>

¹⁴¹ SDEIS, at 3-96.

years, and flooding and washout, every 87,800 years.¹⁴² When compared to the operating history of TransCanada's Keystone pipeline or that of the U.S. pipeline system, these estimates appear ludicrous. The SDEIS should either include more specific details regarding TransCanada's methodology or remove these estimates.

The SDEIS also included a modified project-specific spill frequency estimate prepared by TransCanada in Appendix P of the Draft EIS.¹⁴³ The primary rationale for reducing the frequency estimate of spills from the pipeline was that modern pipelines are constructed with improved materials and methods. This rationale assumes that pipelines constructed with newer materials and methods are likely to experience fewer leaks. The revised expected frequency for spills was reported in the Frequency-Volume Study to be 0.14 spills/year over the 1070 miles from the Canadian border to Cushing Ok. This value was adjusted to 0.22 spills per year for the total 1673 miles of pipeline including the Gulf Coast Segment. Using the 0.22 spills/year, TransCanada predicted 11 spills greater than 50 barrels would be expected over a 50-year project life. However, this reduced frequency is not appropriate for two reasons. First, the study of the revised frequency ignored some of the historical spill data, including the spill cause category of "other causes" in the historical spill data set. The "other causes" category was assigned for spills with no identified causes. Since this category represents 23% of the total spills (TransCanada, 2009), this is a significant and inappropriate reduction from the spill frequency data. In addition, the assumed reduction in spill frequency resulting from modern pipeline materials and methods is probably overstated for this pipeline. TransCanada used a reduction factor of 0.5 for this issue. That is, according to TransCanada, modern pipeline construction materials and methods would result in half as many spills as the historical data indicate. However, the PHSMA data used in the TransCanada report were from 1999 to 2000.

Therefore, at least some of the pipelines in the analysis were modern pipelines. That is, the initial frequency estimate was calculated in part with data from modern pipelines; therefore, a 50% reduction of the frequency estimates is highly questionable based on the data set used. More importantly, DilBit, the type of crude oil to be transported through the Keystone XL pipeline will likely be significantly more corrosive and abrasive than the conventional crude oil transported in most of the pipelines used in the historical data set. This is due to higher hard sediment concentrations, higher acidity, higher sulfur content, higher chloride content, as well as higher operating temperatures and pressures than most older pipelines used to transport conventional crude. Since corrosion and pressure are the two most common failure mechanisms resulting in crude oil releases from pipelines, increased corrosion and pressure will likely negate any reduced spill frequency due to improvement in materials and methods.

The SDEIS spill frequency estimates consistently state the frequency of spills in terms of spills per year per mile. This is not a proper way to state the risk or frequency of pipeline spills. Spill frequency estimates averaged per mile can be useful; e.g., for extrapolating frequency data across varying pipeline lengths. However, stating the spill frequency averaged per mile obfuscates the proper value to consider; i.e., the frequency of

¹⁴² SDEIS, at 3-96.

¹⁴³ SDEIS, at 3-97.

a spill somewhere along the length of the pipeline. Stating the spill frequency in terms of spills per mile is comparable to acknowledging that although some 33,000 deaths from automobile accidents occur annually in the U.S., the average annual fatality rate across 350 million people is only 0.000094 and therefore, incorrectly leading to a conclusion that fatalities from automobile accidents are so rare as to be unimportant. It is important to know the risk of a release from the pipeline. As shown above, the expected number of spills for the pipeline over the pipeline lifetime ranges between 11 and 91 spills, depending on the data and assumptions used.

There is no compelling evidence to support the SDEIS in estimating a reduced frequency of spills due to use of modern materials and methods. The increased corrosiveness and abrasiveness of the product being transported - diluted bitumen - will likely cancel any gains due to materials and methods improvements. The SDEIS should not have reduced the frequency of spills by omitting an important failure category. The SDEIS should have stated the frequency of spills as frequency of spills across the pipeline length per year and per pipeline lifetime. The spill frequency should model spill results based on the PHMSA historical data set resulting in 1.82 spills/yr or 91 significant spills over the pipeline lifetime, as well as a high spill case scenario in which corrosive diluted bitumen leads to more spills than the average for conventional crude pipelines.

c. The SDEIS includes flawed and insufficient analysis of the risks that diluted bitumen pose to the project

i. The SDEIS's analysis of the volatility of diluted bitumen is inaccurate and technically flawed

The SDEIS presents incorrect and at times contradictory information regarding the separation of natural gas liquid condensate and bitumen in the event of a spill. It begins with the unsupported statement that “diluent are integrally combined into the crude oil and would not physically separate if the oil is accidentally released.”¹⁴⁴ This statement is not cited and contradicts significant scientific literature showing that crude oil is a heterogeneous mixture of hydrocarbon molecules which behave according to their own chemical and physical properties. Hydrocarbon molecules within crude oil do not bond, they mix together. Petroleum refineries separate these heterogeneous molecules in a process called ‘fractional distillation,’ using the principle that the larger the molecule, the higher its boiling point.¹⁴⁵ By heating crude oil into gas phase and moving them through a distillation column which cools as its height increases, refiners are able to separate hydrocarbons based on their boiling points.¹⁴⁶ This separation by boiling point will occur whether a hydrocarbon is in a refinery’s distillation column or released in a pipeline spill. Keystone XL’s operating temperature of 150 degrees Fahrenheit is significantly above the boiling point of many of the hydrocarbons in natural gas liquid condensate. While these

¹⁴⁴ SDEIS, at 3-104.

¹⁴⁵ CCAlive, Vapor Pressure, Molecule Size, <http://jchemed.chem.wisc.edu/jcesoft/cca/cca2/main/vapores5/cd2r1.htm>

¹⁴⁶ Oil150 Committee, Refining Crude Oil, History and Products, <http://www.oil150.com/assets/refining-crude-oil-history,-process-and-products.pdf>.

fractions of diluted bitumen will maintain liquid phase at the high pressures within the Keystone XL pipeline, when released into the environment at lower ambient pressures, many of these smaller hydrocarbons will ‘boil’ or phase into gas form.

What the SDEIS means by “integrally combined” needs to be clarified. If the term’s plain meaning is intended, the SDEIS should include additional discussion that reconciles its statement with accepted principles of geochemistry and fluid dynamics with statements in the SDEIS such as “these types of crude oil would become more viscous when released into the environment as the lighter aromatic fractions volatilizes.”¹⁴⁷ The apparent problems with this analysis are 1) the evaporation of lighter fractions would appear to constitute a “physical separation,” and 2) the evaporation of lighter fraction cannot increase the viscosity of the remaining bitumen without also increasing its density.

In several areas, the SDEIS makes the statement that “over time, the aromatic fraction of any crude oil released to the environment would tend to evaporate.”¹⁴⁸ This statement suggests a fundamental misunderstanding of basic petroleum chemistry which affects the SDEIS’s overall analysis. Crude oil is composed of three principal groups of hydrocarbons – aromatics, paraffins, and naphthenes.¹⁴⁹ While the term “aromatic” bears some similarities to the words “air” or “aroma,” it does not in fact describe hydrocarbons that evaporate. Rather an aromatic hydrocarbon is a hydrocarbon characterized by general alternating double and single bonds between carbons.¹⁵⁰ The simplest form of an aromatic hydrocarbon benzene, a hydrocarbon composed of six carbon atoms in a ring. Benzene is also volatile. Volatility is a term that refers to a substance’s tendency to vaporize or evaporate. Benzene’s volatility is due to its relatively small molecular weight; while benzene is volatile, larger aromatic hydrocarbons are not.

Whether a hydrocarbon is likely to evaporate has more to do with its molecular weight than its chemical structure.¹⁵¹ For example, small non-aromatic hydrocarbons are volatile¹⁵² while large aromatic hydrocarbons are not.¹⁵³ In fact, the simplest, most volatile hydrocarbons are paraffins – straight chained or branched hydrocarbons that include methane, ethane, propane, butane, pentane and hexane. Naphthenes - or a saturated hydrocarbon grouping¹⁵⁴ - includes cyclopentane, which has a boiling point of 120 degrees F.¹⁵⁵

¹⁴⁷ SDEIS, at 3-143.

¹⁴⁸ SDEIS, at 3-104.

¹⁴⁹ <http://kvbchemicalengg.com/pdf/BASICS%20OF%20HYDROCARBON%20CHEMISTRY.pdf>

¹⁵⁰ B.Karunanithi, Basics of Hydrocarbon Chemistry,

<http://kvbchemicalengg.com/pdf/BASICS%20OF%20HYDROCARBON%20CHEMISTRY.pdf>

¹⁵¹ B.Karunanithi, Basics of Hydrocarbon Chemistry,

<http://kvbchemicalengg.com/pdf/BASICS%20OF%20HYDROCARBON%20CHEMISTRY.pdf>

¹⁵² National Toxicology Program, Benzene Profile,

<http://ntp.niehs.nih.gov/ntp/roc/elevanth/profiles/s019benz.pdf>

¹⁵³ OSHA, Chemical sampling information for chrysene,

http://www.osha.gov/dts/chemicalsampling/data/CH_228725.html

¹⁵⁴ B.Karunanithi, Basics of Hydrocarbon Chemistry,

<http://kvbchemicalengg.com/pdf/BASICS%20OF%20HYDROCARBON%20CHEMISTRY.pdf>

¹⁵⁵ MSDS for CycloPentane, <http://msds.chem.ox.ac.uk/CY/cyclopentane.html>

Natural gas liquid condensate, the substance often used to dilute bitumen to allow it to travel through a pipe, is composed primarily of smaller, volatile hydrocarbons – these include small aromatic hydrocarbons like benzene as well as small paraffinic and naphthenic hydrocarbons like butane, propane, pentanes and hexanes.¹⁵⁶ As data from the Canadian Crude Quality Monitoring Program shows, Western Canadian Select (WCS) blend diluted bitumen is composed of 2.2% butane (C₄H₁₀), 4% pentane (C₅H₁₂) and 3.6% hexane (C₆H₁₄).¹⁵⁷ While mixing natural gas liquid condensate with raw bitumen will alter the average density of the blend, it will not change the boiling points of its constituent fractions.

Hydrocarbons butane, propane and pentane all have boiling points below the Project’s operating temperature of 150 degrees F, some substantially lower (see table 3).¹⁵⁸ By narrowing its evaluation of volatile hydrocarbons to only consider aromatics, the smallest of which is benzene, the SDEIS ignores hydrocarbons in natural gas liquid condensate which would enter the environment in gas form if depressurized and released into the environment at 150 degrees F,¹⁵⁹ much as water would if a pressure cooker operating at 300 degrees F was suddenly opened. Meanwhile, the heavier hydrocarbons – primarily large bitumen hydrocarbons - would remain.

Table 3. Boiling points of hydrocarbons found in natural gas liquid condensate¹⁶⁰

Hydrocarbon	Boiling Point Celsius	Boiling Point Fahrenheit
Methane	-164	-263
Ethane	-89	-128
Propane	-42	-43.7
Butane	0.5	31.1
Pentane	36	96.8
Hexane	69	156.2
Benzene	80.1	176.18

ii. *Technical inaccuracies lead the SDEIS to underestimate the risk of submerged bitumen in the event of a spill*

The SDEIS does not consider the impact of submerged bitumen in the water column, in terms of both its impacts to public and environmental resources and its effect on spill containment and cleanup efforts. It avoids this analysis by citing the specific gravity of Western Canadian Select (WCS), a diluted bitumen blend.¹⁶¹ While the SDEIS confirms that raw bitumen is denser than water and would sink into the water column, it states that

¹⁵⁶ MSDS for NGL Condensate

¹⁵⁷ Crude Monitor, “Western Canadian Select (WCS),” visited on March 20, 2011, <http://www.crudemonitor.ca/crude.php?acr=WCS>.

¹⁵⁸ EPA, Physical Properties of Selected Petrochemicals, Table 7.1-3, Pg. 65 <http://www.epa.gov/ttn/chief/ap42/ch07/final/c07s01.pdf>

¹⁵⁹ SDEIS, at 3-135.

¹⁶⁰ Elmhurst College, Boiling Points and Structures of Hydrocarbons, <http://www.elmhurst.edu/~chm/vchembook/501hboilingpts.html>.

¹⁶¹ SDEIS, at 3-104.

because WCS has a specific gravity which is 0.07 grams per centimeter lighter than water, it “would not initially sink if released into an aqueous environment.”¹⁶² This analysis relies on the faulty assumption in the SDEIS that diluted bitumen is “integrally combined.” As described above, in the event of a spill, many of the smallest lightest hydrocarbons would be expected to phase into gas form as they encounter significantly lower ambient pressures. This would leave the large, heavier fractions of raw bitumen to sink into the water column.

iii. *Technical inaccuracies lead the SDEIS to underestimate the risk of explosion and fire*

The SDEIS does not consider the risks explosion and fire and their impacts – dismissing the possibility with the statement that “crude oil releases are very unlikely to result in an explosion because crude oil contains a relatively small proportion of volatile hydrocarbons.”¹⁶³ This analysis is flawed as it considers the explosion and fire risk of conventional crude and not Western Canadian Select diluted bitumen, which the Keystone XL pipeline would carry. While conventional crude oil contains a relatively small proportion of volatile hydrocarbons, bitumen is mixed with volatile hydrocarbons such as naphtha, kerosene, or natural gas liquid condensate.¹⁶⁴ The SDEIS describes the dangers of these volatile hydrocarbons:

“Almost all ‘petroleum or hydrocarbon pipeline explosions’ occur in pipelines that are transporting **highly flammable, highly volatile** hydrocarbons such as natural gas, LPG, propane, LNG, **gasoline, naphtha, and similar products**. . . . A release of diesel, **gas condensate, kerosene**, or similar refined liquid hydrocarbon will ignite and burn rapidly and seem to ‘explode’ if the vapors are exposed to a fire or similar high temperature heat source. . . .”¹⁶⁵ (emphasis added)

Bitumen is combined with diluents to form diluted bitumen. Commonly used diluents include naphtha, a very light, easily vaporized liquid with carbon chains in the C₅, C₆ and C₇ range.¹⁶⁶ The chains from C₇H₁₆ through C₁₁H₂₄ are blended together and used for gasoline.¹⁶⁷ All of them vaporize at temperatures below the boiling point of water – when gasoline is spilled it tends to rapidly evaporate. **Kerosene**, in the C₉ to C₁₅ range.¹⁶⁸ Natural gas liquid condensate is a combination of carbons in the C₂ to C₈, primarily made up of naphtha.¹⁶⁹ While conventional crude has relatively small concentrations of light, volatile hydrocarbons, dilbit may contain up to 30% of these smaller hydrocarbons.¹⁷⁰ The

¹⁶² *Id.*

¹⁶³ SDEIS, at 3-133.

¹⁶⁴ SDEIS, at 3-104.

¹⁶⁵ SDEIS, at 3-133.

¹⁶⁶ ASM International, *What’s the difference between gasoline, kerosene, diesel, etc.?*

<http://www.asminternational.org/content/docs/gas.pdf>.

¹⁶⁷ *Id.*

¹⁶⁸ OSHA, Chemical Sampling Information for Kerosene,

http://www.osha.gov/dts/chemicalsampling/data/CH_248885.html

¹⁶⁹ Material Safety Data Sheet, Natural Gas Condensate,

<http://www.marathonpetroleum.com/content/documents/mpc/msds/0197MAR001.pdf>

¹⁷⁰ IHS CERA, Oil Sands, GHGs, and European Oil Supply, March 2010, Pg. 19,

http://www.ceps.eu/system/files/article/2011/03/MARCH%2021_Final_JACKIE%20FORREST.pdf

low flash point and high vapor pressure of the natural gas liquid condensate used to dilute the diluted bitumen increases the risk of the leaked material exploding.¹⁷¹ Diluted bitumen can form an ignitable and explosive mixture in the air at temperatures above 0 degrees Fahrenheit.¹⁷² This mixture can be ignited by heat, spark, static charge or flame.¹⁷³ In addition, one of the potential toxic products of a diluted bitumen explosion includes hydrogen sulfide, a gas which can cause suffocation in concentrations over 100 parts per million¹⁷⁴ and is identified by producers as a potential hazard associated with a diluted bitumen spill.¹⁷⁵ Enbridge identified hydrogen sulfide as a potential risk to its field personnel during its cleanup of the Kalamazoo spill.¹⁷⁶

iv. *The SDEIS does not adequately assess the abrasion risk of hard sediments to the Keystone XL pipeline*

The SDEIS simply states the existence of U.S. Federal Energy Regulatory Commission (FERC) tariffs which allow pipeline operators to reject crude oil streams that exceed a combined bottom sediment and water content of 0.5 percent by volume.¹⁷⁷ The SDEIS seems to use the FERC tariffs to assert that hard sediments will therefore not be a problem in the Keystone XL project and do not need to be thoroughly assessed. This is an incorrect assumption and hard sediments do form enough of a part of diluted bitumen that careful assessment is necessary in the SDEIS.

Raw bitumen contains heavy fractions which accumulate salt, solids, metals and asphaltanes.¹⁷⁸ The National Centre for Upgrading Technology (NCUT) states that “on average, a refinery processing 100Kbbs/day of crude [diluted bitumen] receives over 5

¹⁷¹ There are numerous cases of pipeline explosions involving NGL condensate, including the January 1, 2011 explosion of a NGL condensate line in northern Alberta (“PENGROWTH INVESTIGATES PIPELINE EXPLOSION IN NORTHERN ALBERTA,” *The Globe and Mail*, 2 Jan. 2011, <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/pengrowth-investigates-pipeline-explosion-in-northern-alberta/article1855533/>, last accessed 12 Jan. 2011); and the 2007 explosion of an NGL pipeline near Fort Worth Texas after it had been ruptured by a third party (“No Injuries In Parker Co. Gas Pipeline Explosion,” *AP/CBS 11 News*, 12 May 2007, http://www.keiberginc.com/web_news_files/pipeline-explosion-pr1.pdf, last accessed 12 Jan. 2011).

¹⁷² “Material Safety Data Sheet: Natural Gas Condensates,” Imperial Oil, 2002, http://www.msdsxchange.com/english/show_msds.cfm?paramid1=2480179, last accessed 12 Jan. 2011.

¹⁷³ “Material Safety Data Sheet: Natural Gas Condensate, Petroleum,” Oneok, 2009, <http://www.oneokpartners.com/en/CorporateResponsibility/~media/ONEOK/SafetyDocs/Natural%20Gas%20Condensate%20Petroleum.ashx>, last accessed 12 Jan. 2011.

¹⁷⁴ “Hydrogen Sulfide,” Occupational Safety and Health Administration, Fact Sheet, 2005, http://www.osha.gov/OshDoc/data/Hurricane_Facts/hydrogen_sulfide_fact.pdf, last accessed 12 Jan. 2011.

¹⁷⁵ “Material Safety Data Sheet: DilBit Cold Lake Blend,” Imperial Oil, 2002, http://www.msdsxchange.com/english/show_msds.cfm?paramid1=2479752, last accessed 12 Jan. 2011. In addition to hydrogen sulfide, combustion of diluted bitumen also produces carbon monoxide and sulfur dioxide.

¹⁷⁶ *Enbridge Line 6B 608 Pipeline Release, Marshall Michigan, Health and Safety Plan*, Enbridge, Inc., 2010, http://www.epa.gov/enbridgespill/pdfs/finalworkplanpdfs/enbridge_final_healthsafety_20100819.pdf, last accessed 12 Jan. 2011.

¹⁷⁷ SDEIS, at 3.116

¹⁷⁸ National Centre for Upgrading Technology, “Oilsands Bitumen Processability Project,” March 2006, pg. 2, <http://www.coqa-inc.org/20060223NCUT.pdf>.

tons/day of salts and solids.”¹⁷⁹ NCUT also notes that pipeline sediment and water specifications provide significant room to increase the solids content of diluted bitumen, presumably relative to conventional blends.¹⁸⁰ The 0.5% minimum bottom, sediment and water measures allowed by pipeline operators represent 500 ppm or 153,000 pounds per day of solids for a 900,000 barrel per day pipeline like Keystone XL.¹⁸¹ U.S. refiners are reporting higher quantities of both filterable and unfilterable solids in bitumen derived crudes.¹⁸²

It is not simply the quantity of solid content in diluted bitumen that presents a risk of pipeline abrasion; it is also the hardness of that sediment. Nalco Energy Services presented an analysis of filter deposits at U.S. refiners that found twenty-five percent of diluted bitumen sediment was composed of quartz, alibite, and pyrite.¹⁸³ These minerals have a Moh’s mineral hardness rating between six and seven.¹⁸⁴ At high pressures, these materials can pose a risk of abrasive wear to the pipeline over time. The SDEIS mentions this report but then dismisses it, claiming that “there is no readily available public information on the specific composition of sediments in conventionally produced crudes to compare with this anecdotal information.”¹⁸⁵ The absence of evidence that conventional crude contains high concentrations of hard sediments may suggest that unlike diluted bitumen, pipeline abrasion is not a risk for conventional crude. It is certainly not a sufficient basis to ignore a risk of high concentrations of hard sediments to the integrity Keystone XL pipeline. The combination of large sediment loads, containing materials of greater hardness than carbon steel, moving through carbon steel pipelines at high pressure, creates risks to pipeline integrity that the SDEIS should have fully evaluated and that need to be effectively mitigated.

After declining to evaluate the risk, the SDEIS suggests that PHMSA Special Conditions 33 and 34 would address it. Neither of these special conditions appear suited to this purpose. The former permits PHMSA to require two in-line inspections of Keystone XL in its first five years. The second requires that Keystone XL abide by regulations it, and all other pipeline operators, are already required to follow.

Special condition 33 requires that the Keystone XL pipeline “must be capable of passing inline inspection tools.” It does not, however, require that Keystone XL be

¹⁷⁹ *Id.* at 5.

¹⁸⁰ *Id.*

¹⁸¹ The 0.5% solid limit allows 17,000 pounds per day of salts and solids for a refiner processing 100,000 bpd of diluted bitumen. *Id.* at 5. A 900,000 bpd diluted bitumen pipeline would be permitted to carry nine times this amount, or up to 153,000 lbs per day.

¹⁸² 2008 NPRA Q&A and Technology Forum: Answer

Book, Champion’s Gate, FL: National Petrochemical and Refiners Association, 2008, Question 50: Desalting, http://www.npra.org/forms/uploadFiles/17C4900000055.filename.2008_QA_Answer_Book.pdf.

¹⁸³ S.A. Lordo, “New Desalting Chemistry for Heavy/High Solids Crude,” 2010, pg. 12, http://coqa-inc.org/20100211_Lordo_Solids_in_Crude.pdf.

¹⁸⁴ Quartz and Alibite have Moh’s hardness of 7, pyrite has a Moh’s hardness of 6.5–7, Mineralogy Database, Alibite, Quartz, and Pyrite Mineral Data, <http://webmineral.com>.

¹⁸⁵ SDEIS, at 3-118.

subjected to a regular regime of in-line inspections, only that two such inspections be run two and a half years and five years after operations commence.

Special condition 34 requires that TransCanada limit basic sediment and water to 0.5 percent by volume. This “Special Condition” is redundant, as it is required of all pipeline operators in the United States by Federal Energy Regulatory Commission regulations and therefore would not provide additional protection for Keystone XL.¹⁸⁶ As noted, current regulations would allow Keystone XL to move 153,000 pounds of hard solids per day at pressures of up to 1440 pounds per square inch.¹⁸⁷ Like current pipeline safety regulations, FERC crude quality tariffs were developed with conventional crude pipelines in mind. There is no indication that FERC tariffs are sufficient to prevent pipeline abrasion in high pressure diluted bitumen pipelines.

- v. *The SDEIS draws unsupported conclusions regarding pipeline safety from a comparison between WCSB diluted bitumen and heavy crudes refined in PADD III.*

The SDEIS attempts to establish the safety of transporting diluted bitumen to U.S. refineries *by pipeline* by comparing it to crude blends with similar qualities which are transported to U.S. refineries *by oil tankers*.¹⁸⁸ For this analysis to have any bearing on the impacts of diluted bitumen on the U.S. on-shore pipeline system, these comparison crudes (Mexican Maya, Venezuelan Bachaquero and Venezuelan Petrozuata) would have to be transported on that system as well. They generally do not. While the degree to which these crudes are similar to diluted bitumen is a subject for debate, the fact that these crudes have a very limited presence on the U.S. onshore pipeline system is not. The presence of potentially corrosive blends of crude in U.S. refineries does not indicate of their safety in the U.S. pipeline system. The SDEIS should model the impact of more corrosive diluted bitumen on the spill frequency of Keystone XL pipeline and its environmental impacts.

- vi. *The SDEIS draws unsupported conclusions regarding pipeline safety from a comparison between WCSB Conventional and Oil or Tar Sands Derived Crude Oils*

The SDEIS includes a brief comparison of diluted bitumen and conventional medium and heavy crude oil from the WCSB. The rationale for this analysis is based on the fact that the United States imports 2 mbd of all oil types from Canada and “much of this crude oil originated in the WCSB.”¹⁸⁹ This analysis does not bear serious scrutiny for three reasons. First, the SDEIS does not establish that significant volumes of the oil that the United States has historically imported from Canada have been medium to heavy crude blends. While heavy crude oil blends are becoming increasingly common, it is not clear

¹⁸⁶ SDEIS, at 3-116.

¹⁸⁷ NRDC, Letter to PHMSA, March 24, 2011, <http://switchboard.nrdc.org/blogs/sclefkowitz/NRDC%20Technical%20Letter%20DilBit%20Pipeline%20Safety%20March%202011%20FINAL.pdf>

¹⁸⁸ SDEIS, at 3-111.

¹⁸⁹ SDEIS, at 3-117.

that heavy conventional crude blends have been a significant part of that mix. In 1990, Canada exported 600,000 bpd¹⁹⁰ while it produced approximately 986,000 bpd of light conventional crude.¹⁹¹ Even in 2009, Alberta heavy conventional crude production had only reached 143,000 bpd.¹⁹² Absent a showing the United States has a history of importing significant volumes of heavy conventional crude blends from WCSB in its pipeline system without significant incidents, a comparison of similarities between heavy conventional WCSB crude and diluted bitumen is of little value.

Second, several significant events have called into question the integrity of the pipeline system used to import WCSB crude, including diluted bitumen and other heavy WCSB blends. Prior to the 840,000 gallon WCSB diluted bitumen spill on Enbridge's line 6B in Kalamazoo, Michigan (2010), in-line inspections revealed 329 corrosion anomalies on the line.¹⁹³ The Enbridge Lakehead system, the U.S. pipeline with the longest history moving diluted bitumen, accounted for over half of all crude oil spilled in the United States in 2010, while only making up less than 5% of its overall mileage.¹⁹⁴ TransCanada's first pipeline dedicated to move diluted bitumen from WCSB to the United States (Keystone) has had eleven leaks in less than one year.¹⁹⁵ The largest of these was over 21,000 gallons in May 2011.¹⁹⁶

Third, the SDEIS only compares diluted bitumen and WCSB crude for concentration of aromatic hydrocarbons or BTEX and sediment content.¹⁹⁷ While aromatic hydrocarbon concentration has some bearing on a crude's toxicity, it has little relevance in determining its corrosivity. Also, as noted above, aromatic hydrocarbon or BTEX does not address the highly volatile natural gas liquid component of diluted bitumen. The analysis also does not address diluted bitumen's high sulfur content, high chloride salt content, or the impact of high temperature and pressure on pipeline corrosion and abrasion.

Finally, the analysis has some technical errors. In comparing the characteristics of conventional heavy WCSB crude with diluted bitumen, it confuses diluted bitumen blends with conventional crude and conventional crude blends with diluted bitumen blends. In

¹⁹⁰ <http://nrcan.gc.ca/eneene/sources/crubru/outape-eng.php>

¹⁹¹ <http://www.statcan.gc.ca/pub/11-621-m/11-621-m2006047-eng.htm>

¹⁹² Pg. 3-2, http://www.ercb.ca/docs/products/STs/st98_current.pdf

¹⁹³ PHMSA, Notice of Proposed Amendment of Correction Order,

http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/320105008H_%20CAO%20Amendment_%2009172010%20.pdf

¹⁹⁴ Pipeline and Hazardous Materials Safety Administration, 2010 Hazardous Liquid Incident Data, <http://www.phmsa.dot.gov/portal/site/PHMSA/menuitem.ebdc7a8a7e39f2e55cf2031050248a0c/?vgnextoid=dd2dfa122a1d110VgnVCM1000009ed07898RCRD&vgnnextchannel=3430fb649a2dc110VgnVCM1000009ed07898RCRD&vgnnextfmt=print>.

¹⁹⁵ RL Miller, *Keystone pipeline spilled tar-sands oil 11 times in past year. Do we really want to supersize it?*, Grist.org, May 12, 2011, available at <http://www.grist.org/oil/2011-05-12-lets-supersize-a-disaster> last accessed May 2011.

¹⁹⁶ Edward Welsch, *TransCanada Pipeline Spills Oil in North Dakota*, Wall St. J., May 9, 2011, available at <http://online.wsj.com/article/SB10001424052748703730804576313432899153672.html> last accessed May 2011.

¹⁹⁷ SDEIS, at 3-117.

Table 3.13-5, it lists Western Canadian Blend (WCB) as a WCSB conventional crude.¹⁹⁸ The SDEIS also lists Lloyd Blend (LLB) and Lloyd Kerrobert (LLK) blends are conventional crudes, when they are diluted bitumen blends. While not traditionally considered bitumen, these crudes are produced nonconventional methods and have traditionally been upgraded before being moved by pipeline.¹⁹⁹ This may also be true of other crudes which are listed as ‘heavy conventional’ blends. The SDEIS also lists Suncor Synthetic H as a WCSB DilBit, SynBit, or DilSynBit - it is a synthetic crude blend.²⁰⁰

vii. *The SDEIS provides inadequate treatment of Keystone XL spill response plans*

The SDEIS stated that TransCanada would prepare a Spill Prevention, Control and Countermeasure (SPCC) plan consistent with EPA requirements and an Emergency Response Plan (ERP) approved by PHMSA.²⁰¹ However, this has not yet been done and made publicly available as part of the SDEIS or elsewhere. In the absence of these plans, it is impossible to accurately assess the effectiveness of TransCanada’s spill response procedures or its capacity to carry them out along the pipeline route. Moreover, the SDEIS does not provide any indication that these plans, when prepared, will address the unique challenges associated with spills involving diluted bitumen.

The characteristics of diluted bitumen create challenges for cleanup efforts in rivers and wetland environments. In the case of conventional oil spills, mechanical devices such as booms, skimmers, and sorbent materials—described by the Environmental Protection Agency (EPA) as the primary line of defense against oil spills in the United States,²⁰² contain and recover oil floating on the water surface.²⁰³ However, unlike conventional crude oils the majority of diluted bitumen is composed of raw bitumen which is heavier than water. Following a release, the heavier fractions of diluted bitumen will sink into the water column and wetland sediments. In these cases, the cleanup of a diluted bitumen spill may require significantly more dredging than a conventional oil spill.²⁰⁴ Further, heavy oil exposed to sunlight tends to form a dense, sticky substance that is difficult to remove from rock and sediments.²⁰⁵ Removing this tarry substance from river sediment and shores

¹⁹⁸ SDEIS, at 3118.

¹⁹⁹ Lloydminster Economic Development Corporation, <http://www.lloydminsterdevelopment.ca/oil.htm>.

²⁰⁰ Crude Monitor, Suncor Synthetic H, <http://www.crudemonitor.ca/crude.php?acr=OSH>.

²⁰¹ SDEIS, at 3-128 – 3-129.

²⁰² “Oil Spill Response Techniques,” EPA Emergency Management, Environmental Protection Agency, 2009, <http://www.epa.gov/oem/content/learning/oiltech.htm>, last accessed 12 Jan. 2011.

²⁰³ *Understanding Oil Spills and Oil Spill Response*, Environmental Protection Agency, 2009, Chapter 2: Mechanical Containment and Recovery of Oil Following a Spill, http://www.epa.gov/oem/docs/oil/edu/oilspill_book/chap2.pdf, last accessed 12 Jan. 2011.

²⁰⁴ *The Northern Great Plains at Risk: Oil Spill Planning Deficiencies in Keystone Pipeline System*, Plains Justice, 2010, p. 7,

http://plainsjustice.org/files/Keystone_XL/Keystone%20Pipeline%20Oil%20Spill%20Response%20Planning%20Report%202010-11-23%20FINAL.pdf, last accessed 12 Jan. 2011.

²⁰⁵ *Understanding Oil Spills and Oil Spill Response*, Environmental Protection Agency, 2009, Chapter 4: Shoreline Cleanup of Oil Spills, http://www.epa.gov/oem/docs/oil/edu/oilspill_book/chap4.pdf.

requires more aggressive cleanup operations than required by conventional oil spills.²⁰⁶ These factors increase both the economic and environmental costs of diluted bitumen spills.

Diluted bitumen poses an elevated risk to the environment and public safety once a leak has occurred. While all crude oil spills are potentially hazardous, the low flash point and high vapor pressure of the natural gas liquid condensate used to dilute the diluted bitumen increases the risk of the leaked material exploding.²⁰⁷ Diluted bitumen can form an ignitable and explosive mixture in the air at temperatures above 0 degrees Fahrenheit.²⁰⁸ This mixture can be ignited by heat, spark, static charge or flame.²⁰⁹ In addition, one of the potential toxic products of a diluted bitumen explosion includes hydrogen sulfide, a gas which can cause suffocation in concentrations over 100 parts per million²¹⁰ and is identified by producers as a potential hazard associated with a diluted bitumen spill.²¹¹ Enbridge identified hydrogen sulfide as a potential risk to its field personnel during its cleanup of the Kalamazoo spill.²¹²

vii. *The SDEIS's spill detection analysis is flawed*

In determining the average response time in the event of a pipeline failure, the SDEIS assumes that an operator would identify a leak and respond instantaneously.²¹³ The SDEIS assumed nine minutes to stop pumping units at all pump station locations and three minutes to close remotely operated isolations valves.²¹⁴ Past experience with spills on the Keystone and other diluted bitumen lines demonstrate that operator detection and response are often the most significant component dictating total overall time before pipeline

²⁰⁶ *Understanding Oil Spills and Oil Spill Response*, Environmental Protection Agency, 2009, Chapter 4: Shoreline Cleanup of Oil Spills, http://www.epa.gov/oem/docs/oil/edu/oilspill_book/chap4.pdf.

²⁰⁷ There are numerous cases of pipeline explosions involving NGL condensate, including the January 1, 2011 explosion of a NGL condensate line in northern Alberta ("Pengrowth investigates pipeline explosion in northern Alberta," *The Globe and Mail*, 2 Jan. 2011, <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/pengrowth-investigates-pipeline-explosion-in-northern-alberta/article1855533/>, last accessed 12 Jan. 2011); and the 2007 explosion of an NGL pipeline near Fort Worth Texas after it had been ruptured by a third party ("No Injuries In Parker Co. Gas Pipeline Explosion," *AP/CBS 11 News*, 12 May 2007, http://www.keiberginc.com/web_news_files/pipeline-explosion-pr1.pdf, last accessed 12 Jan. 2011).

²⁰⁸ "Material Safety Data Sheet: Natural Gas Condensates," Imperial Oil, 2002, http://www.msdsxchange.com/english/show_msds.cfm?paramid1=2480179, last accessed 12 Jan. 2011.

²⁰⁹ "Material Safety Data Sheet: Natural Gas Condensate, Petroleum," Oneok, 2009, <http://www.oneokpartners.com/en/CorporateResponsibility/~media/ONEOK/SafetyDocs/Natural%20Gas%20Condensate%20Petroleum.ashx>, last accessed 12 Jan. 2011.

²¹⁰ "Hydrogen Sulfide," Occupational Safety and Health Administration, Fact Sheet, 2005, http://www.osha.gov/OshDoc/data/Hurricane_Facts/hydrogen_sulfide_fact.pdf, last accessed 12 Jan. 2011.

²¹¹ "Material Safety Data Sheet: DilBit Cold Lake Blend," Imperial Oil, 2002, http://www.msdsxchange.com/english/show_msds.cfm?paramid1=2479752, last accessed 12 Jan. 2011. In addition to hydrogen sulfide, combustion of diluted bitumen also produces carbon monoxide and sulfur dioxide.

²¹² *Enbridge Line 6B 608 Pipeline Release, Marshall Michigan, Health and Safety Plan*, Enbridge, Inc., 2010, http://www.epa.gov/enbridgespill/pdfs/finalworkplanpdfs/enbridge_final_healthsafety_20100819.pdf, last accessed 12 Jan. 2011.

²¹³ SDEIS, at 3-127.

²¹⁴ SDEIS, at 3-100.

shutdown.²¹⁵ During the Kalamazoo spill in Michigan, the pipeline involved wasn't shut down until twelve hours after the leak occurred.²¹⁶

An investigation of Keystone I's May 7 spill by North Dakota authorities showed that while the SCADA system indicated a leak had occurred at 3:51 AM, the pipeline was not shut down until 4:35 AM – a response time of forty-four minutes.²¹⁷ This was after a third party called to provide visual confirmation of the spill as operators were validating leak detection data.²¹⁸ The SDEIS should include operator response time based on historic data in its spill response time estimates which would result in a longer time before pumping was stopped in the case of a spill.

3. The SEIS Fails to Analyze Transboundary Impacts Despite Evidence in the Record that Shows a Clear Connection Between Keystone XL and Increased Tar Sands Production

NEPA requires the Department of State (DOS) to take a hard look at the reasonably foreseeable impacts of the Keystone XL pipeline. This includes an analysis of the cumulative impacts associated with increased tar sands production in Alberta that will occur as a result of Keystone XL.

President Obama, in a speech on April 6, 2011, agreed that the impacts associated with tar sands extraction must be analyzed before a decision can be made on Keystone XL.²¹⁹ When asked about the Keystone XL review process, Obama declined to give any specifics because the State Department review was ongoing. However, he was unequivocal in his view that the impacts of tar sands extraction should be analyzed:

These tar sands, there are some environmental questions about how destructive they are, potentially, what are the dangers there, and we've got to examine all those questions... So we've got to do some science there to make sure that the natural gas that we have in this country, we're extracting it in a safe way. The same thing is true when it comes to oil that's being piped in from Canada.

²¹⁵ NRDC Pipeline Study.

²¹⁶ Deborah Hersman, Chairman of the National Transportation Safety Board, Testimony before Committee on Transportation and Infrastructure, September 15, 2010, <http://www.nts.gov/speeches/hersman/daph100915.html> (last accessed January 12, 2011). See also: Matthew McClearn, "Enbridge: Under Pressure," *Canadian Business*, December 6, 2010, http://www.canadianbusiness.com/markets/commodities/article.jsp?content=20101206_10023_10023 (last accessed January 12, 2011). See also: Eartha Jane Melzer, "Pipeline spill underlies fears of new tar sands development," *Michigan Messenger*, August 10, 2010, <http://michiganmessenger.com/40744/pipeline-spill-underlines-fears-of-new-tar-sandsdevelopment> (last accessed January 12, 2011). Richard Kuprewicz is quoted in the Michigan Messenger as stating that the viscosity of tar sands and the use of diluents create frequent pressure warnings in pipeline monitoring systems, false positives that can make it more difficult to detect a real pressure problem in the pipe which can indicate a leak.

²¹⁷ *Id.*

²¹⁸ *Id.*

²¹⁹ <http://www.canada.com/news/decision-canada/must+study+potentially+destructive+oilsands+before+pipeline+approval+Obama/4571517/story.html>

President Obama, April 6, 2011.²²⁰

Remarkably, the DOS released the SDEIS a week later that fails to do just that. After almost two and a half years and two rounds of environmental analysis, DOS continues to pretend that this pipeline stops at the international border and refuses to look at the environmental impacts of increased tar sands extraction in Canada. As such, the SEIS fails to comply with NEPA.

a. NEPA requires an analysis of transboundary impacts

NEPA requires that an EIS include a “full and fair discussion” of the significance of all “direct,” “indirect,” and “cumulative” effects of the action, 40 C.F.R. §§ 1502.1, 1502.16(a)-(b), 1508.25(c); and a discussion of “means to mitigate adverse environmental impact.” *Id.* § 1502.16(h). Defendants’ impacts analysis is deficient because it fails to consider the transboundary impacts of increased tar sands extraction caused, or made possible by the Keystone XL pipeline.

The Council for Environmental Quality (CEQ) regulations explicitly state that an EIS must assess the cumulative impacts of the project when added to “all other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” 40 C.F.R. § 1508.7. A 1997 CEQ guidance clarifies that “NEPA law directs federal agencies to analyze the effects of proposed actions to the extent they are reasonably foreseeable consequences of the proposed action, *regardless of where those impacts might occur.*”²²¹ CEQ concludes that “agencies must include analysis of *reasonably foreseeable transboundary effects* of proposed actions in their analysis of proposed actions in the United States.”²²²

The courts have recognized the need to analyze trans-boundary impacts in an EIS. The Supreme Court has held that impacts must be analyzed when there is “‘a reasonably close causal relationship’ between the environmental effect and the alleged cause.” *Department of Transportation v. Public Citizen*, 541 U.S. 752, 767 (2004). In *Gov’t of the Province of Manitoba v. Salazar*, 691 F. Supp. 2d 37, 51 (D.D.C. 2010), the court relied on the CEQ Guidance and held that the Defendants were required to consider the Canadian impacts of their U.S. water supply project. In *Border Power Plan Working Group v. Department of Energy*, 260 F.Supp.2d 997 (S.D. Calif. 2003) the court found Defendants were required to consider the trans-boundary impacts of certain power turbines in Mexico in their EIS on a U.S. transmission line. That was because the line was the only “current means” evidenced by the record through which the turbine could transmit its power, and the turbines and transmission lines were “two links in the same chain.” *Id.* at 1017.²²³

²²⁰ <http://www.canada.com/news/decision-canada/must+study+potentially+destructive+oilsands+before+pipeline+approval+Obama/4571517/story.html>

²²¹ Council on Environmental Quality Guidance on NEPA Analyses for Transboundary Impacts, July 1, 1997, at ¶4, available at <http://ceq.hss.doe.gov/nepa/regs/transguide.html>

²²² *Id.* at ¶ 6 (emphasis added).

²²³ Many other courts have held that NEPA requires analysis of impacts in foreign countries. See, e.g., *Sierra Club v. Adams*, 578 F.2d 389, 396 (D.C. Cir. 1978) (requiring an analysis of impacts to local Indian groups of a highway in Panama, and “assuming” NEPA is applicable to projects in Panama); *Nat’l Org. for Reform of*

Similarly here, the evidence before DOS demonstrates that Keystone XL would be the only current means to ship increased amounts of tar sands crude to new market and thus allow tar sands production to increase. Keystone XL and tar sands production are necessary links in the chain of extraction, shipping and refining increased amounts of tar sands. While the EnSys report speculates that other pipelines projects may be built in the future in the absence of Keystone XL, those projects are far from certain to occur and thus are not “current” alternatives. While these other speculative projects may also cause an increase in tar sands production if they do proceed, that does not negate the fact that Keystone XL would cause production to increase.

b. DOS Still has not analyzed transboundary impacts

The transboundary impacts associated with Keystone XL must be analyzed in an EIS include, but are not limited to: increased greenhouse gas emission associated with tar sands extraction, upgrading and transportation in Canada, including vast losses of boreal forest carbon sinks; local and regional air pollution associated with tar sands development; contamination of the Athabasca River watershed and other surface and groundwater resources; depletion of surface and groundwater resources; human health impacts of local communities, including First Nations communities that live near and downstream from tar sands development; wildlife impacts, including impacts to migratory birds and endangered species, such as the woodland caribou, resulting from toxic tailings lakes and from the loss and fragmentation of boreal forest habitat; and socio-economic impacts associated with increased tar sands development, including labor shortages, rising operations and maintenance costs, strains on regional infrastructure, and volatile royalty-dependent provincial budgets. The actual construction and operation of the pipeline section in Canada will also have impacts that must be analyzed. In the Draft Environmental Impacts Statement (DEIS) for Keystone XL, DOS failed to consider the full range of direct, indirect, and cumulative impacts associated with the project by failing to look past the U.S. Canadian border.

In our comments on the DEIS, we outlined the need for DOS to analyze all indirect and cumulative impacts of the project, including trans-boundary impacts associated with increased tar sands production resulting from Keystone XL.²²⁴ In letters written subsequent to the close of the comment period, we repeatedly urged DOS to consider trans-boundary impacts in a supplemental EIS, including impacts of life-cycle GHG emissions and impacts to migratory birds.²²⁵

Marijuana Laws (NORML) v. U.S. Dept. of State, 452 F. Supp. 1226, 1233 (D.D.C. 1978) (applying NEPA to US participation in an herbicide-spraying program in Mexico); *Ctr. for Biological Diversity v. Nat'l Sci. Found.*, C 02-5065 JL, 2002 WL 31548073 (N.D. Cal. Oct. 30, 2002) (applying NEPA to an acoustic research program on the high seas); *Hirt v. Richardson*, 127 F. Supp. 2d 833 (W.D. Mich. 1999) (applying NEPA to a shipment of weapons-grade plutonium from New Mexico to Canadian border).

²²⁴ DEIS Comments, at 89-90.

²²⁵ Letter of December 16, 2010, attached as Exhibit K; letter of January 26, 2011, attached as Exhibit L; letter of February 24, 2011, attached as Exhibit M; *see also* letter of April 7, 2011, attached as Exhibit N.

The SEIS still does not fulfill its legal obligation to consider trans-boundary impacts pursuant to NEPA. In a section entitled “Extraterritorial Concerns,” the SEIS argues that it is not legally required to consider impacts outside of the U.S., ignoring the Supreme Court’s holding in *Public Citizen*, 541 U.S. at 767. SEIS, at 3-201. As a result, it does not take the “hard look” at trans-boundary impacts as required by NEPA. Instead, it includes a perfunctory, four-page review of extraterritorial concerns in four short sections.

First, the SEIS explains that the Canadian National Energy Board (NEB) conducted an environmental analysis and issued its findings in March 2010, which determined that the project is “required in Canada to meet the present and future public convenience and necessity...” SEIS, at 3-201. However, as acknowledged by the SEIS, the NEB decision focused on nine key issues but did not analyze the full range of environmental and social impacts of Keystone XL, including impacts associated with increased tar sands development such as increased greenhouse gas emissions, destruction of the boreal forests, pollution of the Athabasca River watershed, health impacts to First Nations and other local communities, or wildlife and migratory bird impacts. Instead, the NEB findings focused on issues such as economic feasibility, the need of the project, commercial impacts, and the method of toll and tariff regulation. *Id.* Even if the NEB findings had addressed the full range of impacts, it would not relieve DOS of its own obligation to conduct a hard look under NEPA.

The SEIS next includes a paragraph on the 2010 EnSys Report, which relies on to reach its conclusion that “even if the proposed action does not proceed, production from the oil sands in Canada would likely continue at a similar rate.” *Id.* at 3-202. As discussed in more detail below, this conclusion is wrong, and is plainly contradicted by the data in the EnSys Report. The SDEIS cannot rely on this document to avoid analyzing transboundary impacts, including GHG emissions from the extraction and processing of tar sands. Furthermore, the pipeline is expected to have a lifetime of over 50 years, yet the EnSys report only looks at impacts through 2030. The EnSys Report ignores more than 30 years of the lifespan of the pipeline during which the pipeline will drive of expansion of tar sands oil extraction.

Next, the SEIS provides a two-page “summary of general regulatory oversight and environmental impacts in Canada related to oil sands production.” *Id.* at 3-202. This is largely a collection of self-serving statistics borrowed from Alberta government records that attempt to minimize the environmental impacts of tar sands (e.g., “Air quality in the oil sands region is rated good 95 percent of the time. *Id.* at 3-204). Commenters strongly dispute the accuracy of these statistics, and the voluminous record in this case contradicts them. Furthermore, DOS has made no attempt to verify their accuracy. Even if they were accurate, this list would not suffice as an adequate analysis under NEPA.

Finally, the SEIS includes a short description of how migratory birds and endangered species are protected under Canadian laws and treaties. Again, DOS cannot avail itself of its obligation to analyze trans-boundary impacts pursuant to NEPA, implementing regulations, and *Public Citizen* by describing some protective measures that exist outside the scope of DOS’s NEPA responsibilities.

c. The Ensys Report is flawed and actually supports an analysis of transboundary impacts

In 2010, EnSys Energy & Systems, Inc. prepared a report called the “Keystone XL Assessment” (EnSys Report) for the U.S. Department of Energy (DOE) Office of Policy and International Affairs.²²⁶ The EnSys Report was intended to be “an evaluation of the impacts on U.S. and global refining, trade and oil markets of the Keystone XL project to bring additional Canadian crudes, including oil sands, into the U.S.” EnSys Report, at 1.

i. The EnSys Report shows a clear connection between Keystone XL and increased tar sands production

The analysis contained in the EnSys Report flatly contradicts its own conclusion that KXL will not affect tar sands production rates. The EnSys Report unequivocally shows that Keystone XL would increase tar sands production.

In 2009, WCSB production totaled about 2.5 mbd of crude oil, of which roughly 65% came from oil sands. EnSys Report, at 14. This percentage is expected to increase substantially in coming years. Canadian consumption equaled only 710,000 barrels per day (bpd), and the U.S. made up the vast majority of demand. *Id.* In the U.S., Petroleum Area Defense District (PADD) II uses 1.2 million barrels per day (mbd), while the other PADDs use far less. *Id.*

Prior to the construction of the TransCanada Keystone Pipeline and Enbridge Alberta Clipper Pipeline, the U.S. imported approximately 800,000 barrels per day (bpd) of tar sands from Canada. The addition of the Keystone Pipeline, with a capacity of 591,000 bpd, and the Alberta Clipper Pipeline, with an ultimate capacity of up to 800,000 bpd brings U.S. capacity for tar sands imports up to over 2 million barrels per day (mpd).

The EnSys Report explains that there is currently enormous excess pipeline capacity. Keystone XL would raise existing capacity out of Alberta from a total of 3.881 mpd in 2011 to 4.581 mpd when built in 2013 (adding 700,000 initially). Table 3-4, pg. 30. According to EnSys, there will be excess capacity through 2020 regardless of whether Keystone XL is built. *Id.* at 31. (“If no further projects were built between now and 2030 beyond those listed in Table 3-4, the surplus capacity would exist until around 2024...”).

“Significantly, only 14,000 bpd was exported in 2009 to destinations outside the USA....” *Id.* Indeed, Asian-exports represent 0.56% of current oil exports from the WCSB. Thus, while tar sands producers and shippers are extremely interested in accessing other foreign markets, especially Asia, the U.S. is currently the only significant consumer. As the analysis in Section XX indicates, Canadian reliance on the U.S. as the dominant market for tar sands exports is expected to remain for another 10 years.

²²⁶ EnSys Keystone XL Assessment, Final Report (Dec. 23, 2010).

The EnSys Report compares various pipeline scenarios and the resulting impacts on tar sands production. The only relevant comparison should be between the scenario where Keystone XL is built, and the status quo, which is represented by the “No Expansion” scenario. The No Expansion scenario assumes that no additional pipelines are built beyond what is currently built or under construction. The EnSys report concludes that under the No Expansion scenario, there would be “significant impacts on the disposition of WCSB crudes” because production would be curtailed by 2024 because of limited export pipeline capacity. EnSys Report, at 93.

By contrast, building Keystone XL would allow tar sands production to increase through 2030: “[W]hile Keystone XL, coming on line in 2013, would add to the excess in export capacity through 2020, its capacity- or an alternative (i.e. other projects in Section 3.2)- would be needed soon after 2020 to sustain WCSB production at the levels predicted by CAPP.” *Id.* at 31.

Most importantly, the EnSys Report finds that Keystone XL would allow tar sands production to increase by approximately 800,000 bpd more than it would under the No Expansion alternative between 2020 and 2030.²²⁷ *Id.* at 117.

The graphs on page 8 of the EnSys Report illustrate this projected under different demand scenarios. (Reproduced as figures 4 and 5 below.). Figure 4 (showing the Reference Outlook) and Figure 5 (showing the Low Demand Outlook), both shown below, show a stark difference in production levels if Keystone XL were built versus if it were not built. Together, the graphs show that Keystone XL is expected to increase tar sands production by 750,000 to 900,000 bpd.

Under the Reference Outlook, tar sands production will increase to roughly 3.25 million bpd by 2020 whether or not Keystone XL is built. If Keystone XL is built, production will continue to increase to just under 4.5 mbd by the year 2030. However, if Keystone XL is not built (and no other pipelines are built), production will increase at a slower pace between 2020 and 2024 and then level out at around 3.6 mbd by the year 2024. Thus, under the Reference Outlook, Keystone XL will cause a production increase of roughly 900,000 bpd more than under the status quo.

²²⁷ Commenters do not accept this number, and believe that Keystone XL a greater increase in tar sands production that will occur sooner than the EnSys Report suggests. *See infra* Section IV.C.3.d.

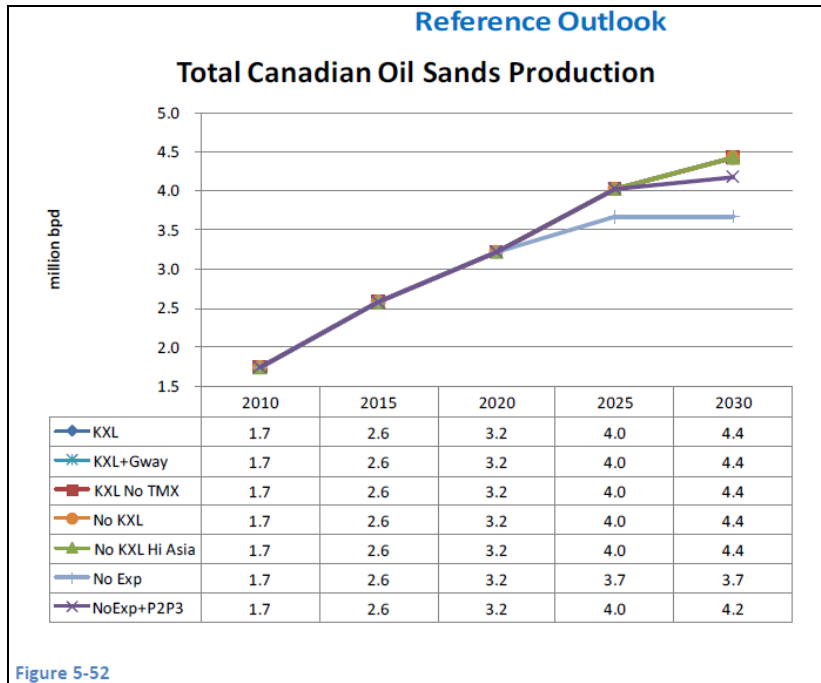


Figure 4.

The Low Demand Outlook also shows a significant difference in tar sands production levels between the Keystone XL scenario versus the “No Exp” scenario. Under both scenarios, production will increase to just over 3 million bpd by 2020 regardless of whether Keystone XL is built. If Keystone XL is built, production will then increase until reaching roughly 4.25 million bpd by 2030. Under the No Expansion scenario, however, production will increase at a shallower rate, peak in 2025 at about 3.5 million bpd, and then decrease to roughly 3.25 million bpd by 2030. Thus, under both the Reference Outlook and the Low Demand Outlook, Keystone XL will cause around a nearly million bpd increase in tar sands production levels higher than what would occur under the status quo.

Id.

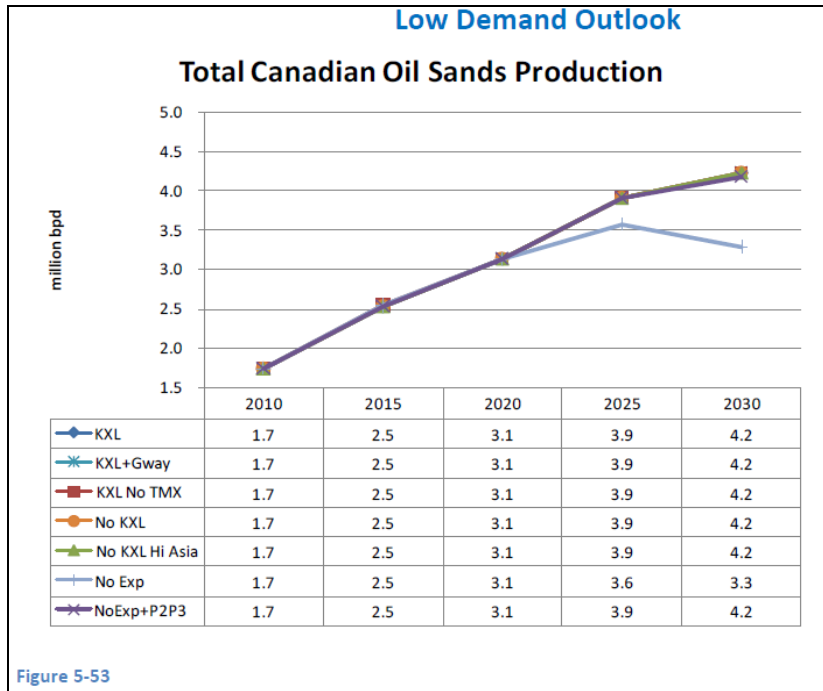


Figure 5.

Thus, the EnSys Report clearly shows that Keystone XL will have a discernable impact on tar sands production rates. Indeed, this impact is much more than “a reasonably close causal relationship” between KXL and increased tar sands production. *Public Citizen*, 541 U.S. at 767. This requires an analysis of the trans-boundary impacts associated with increased tar sands production. *Id.*

ii. *The EnSys conclusion is flawed and DOS cannot use it to avoid analyzing transboundary impacts*

The biggest flaw of the EnSys Report is its conclusion that “[p]roduction levels of oil sands crudes would not be affected by whether or not KXL was built.” As the Report explains, this conclusion is based on the assumption that if KXL is not built, some other project will likely be built:

WCSB production would only be impacted... if there were no further pipeline expansion out of WCSB and within the USA beyond projects currently under construction. Even then, because of existing available line capacity, oil sands production would not begin to be curtailed until after 2020. Versus the base projections, WCSB would be curtailed by approximately 0.8 mbd by 2030. Since, to occur, such a scenario would have to entail no expansion of (a) pipelines entirely within Canada that could take WCSB crudes from Alberta to the British Columbia coast, (b) existing cross-border lines from WCSB to the U.S., (c) existing internal domestic U.S. pipelines that could take WCSB crudes to market within the U.S. – and to eastern Canada and (d) alternative proven transport modes, namely rail possibly supported by barge, the scenario is considered unlikely.

Id. at 116-117.

Thus, the EnSys Report’s conclusion—that KXL will not affect oil sands production levels—depends on the assumption that if KXL is not built, some other future oil transport project would be built that would similarly allow production to increase through 2030. By making this assumption, the Report tries to avoid its finding that “WCSB would be curtailed by approximately 0.8 mbd by 2030” if Keystone XL were not built. *Id.*

However, NEPA prohibits DOS from making such an assumption. It must base its trans-boundary impacts analysis on *this* project, which is the only current means with which to allow tar sands production to increase through 2030. See *Border Power Plan Working Group v. Department of Energy*, 260 F.Supp.2d 997 (S.D. Calif. 2003) (PAREN). DOS cannot use EnSys’ speculations of future projects’ impacts to avoid analyzing the trans-boundary impacts that KXL will cause as a result of causing increased tar sands production rates. As argued below, none of these alternative projects are moving forward, and many have not yet been formally proposed.

The “only current means” test makes logical sense in this situation. If a proposed project such as KXL will have reasonably foreseeable impacts, the notion that other future projects would have similar impacts does not somehow negate consideration of KXL’s impacts. The impacts of those other projects would also have to be analyzed pursuant to NEPA when the time came. And if not for the “only current means” requirement, the entire purpose and intent of NEPA could be subverted, as any project could avoid NEPA compliance by speculating that other future projects would likely have similar impacts.

iii. The EnSys Report arbitrarily assumes the likelihood of other projects

Furthermore, the EnSys Report is flawed because its assumption that other pipelines are likely to be built if not for KXL is unsupported and premature. It cannot be accepted as a given that any of these projects will move forward. In fact, the data in the EnSys Report suggests otherwise.

TransCanada has publically claimed that if Keystone XL is not built, the tar sands crude will be sent to Asia rather than PADD III markets. The EnSys Report echoes this theory. According to the Report, most proposed crude oil transport projects target Asian markets. Currently, the “WCSB crude export system is highly unusual in that it is currently overwhelmingly land-locked... [and] [w]aterborne exports [to Asian markets] are minor and through only one marine terminal, the Westridge dock near Vancouver.” *Id.* at 15. In 2009, exports to Asian markets totaled only 14,000 mbd and depended entirely on Kinder Morgan’s Transmountain pipeline system that transports WCSB crude from Alberta to Westridge. *Id.* According to a newspaper article, “volumes moving to Asia have reportedly risen to 20,000 bpd.” *Id.* Currently, only 0.56% of exported tar sands crude flows to Asian markets.²²⁸

²²⁸ See Droitsch, Danielle, “*The link between Keystone XL and Canadian oilsands production*,” (The Pembina Institute, April 2011), attached as Exhibit O, at 10 (hereinafter “Pembina Report”).

As such, while there is considerable interest in establishing a route that would allow higher-volume exports to markets in China, Japan, South Korea, and Taiwan, none of the proposed projects are likely to move forward in the next decade. *Id.* at 17.

In 2008, Kinder Morgan's TMX 1 Project expanded the capacity of the Transmountain line to 300,000 bpd. Kinder Morgan has proposed several more expansion projects. The TMX 2 Project would expand Transmountain to 380,000 bpd, and TMX 3 would expand it to 700,000 bpd. However, "no decision to go ahead has been taken on either of these projects. This will depend upon level of commercial interest." *Id.* at 17. The EnSys Report describes some of the hurdles these projects face: "Extensive work would be required with various organizations, including the NEB, Port Metro Vancouver and First Nations groups before the project could go ahead. Permits would be required for expansion. In addition, agreements with landowners along the route may have to be renegotiated. These requirements could possibly delay or stop the project..." *Id.* This project would also require dredging the Vancouver harbor and changing regulations to allow increased tanker traffic, both of which have already attracted widespread opposition.²²⁹ Nevertheless, the EnSys Report takes the position that these two Projects "may be the most likely to go ahead of any of the West Coast projects." *Id.* at 18.

Kinder Morgan has also proposed a third expansion project: the Northern Leg expansion of Transmountain, which would add a new spur line north to the port of Kitimat that would allow exports to Asia. The proposed capacity of the Northern Leg is 400,000 bpd, which would bring the capacity of the Transmountain system to 1.1 mbd (including TMX 2 and TMX 3). *Id.* However, "[t]he Northern Leg expansion is considered by Kinder Morgan to be a longer term project. It also faces strong opposition from First Nations and environmental groups." *Id.* at 18. Furthermore, in December 2010, the Canadian House of Commons passed a motion, supported by four out of five federal parties, calling for the federal government to ban bulk oil tanker off the north coast of British Columbia, which would make it extremely difficult for this project to proceed.²³⁰ In 2010, Kinder Morgan withdrew its intention for these projects due to lack of commercial interest. *Id.*

Perhaps the most controversial West Coast project is Enbridge's proposed Northern Gateway pipeline, which would travel from Edmonton to Kitimat. The capacity would be 525,000 bpd, but would be potentially expandable to 800,000 bpd. *Id.* at 18. Enbridge project Northern Gateway to be operations by 2017-2019, if regulatory approvals are obtained and the company decides to build.²³¹ "However, the project is encountering strong resistance from First Nations and environmental groups, which renders its timing uncertain." *Id.* at 18. Polling shows that 80% of British Columbians oppose the Northern

²²⁹ Pembina Report, *supra*, at 11.

²³⁰ Pembina Report, *supra*, at 10.

²³¹ Montreal Gazette, "Enbridge expects decision on Northern Gateway by end of 2012," 5 April 2011, <http://www.montrealgazette.com/news/Enbridge+expects+decision+Northern+Gateway+2012/4558619/story.html> Accessed 30 May 2011.

Gateway Project.²³² Moreover, sixty one First Nations that have aboriginal rights and title and who are affected by the proposed pipeline are against both the pipeline and the additional tanker traffic resulting from the project.²³³ Given the strong legal rights afforded aboriginals in Canada, especially those on unceded territory, their opposition represents a considerable barrier to the likelihood of the project. For example, the Globe and Mail stated that the First Nations groups “have the constitutional clout to put up insurmountable obstacles for the proposed Northern Gateway – namely, a messy legal debate around unsettled land claims along the route that will likely be decided by the Supreme Court of Canada.”²³⁴

There is also a lack of commercial interest in the Northern Gateway Project. Despite the project basing its operations on long-term commercial shipping agreements, no agreements have to date been signed by either tar sands producers or refiners in Asia. *Id.* Furthermore, KinderMorgan is even opposing this project on the basis that Enbridge is seeking regulatory approval prior to proven market demand for tar sands crude.

Finally, a partnership between CN Rail and Altex has proposed a “PipelineOnRail” service that would be capable of transporting 200,000 bpd to the West Coast via rail lines. However, that appears uncertain at best. *Id.* The EnSys Report lists it as “status uncertain.” *Id.* at 29. Rail transport is less efficient for transporting large volumes than pipelines, and this method has a poor safety record.²³⁵ Moreover, the PipelineOnRail proposal would also be vulnerable to the B.C. tanker ban.

In summary, none of the proposed alternatives to Keystone XL are “likely” to move forward, and if any did proceed, they would most likely be a long-term option (10+ years). Therefore, the EnSys conclusion that WCSB crude will be sent to Asia in the absence of KXL is arbitrary and clearly unsupported, and DOS cannot rely on it.

d. Keystone XL will increase tar sands production more than the EnSys Report Estimates

The EnSys Report estimates that Keystone XL will cause tar sands production to increase roughly 800,000 bpd more than it otherwise would if KXL were not built. EnSys Report, at 116-117. It estimates that this increase would occur between 2020 and 2030. If Keystone XL were not built, excess pipeline capacity would be filled sometime around 2024 and production would be curtailed. *Id.* However, if built, Keystone XL would allow tar sands production to increase through 2030.

Commenters agree with the EnSys conclusion that Keystone XL will cause a significant increase in tar sands production, and that the resulting increase will be at least 800,000 bpd. However, the EnSys Report analysis is far too narrow, as it is based only on

²³² Pembina Report, *supra*, at 10.

²³³ Pembina Report, *supra*, at 10.

²³⁴ <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/first-nations-dig-in-against-enbridge-pipeline/article2021928/page1/>

²³⁵ Pembina Report, at 10.

when pipeline capacity would run out in the absence of Keystone XL. The reality is that Keystone XL would spur an increase in tar sands production that will occur much sooner, and on a larger scale, than the EnSys Report estimates.

As a recent report by the Pembina Institute found, Keystone XL would raise the cost of Canadian crude oil, which would provide a clear and strong market signal to producers that would increase upstream tar sands production.²³⁶

The purpose of Keystone XL is to transport WCSB crude from Alberta to refineries in the U.S. Gulf Coast PADD III. Because capacity to the PADD III region is currently limited to 96,000 bpd via the Pegasus Pipeline, PADD III represents the largest untapped market for WCSB crude suppliers. *Id.* In fact, the largest constraint to the growth of WCSB crude is the availability of pipeline capacity to PADD III. *Id.* Due in part to the recent increases in pipeline capacity to PADD II (upper Midwest region) and increased domestic supply, there has been a pipeline “bottleneck” in Cushing, OK and a resulting glut of oil in the Midwest. *Id.* This situation has led to record discounts of WTI crude of \$10 to \$18 per barrel, and lower gas prices at American pumps. *Id.*

Keystone XL is designed to relieve this bottleneck and open up the PADD III market. With a capacity of 700,000 bpd, KXL would increase access to PADD III by 700%.²³⁷ TransCanada’s economics analysis suggests that Keystone XL could deliver as much as 500,000 bpd as early as 2014, and much of that volume is already committed. *Id.*

Canada’s National Energy Board found that “the USGC (U.S. Gulf Coast) is a large, long term and strategic market for Canadian crude oil.... [T]he refining area to be supplied by the Keystone XL Pipeline holds strong potential for Canadian crude oil producers. The opening of new markets for Canadian crude oil would alleviate the economic risk associated with saturation in traditional markets.”²³⁸ If the current saturation of the Midwest market continues (without Keystone XL), the discount of Canadian crudes will hurt the economics of upstream production projects.²³⁹

The opening of the PADD III market in the Gulf Coast region would increase the price of oil for all Canadian crude oil. This price increase would “provide a strong market signal for increased production and investments in the oilsands... and would also affect industry expectations about profit margins.” *Id.* at 7. By providing access to PADD III markets that will allow producers to charge more for its oil, Keystone XL would increase annual revenue to the Canadian producing industry by \$2 billion to \$3.9 billion. *Id.* This increased “netback” would act as an extremely strong price signal that would act as an incentive to increase production. *Id.* The shipping companies that have entered into shipping agreements for Keystone XL are among the largest crude oil producers in Canada, with billions of dollars in production investments. Much of these investments in production involve projects that are either under construction or in the application phase.

²³⁶ Pembina Report.

²³⁷ *Id.* at 5.

²³⁸ *Id.* at 6 (quoting NEB decision)

²³⁹ *Id.* (quoting Jackie Forrest, HIS CERA Director of Global Oil).

Id. at 8. These shippers, as well as TransCanada itself, have publically acknowledged that Keystone XL’s access to PADD III markets would increase production. *Id.* at 7.

Furthermore, the Appendix to the EnSys report explains the WORLD model used by EnSys for its supply and demand predictions. However, it appears that the WORLD model is not sophisticated enough to determine upstream investment decisions in its analysis. This is a critical flaw; approval of Keystone XL would send a clear signal to Canada, Alberta and investors that tar sands have a future in exports to the U.S. and this investment signal will drive additional expansion.

As set forth above, alternative projects that would open routes to Asian markets are far more uncertain, and are at least 10 years away. *Id.* at 9. Alternative projects that would open other routes to PADD III would not send the same market signals as Keystone XL, and would not have the same impact on production rates. *Id.*

4. The SDEIS’s Analysis of Greenhouse Gas Emissions is Insufficient and Flawed

a. **The SDEIS is required to consider the lifecycle GHG emissions of Keystone XL**

Under NEPA, federal agencies are required to “[u]se the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment,”²⁴⁰ where effects are defined as including not only direct effects but also “indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable.”²⁴¹ Additional greenhouse gas (GHG) emissions that would be caused by the Project from extracting, refining and combusting tar sands are such indirect effects.

The State Department is aware of this requirement, and provides a lifecycle GHG assessment of Keystone XL as an appendix to the SDEIS.²⁴² The SDEIS even goes so far as to acknowledge that “When evaluating the lifecycle GHG emissions of transportation fuels consumed in the United States in a strictly static format... it is likely that the lifecycle GHG emissions of transportation fuel produced from WCSB crudes is higher than that of reference crudes.”²⁴³ However, they incorrectly come to the conclusion that “Such an analysis [of lifecycle GHG emissions] is not strictly necessary for purposes of evaluating the potential environmental impacts attributable to the proposed Project under NEPA.”²⁴⁴ The reasoning for this conclusion is flawed: the SDEIS says that “based on the EnSys (2010) analysis, under most scenarios, the proposed Project would not substantially influence the rate or magnitude of oil extraction activities in Canada, or the overall volume

²⁴⁰ 43 FR 56003, Sec. 1500.2 <http://www.gsa.gov/graphics/pbs/nepa.pdf>

²⁴¹ 43 FR 56003, Sec. 1508.8 <http://www.gsa.gov/graphics/pbs/nepa.pdf>

²⁴² SDEIS Appendix B. ICF Report: Life Cycle Greenhouse Gas Emissions of Petroleum Products from WCSB Oil Sands Crudes Compared with Reference Crudes.

²⁴³ SDEIS, at 3-196.

²⁴⁴ SDEIS, at 3-196.

of crude oil transported to the U.S. or refined in the U.S.”²⁴⁵ and that “the proposed Project, if constructed, is unlikely to significantly accelerate displacement of reference crudes.”²⁴⁶

- i. *The SDEIS incorrectly concludes that additional extraction of tar sands in Canada is not an indirect impact of Keystone XL*

As explained in Section IV.C.5 above, the SDEIS arbitrarily and incorrectly concludes that Keystone XL will not increase tar sands extraction in Canada. That conclusion is based only on the 2010 EnSys Report, which actually confirms that Keystone XL would cause at least an 800,000 bpd increase in tar sands development between 2030 and 2030. The SDEIS, however, improperly relies on the EnSys assumption that if Keystone XL is not built, some other pipeline project will be built that will similarly cause an increase in tar sands development. This assumption is wrong, as none of the other projects are likely to proceed. Even if other projects were likely to proceed, NEPA does not allow DOS to ignore the 800,000 bpd increase that Keystone XL will cause. Finally, Keystone XL will send powerful market signals that will cause a quicker and more substantial increase than what the EnSys Report suggests. Thus, the record shows that Keystone XL will cause an increase in tar sands development in Canada, which will result in increased GHG emissions.

- ii. *The SDEIS incorrectly concludes that the Keystone XL pipeline will not affect greenhouse gas emissions globally*

The SDEIS states that “from a global perspective, the project is not likely to result in incremental GHG emissions.”²⁴⁷ This conflicts with findings from the EnSys report, which states that “the difference in emissions between pipeline scenarios in 2030 would be at most 26 +/- million tons of CO₂e” for annual global transportation emissions.²⁴⁸ The EnSys report tries to play this off as a negligible amount of GHGs, indicating that it is only “around 0.25% of GHG emissions from the global transportation sector”²⁴⁹ and comparing it to the larger emissions reductions that would result from transitioning from their reference outlook to their low demand outlook. To begin with, comparing specific source emissions to global emissions in order to diminish the former’s significance has no place in sound, scientific impact assessments. Further, 26 million tons of CO₂e is not negligible. In EPA’s letter on the Keystone XL Draft Environmental Impact Statement, they estimate that “annual well-to-tank emissions from the project would be 27 million metric tons carbon dioxide equivalent (MMTCO₂e) greater than emissions from the U.S. ‘average’ crude”²⁵⁰ and go on to say: “To provide some perspective on the potential scale of emissions, 27 million metric tons is roughly equivalent to annual CO₂ emissions of seven coal-fired power plants.”²⁵¹ Especially at a time when the world is working to embrace clean energy and decrease greenhouse gas emissions, an unnecessary increase in greenhouse gas

²⁴⁵ SDEIS, at 3-196.

²⁴⁶ SDEIS, at 3-196.

²⁴⁷ SDEIS, at 3-196.

²⁴⁸ EnSys (2010) p. 82.

²⁴⁹ EnSys (2010) p. 82.

²⁵⁰ EPA Letter to Department of State on the Keystone XL DEIS. July 16, 2011. p. 2.

²⁵¹ EPA Letter to Department of State on the Keystone XL DEIS. July 16, 2011. pp. 2-3.

emissions equivalent to approximately seven coal-fired power plants is simply unacceptable.

b. The ICF report’s methodology for calculating the incremental GHG emissions for the Keystone XL pipeline is flawed

The SDEIS includes an analysis of the lifecycle GHG emissions by the consulting firm ICF. This report correctly assessed existing lifecycle GHG emissions studies as showing that oil from tar sands has higher lifecycle GHG emissions than conventional oils. However, while the ICF meta-analysis of lifecycle greenhouse gas emissions reports gave a reasonably thorough explanation of the factors that cause different conclusions about lifecycle greenhouse gas emissions of tar sands compared to conventional oil, the methodology they used to calculate the incremental greenhouse gas emissions was flawed.

Reporting a range of 2% to 19% suggests that these are the endpoints of the range and should be weighted equally when comparing the tar sands that would flow through Keystone XL to conventional oil. In fact, these are just two points on a wider spectrum that should that should likely not be weighted equally. Adam Brandt’s recent meta-analyses conducted for the European Commission earlier this year states the weighted average as being on the far higher end.²⁵² The study ICF relies upon for the 2% lower end essentially compares the low end for tar sand emissions with the higher end for conventional crude oils. A more fair assessment would compare the weighted average of tar sands versus the weighted average of the conventional crude oils they would replace, as the Brandt (2011) study does. The study shows that the range of lifecycle GHG emissions of tar sands is 98.2 to 122.9 gCO₂/MJ LHV with a most likely value of 107.3 gCO₂/MJ LHV, compared with a range of 83.3 to 103.4 gCO₂/MJ LHV and most likely value of 87.1 gCO₂/MJ LHV for EU conventional oil lifecycle emissions – a difference of 23% between the most likely values for tar sands and EU conventional oil.²⁵³ The International Council on Clean Transportation (ICCT 2010) used a similar method for comparing the upstream emissions of tar sands with conventional oils.²⁵⁴ Had ICF used this methodology, they likely would have come up with a greater emissions difference between tar sands and conventional oil.

c. California’s low carbon fuel standard will help decrease, not increase GHG emissions

Instead of analyzing how increased tar sands imports would affect U.S. ability to meet low carbon fuel standards (LCFS), the SDEIS cites an industry-funded study and says that in fact, implementation of an LCFS policy could increase GHG emissions because of fuel “shuffling”:

²⁵² Brandt, Adam. Upstream greenhouse gas (GHG) emissions from Canadian oil sands as a feedstock for European refineries. Stanford University. 2011.

https://circabc.europa.eu/d/d/workspace/SpacesStore/db806977-6418-44db-a464-20267139b34d/Brandt_Oil_Sands_GHG_Final.pdf.

²⁵³ Brandt (2011) Table 6, p. 37.

²⁵⁴ International Council on Clean Transportation and Energy-Redefined. Carbon Intensity of Crude Oil in Europe. Executive Summary. 2010. http://www.theicct.org/pubs/ICCT_crudeoil_Eur_Dec2010_sum.pdf.

If LCFS were increasingly required in the U.S., this would be expected to discourage overall U.S. imports of oil sands crude from Canada, and in turn would encourage importing of crude oil to the U.S. from areas that produce light sweet crude, likely the Middle East. Canadian crude sources would be diverted to other countries not affected by LCFS, and supplies in the U.S. negatively affected by LCFS requirements would be replaced with supplies from more distant parts of the world.²⁵⁵

This analysis is incorrect or misleading on several levels:

- 1) Promoting Innovation: The SDEIS fails to account for the market signal for oil companies to reduce upstream production emissions and to receive credit under a LCFS. Crude oils with lower emissions will be at a greater premium with respect to crude oils with higher emissions. Upstream producers will look for additional ways to reduce emissions or face the prospect of a more limited market.
 - 2) Crude shuffling will be limited due to refinery constraints: Refineries are constructed to handle a specific range of crude oil types and qualities within their design-specification. In general, refineries cannot simply shuffle heavier crude oils in lieu of lighter crude oils without an economic impact as well, suggesting there are limits to shuffling.
 - 3) Other regions and governments are considering low-carbon fuel standards (EU, Northeast, CA) that would discourage the use of high-carbon crude oils and result in upstream reductions.
 - 4) Transport of crude oils represents approximately 1-2% of the entire fuel lifecycle. This is marginal compared to the overall savings from a LCFS program.
 - 5) The goal of the low carbon fuel standard is not to continue reliance on marginally lower-carbon fossil fuels, but rather, to encourage the development of ultra-low carbon fuels such as advanced biofuels, transportation electricity, biomethane, and hydrogen.
5. The SEIS Does Not Adequately Analyze the Impacts of all Connected Actions, Including the Bakken Marketlink and Cushing Marketlink Projects.

a. Background of the Marketlink Projects

In August 2010, the Montana Public Service Commission (PSC) awarded common carrier status to TransCanada.²⁵⁶ As a result, Montana oil producers now have the legal right to upload oil onto the Pipeline at interconnection sites. The substantial new pipeline infrastructure required to link Montana oil shippers to the Keystone XL has become known as the “Bakken Marketlink Project.” In September, Governor Brian Schweitzer and TransCanada announced a “binding Open Season” to obtain firm commitments for the

²⁵⁵ SDEIS, at 3-187.

²⁵⁶ Energy Pipeline News, Montana PSC grants Keystone XL qualified eminent domain powers, August 18, 2010, <http://energypipelinenews.blogspot.com/2010/08/montana-psc-grants-keystone-xl.html> (last visited Dec. 15, 2010).

Bakken Marketlink Project.²⁵⁷ This will allow Montana oil producers to transport their oil to Cushing, Oklahoma, and on to the Gulf Coast via the Project. TransCanada completed an Open Season on November 19, 2010.²⁵⁸

On January 20, 2011, TransCanada announced that it has secured a total of 65,000 barrels per day of firm contracts and that the Bakken Marketlink segment of the Keystone XL system will move forward.²⁵⁹ TransCanada announced that the \$140 million project, which will include a five-mile main pipeline connecting a series of feeder pipelines to Keystone XL in Baker, Montana, as well as \$70 million in interconnection improvements in Cushing, Oklahoma, will go online in early 2013.²⁶⁰

Similarly, the Cushing Marketlink would involve the construction of \$70 million worth of facilities at Cushing, Oklahoma that would allow domestic oil producers to upload up to 150,000 barrels per day (bpd) of U.S. crude oil onto Keystone XL to be transported to Gulf Coast markets.²⁶¹ TransCanada announced that the Cushing Marketlink Project will also proceed and is expected to go online in early 2013.²⁶² Prior to that announcement, TransCanada had launched a binding open season to obtain firm commitments from interested parties, which closed in November 2010.²⁶³ Together, the Cushing Marketlink and Bakken Marketlink will have the capacity to transport up to 250,000 bpd of domestic crude to the Gulf Coast via Keystone XL.²⁶⁴ The two project components will require a combined \$210 million worth of new facilities and pipeline in two states. The addition of these two new components to the project constitutes a substantial change to the project the full extent of which must be analyzed in a supplemental EIS.

b. Legal background

NEPA requires “connected actions” “to be considered together in a single EIS.”²⁶⁵ The NEPA regulations provide direction on when projects such as the Keystone XL pipeline and the Bakken and Cushing pipeline should be considered together in a single EIS. These regulations define “connected actions” as actions that are “closely related and therefore should be discussed in the same impact statement.”²⁶⁶

²⁵⁷ The Billings Outpost, State, TransCanada launch Open Season for oil, Sept. 23, 2010, http://www.billingsnews.com/index.php?option=com_content&view=article&id=1952:state-transcanada-launch-open-season-for-oil&catid=64:business-news&Itemid=113 (last visited Dec. 15, 2010).

²⁵⁸ The Bakken Marketlink Project is expected to commence providing service in the first quarter of 2013. See <http://www.transcanada.com/bakken.html> (last visited Dec. 15, 2010).

²⁵⁹ <http://www.transcanada.com/5631.html>.

²⁶⁰ http://billingsgazette.com/news/state-and-regional/montana/article_01764e04-24bc-11e0-a01c-001cc4c03286.html.

²⁶¹ *Id.*

²⁶² <http://transcanada.com/5634.html>

²⁶³ <http://transcanada.com/5467.html>

²⁶⁴ *Id.*

²⁶⁵ *Thomas v. Peterson*, 753 F.2d 754, 758 (9th Cir.1985).

²⁶⁶ 40 C.F.R. § 1508.25(a)(1)(1978). “Connected actions” are those that i) automatically trigger other actions which may require environmental impact statements; ii) cannot or will not proceed unless other actions are taken previously or simultaneously; and iii) are interdependent parts of a larger action and depend on the larger actions for their justification. *Klamath-Siskiyou Wildlands Center v. Bureau of Land Management*, 387

The Keystone XL pipeline project and the Bakken and Cushing Marketlink projects are “connected actions.” The Marketlink Projects are pipeline interconnections that will be physically connected to the Project. Their utility absolutely depends on Keystone XL: if Keystone XL were not built, the Marketlink Projects would serve no purpose (there would be no larger pipeline on which to upload oil). Furthermore, the Keystone XL pipeline could not take place without at least the Bakken Marketlink Project because Montana’s common carrier law now requires TransCanada to allow domestic producers to upload oil.

The Marketlink Project satisfies the “connected action” elements of 40 C.F.R. § 1508.25(a)(1) and therefore must be considered in a single EIS.²⁶⁷ An SEIS must examine the environmental impacts of the interconnection facilities, and provide an analysis of several alternatives for these facilities, including analyses of their respective water crossings and proximity to sensitive areas.

NEPA requires a supplement to an EIS when significant new information or changes in a project implicate significant changes in the environmental analysis. The NEPA regulations require that:

(1) Agencies...[s]hall prepare supplements to either draft or final environmental impact statements if: (i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.²⁶⁸ (2) [Agencies] may also prepare supplements when the agency determines that the purposes of the Act will be furthered by doing so.²⁶⁹

The use of the word ‘shall’ is mandatory: it creates a duty on the part of the agency to prepare a supplemental EIS if substantial changes from any of the proposed alternatives are made and the changes are relevant to environmental concerns.²⁷⁰ In determining whether new information is significant, a court should look to the NEPA “significance factors” found in 40 C.F.R. § 1508.27(b) (1978).²⁷¹

F.3d 989, 998 (9th Cir. 2004) (“Proposals or parts of proposals which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement.”); *Wetlands Action Network v. U.S. Army Corps of Engineers*, 222 F.3d 1105, 1118 (9th Cir. 2000) (the requirement to analyze connected action prevents an agency from “dividing a project into multiple actions, each of which individually has an insignificant environmental impact, but which collectively have a substantial impact”).

²⁶⁷ See *Save the Yaak Comm. v. Block*, 840 F.2d 714, 719 (9th Cir. 1988) (finding a road reconstruction, timber harvest, and feeder roads to all be “connected actions”).

²⁶⁸ 40 C.F.R. § 1502.9 (1978).

²⁶⁹ 40 C.F.R. § 1502.9 (1978).

²⁷⁰ *Marsh v. Oregon Natural Res. Council*, 490 U.S. 360, 372 (1989) (recognizing the duty where there are significant new circumstances or information); see also *Dubois v. U.S. Dep’t. of Agric.*, 102 F.3d 1273, 1292 (1st Cir. 1996).

²⁷¹ *Natural Res. Def. Council v. Lujan*, 768 F. Supp. 870, 886 (D.D.C. 1991) (a new report that contained a substantially different estimate of the amount of oil expected to be found in Alaska required the preparation of an SEIS).

When determining if new circumstances or new information require an agency to issue a supplemental EIS, a court should consider the following factors: (a) the environmental significance of the new information; (b) its probable accuracy; (c) the degree to which the agency considered the new information and considered its impact; and (d) the degree to which the agency supported its decision not to supplement its decision not to supplement its impact statement with explanation or additional data.²⁷²

As set forth in the letters of December 16, 2010, February 4th, 2011, and January 26, 2011, there have been significant changes in the project as well as significant new circumstances and information that require analysis in a supplemental EIS. While DOS did issue a SDEIS, it did not sufficiently address the new information.

c. The DEIS did not analyze the Marketlink Projects

The DEIS noted the possibility that a Montana interconnection pipeline system might allow Bakken oil to be uploaded in Eastern Montana, and described the facilities that an interconnection would require.²⁷³ These facilities include pump stations with a receive trap and a pressure control valve/skid located at the receipt facility; a receipt/injection facility of at least 8 to 9 acres, including a complex custody transfer station; 7 acres of storage tanks capable of holding at least 300,000-600,000 barrels of oil; a booster pump system; an electronic substation and electrical building with additional controls and instrumentation; Modification of a Keystone XL pump station, including a connection to the pump station, two block valves, and two check valves.²⁷⁴

The DEIS briefly listed some of the potential impacts that could result from an interconnection: “Key issues would include visual resources in the vicinity of the storage tanks and pump stations, cultural resources, changes in land use, increased tax revenues, increased employment, and potentially accelerating the development of crude oil resources.”²⁷⁵ However, the DEIS avoided NEPA’s required “hard look” at the impacts or possible alternative configurations of a Bakken interconnection by dismissing it as “currently speculative” and implying that it is not economically feasible.²⁷⁶

d. The SDEIS did not adequately analyze the Marketlink Projects

The SDEIS “analysis” of the Marketlink Projects is wholly inadequate, as it does not take a hard look at the potential impacts of these connected actions.

The SDEIS first provides a brief description of the Bakken Marketlink facilities in Section 2.5.3:

²⁷² *Warm Springs Dam Task Force v. Gribble*, 621 F.2d 1017, 1025 (9th Cir. 1980); *Commonwealth of Massachusetts v. Watt*, 716 F.2d 946 (1st Cir. 1983).

²⁷³ DEIS, at 3.14-6.

²⁷⁴ *Id.*

²⁷⁵ DEIS, 3.14-7.

²⁷⁶ DEIS, 3.14-7.

The Bakken Marketlink project would consist of piping, booster pumps, meter manifolds and two tank terminals; one terminal would be near Baker, Montana, and the second would be at the proposed Cushing tank farm. The Bakken Marketlink facilities near Baker would include two, 250,000-barrel tanks that would be used to accumulate crude oil from connecting third-party pipelines and terminals and a 100,000-barrel tank that would be use for operational purposes. The larger tanks would be approximately 60 feet high and 181 feet in diameter, and the smaller tank would be approximately 60 feet high and 130 feet in diameter... The site of the tank farm and Pump Station 14 would have an area of approximately 15 acres and the offsite metering manifold would have an area of approximately 9 acres. ...There would also be a 16-inch-diameter pipeline about 5 miles long that would extend from an existing crude oil tank farm to the Bakken Marketlink facilities....

The Bakken Marketlink Project facilities at the Cushing tank farm would include two 250,000-barrel tanks that would be used for batch accumulation from the Baker facilities... The tanks would be approximately 60 feet high and 181 feet in diameter...

Crude oil in the Bakken Marketlink storage tanks at the Cushing tank farm would either be pumped to the proposed Project for delivery to PADD III or delivered to other pipelines and tank farms near Cushing...²⁷⁷

The SDEIS also gives a brief description of the Cushing Marketlink facilities in Section 2.5.4:

This project would include construction and operation of facilities that would provide crude oil transportation service from the planned Cushing Marketlink facilities at the proposed Cushing tank farm via the proposed Project to delivery points at Nederland and Moore Junction (east of Houston), Texas. The Cushing tank farm would be adjacent to the Cushing Oil Terminal, which is a key pipeline transportation and crude oil storage hub with over 50 million barrels of storage capacity. As a result, the Cushing Marketlink Project would be near many pipelines and storage facilities that could ship crude oil to the Cushing Marketlink facilities. The Cushing Marketlink Project is expected to alleviate current pipeline constraints from the Cushing area and provide shippers with a new transportation option from the Cushing market to the U.S. Gulf Coast.

The Cushing Marketlink Project would include construction and operation of receipt custody transfer metering systems and two 350,000-barrel batch accumulation tanks, with one tank dedicated for light sweet crude...²⁷⁸

The extent of the analysis of these two connected actions is found in section 3-15, which provides less than two pages of “summary information on the potential impacts of the proposed Marketlink projects.”²⁷⁹ SDEIS, at 3-209. A reading of that summary

²⁷⁷ SDEIS, at 2-20.

²⁷⁸ SDEIS, at 2-21.

²⁷⁹ SDEIS, at 3-209.

makes clear that the SDEIS fails to provide any substantive content whatsoever. Instead, it either claims that no analysis is necessary, refers to other sections of the SDEIS, or attempts to defer any analysis to a later time.

For example, the SDEIS states: “There would also be a 16-inch-diameter pipeline about 5 miles long that would extend from an existing crude oil tank farm to the Bakken Marketlink facilities. The route of that pipeline has not been determined.”²⁸⁰ DOS cannot avoid analyzing the impacts associated with this pipeline by simply claiming that the specific location is uncertain. It must analyze various alternatives, and take a hard look at the alternatives’ impacts.

It then goes on to state that “the potential impacts associated with expansion of the pump station site to include the tank farm would likely be similar to those described in Section 3.0 for the proposed Project pump station and pipeline ROW in that area.” Again, DOS is completely avoiding any analysis by simply referring to another section. This is insufficient to meet its NEPA obligations.

The SDEIS then avoids any analysis of impacts to endangered or threatened species by attempting to defer its NEPA duties to a later date: “Potential impacts of the proposed Bakken Marketlink facilities on sage grouse, interior least tern, and mountain plover, and potential impacts to habitats that they depend on, would be evaluated during environmental reviews conducted during permitting for the proposed Bakken Marketlink Project, if permits are required for the project.” However, the impacts associated with connected actions must be analyzed in a single EIS.²⁸¹

The same is true for project specifics regarding the tank farms: “the design specifics of the tanks and the anticipated throughputs were not available at the time that this SDEIS was prepared. Keystone Marketlink LLC would be required to provide those data along with project-specific emission estimates in its application for an air permit for the project. Emissions from the projects would be required to be in compliance with the emission limits of the permits issued.” DOS must take a hard look at the project, including all connected actions, before the project is issued a Presidential Permit. DOS cannot avoid an impacts analysis by merely claiming impacts will be analyzed by an agency granting a future permit, or by claiming impacts such as emissions will be within allowable ranges.

Finally, the SDEIS avoids an analysis of increased oil development in Montana and North Dakota by claiming:

[T]he addition of the Bakken Marketlink transport capacity would not be expected to impact the rate of growth in crude oil production from the Bakken formation in the Williston basin in North Dakota and Montana. A North Dakota Pipeline Authority report (2010) examined projected increases in production in North Dakota and eastern Montana compared to current and planned transportation routes for crude oil. That forecast indicates that even under high growth projections for

²⁸⁰ *Id.*

²⁸¹ *Thomas v. Peterson*, 753 F.2d 754, 758 (9th Cir. 1985).

crude oil production in the area, there is sufficient existing and planned pipeline transport capacity to accommodate the increased production through at least 2017 without the Bakken Marketlink project. For the lower growth projections, the report indicates that there is a potential excess crude oil transport capacity out of the region of approximately 160,000 bpd.

SDEIS, at 3-210.

DOS cannot avoid its impacts analysis by relying on a single report that shows excess pipeline capacity for the next six years. At the very least, DOS must analyze the reasonably foreseeable impacts associated with increased production after 2017. It also must review other sources, including contradictory reports, to confirm whether this conclusion about impact on production is shared.

It stands to reason that Bakken Marketlink would not be built if not dictated by favorable market conditions. (i.e., DOS's conclusion implies that there is so much pipeline capacity that Bakken Marketlink is not needed, which obviously is not the case).

In fact, the 2010 "Notice of Open Season for BakkenLink Pipeline LLC" project paints a drastically different picture of pipeline capacity in the Bakken. In a section titled "Need for New Pipeline Infrastructure," it explains:

Since 2008, crude oil production from North Dakota and Montana has grown by approximately 150,000 bpd. This growth is primarily from the Bakken oil play in the Williston Basin and due to the recent technological advances in horizontal oil well drilling and completion techniques. According to the North Dakota Geological Survey and Department of Mineral Resources, the Bakken pool contains 169 billion barrels of oil in place of which about 4 billion barrels will likely be produced. Several infrastructure expansions and projects, including a 60,000 bpd capacity rail project, have been built since 2008 to accommodate this production increase. *However, at the current rate of drilling, internal estimates are that crude production from the Williston Basin is expected to grow another 300,000 bpd by early 2013. Providing direct access to new infrastructure and new market outlets is critical to the continued success of the Bakken oil play.*

By this Open Season process, BakkenLink Pipeline proposes to build a comprehensive network of pipelines that will collect incremental barrels of crude production at multiple points across the prolific Bakken oil play. It will deliver this crude to TransCanada's proposed Marketlink, which will further transport the Bakken crude directly to large markets in Oklahoma and/or Texas. This network is one of several solutions needed to meet the growing infrastructure challenges in the Williston Basin.²⁸²

Thus, the Bakken Marketlink, as one would expect, is being built in order to allow Bakken oil production to continue to increase. The same result can be expected for

²⁸² http://www.bakkenlink.com/pdf/Notice_of_Open_Season_Final%209_27_10.pdf (this project is discussed below).

Cushing Marketlink. Moreover, as set forth above, additional pipeline capacity sends powerful market signals to investors than causes increases in production that occur sooner, and on a larger scale, than increases that are based solely on when existing capacity is filled.²⁸³

The SDEIS does not even address any of the “key issues” that the DEIS stated would be required in any NEPA analysis of these connected actions. For example, the SDEIS does not once mention “changes in land use, increased tax revenues, [or] increased employment” associated with these projects.²⁸⁴ As discussed above, it mentions but completely sidesteps any analysis of “cultural resources [and] potentially accelerating the development of crude oil resources.”²⁸⁵ Instead, it admits that “[n]o changes that are relevant to environmental concerns have been made to the information presented for those projects in the draft EIS.” SDEIS, at 2-19.

The SDEIS conclusion that these connected actions will not have any impact on domestic oil production is arbitrary, capricious, and not in accordance with law. The SDEIS’s “analysis” of the impacts of these projects is really just a list of explanations of why DOS does not need to do any substantive analysis. This entirely fails to satisfy NEPA’s hard look requirements.

e. DOS must analyze the full range of impacts of the Marketlink Projects

DOS must analyze the impacts associated with these projects in a second SEIS. The Cushing Marketlink Project and the Bakken Marketlink Interconnection significantly change the nature, scope, and purpose of the larger Keystone XL project. The stated purpose and need of Keystone XL is to transport 700,000 to 900,000 barrels per day of Western Canadian Sedimentary Basin (WCSB) crude oil from Alberta to PADD III refineries and Cushing, Oklahoma, and the entire DEIS is based on that purpose.²⁸⁶ The announcement that Keystone XL will now carry up to 250,000 bpd of domestic crude oil significantly changes the DEIS, as it appears to reduce the pipeline’s capacity to transport WCSB to the Gulf Coast in accordance with the project’s original stated purpose. If the overall purpose and need of the project has changed, there may be other reasonable alternatives that fit within the project’s amended purpose that should be considered in a new DEIS or a supplemental EIS. Similarly, the Draft EIS should be amended to reflect any changes that may have occurred as a result of the Bakken and Cushing Marketlink additions, such as changes to economic projections regarding oil supply and demand, local impacts associated with the additional facilities, and impacts from increased domestic oil production in Montana, North Dakota, and Oklahoma. The SDEIS has not made these changes to the DEIS.

The Bakken Marketlink has the potential for significant environmental impacts. The impacts not considered include, but are not limited to, direct impacts caused by the

²⁸³ See *supra*, section IV.C.5.d.

²⁸⁴ DEIS, 3.14-7.

²⁸⁵ *Id.*

²⁸⁶ DEIS, at 1-3.

construction and operation of additional pipelines and equipment in Montana and Oklahoma, as well as indirect and cumulative impacts resulting from increased oil development in Montana and North Dakota, including ground and surface water impacts,²⁸⁷ air quality impacts,²⁸⁸ impacts to the quality of life of residents in the oil fields, and climate change impacts.

An SEIS must analyze and inform the public as to how the additional sources of conventional crude oil will interact with the tar sands crude oil being transported from Alberta, and whether any operational or design changes will be necessary. For example, an SEIS should examine whether the currently-planned pumping stations will be sufficient to accommodate the additional sources and additional capacity; whether the different chemical composition of oil from the Bakken project shippers will present different threats and impacts in the event of a leak or rupture; whether the amount of diluent or heating that is required to move the crude through the pipeline will change; what additional facilities, operational plans, or emergency response plans will be necessary. In addition, because it is now required to offer oil transportation services to oil shippers in Montana and North Dakota, the Project will likely increase the amount of oil development in this region. This increase in domestic oil development is an indirect, connected, and cumulative action. As such, its environmental impacts must be evaluated, including but not limited to an increase in the use of hydraulic fracturing, increases in greenhouse gas (GHG) emissions, and its displacement of alternative fuels and renewable energy development and sales.

The EnSys Report discusses some of the significant ways the Bakken Marketlink will change the project as a whole: “A decision by TransCanada to go ahead with the Bakken Marketlink could raise total crude volumes moving through the KXL pipeline, alter the mix between WCSB and Bakken crudes with their different characteristics, and/or alter the market destination for Bakken and other crude oils.”²⁸⁹

f. DOS must analyze the reasonably foreseeable BakkenLink Project.

The SDEIS discusses the BakkenLink Project, but avoids analyzing it pursuant to NEPA. Instead, it avoids analyzing the impacts by claiming that “the proposed BakkenLink Pipeline Project is currently speculative and therefore not considered a connected action for the purposes of this SDEIS.”²⁹⁰ However, elsewhere in the SDEIS the Bakkenlink Pipeline is listed as “planned.”²⁹¹ Furthermore, it has progressed far enough along to have concluded an open season on contracts.²⁹² Regardless of whether the BakkenLink is certain to be built, it is at least a “reasonably foreseeable” connected action and thus must be analyzed in a second supplemental EIS.

²⁸⁷ <http://www.bismarcktribune.com/news/the-changing-landscape/ae81c194-55ac-11df-8678-001cc4c03286.html> (estimated 5.5 billion gallons of fresh water needed per year for fracking operations).

²⁸⁸ <http://www.allbusiness.com/environment-natural-resources/pollution-environmental/13285947-1.html> (high emissions of volatile organic chemicals from oil operations);

²⁸⁹ EnSys at 21.

²⁹⁰ SDEIS, at 1-2

²⁹¹ SDEIS, at 3-164

²⁹² *Id.* at 3-168.

The BakkenLink Pipeline would be a “a new 305-mile-long crude oil pipeline system in western and southwestern North Dakota that would connect areas of the oil field in the Williston Basin to the proposed Bakken Marketlink Project near Baker, Montana.”²⁹³ It would be capable of delivering up to 100,000 bpd of Bakken crude to the proposed Bakken Marketlink Project.²⁹⁴

6. The SEIS Does Not Analyze Environmental Justice Issues or Refinery Impacts

The Sierra Club et al. Comments on the Keystone XL Draft Environmental Impact Statement (“Comments”) identified major deficiencies in the DEIS analysis concerning cumulative impacts associated with petroleum refining. Specifically, Commenters demonstrated that the DEIS analysis used broad generalizations concerning refining in all of PADD III, when actual impacts are very likely to be localized within the same forty-five mile radius on the Texas Gulf Coast (Comments at 54). As explained in the Comments, these localized impacts would cause significant harm to populations that are already heavily impacted by air and water pollution, but the DEIS failed to consider at all the environmental justice implications of the Project. Additionally, the DEIS analysis failed to consider clean energy and low petroleum demand scenarios, and impermissibly relied on the Clean Air Act (“CAA”) and Clean Water Act (“CWA”) permitting processes as a source of data and assumptions.

The Department’s response to these concerns, to the extent one was provided in the SDEIS, is grounded almost entirely in an analysis commissioned by the DOE Office of Policy and International Affairs (EnSys 2010, SDEIS Appendix A). While the analysis is lengthy and grounded in complex alternative sets of supply and demand assumptions, the broad upshot, for purposes of the SDEIS, is that heavy sour crude will be refined in approximately equal volumes with or without KXL. Thus, according to the SDEIS, the Project will have no real air or water pollution impacts associated with heavy crude refining, since the refining would happen anyway. *See* SDEIS at 3-177 – 3-180.

There are multiple problems with this facile conclusion. First, it is not genuinely supported by EnSys 2010, which actually presents data allowing for a real possibility that heavy crude processing in the Gulf Coast region is contingent on the Project. In this regard, even to the extent other pipelines to the Gulf Coast might be constructed in the absence of KXL to carry heavy crude, it is not sufficient under NEPA to decline to assess the no action scenario on the logic that someone else might take a similar action. Second, the EnSys 2010 analysis – and the SDEIS analysis built on it – still fail to assess either the local (as opposed to PADD III-wide) KXL-driven refining impacts, or a realistic set of demand and price scenarios. These would need to include, as discussed in the Comments, scenarios involving much greater use of clean energy and efficiency. Finally, we note that even to the extent the SDEIS continues to allow for the possibility of additional air and water pollution impacts from refining, it relies on exactly the same impermissible permit-based analysis as did the DEIS. These issues are addressed in turn in the sections below.

²⁹³ SDEIS, at 3-168

²⁹⁴ SDEIS, at 3-168

a. EnSys 2010 supports a conclusion that KXL may significantly increase PADD III demand for heavy sour crude

The Comments observed that the Department’s claim that KXL will not impact the level of Gulf Coast heavy crude processing is in tension with its claim that KXL is needed to replace unstable heavy crude supplies from other sources. Comments at 48. This tension remains in the SDEIS, which continues to claim simultaneously both that the Project is necessary to ensure supply and will not make any difference in refining choices. However, the EnSys 2010 analysis – together with the Department’s own analysis in the DEIS and SDEIS – strongly indicates that KXL would substantially increase heavy sour crude refining in the Gulf Coast region.

The SDEIS asserts that, in the absence of KXL, although less Canadian crude would be refined in PADD III in 2020, an approximately equal amount would be refined in PADD III in 2030. Additionally, according to the SDEIS, KXL would not induce any additional expansion of heavy crude refining capacity at existing refineries. SDEIS at 3-177. In support, the SDEIS provides the following table summarizing certain conclusions in the EnSys 2010 analysis:

Pipeline Construction Scenario	KXL		No KXL		No Exp + P2P3	
	2020	2030	2020	2030	2020	2030
WCSB Oil Sands Crude Oil Refined in PADD III (mbd)	0.59	1.43	0.19	1.39	0.19	1.01
PADD III Total Refinery Throughput (mbd) ^a	8.1	8.5	8.1	8.5	8.1	8.4
WCSB Oil Sands Crude Oil Refined in PADD III (% of total)	7	17	2	16	2	12
PADD III Refinery Investments (cumulative from 2010 in billion \$)	25	43	25	43	25	42
PADD III Crude Slate Average API gravity	31.89	30.15	31.98	30.20	31.98	30.36
PADD III Crude Slate Average Sulfur Content (%)	1.47	1.72	1.46	1.72	1.46	1.72

^a mbd = million barrels per day
Source: EnSys 2010 (see Appendix A of this SDEIS).

As pointed out in the SDEIS, there is only marginally less refining in 2030 in the “no KXL” scenario versus the project scenario, 1.43 vs. 1.39 mbd. However, the same chart shows that Canadian crude refining is much lower – only 1.01 mbd – under the “No Expansion + P2P3” scenario, which reflects the situation where KXL is not build but other currently planned pipelines are – including TMX 2 and 3 expansions, and domestic U.S. pipeline expansions from PADD II to PADD III. According to EnSys 2010, this scenario “represents what is close to the current situation,” since any other pipelines are in a conceptual stage only. EnSys 2010 at 97. Thus, regardless whether the SDEIS is correct in its conclusion that the “no expansion” scenario – *i.e.*, no new pipelines at all – is “unlikely” (SDEIS at 3-180) – there is a more realistic “no action” scenario that would significantly reduce Canadian crude refining impacts in the Gulf Coast region.

The SDEIS also acknowledges that under the “no expansion” scenario, cumulative refinery investments in PADD III would decline substantially by 2030. SDEIS at 3-180. The analysis notes that the lower refining capacity in PADD III would be “offset” by corresponding increases in PADD II. However, as discussed in the Comments and in detail below, refining pollution increases in PADD III – which for all intents and purposes would occur in a very small geographic region already beset with substantial pollution – have a far greater negative impact than corresponding increases in PADD II, where many of the refineries are farther from significant population centers.

Moreover, it is not permissible for the Department to downplay the significance of the “no expansion” scenario on the logic that, if KXL is not built, other pipeline projects to get Canadian crude to the Gulf Coast will spring up later – which is essentially what the SDEIS is saying in dismissing the “no expansion” scenario (*i.e.*, no KXL and no other pipelines to take its place) as “unlikely.” One cannot avoid NEPA analysis for a major construction project merely by arguing that, if the project is not built, someone else will come along later and build something else. Each project must be evaluated to determine its impacts; and any alternative projects in the future will likewise have to be evaluated.²⁹⁵

Finally, the counterintuitive argument that KXL will not significantly impact heavy crude refining in PADD III is simply not consistent with other information presented in the DEIS, SDEIS, and EnSys 2010. All three documents point toward declining availability of heavy sour crude from sources other than Canada. The SDEIS and DEIS both point out that “the production of heavy crude from Mexico has been falling” due to decreasing government capital investments, and that likewise that Venezuela, another major source of heavy crude to the Gulf Coast, “is increasingly diversifying its oil customers to lessen its dependence on the United States.” SDEIS at 1-11, DEIS at 1-6. EnSys 2010 states that transport of heavy crude to the Gulf Coast via KXL “would satisfy incentives for Gulf Coast refiners to maintain supplies of heavy crudes at a time when volumes from traditional suppliers, notably Mexico and Venezuela, are continuing to decline” (although it is not clear even then that there is sufficient demand to support KXL).²⁹⁶ EnSys 2010 at 117. The DEIS further notes (although this information was removed from the SDEIS) that “there are several PADD III refinery upgrades that have been postponed until the current economic situation is resolved” and that “there are indications that reduced heavy/light crude oil price differentials and profit margins may be causing some PADD III refinery upgrades to be delayed, including upgrades in St. Charles and Norco, Louisiana.” DEIS at 1-6. It is simply not credible to suggest that a large influx of Canadian heavy crude to the Gulf region would have no impact on market-sensitive decisions whether to expand these and other refineries.

²⁹⁵ See *Ctr. for Biological Diversity v. U.S. Dept. of Interior*, 623 F.3d 633, 662 (9th Cir. 2010).

²⁹⁶ EnSys 2010 references “firm interest” from U.S. Refiners to bring “at least 380,000 bpd” of Canadian crude to the Gulf Coast, but this is a small fraction of the 700,000 bpd that KXL would bring initially to that region.

b. The SDEIS fails to analyze a realistic set of price and demand scenarios

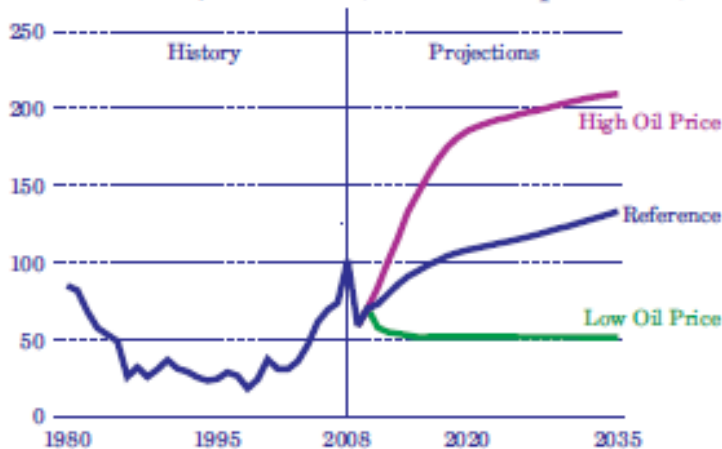
The Comments pointed out that the DEIS made baseless assumptions regarding the inevitability of demand for heavy crude as a driver of refinery expansions. In addition to the problematic assumption that Mexican and Venezuelan crude will consistently be available to meet that demand, the Comments pointed out that the DEIS had not accounted for the possibility that clean energy sources will supplant a substantial portion of demand for petroleum refining.

In apparent response, EnSys 2010 included in its analysis a “low demand” scenario, in which U.S. crude oil demand is 4 mbd lower in 2030 than under the AEO outlook scenario, *i.e.*, 17.5 mbd versus 21.5 mbd. EnSys 2010 at 39. While this analysis is a step in the right direction, it does not come close to answering the questions that need to be addressed, and reflects a woefully deficient vision of the potential of clean energy sources.

First, while the low demand scenario evaluates the impact of clean energy availability (*i.e.*, reduced petroleum demand) on refining, it does not consider that reducing availability of petroleum may itself drive the availability of clean energy. In other words, EnSys 2010 essentially assumes that clean energy becomes available in a vacuum, then looks at the impact of that availability, and concomitant reduction of oil demand, on crude refining volumes. However, clean energy does not generally become available in a vacuum. It can emerge as a strong market competitor precisely *because* conventional fuels become less available. Thus, what is needed – and not evident in EnSys 2010 or the SDEIS – is a close look at how keeping Canadian crude out of the Gulf Coast region could result in clean energy taking a larger market share.

Second, the EnSys 2010 analysis does not really take a hard look at different possible crude price scenarios. It cites to EIA Annual Energy Outlook 2010 Reference Case as the basis for assuming that crude will cost \$111.49 per barrel in 2030 under the AEO outlook scenario, and \$107.00 per barrel under the low demand scenario. EnSys 2010 at 39. However, the EIA analysis actually reflects a very wide range of possible oil prices, as shown in this chart (EIA Annual Energy Outlook 2010 at 28):

Figure 16. Average annual world oil prices in three cases, 1980-2035 (2008 dollars per barrel)



As the chart indicates, 2030 oil prices could range as low as \$50 and as high as \$200; the reference case is merely a number in between. Either the low end or the high end of the projections could have a profound impact on crude oil demand, and hence refining. And the high prices in particular cannot be construed as merely driving higher refining profit margins, and hence more refining. Prices at these levels would surely increase as well the demand for previously non-competitive clean energy alternatives. The analysis of an energy future with and without KXL is not complete without a realistic assessment of differing price scenarios, and their potential impact on the availability of clean energy alternatives.

Finally, the 4 mbd demand decrease in the EnSys low demand scenario is far less than the real potential in decreased demand that would be possible through aggressive pursuit of clean energy and efficiency. In the more aggressive yet still realistic demand reduction scenario by the EPA, they found that the U.S. could reduce transportation sector oil consumption by 6.7 mbd by 2030.²⁹⁷ The Department needs to conduct a serious analysis of the impact of clean energy alternatives on the various alternative scenarios that pays more than lip service to their potential to replace crude oil.

c. The SDEIS analysis fails to consider local impacts of crude refining

The Comments called on the Department to provide meaningful location-specific impacts analysis, and provided numerous suggestions as to where supporting data for such analysis could be obtained. Comments at 50-55. The blanket statements in the DEIS that it is impossible to predict where in PADD III the KXL crude would end up are belied, the Comments pointed out, by both the availability of shipping and other related information, and by the conclusion in the Accufacts Report that the vast majority of KXL crude would end up at 22 Gulf Coast refineries that have the necessary “process building blocks” to accept bitumen – all of which are in the same forty-five mile radius on the Texas Gulf

²⁹⁷ EPA, “EPA Analysis of the Transportation Sector: Greenhouse Gas and Oil Reduction Scenarios,” March 18, 2010, www.epa.gov/otaq/climate/publications.htm

Coast. *Id.* Failure to provide location-specific refining impacts analysis, the Comments pointed out, severely undercut the usefulness of the analysis, given that the refining impacts would be considerably more harmful in the small but heavily impacted region – a predominantly low income and minority area already beset with excessive industrial pollution impacts.

The SDEIS provides no response whatsoever to these concerns. The analysis remains devoid of any attempt to identify the likely destination of the KXL crude beyond blanket statements regarding all PADD II or PADD III. It has thus completely failed in its duty under Executive Order 12898 to assess the disproportionate impact of the Project on minority and low-income populations. *See* Comments at 55.

d. The Department has failed to conduct an environmental justice analysis in the SDEIS.

President Clinton was resolute in his Executive Order 12898, which still serves as the guiding principle on how federal agencies should conduct their actions to further environmental justice. In the accompanying memorandum to the heads of federal agencies, he emphasized that as a part of every NEPA analysis, federal agencies must “analyze the environmental effects, including human health, economic and social effects, including effects on minority communities and low-income communities ...”²⁹⁸ Echoing the executive order, CEQ’s environmental justice guidance states plainly that the NEPA process must include an analysis of relevant public health data as well as an analysis of cumulative and/or multiple exposures.²⁹⁹ That same guidance also requires the Department to consider cultural, social, historical or economic factors that may be exacerbated by KXL.

In addition, Executive Order 13045, also enacted by President Clinton, requires each Federal agency to “(a) shall make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children; and (b) shall ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health and safety risks.”³⁰⁰ A growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health risks and safety risks.³⁰¹ These risks arise because: children’s neurological, immunological, digestive, and other bodily systems are still developing; children eat more food, drink more fluids, and breathe more air in proportion to their body weight than adults; children’s size and weight may diminish their protection from standard safety features; and children’s behavior patterns may make them more susceptible to accidents because they are less able to protect themselves.³⁰²

²⁹⁸ Presidential Memorandum to Heads of Federal Agencies dated February 11, 1994, which accompanied Executive Order 12898.

²⁹⁹ Council on Environmental Quality’s guidance document, “Environmental Justice: Guidance Under the National Environmental Policy Act,” (CEQ 1997 at page 9).

³⁰⁰ Exec. Order No. 13045, 62 Fed. Reg. 19885 (1997).

³⁰¹ *Id.*

³⁰² *Id.*

Documentation of the similarities and differences between children and adults is an integral part of assessing the effects and efficacy of drugs, for example.³⁰³ The National Academy of Sciences has pointed out on more than one occasion that the maxim should hold true with respect to exposure to environmental pollutants, as well.³⁰⁴

CEQ's environmental justice guidance bolsters the need for a thorough environmental justice analysis to include data on environmental and health effects that are distributed within the affected communities that also include children. Thus as according to CEQ's environmental justice guidance, "(a)gencies should consider the composition of the affected area..."³⁰⁵ In addition, "(a)gencies should consider relevant public health data and industry data concerning the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population and historical patterns of exposure to environmental hazards, to the extent such information is reasonably available."³⁰⁶ Such information was not included in the SDEIS. Minorities made up 48 percent of U.S. children born in 2008, the latest census estimates available, compared to 37 percent in 1990.³⁰⁷ Thus the Department must also consider an environmental justice analysis inclusive of the environmental health impacts on children due to their burgeoning numbers and the latent effects of such impacts on the affected communities.

- i. *The demographic figures should be revisited for accuracy and expressed in layperson's language.*

The SDEIS is an improvement over DEIS to the extent that the SDEIS does provide demographic information (though incomplete as we discuss further, below) with respect to some of the communities that may be impacted. We believe there are additional probative sources of concise demographic information that the Department should explore. According to our research, on average 54 percent of residents within a two-mile radius of PADD III refineries are people of color and over 20 percent live below the federal poverty line.³⁰⁸ Communities around PADD II refineries are 26 percent people of color and 16 percent of residents live below the federal poverty line.³⁰⁹ The Department should dig deeper into the demographic information and present information that is more meaningful and more easily understandable to laypersons.

- ii. *The methodology employed by the department is flawed*

We also question the methodology the Department used to define the "meaningfully greater criterion." We are aware that this language comes from CEQ's environmental

³⁰³ EPA Policy On Evaluating Health Risks to Children (visited June 3, 2011) <<http://www.epa.gov/osa/spc/pdfs/memohlth.pdf>>.

³⁰⁴ *Id.*

³⁰⁵ Council on Environmental Quality guidance document, *supra* note 2 at 8.

³⁰⁶ Council on Environmental Quality guidance document, *supra* note 2 at 9.

³⁰⁷ <http://www.msnbc.msn.com/id/35793316/ns/us_news-life/t/minority-babies-set-become-majority/> (visited June 3, 2011).

³⁰⁸ EPA, ECHO DATA. (Data set on file with the Environmental Integrity Project).

³⁰⁹ *Id.*

justice guidance.³¹⁰ CEQ does not clarify what it means by that term. We have found that agencies doing environmental justice analyses in NEPA documents have interpreted it in a variety of ways. For example, the Department of Energy, the Federal Emergency Management Agency, and the Army Corps of Engineers have on more than one occasion defined the “meaningfully greater criterion” as a population that:

[H]as proportions of ethnic minority groups that are at least an additional 10 percent greater than that tabulated for the United States in the 2000 census (i.e., minority percentage plus an additional 10 percent). Using this formula, the following are the specific ethnic minority thresholds used for this evaluation: (1) African American – 22.3 percent or greater, (2) American Indian, Eskimo, Aleut – 10.9 percent or greater, (3) Asian, Pacific Islander – 13.7 percent or greater, (4) Persons of Hispanic Origin – 22.5 percent or greater, and (5) Other race – 15.5 percent or greater (Census 2000d).³¹¹

Though we realize that any approach to fine-tuning population numbers will have its shortcomings, the foregoing approach is fairly straightforward and simple to understand.

Here, the Department has chosen to use a multiplier, 1.5 times (or 150 percent) of the statewide reference population. The Department admits to deviating from a multiplier of 1.2 (or 120 percent) and explains that 1.5 is more “appropriate, given the low population base across most of the proposed Project corridor ...” (SDEIS at 3-25). We are not sure what the source or precedence is for using either the 1.5 or the 1.2 multiplier, but we believe that using the 1.5 multiplier may lead to inaccurate outcomes.

Take, for example, Lake Charles, Louisiana. The black population of Lake Charles is 46.8 percent, according to the U.S. Census,³¹² while the total black population of Louisiana is 32.1 percent.³¹³ Using the 1.2 multiplier, the “meaningfully greater” threshold number is 38.52 (32.1 x 1.2). Therefore, with the 1.2 multiplier, Lake Charles would qualify for environmental justice analysis even though its population is less than 50 percent black because total black population exceeds 38.52. Using the 1.5 multiplier, the “meaningfully greater” threshold number is 48.15 (32.1 x 1.5). Lake Charles would therefore not qualify for environmental justice analysis using the 1.5 multiplier because its population is less than 50 percent black (albeit barely), and the black population does not exceed 48.15. Obviously, to exclude Lake Charles from an environmental justice analysis purely based on this multiplier is ludicrous. We therefore find that the Department’s multiplier system is highly likely to produce arbitrary results. We urge the Department to rethink its multiplier and to use a methodology that is logical and more precise. Such as the distance-based methodology pioneered by Profs. Paul Mohai and Robin Saha³¹⁴ the exact locations of hazardous sites are found and the demographics of all units within a certain distance of the

³¹⁰ *Id.* at page 25.

³¹¹ TEP Sahuarita-Nogales Transmission Line Draft EIS (Department of Energy 2003).

³¹² See U.S. Census, available at <http://quickfacts.census.gov/qfd/states/22/2241155.html>.

³¹³ See U.S. Census, available at <http://quickfacts.census.gov/qfd/states/22000.html>

³¹⁴ Respectively with the University of Michigan and University of Montana

sites are taken into account.³¹⁵ If zip code or census tracts lie only partially within the prescribed distance, their populations can be weighted based on the proportion of their areas that lie within.³¹⁶ The distance-based methods also produce more consistently sized neighborhoods than do raw units such as zip code areas and census tracts.³¹⁷ With consistently sized neighborhoods, researchers also are better able to conduct longitudinal analyses of demographic changes around environmentally hazardous sites.³¹⁸

iii. *The department has failed entirely to undertake a substantive environmental justice analysis*

Identifying race and income make-up of potentially impacted populations is only one cursory part of an environmental justice analysis. The Department has yet to undertake the substantive portions of the environmental justice analysis process.

The Department was completely silent on the topic of how the KXL project and its attendant refinery burden will impact low-income, indigenous, or people of color communities in the refinery regions. The proposed project will provide a steady supply of 830,000 bpd of heavy Canadian crude oil to PADD II and PADD III refineries.³¹⁹ These refineries are already the major source of pollution in their respective communities. In 2009, PADD II and PADD III refineries, on average, accounted for more than 48 percent of all OSHA carcinogenic air emissions in their county.³²⁰ In many places, such as Garvin, OK, Custer, OK, Live Oak, TX, St. Bernard, LA, Moor TX, Morton, ND, Kay, OK, Douglas WI, Eddy, NM, McPherson KS, and Butler, KS refinery air emissions accounted for more than 90 percent of all OSHA carcinogenic air emissions.³²¹ (The Department should note that refinery emissions are often underestimated and underreported to EPA's TRI database because of faulty assumptions,³²² so these numbers are likely even higher.)

The Department must fully analyze the public health status of communities in the refinery regions, areas that are already beset with respiratory and heart diseases and a tremendous air emission burden stemming from existing refineries and other industries, as we have already noted. The Department's analysis must thoroughly examine how the added refinery burden³²³ might impact residents cumulatively.

³¹⁵ *University of Michigan News Service*, Study reveals a disproportionately high number of minorities and poor live near toxic waste facilities, (May 19, 2006) (visited June 3, 2011), <<http://us.umich.edu/htdocs/releases/story.php?id=259>>.

³¹⁶ *Id.*

³¹⁷ *Id.*

³¹⁸ *Id.*

³¹⁹ SDEIS, 3-173-3-174 (2011).

³²⁰ EPA, TRI DATA, 2009. (Data set on file with the Environmental Integrity Project).

³²¹ *Id.*

³²² ENVIRONMENTAL INTEGRITY PROJECT, COMMENTS ON EPA'S DRAFT "EMISSION ESTIMATION PROTOCOL FOR PETROLEUM REFINERIES" (March 31, 2010) available at http://www.epa.gov/ttn/chieff/efpac/protocol/20100331_EIPCommentsonRefineryEmissionsProtocol.pdf.

³²³ As we stated earlier, the EnSys 2010 analysis – together with the Department's own analysis in the DEIS and SDEIS – strongly indicates that KXL would substantially increase heavy sour crude refining in the Gulf Coast region.

For example, Port Arthur, Texas, a community with disproportionate impacts so gross that EPA chose it in 2010 as one of ten target communities in the nation for EPA's scant environmental justice resources³²⁴, has extremely elevated infant mortality and low birth rate levels. This information is easily accessible using EPA's GIS tool, EJ View.³²⁵ Yet the Department failed to provide the public with even this basic and readily available data. Low birth weight has been linked to low income and lack of education, key factors that are present in some of the refinery communities. People of color, especially African Americans, are also at a higher risk of low birth weight.³²⁶ Several researchers have linked low birth weight to environmental factors such as lead exposure, mercury exposure, and ambient air pollution generally.³²⁷ No doubt, the refineries that will be processing heavy Canadian crude delivered by the KXL pipeline will exacerbate the existing disproportionate burden on these low-income, indigenous, and people of color communities. In order to meet the requirements of NEPA, the Department must consider cumulative and multiple exposure impacts, including how the KXL crude deliveries will impact communities whose health is already compromised by environmental toxins.

The Keystone XL pipeline is proposed to carry Canadian tar sands crude oil containing a deadly gas known as hydrogen sulfide (H₂S) that causes acute health effects at concentrations 100 - 1,000 parts per million including death.³²⁸ Hydrogen sulfide occurs naturally in crude oil. Hydrogen sulfide can be instantly lethal to adults at exposure levels of 800 - 1,000 parts per million (ppm) H₂S.³²⁹ Children and young infants may suffer a lethal exposure at lower levels of instantaneous concentrations as low as 50 ppm H₂S³³⁰ The Texas Railroad Commission requires Form H-9 be completed by companies wishing to drill or build pipelines or gas-processing plants in sour zones.³³¹ There is one box on the form for the hydrogen sulfide concentration in the well or pipeline, another for the "maximum escape volume" of the noxious gas.³³² The figures are plugged into two prescribed equations. A "radius of exposure" for a normally lethal dose of hydrogen sulfide - 500 parts per million - is then calculated, as is a radius for a 100-ppm dose. But these calculations have not been required for the Keystone XL pipeline with lethal hydrogen sulfide gas.³³³

³²⁴Port Arthur Showcase Community Project. See <http://www.epa.gov/region6/6dra/oejta/ej/index.html>

³²⁵ <http://epamap14.epa.gov/ejmap/entry.html>

³²⁶ March of Dimes, available at http://www.marchofdimes.com/medicalresources_lowbirthweight.html

³²⁷ University of Maryland Medical Center, available at <http://www.umm.edu/pregnancy/000142.htm>; C.

Townsend and R. Maynard, "Effects on health of prolonged exposure to low concentrations of carbon monoxide," Department of Health, London, UK, available at

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1740215/pdf/v059p00708.pdf>

³²⁸ Neil Carman, Ph.D, Potential for Toxic Vapor Cloud of Lethal Hydrogen Sulfide Gas from Keystone XL Pipeline Leak, 2010 (unpublished manuscript on file).

³²⁹ *Id.*

³³⁰ *Id.*

³³¹ *Id.*

³³² *Id.*

³³³ *Id.*

Nearly 200 industrial plants in Texas estimated releases at 7,1877,988.4 pounds (3594 tons) of H₂S in 1997.³³⁴ A powerful risk of higher sulfur in Canadian tar sands heavy crude is an increased legality hazard of higher H₂S concentrations.³³⁵ Tar sands sulfur % is at least 4.4% and higher according to the US Geological Survey report and it may contain 44,000 ppm of H₂S when H₂S is deadly at 500-900 ppm.³³⁶ The Department must recognize that this poorly regulated air toxic also creates along with the other cumulative and synergistic effects an increased disproportionate burden on low income and people of color communities residing near these facilities.

Similarly, the SDEIS provides no analysis of the consumption patterns of populations that rely on fish, vegetation, or wildlife for subsistence, as the Department is directed to do in Section 4-401 of the Executive Order. Indigenous people and low-income people are most likely to rely on subsistence fishing, hunting, and vegetation as a primary food source, making them especially vulnerable to air and water pollution. The Department has identified these susceptible populations along the pipeline route. Now it is incumbent upon the Department to discuss how the pipeline may impact the safety of these vital food sources. We refer the Department to the EPA for expertise on consumption patterns, particularly fish, and how they relate to the environment and public health. In 2002, EPA's federal advisory committee on environmental justice, the National Environmental Justice Advisory Council or "NEJAC" published a comprehensive study on the disproportionate impacts on indigenous communities caused by subsistence fish consumption. That study, "Fish Consumption and Environmental Justice" (November 2002 revised)³³⁷, may serve as a initial guiding step in helping the Department understand how insidious this threat to food security is. Without this critical analysis and discussion of KXL's impact on subsistence fishers, hunters, and gatherers, the SDEIS fails to meet the requirements of Executive Order 12898 and CEQ's related implementing guidance.

e. The Department has completely omitted demographic data for the Lake Charles, Louisiana region.

The Department states in the SDEIS that there are 15 refineries in the PADD III region that will connect directly to the same hubs as KXL, offering an impressive heavy crude oil capacity of 1.4 million bpd. These refineries are located in or near Houston, Texas, Port Arthur, Texas and Lake Charles, Louisiana. SDEIS 3-23. The African American population of Lake Charles, which sits in the heart of nation's petrochemical industry, is nearly 47 percent.³³⁸ Yet, the SDEIS surprisingly neglects to provide even cursory demographic information for Lake Charles. Other sources of data are available, such as from the U.S. Agency Toxic Substances and Disease Registry (ATSDR), U.S. EPA and the Louisiana Department of Environmental Quality. The residents of Mossville, LA,

³³⁴ Letter from Sierra Club et.al., to US EPA Administrator Lisa Jackson, Hydrogen Sulfide needs Hazardous Air Pollution listing under CAA Title III, 9 (March 30, 2009).

³³⁵ *Id.*

³³⁶ *Id.*

³³⁷ Available at http://www.epa.gov/compliance/ej/resources/publications/nejac/fish-consump-report_1102.pdf

³³⁸ See http://factfinder.census.gov/servlet/QTTable?_bm=y&-qr_name=DEC_2000_SF1_U_DP1&-ds_name=DEC_2000_SF1_U&-_lang=en&-geo_id=16000US2241155

an unincorporated historic African American community of approximately 375 households near Lake Charles have been encroached by 15 toxic industrial facilities.³³⁹ ATSDR testing of Mossville's residents revealed for example, that Mossville residents' level of dioxin in their blood was three times higher than the average level of dioxins detected in a national comparison group representing the general US population.³⁴⁰

We are baffled by this glaring omission. The Department needs to supply demographic information and analysis for the Lake Charles region, as it has already done for Houston and Port Arthur, Texas and other communities along the pipeline route.

As we explained above, the Department must also conduct a full-scale environmental justice analysis on potentially impacted low-income, indigenous, and people of color communities along the pipeline route and in the refining regions. Such an analysis would, by necessity, include consideration of existing public health status of these communities as well as an analysis of the added environmental burden, i.e., cumulative and multiple impacts, on these communities that would be imposed or exacerbated by the KXL project.

EPA's GIS tool, EJ View, reveals that Lake Charles, like Port Arthur, has extremely high infant mortality and low birth weights. In addition, Lake Charles has very high cancer rates – perhaps as high as 250 per million – as well as elevated rates of respiratory and neurological diseases.³⁴¹ For over 200 years, the residents of Mossville, LA fished and grew vegetables and fruit trees as a part of their diet. ATSDR analyzed fish collected from waters near the Mossville community which were contaminated with unsafe levels of dioxin and PCBs.³⁴² Both ATSDR and the Louisiana Department of Health acknowledges and independently reports, respectively that fish should not be eaten due to the toxic industrial discharges.³⁴³ Other such information regarding the health effects due to exposure to dioxin and toxic air emissions is available at the click of mouse.

Obviously, the Department must analyze and share this information with the public in order to meet the basic requirements of NEPA, Executive Order 12898, and environmental justice guidances.

f. The SDEIS fails to provide mitigation to reflect the needs of low-income, indigenous, and people of color communities

As we state in other sections of these comments, the proffered mitigation for the KXL project is not mitigation at all. Rather, it is a recitation of the legal obligations of KXL should there be a spill or contamination of drinking water.³⁴⁴ Even if we were to

³³⁹ Advocates for Environmental Human Rights, et. al., *Industrial Sources of Dioxin Poisoning in Mossville, Louisiana: A Report Based on the Government's Own Data*, at i, 15 (2007) (visited June 3, 2011) <http://ehumanrights.org/docs/Mossville-report-WEB.pdf>>.

³⁴⁰ *Id.* at 3.

³⁴¹ EJ View, available at <http://epamap14.epa.gov/ejmap/entry.html>

³⁴² Advocates for Environmental Human Rights, *supra* note 17 at 11.

³⁴³ *Id.*

³⁴⁴ *See* SDEIS pages 3-125 through 3-132.

consider a recitation of legal liability proper mitigation, what has been offered in the DEIS and SDEIS fall drastically short of what CEQ deems appropriate in an environmental justice context. In addition, this area of the country is prone to severe weather events, such as hurricanes and tornadoes. Hurricanes Katrina, Gustaf and Ike caused severe damage to many communities and industrial facilities. Environmental justice and low income communities are usually hardest hit and have to contend with the effects of the severe weather events and spills, leaks and discharges from their fenceline industrial neighbors. Disaster vulnerability must be taken into account when developing mitigation strategies. Low income and people of color communities have greater difficulties recovering from disasters due to less insurance, lower incomes, fewer savings, more unemployment, the racial, class, and ethnic differences in who receives disaster recovery assistance access to communication channels and information, and experience the intensification of existing poverty from natural and man-made disasters.³⁴⁵ CEQ states in its environmental justice guidance that, “[m]itigation measures identified in an EIS ... should reflect the needs and preferences of affected low-income populations, minority populations, or Indian tribes to the extent practicable.”³⁴⁶ CEQ urges agencies to, “carefully consider community views in developing and implementing mitigation strategies” and “elicit the views of the affected populations” on mitigation measures, and agencies should do so *throughout* the public participation process.^{347,348} (Emphasis added.)

We urge the Department to engage the impacted communities directly about their mitigation preferences and needs as, CEQ’s environmental justice guidance directs the Department to do.³⁴⁹ The Department can begin engaging communities by enhancing public participation efforts, as we discuss further, below.

g. The SDEIS continues to rely impermissibly on permitting data

The Comments explained in detail why it was impermissible for the DEIS to rely in its analysis on Clean Air Act and Clean Water Act permitting to address pollution impacts of crude refining. The Comments pointed out both that NEPA requires assessment of cumulative impacts that cannot be determined from looking at individual projects in isolation, as in a permitting process; and that the PSD and NNSR emissions estimates cited in the DEIS cannot be treated as simple estimates of emission increases associated with a particular permitted activity. The Comments also noted that the DEIS provided essentially no independent analysis of water impacts, deferring cursorily and entirely to Clean Water Act antidegradation analysis that has been deeply flawed in practice in the context of refinery permitting. Comments at 46-47.

³⁴⁵ Bullard, Brice, et.al., *Environment, Disaster, and Race After Katrina*, Race Poverty and the Environment, Vol. 13 No. 1, Summer 2006 (visited June 3, 2011) <<http://urbanhabitat.org/node/501>>.

³⁴⁶ Council on Environmental Quality’s guidance document, “Environmental Justice: Guidance Under the National Environmental Policy Act,” (CEQ 1997 at page 16).

³⁴⁷ *Id.*

³⁴⁸ We discuss the need for community meetings or field hearings in the public participation discussion, below. Such meetings or hearings would provide an opportunity to gather community views and preferences with respect to appropriate mitigation.

³⁴⁹ CEQ guidance, *supra*, at page 16.

None of these concerns are addressed in the SDEIS. Indeed, the document reiterates word-for-word its analysis of PADD III-wide refinery impacts grounded in unwarranted extrapolation from Clean Air Act permitting data. The Department needs to combine analysis of location-specific refinery impacts, as discussed in the previous subsection, with reliable data concerning emissions from each affected refinery. Data concerning current emissions from individual refineries is readily available from state emissions inventories and the USEPA Toxics Release Inventory. Data concerning increases associated with refinery expansions can be gleaned from PSD and NNSR permits, but only if that data is analyzed to determine the actual as opposed to paper increases. For example, as discussed in the Comments, while previous emission decreases from unrelated projects may be subtracted from Project emissions for purposes of permitting analysis, it does not make sense to subtract such emissions for purposes of NEPA impacts analysis.

7. The SDEIS Continues to Fail to Adequately Assess Impacts to Wildlife and Threatened and Endangered Species

As it did in the DEIS, State fails to adequately examine – and often ignores – impacts to wildlife, including threatened and endangered species listed under the Endangered Species Act (ESA). As we detailed in comments to the DEIS, the pipeline project will pose myriad impacts and threats to species. Additionally, both the Department of the Interior (DOI) and the U.S. Fish and Wildlife Service (FWS or the Service) raised serious concerns regarding the failures in State’s treatment of wildlife and ESA listed species impacts in comments to the DEIS.³⁵⁰

The impacts to wildlife and ESA listed species must be adequately examined by State. They are not. Also, State must fulfill its obligations to protect ESA listed species. It does not.

a. Requirements of the Endangered Species Act

As we stated in our comments to the DEIS, State’s obligations under NEPA and the ESA Section 7 are often considered together in a combined environmental and biological assessment. The ESA requires that action agencies (here, State) consult with the wildlife agencies, in this case the United States Fish and Wildlife Service (FWS) for most species at issue, to determine how the action agencies can use their authorities to further the conservation of listed species (section 7(a)(1)) and to avoid jeopardizing their existence (section 7(a)(2)).³⁵¹

³⁵⁰ Letter from Willie R. Taylor, Director, Office of Environmental Policy and Compliance, U.S. Department of the Interior to Elizabeth Orlando, Keystone XL Project Manager, U.S. Department of State (Jul. 1, 2010) (DOI Comment Letter); Letter from John Cochnar, Acting Nebraska Field Supervisor, U.S. Fish and Wildlife Service to Elizabeth Orlando, NEPA Coordinator, U.S. Department of State (June 1, 2010) (FWS Comment Letter).

³⁵¹ 16 U.S.C. §§ 1536(a)(1)-(2).

Congress enacted the ESA in 1972 to provide a program for the conservation of threatened and endangered species and the ecosystems upon which those species depend.³⁵² Section 2(c) of the ESA establishes that it is “the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act.”³⁵³ The ESA defines “conservation” to mean “the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary.”³⁵⁴ Similarly, section 7(a)(1) of the ESA directs the Secretary of the Interior to review “programs administered by him and utilize such programs in furtherance of the purposes of the Act,” and requires that “[a]ll other Federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered species and threatened species.”³⁵⁵

To implement these purposes, Section 7 of the ESA requires that all federal agencies “in consultation with” the U.S. Fish & Wildlife Service (Service) “insure that any action authorized, funded, or carried out” by the agency “is not likely to jeopardize the continued existence” of any listed species.³⁵⁶ If an agency’s actions are likely to adversely affect a listed species, formal consultation is required.³⁵⁷ Consultation “shall be concluded within the 90-day period beginning on the date on which initiated,” unless extended by agreement between the Service and the action agency.³⁵⁸

Section 7(a)(2) thus imposes two obligations upon federal agencies. The first is procedural and requires that agencies consult with the FWS or National Marine Fisheries Service (NMFS) to determine the effects of their actions on endangered or threatened species and their critical habitat.³⁵⁹ The second is substantive and requires that agencies insure that their actions not jeopardize endangered or threatened species or their critical habitat.³⁶⁰

An agency must initiate consultation under Section 7 whenever it takes an action that “may affect” a listed species.³⁶¹ The threshold for “may affect” is low. It is met if there is “[a]ny possible effect, whether beneficial, benign, adverse, or of an undetermined character”³⁶² Additionally, regulations implementing Section 7 broadly define what

³⁵² *Id.* § 1531(b); *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 185 (1978).

³⁵³ 16 U.S.C. § 1531(c)(1).

³⁵⁴ *Id.* § 1532(3).

³⁵⁵ *Id.* § 1536(a)(1).

³⁵⁶ 16 U.S.C. § 1536(a)(2); *see W. Watersheds Project v. Kraayenbrink*, 2010 U.S. App. LEXIS 18250, *56 (9th Cir. Sept. 1, 2010) (describing Section 7(a)(2) as “the heart of the ESA” and explaining consultation).

³⁵⁷ 50 C.F.R. § 402.14(a).

³⁵⁸ 16 U.S.C. § 1536(b)(1).

³⁵⁹ *Id.* § 1536(b).

³⁶⁰ *Id.* § 1536(a)(2); *Fla. Key Deer v. Paulison*, 522 F.3d 1133, 1138 (11th Cir. 2008).

³⁶¹ 50 C.F.R. § 402.14(a).

³⁶² Fed. Reg. 19,926, 19,949 (June 3, 1986) (codified at 50 C.F.R. pt. 402). *See Natural Resources Defense Council v. EPA*, 2005 WL 1241904 5 (D. Md. 2005) (citing 50 C.F.R. 402).

constitutes an “agency action” subject to consultation.³⁶³ Additionally, State must consider “the effects of the action as a whole.”³⁶⁴

After determining whether an action may affect a listed species, the action agency must decide whether to initiate formal or informal consultation with the Service. To make this determination, the agency typically prepares a “biological assessment” (BA) evaluating how the action will affect listed species, using “the best scientific and commercial data available.”³⁶⁵ If the action agency concludes the action is “likely to adversely affect” a listed species, the agency must formally consult with the consulting agency.³⁶⁶ During formal consultation, the consulting agency prepares a “biological opinion” evaluating whether the proposed action is likely to jeopardize the continued existence of the species.³⁶⁷ After consultation, the consulting agency produces a biological opinion explaining how the proposed action will affect the listed species and determines “whether the action . . . is likely to jeopardize the [species’] continued existence.”³⁶⁸

Alternatively, if the action agency determines in its BA that the proposed action “may affect,” but is “not likely to adversely affect” listed species, the agency may seek informal consultation with the Service. Informal consultation includes “discussions and correspondence” between the Service and the action agency, and if, but only if, the Service issues a “written concurrence” agreeing with the action agency’s not likely to adversely affect determination, consultation is complete, and Section 7 is satisfied.³⁶⁹

Further, section 9 of the ESA prohibits the “take” of endangered species.³⁷⁰ “‘Take’ means to harass, harm, . . . wound, kill, trap, [or] capture” an animal.³⁷¹ It is also unlawful for any person to “cause [an ESA violation] to be committed,” and the ESA thereby prohibits a governmental agency from authorizing any activity resulting in take.³⁷²

During the consultation process, and to facilitate implementation of section 7(a)’s substantive mandate to ensure against jeopardy, section 7(d) of the ESA provides that an agency “shall not make any irreversible or irretrievable commitment of resources” toward a project that would “foreclos[e] the formulation or implementation of any reasonable and

³⁶³ See 50 C.F.R. § 402.02 (defining “agency action” as “all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies.... Examples include, but are not limited to: ... the granting of licenses, contracts, leases, easements, rights-of-way, permits or grants in aid). Courts have also construed “agency action” broadly. *E.g.*, *Natural Res. Def. Council v. Houston*, 146 F.3d 1118, 1125 (9th Cir. 1998), *cert. denied*, 526 U.S. 1111 (1999); *Pacific Rivers Council v. Thomas*, 30 F.3d 1050, 1054–55 (9th Cir. 1994), *cert. denied*, 514 U.S. 1082 (1995); *Connor v. Burford*, 848 F.2d 1441, 1453 (9th Cir. 1988), *cert. denied*, 489 U.S. 1012 (1989).

³⁶⁴ 50 C.F.R. § 402.14(c).

³⁶⁵ *Id.* § 402.12(a), (k); 16 U.S.C. § 1536(a)(2).

³⁶⁶ 50 C.F.R. § 402.14(a).

³⁶⁷ *Id.* § 402.14(h)(3).

³⁶⁸ 50 C.F.R. § 402.14(g)(3), (4).

³⁶⁹ *Id.* § 402.13(a).

³⁷⁰ 16 U.S.C. § 1538(a)(1)(B).

³⁷¹ *Id.* § 1532(19).

³⁷² *Id.* § 1538(g); see *Strahan v. Coxe*, 127 F.3d 155 (1st Cir. 1997).

prudent alternative measures.”³⁷³ The 7(d) prohibition “is in force during the consultation process and continues until the requirements of section 7(a)(2) are satisfied.”³⁷⁴ Thus, pending the completion of the consultation process, agency actions that may affect listed species cannot go forward.³⁷⁵

If the consulting agency finds “jeopardy or adverse modification” to a listed species or its critical habitat, “the [consulting agency] shall suggest those reasonable and prudent alternatives which [it] believes would not violate subsection (a)(2).”³⁷⁶ If the consulting agency makes a finding of “jeopardy or adverse modification,” the acting agency must either “terminate the action, implement the proposed alternative, or seek an exemption from the Cabinet-level Endangered Species Committee pursuant to 16 U.S.C. § 1536(e).”³⁷⁷

State, in consultation with FWS, must examine “the direct and indirect effects of an action on the species and critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline.”³⁷⁸ The “environmental baseline” is “the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process.”³⁷⁹ “Indirect effects” are “those that are caused by the proposed action and are later in time, but still are reasonable foreseeable.”³⁸⁰ “Interrelated actions” are “those that are part of a larger action and depend on the larger action for their justification.”³⁸¹ “Interdependent actions” are “those that have no independent utility apart from the action under consideration.”³⁸²

To our knowledge, the consultation process has not concluded for any of the species where formal consultation is required. As such, no aspect of this project can be approved and allowed to commence until the full impacts on listed species are known and consultation has occurred. Additionally, State and FWS/NMFS must comply with their affirmative obligation to conserve listed species under section 7(a)(1). They have not done so.

³⁷³ 16 U.S.C. § 1536(d).

³⁷⁴ 50 C.F.R. § 402.09.

³⁷⁵ See *Thomas v. Peterson*, 753 F.2d 754, 764 (9th Cir. 1985) (“If a project is allowed to proceed without substantial compliance with those procedural requirements, there can be no assurance that a violation of the ESA’s substantive provisions will not result. The latter, of course, is impermissible.”) (citation omitted).

³⁷⁶ 16 U.S.C. § 1536(b)(3)(A).

³⁷⁷ *Fla. Key Deer*, 522 F.3d at 1139 (citing *Nat’l Ass’n of Home Builders v. Defenders of Wildlife*, 551 U.S. 644, 652 (2007)).

³⁷⁸ 50 C.F.R. § 402.02.

³⁷⁹ *Id.* “Action area” is broadly defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” *Id.*

³⁸⁰ *Id.*

³⁸¹ *Id.*

³⁸² *Id.*

b. THE SEIS does not adequately analyze impacts to threatened and endangered species

The SDEIS does not address the serious flaws in the analysis of impacts to species listed as threatened and endangered under the ESA in the DEIS. Nor does the SDEIS address the flawed and often entirely lacking DEIS analysis of impacts to the habitat of listed species. In fact, the SDEIS makes no changes to the assessment of threatened and endangered species whatsoever. State fails to address the substantive comments of the FWS, the DOI, and the signators to these comments. Indeed, State appears to have ignored all comments on the analysis of impacts of the proposed project on species covered by the ESA, the Migratory Bird Treaty Act, 16 U.S.C. § 703 *et seq.*, and the Bald and Golden Eagle Protection Act, 16 U.S.C. § 668. Instead, the SDEIS simply refers back to the threatened and endangered species section in the deeply flawed DEIS. All concerns expressed in comments on the DEIS remain relevant and significant and must be addressed. Additionally, changes in the status of listed species and advances in the scientific understanding of the distribution, conservation status, and habitat requirements of these species must be incorporated into the environmental impact analysis.

Since the DEIS was released, the following additional information on threatened and endangered species in the path of the proposed project, including changes in designated critical habitat, new 5-year status reviews, spotlight species action plans, changes in listing status, etc. became available. Each change must be incorporated into the FEIS, including an analysis of whether this new information changes the preliminary effects determination for each species. Of course, State must enter into formal consultation with the Service on each potentially affected species as required by the ESA.

American burying beetle- Endangered

- 5 Year review- 16 Jun 2008

Whooping crane- Endangered

- 5 year status review notice- 29 Mar 2010
- spotlight species action plan- 7 Aug 2009

Least tern - Endangered

- initiation of 5 year review notice- 22 Apr 2008

Pallid sturgeon- Endangered

- 9-29-2009- spotlight species action plan

Black footed ferret- Endangered

- 5 year review- 1 Dec 2008
- Spotlight species action plan- 19 Aug 2009

Texas prairie dawn flower- Endangered

- 3-29-2010- notice of 5 year review

Piping plover- Threatened

- 5 year review notice- 30 Sept 2008

- revised critical habitat in TX- 19 May 2009
- Spotlight species action plan-4 Dec 2009
- 5 year review- 29 Sept 2009

Arkansas River Shiner- Threatened

- 2-11-2009- Notice of 5 year review
- 8-6-2009- spotlight species action plan

Western prairie fringed orchid- Threatened

- 9-14-2010- Notice of initiation of 5-year review

Louisiana black bear- Threatened

- 3-10-2009- revised critical habitat

Red Wolf- Endangered

- 5-21-2009- spotlight species action plan

Topeka shiner-Endangered

- 1-22-2010- 5-year review

Houston toad- Endangered

- 8-4-2009- spotlight species action plan

Kemp's Ridley sea turtle- Endangered

- 3-16-2010- Draft revised recovery plan notice

Texas trailing phlox- Endangered

- 3-29-2010- notice of 5 year review

Additionally, Texas added six freshwater mussel species to its list of threatened species. The final EIS must reflect these changes and address threats, potential impacts, and proposed mitigation measures regarding these species.

c. Impacts to species in Canada from tar sands extraction are not examined

As we previously raised in the comments to the DEIS, at least three species listed as endangered under the ESA in both the U.S. and Canada – the whooping crane, the woodland caribou, and the piping plover – are clearly affected by the proposed pipeline. As stated in Section IV.C.3 of these comments, any approval by State allowing for the construction of the proposed pipeline will facilitate development of tar sands in Canada. Such development will almost certainly adversely impact these species. These impacts must be assessed and require ESA consultation.

In its comments to the DEIS, EPA also raised concerns about the failure to assess impacts to wildlife, in particular migratory birds, in Canada. EPA recommends that:

[T]he State Department assess the potential impacts to the migratory bird populations in the U.S. from oil sands extraction activities associated with the proposed project. An estimated 30% of North America's landbirds breed in the boreal forests of Canada and Alaska. ... [E]ffects on bird populations in the boreal forest can be felt throughout the birds' migratory range, including wintering grounds in the United States. While we appreciate that the Keystone has agreed to develop a "Migratory Bird Mitigation Plan" in consultation with U.S. Fish and Wildlife Service, it appears that this plan would only address potential impacts from construction activities in the U.S.³⁸³

Yet, despite these concerns, State denies any duty under the ESA to examine impacts to species in Canada. In the SDEIS, it states that:

Neither Section 7 of the ESA nor the Section 7 consultation and analysis process under ESA implementing regulations address species outside the borders of the U.S. and nothing in the language of Section 7 indicate that it would apply extraterritorially.³⁸⁴

Instead, State indicates that Canada will take care of problems in Canada, claiming that, "Oil sands projects and oil transportation pipelines are evaluated and permitted by Canadian federal and provincial Canadian governments."³⁸⁵ The SDEIS mentions that for massive tailings ponds created by tar sands extractions, "bird deterrents are used to prevent birds from landing on tailings ponds."³⁸⁶ The SDEIS does not mention all the bird deaths in tailings ponds and caused by other sources of tar sands extraction. Both NEPA – which requires a hard look at impacts of the project – and the ESA demand that State examine these impacts, and initiate formal consultation for listed species that may be affected by tar sands production.

State's denial that it has any obligation to consult regarding impacts in Canada is simply incorrect.³⁸⁷ Applicable regulations state that under section 7(a)(2) of the ESA, Federal agencies, in consultation with FWS, must "insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or results in the destruction or adverse modification of critical habitat."³⁸⁸ However, the regulations do not limit the scope of impacts to species that must be examined to only those within the United States or upon the high seas. Instead, they define the "action area" that must be analyzed as "*all* areas to be

³⁸³ EPA Comment Letter at 6.

³⁸⁴ SDEIS § 3.14.4.4, at 3-205.

³⁸⁵ SDEIS §3.14.4.4, at 3-204.

³⁸⁶ *Id.*

³⁸⁷ See, e.g., *Defenders of Wildlife v. Lujan*, 911 F.2d 117, 122-24 (8th Cir. 1990), *rev'd on other grounds*, *Defenders of Wildlife v. Lujan*, 504 U.S. 555 (1992) (finding agency has duty to consult on impacts to species outside U.S. under ESA).

³⁸⁸ 50 C.F.R. § 402.01.

affected directly or *indirectly* by the Federal action *and not merely the immediate area involved in the action.*”³⁸⁹

The term “action area” is not limited to impacts in the U.S. or the high seas. The project is clearly one State intends to authorize in the United States. Moreover, the species at issue migrate between the U.S. and Canada. Given the resulting impacts in Canada from such authorization, the action area for the project encompasses areas indirectly affected, including those areas impacted by the tar sands extraction in Canada.

It is clear that listed species and their habitat – particularly the whooping crane, woodland caribou and piping plover – in Canada will be affected as a result of the Federal action. These impacts need to be analyzed. Finally, since these impacts are likely to be significant, and “may affect” the species noted in our previous comments, formal consultation under Section 7(a)(2) of the ESA is required. The failure to analyze these impacts in Canada violates both NEPA and the ESA.

b. Failure to analyze impacts to species in the U.S.

In comments on the DEIS and the Draft Biological Assessment (DBA), which was included as Appendix T to the DEIS, both the DOI and the FWS point to serious deficiencies in State’s current efforts to comply with the ESA and, by implication, NEPA. Particularly, these agencies disagreed with State’s conclusion that ESA consultation is not warranted for four ESA listed species for impacts related to the pipeline construction and operation. These listed species are the whooping crane, interior least tern, piping plover, and Western prairie fringed orchid. DOI and FWS also had significant concerns about other species which State did not adequately address. These concerns are detailed below.

In regards to the whooping crane, interior least tern, piping plover, and Western prairie fringed orchid, DOI states that “FWS has indicated that the preferred Keystone XL pipeline route *may affect and is likely to adverse affect* the whooping crane, least tern, piping plover, American burying beetle (ABB), and western prairie fringed orchid (WPFO).”³⁹⁰ The referenced FWS comment letter elaborates upon this conclusion:

Based on the information provided in the DBA and due to the project type, size, and location, the USFWS agrees with State that the proposed Keystone XL project may adversely affect the American burying beetle (ABB). *Further, the USFWS does not agree with State’s preliminary determination that the proposed project will not likely adversely affect the Interior least tern, piping plover, whooping crane, and western prairie fringed orchid (WPFO). Therefore, we recommend that State initiate formal section 7 consultation with the USFWS to evaluate the effects of the proposed Keystone XL project as identified in the DBA on the Interior least tern, piping plover, whooping crane, and western prairie fringed orchid, in addition to the American burying beetle....* Our above determinations are

³⁸⁹ *Id.* § 402.02 (emphasis added).

³⁹⁰ DOI Comment Letter at 7 (emphasis added).

based on your draft documents. We may re-evaluate these determinations upon receipt of a final BA, particularly if the project design changes or additional information is provided.³⁹¹

Among other things, impacts from power lines that will be associated with the project is a chief concern of DOI and FWS. As detailed below, power lines are a major cause of mortality for avian species, particularly cranes. DOI finds that power lines associated with the project are part of the project and need to be analyzed because “but for” the construction the proposed pipeline the ancillary power lines would not be necessary.³⁹² DOI therefore concludes that, “[T]he effects of the new power lines on listed threatened and endangered species will need to be evaluated in the consultation for the Keystone XL pipeline, along with the direct effects of the pipeline and any associated other ancillary facilities such as railroads and pump stations.”³⁹³

DOI also recommends that surveys occur to detect species presence immediately prior and during construction activities. DOI states that surveys “scheduled to occur as much as 2 weeks prior to construction activities would be inadequate to avoid adverse impacts to whooping cranes, least terns, and piping plovers that might be present in the area.”³⁹⁴ Additionally, in referring to Page 3.4-13, paragraphs 2 and 3 of DEIS, DOI states:

Because migratory birds and waterfowl are typically attracted to wetlands and riparian areas, the FWS is concerned with the documented problem of bird mortality from power lines collisions would not *necessarily* be offset by wetland mitigation. Avian collisions could be significant depending on the species involved and the particular placement of the power lines. For these reasons, we recommend that perch inhibitors and visual markers be installed on power lines near wetlands and at other locations in the ROW where collisions are likely to be significant. In addition, we recommend that power line burial be evaluated, case-by-case, when located in or adjacent to wetlands with significant bird use.³⁹⁵

The SDEIS does not address these concerns. It must.

In general, the DBA punts on concerns regarding power lines by acknowledging impacts on the one hand, but indicating responsibility for ESA compliance rests elsewhere. For instance, the DBA acknowledges that “[t]he construction of a new electrical power line segment across the Yellowstone River in Montana and the Platte River in Nebraska would incrementally increase the collision and predation potential for foraging and nesting interior least terns in the Project area. Construction of these power line segments during

³⁹¹ FWS Comment Letter at pg. 3 (emphasis added).

³⁹² DOI Comment Letter at 7.

³⁹³ *Id.*

³⁹⁴ *Id.*

³⁹⁵ *Id.*, Specific Comments at 6 (emphasis in original).

the breeding season would also potentially disturb nesting and brood-rearing birds.”³⁹⁶ But it then states that these impacts are the power provider’s concern:

Electrical power line providers are responsible for obtaining the necessary approvals or authorizations from federal, state, and local governments to construct new power lines necessary to operate the Keystone XL Project. Keystone would inform electrical power providers of the requirements for ESA consultations with the USFWS for the electrical infrastructure components constructed for the Keystone XL Project to prevent impacts to foraging least terns.³⁹⁷

The DBA’s treatment of impacts from power lines to the whooping crane and piping plover are essentially the same.³⁹⁸ This is despite acknowledging the potentially devastating impacts power lines can have on these species. For instance, the DBA states that “[a]n analysis of suitable migration stop-over habitat (e.g., large waterbodies, wetlands, and associated agricultural fields) in relation to these preliminary routes for associated transmission lines identified 74 locations within the primary migration corridor where new transmission lines could potentially increase collision hazards for migrating whooping cranes. There is no indication, however, that any of these locations have been or would be used by whooping cranes.”³⁹⁹

After FWS raised concerns about power lines in response to the DBA, Keystone responded with essentially the same analysis put forth in the DBA: individual power providers would be informed of ESA requirements. Keystone⁴⁰⁰ stated:

Keystone has forwarded the information to the power providers who will be permitting, constructing, and operating these power lines. It is assumed that through their own process, the power providers would be requested to provide a letter of commitment to FWS regarding necessary mitigative measures for listed species impacts.⁴⁰¹

Not only does this response not account for a variety of relevant factors that must be considered such as the direct or indirect impacts, cumulative impacts, the extent and location of the of power lines in relation to the presence of listed species, and other factors, but it is *State*, not Keystone, that has an ESA consultation obligation for the project and its impacts, including the impacts from the project as a whole which consists of the impacts of associated power lines on listed species. Indeed, FWS states in its comment letter that,

³⁹⁶ DEIS Appx. T, Keystone XL Project Applicant Prepared Biological Assessment Draft (DBA) § 3.1.2.3, at 3-10.

³⁹⁷ *Id.*

³⁹⁸ *Id.* § 3.1.3.3, at 3-14-15 (whooping crane) and § 3.2.1.3, at 3-32 (piping plover).

³⁹⁹ *Id.* § 3.1.3.3, at 3-14.

⁴⁰⁰ It is unclear from the document we received who prepared them. The document simply had “Keystone Responses to FWS BA Comments” at the bottom, with no indication whether it was generated by TransCanada or some subsidiary. Regardless, we assume that TransCanada or a subsidiary of it is responsible for generating the comments.

⁴⁰¹ Keystone Response to FWS BA Comments, at p. 2.

“[A]lthough the power lines are installed and operated by local power providers instead of Keystone, the effects of the new power lines on listed threatened and endangered species are included in the consultation along with the direct effects of the pipeline and other above ground facilities associated with the pipeline such as roads, pump stations and other ancillary facilities.”⁴⁰²

According to the DBA, the proposed project will have an estimated 426.2 miles of power lines operated by 18 power providers.⁴⁰³ The location, impacts – direct, indirect and cumulative – and other relevant factors involving these power lines must be assessed by State, and by State and FWS as part of the ESA consultation process.

Additionally, the DBA’s assumption about the lack of whooping cranes in areas where power lines will be built is directly challenged by FWS. FWS states that, “It is estimated that the best available data on whooping crane stopovers in the Central Flyway documents only about 4 percent of the whooping crane stopovers that occur. Therefore, whether the whooping cranes have been confirmed at that site is irrelevant, (i.e., lack of documentation of crane use does not equate to lack of crane use). If there is suitable whooping crane roost habitat in the vicinity of new power line construction within the whooping crane migratory corridor, conservation measures to reduce the potential for collisions need to be implemented to avoid a MALAA effect determination.”⁴⁰⁴

A teleconference did take place between State, FWS Keystone, and ENTRIX, Inc. representative on September 3, 2010 to discuss ESA concerns.⁴⁰⁵ These meeting notes confirm FWS’s position that:

USFWS requests *formal* consultation on the Interior Least Tern, Piping Plover, Whooping Crane, and Western Prairie Fringed Orchid. Need to identify conservation measures for the procedure the power providers to consult on the power lines. Power providers have regulations that require the formal consultation required by the lead federal agency. *The project as a whole needs to be analyzed at the consultation stage to evaluate the direct and indirect effects to the project.*⁴⁰⁶

The meeting notes state that FWS has requested the following: letters from power providers regarding measures to comply with the ESA; more information regarding the presence of interior least terns in Texas; different survey practice to ensure whooping cranes, interior least terns, and piping plovers will not be impacted by construction, particularly at crossings of certain waterbodies; and conversation measures for loss of nesting ground by the Spague’s pipit.⁴⁰⁷

⁴⁰² FWS Comment Letter at 3.

⁴⁰³ DBA, Tbl.2.1-6.

⁴⁰⁴ FWS Comment Letter at 7.

⁴⁰⁵ See Meeting Notes from Meeting between US Fish and Wildlife Service (USFWS), Keystone, U.S.Department of State (DOS) and ENTRIX, Inc. regarding Endangered Species Act (ESA) Consultation for the Keystone XL Pipeline Project (Sept. 3, 2010) attached as Exhibit P.

⁴⁰⁶ *Id.* at p.1 (emphasis added).

⁴⁰⁷ *Id.*

Unless very recent documents exist, there is no indication there has been follow-up on these requests or that State is initiating or has initiated formal consultation for the whooping crane, interior least tern, piping plover, and Western prairie fringed orchid. As further described below, the impact of power lines on these species is potentially severe. Formal consultation is required and is not occurring.

i. Impacts from the Project to the Whooping Crane, Piping Plover, Interior Least Tern, and Western Prairie Fringed Orchid

Power lines present significant risks to avian species. As noted by FWS and the DEIS, the project will involve a large number of associated power lines and other infrastructure. This ancillary development presents a potential great risk to ESA listed species, primarily the whooping crane, piping plover, and interior least tern.

Power lines present two major threats to bird species: collisions and electrocution.⁴⁰⁸ Waterfowl and cranes are particularly vulnerable to power line collisions.⁴⁰⁹ Since the issuance of the DEIS, the project likely presents even more power and transmission line construction than the project analyzed by the DEIS analysis due to the addition of the Bakken Market and Cushing links.

The general impacts of power lines are acknowledged by the SDEIS:

The proposed Project could potentially affect 5 migratory birds within their migration range from Texas to Montana and/or within their breeding habitats. Conservation measures proposed for 3 of these birds (i.e., whooping crane, piping plover, and interior least tern) include protection of river and riparian nesting and migration staging habitats through use of HDD crossing methods and site-specific surveys to avoid disturbance to migration staging, nesting, and brood-rearing individuals. Habitat and disturbance impacts at major river crossings from future linear projects would likely incorporate similar conservation measures to avoid and minimize affects to these birds. Future electrical power transmission lines and the distribution lines that would serve pump stations and MLVs of the proposed Project or any other future projects could incrementally increase the collision hazard for 5 protected or candidate migratory birds. Cumulative collision mortality affects would be most detrimental to the whooping crane, interior least tern, and piping plover; while perches provided by towers and poles could increase the cumulative predation mortality for ground nesting birds, including the greater sage-grouse, interior least tern, mountain plover, piping plover, and Sprague's pipit.⁴¹⁰

⁴⁰⁸ Avian Power Line Interaction Commission, <http://www.aplic.org> (visited May 11, 2011).

⁴⁰⁹ <http://www.aplic.org/Collisions.php> (visited May 11, 2011).

⁴¹⁰ SDEIS § 3.14.3.8, at 3-170.

Yet, inexplicably, there is no change in the initial conclusion State incorrectly made that ESA consultation over these impacts is not warranted. Nor is there any indication ESA consultation is occurring or has occurred. Moreover, the SDEIS does not properly account for impacts to these species. It must.

A. Whooping Crane

The whooping crane (*Grus americana*) is one of North American's most spectacular and critically endangered bird species. It is a species shared by both the United States and Canada and recovery efforts have taken the cooperation of these two countries. Tar sands development and the project offer the sad promise of being a major step backwards in this otherwise admirable international effort to protect this beautiful species.

In the United States, the whooping crane was listed as threatened with extinction in 1967 and endangered in 1970 with these listings being "grandfathered" into the Endangered Species Act of 1973.⁴¹¹ Critical habitat was designated in 1978.⁴¹² In Canada the whooping crane was designated as endangered in 1978 by the Committee on the Status of Endangered Wildlife in Canada and listed as endangered under the Species at Risk Act in 2003.⁴¹³

Whooping cranes occur only in North America. As detailed by FWS, their population numbers are disturbingly low:

The February 2006 total wild population was estimated at 338. This includes: 215 individuals in the only self-sustaining Aransas-Wood Buffalo National Park Population (AWBP) that nests in Wood Buffalo National Park (WBNP) and adjacent areas in Canada and winters in coastal marshes in Texas; 59 captive-raised individuals released in an effort to establish a non-migratory Florida Population (FP) in central Florida; and 64 individuals introduced between 2001 and 2005 that migrate between Wisconsin and Florida in an eastern migratory population (EMP).⁴¹⁴

As of February 2006, there was a captive population of 135 birds, making the total population of wild and captive whooping cranes a meager 473 individuals.⁴¹⁵

As FWS has concluded, "Current threats to wild cranes include collisions with manmade objects such as power lines and fences, shooting, predators, disease, habitat destruction, severe weather, and a loss of two thirds of the original genetic material."⁴¹⁶

⁴¹¹ U.S. FWS, International Recovery Plan: Whooping Crane (*Grus Americana*), Third Revision, (Whooping Crane Recovery Plan) Mar. 2007 at xi, available at http://www.fws.gov/southwest/es/Documents/R2ES/Whooping_Crane_Recovery_Plan_FINAL_21-July-2006.pdf (visited May 11, 2011), and attached as Exhibit Q.

⁴¹² *Id.*

⁴¹³ *Id.*

⁴¹⁴ *Id.*

⁴¹⁵ *Id.*

⁴¹⁶ *Id.* at 1.

Indeed, power lines are known to be the highest known cause of mortality of fledged whooping cranes and whooping cranes in migration.⁴¹⁷

Especially with such a small and fragile population, power line construction can have immense impacts. FWS has concluded that:

Collisions with power lines are a substantial cause of whooping crane mortality in migration. Collisions with power lines are responsible for the death or serious injury of at least 44 whooping cranes since 1956. In the 1980s, 2 of 9 radio-marked whooping cranes from AWBP died within the first 18 months of life as a result of power line collisions. Of 27 documented mortalities in the RMP, almost 2/3 were due to collisions with power lines (40.1%) and wire fences (22.2%).⁴¹⁸

Not surprisingly, FWS has found that “Additional power line construction throughout the principal migration corridor will increase the potential for collision mortalities.”⁴¹⁹ FWS has also stated that in order for the whooping crane to recover, it is vital to “[m]onitor the placement and design of all new power lines in areas of known crane use.”⁴²⁰ Even with measures like marking of power lines, some whooping crane mortality will still occur. It is important for whooping cranes that the number of collisions with power lines does not increase.⁴²¹

The location of power lines is particularly critical in determining the extent of the threat posed to whooping cranes and must be assessed. For instance, data has shown that the proximity of power lines to locations where birds land and take off is critical and that power lines dividing wetlands used for roosting from grain fields used for feeding caused the most collisions for cranes because these circumstances encouraged crossing the lines at low altitude several times each day. Cranes frequently flew 10-15 meters (33-49 feet) above the ground between fields; as a consequence, 12 meter-high (39 feet-high) transmission lines obstructed their typical flight path.⁴²²

FWS finds that better surveying techniques are needed to assess the potential threat to cranes from power lines and other impacts. It notes that “surveys for species presence up to two weeks prior to construction activities are inadequate to avoid adverse impacts to whooping cranes, Interior least terns and piping plovers that may, if present in the construction area, be harassed by construction activities. Therefore, conservation measures

⁴¹⁷ Stehn, Tom, U.S. Fish and Wildlife Service, Whooping Cranes and Wind Farms - Guidance for Assessment of Impacts (DRAFT), attached as Exhibit R, p. 4 (June 1, 2007); US FWS, Whooping Crane Recovery Plan, *supra*, at 5 (“[T]he principal known cause of loss during migration is collision with utility lines”) and 25 (“The primary source of mortality for fledged [Aransas Wood Buffalo Population, the migration route of which more or less tracks the proposed pipeline’s path] whooping cranes is collision with power lines.”).

⁴¹⁸ US FWS, Whooping Crane Recovery Plan, *supra*, at 28.

⁴¹⁹ *Id.*

⁴²⁰ *Id.* at 46.

⁴²¹ Stehn, *supra*, at 5.

⁴²² *Id.* (citations omitted).

to avoid such potential disturbance of these avian species need to be described or revised to minimize potential of such disturbance.”⁴²³

FWS states that “Whooping cranes have been observed on isolated, shallow palustrine wetlands in the Nebraska sandhills which may be affected by the project,”⁴²⁴ and concludes that:

Whooping cranes use palustrine wetlands as well as river channels for roosting, and cranes are vulnerable to collision with any above ground power lines in the vicinity of their roost sites, not just next to riverine roosts. Although preliminary transmission line routes[?] are referenced in this section, the transmission lines are not indicated on the maps in the BA. The power line locations are available in the DEIS for this proposed project, and the locations of these lines need to be included in the final BA.⁴²⁵

As such, it finds that, “[o]ur conclusion that the proposed Keystone XL pipeline may affect and is likely to adversely affect the whooping crane, least tern, piping plover and western prairie fringed orchid is based in part on the inclusion of the new distribution lines that will be built to deliver power to the pipeline pumping stations.”⁴²⁶

Additionally, regarding whooping crane habitat use, discussed at 3.8-22 and 3.8-23, Section 3.8.1.2 of the DEIS, DOI states:

In addition to riverine habitat, whooping cranes use palustrine and the edges of lacustrine wetlands and reservoirs throughout their migrational corridor. Whooping cranes are vulnerable to collision with any above-ground power lines in the vicinity of their roost sites, not just next to riverine roosts.

We recommend that the end of the first paragraph in [DEIS] subsection 3.1.3.2 be changed to read: ‘Areas used for roosting by migrating whooping cranes include broad, shallow channels of major river systems and their associated wetlands, as well as seasonally or semi-permanently flooded palustrine wetlands and shallow areas of reservoirs and other lacustrine wetlands. Habitat areas such as these that exist along the pipeline alignment may be affected by the project.’

Where suitable whooping crane roost habitat exists in the vicinity of new power line construction and within the whooping crane migratory corridor, conservation measures to reduce the potential for collisions will need to be considered.⁴²⁷

In a similar vein, FWS commented:

⁴²³ FWS Comment Letter at 3.

⁴²⁴ *Id.* at 7.

⁴²⁵ *Id.*

⁴²⁶ *Id.* at 3.

⁴²⁷ DOI Comment Letter, Specific Comments at 12.

Migrating whooping cranes use both palustrine wetlands and riverine habitat for roosting in every state in their migration corridor. Change the 3rd sentence, 3rd paragraph to read: ‘Whooping cranes generally use seasonally or semi-permanently flooded palustrine wetlands, broad river channels, and shallow portions of reservoirs for roosting, and various cropland....’,⁴²⁸

The pipeline goes through the heart of the crane’s migratory route and areas where this rare and beautiful bird is known to live in the wild.⁴²⁹ However, ESA consultation between State and FWS has not occurred regarding the impacts of power lines and other impacts from the project on cranes. State must consult under ESA section 7 on the direct, indirect, cumulative and other impacts on the whooping crane for the entire pipeline project, including impacts from power lines. Moreover, State must address the serious concerns raised by FWS and DOI in the SDEIS. It does not.

B. Piping Plover

The piping plover (*Charadrius melodus*) is a small shorebird about the size of a robin. It has a sandy colored back and white underparts, with a single black neck band, a short stout orange bill and orange legs.⁴³⁰ The piping plover was listed under the ESA in 1985.⁴³¹ It is listed as endangered in the Great Lakes region and as threatened outside the Great Lakes, which include Northern Great Plains and Atlantic populations.⁴³² Piping plovers are listed as threatened in all of the proposed pipeline states.⁴³³

Piping plovers arrive in the Northern Great Plains to breed around mid-April and fly south by mid-to-late August. The Northern Great Plains population of piping plovers nest on the shorelines and islands of alkali (salty) lakes in North Dakota and Montana. They nest on sandbar islands and reservoir shorelines along the Missouri River and reservoirs in Montana, North Dakota, South Dakota, and Nebraska. In Nebraska, they nest on the Platte River system, Niobrara, Loup, and Elkhorn rivers as well as limited locations in Minnesota and Colorado. Most of the Northern Great Plains plovers winter along the Texas coast, extending into Mexico.⁴³⁴

Power lines have been noted as a threat to piping plovers. In FWS’s 2009 *5 Year Review: Summary and Evaluation* for the piping plover, FWS states that:

At the time of listing, the potential threat of power lines to plovers was not known. Additionally, there were many fewer power lines in the Northern

⁴²⁸ FWS Comment Letter at 7.

⁴²⁹ See U.S. FWS, Species Profile for Whooping Crane, <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?scode=B003> (visited May 16, 2011).

⁴³⁰ U.S. FWS, Mountain-Prairie Region, Piping Plover, <http://www.fws.gov/mountain-prairie/species/birds/pipingplover/> (visited May 16, 2011).

⁴³¹ 50 Fed. Reg. 50726-50734 (Dec. 11, 1985)

⁴³² U.S. FWS, Species Profile, Piping Plover, <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?scode=B079> (visited May 16, 2011).

⁴³³ *Id.*

⁴³⁴ U.S. FWS, Mountain-Prairie Region, Piping Plover, *supra*.

Great Plains than there are today. As more power is produced on the prairie, a large number of new power lines are needed to carry this power to population centers. Overhead power lines have been documented to kill a large number of birds, including plovers. Since we know very little about plover movements, it is difficult to determine how much of an effect power lines may have on plovers. Marking lines with highly visible reflectors has been shown to be at least partially effective in reducing bird strikes in a number of species. The USFWS has recently (starting in 2008) begun to recommend that power lines in the whooping crane (*Grus americana*) migration corridor be marked. This corridor overlaps nearly all of the plover's range in the United States. The Service does not have information indicating how many lines are marked at this time, but it is likely a relatively low percentage.⁴³⁵

As with other species FWS discusses, FWS states that it “does not agree with State’s preliminary determination that the proposed project will not likely adversely affect the Interior least tern, piping plover, whooping crane, and western prairie fringed orchid (WPFO). Therefore, we recommend that State initiate formal section 7 consultation with the USFWS to evaluate the effects of the proposed Keystone XL project as identified in the DBA on the Interior least tern, piping plover, whooping crane, and western prairie fringed orchid, in addition to the American burying beetle.”⁴³⁶ FWS notes that “[t]he [piping plover] is susceptible to collision with power lines,” and thus “recommend[s] incorporation of conservation measures to address potential adverse project impacts to the species.”⁴³⁷ FWS concludes that “the proposed Keystone XL pipeline may affect and is likely to adversely affect the whooping crane, least tern, piping plover and western prairie fringed orchid is based in part on the inclusion of the new distribution lines that will be built to deliver power to the pipeline pumping stations.”⁴³⁸

As stated above, FWS adds that “surveys for species presence up to two weeks prior to construction activities are inadequate to avoid adverse impacts to whooping cranes, Interior least terns and piping plovers that may, if present in the construction area, be harassed by construction activities. Therefore, conservation measures to avoid such potential disturbance of these avian species need to be described or revised to minimize potential of such disturbance.”⁴³⁹

State also fails to address concerns DOI raised about the adequacy of the environmental analysis of impacts to piping plovers in the DEIS. For example, in reference to migration stopover habitat for piping plover, discussed at page 3.8-18, paragraph 2 of the DEIS, DOI comments that:

⁴³⁵ U.S. FWS, Northeast Region and Midwest Region, *Piping Plover (Charadrius melodus) Five Year: Summary and Evaluation* (Sept. 2009) at 125-6, available at, http://www.fws.gov/northeast/conservation/PDF/Piping_Plover_five_year_review_and_summary.pdf.

(citations omitted), and attached as Exhibit S.

⁴³⁶ FWS Comment Letter at 3.

⁴³⁷ *Id.* at 8.

⁴³⁸ *Id.* at 3.

⁴³⁹ FWS Comment Letter at 3.

The DEIS states, ‘The FWS Tulsa Ecological Services field office recommended the identification of suitable migration stopover habitats for piping plovers that would potentially be crossed by the project. Suitable migration stopover habitats include sandy shorelines of lakes and rivers (Campbell 2003). Review of the Gulf Coast Segment in Oklahoma identified suitable migration habitats at crossings of the North Canadian River and the South Canadian River in Oklahoma; and the Red River at the Oklahoma and Texas border.’

The DEIS should note that the FWS further recommended, if suitable habitat was present and construction would occur during the spring and/or fall migration, surveys for the presence or absence of the plover in the river-crossing project be conducted immediately before (within 2 weeks) project construction is initiated.⁴⁴⁰

And, regarding survey results for potential nesting habitat for interior least terns and piping plovers at pages 3.8-15 and 3.8-19, section 3.8.2.1 at Tables 3.8.1-3 and 3.8.1-4 of the DEIS, DOI states:

Interior least terns and piping plovers nest along river courses. Nesting habitat and nesting areas may change between and within breeding seasons, depending on river flow and renesting efforts. As noted in our general comments, surveys of potential nesting areas for presence of least terns and piping plovers 2 weeks prior to construction activities are insufficient to determine possible impacts from construction activities to the species. Surveys for presence of these species should be conducted whenever construction activities will take place within 0.25 mile of nesting areas between April 1 and August 15. If these species are present, construction should cease until presence of interior least terns or piping plovers are reported to the nearest FWS Ecological Services Field Office. Coordination with the FWS should take place before construction is resumed.⁴⁴¹

The SDEIS does not address whether additional surveys for least terns and piping plovers will be required for pipeline construction activities within 0.25 miles of nesting habitat.

DOI also states that in regards to power lines:

In addition to breeding on riverine sandbars and at sand/gravel mining operations, interior least terns and piping plovers migrate through the Great Plains during both the spring and fall and forage in rivers and associated wetlands. The species is susceptible to collision with power lines, and we recommend incorporating conservation measures to address potential adverse project impacts to these species. For example, power distribution lines may be marked with visual bird deflectors where they cross rivers (and within 0.25 mile of each side) and between rivers and

⁴⁴⁰ DOI Comment Letter, Specific Comments at 12.

⁴⁴¹ *Id.* at 11.

sand and gravel mining areas to reduce potential for injury or mortality to interior least terns.⁴⁴²

The SDEIS does not address these conservation measures recommended to minimize potential adverse impacts to interior least terns and piping plovers associated with power lines.

In reference to designated piping plover critical habitat, discussed at page 3-29, first paragraph in the DBA, the Service states:

Only those portions of designated critical habitat occurring within Nebraska and along the river segments bounding Nebraska were vacated by Federal District Court on October 13, 2005. The remainder of the critical habitat designated for the Northern Great Plains population of the piping plover remains valid.⁴⁴³

No adjustment is made in the SDEIS to recognize the accurate interpretation of what is designated critical habitat for the piping plover.

As with the whooping crane, State must consult on the direct, indirect, cumulative, and other impacts the project will have on the piping plover, including impacts from power lines. There is no indication that such consultation has occurred. State must also address the concerns raised by DOI and FWS in their comment letters. It does not.

C. Interior Least Tern

In 1985, the FWS listed the interior least tern (*Sterna antillarum*), which exists along the corridor route, as endangered.⁴⁴⁴ The interior least tern is the smallest member of the gull and tern family, measuring about 9 inches in length. Interior least tern were once common along the riverine ecosystems of the Nation's interior.⁴⁴⁵

Alterations to America's interior river systems have left these birds endangered with extinction. The FWS found that "stabilization of major rivers to achieve objectives for navigation, hydropower, irrigation, and flood control has destroyed the dynamic nature of [the processes that allow for sandbar creation and tern habitat]."⁴⁴⁶ Historically, terns bred throughout their entire range, but now the river systems' radical alterations have restricted their breeding range to tiny segments along the Nation's interior rivers.

As with other species FWS mentions, FWS states that it "does not agree with State's preliminary determination that the proposed project will not likely adversely affect the Interior least tern, piping plover, whooping crane, and western prairie fringed orchid

⁴⁴² DOI Comment Letter, Specific Comments at 11; *see also* FWS Comment Letter at 8 (expressing similar concerns in regards to the DBA, Appx T to the DEIS).

⁴⁴³ FWS Comment Letter at 8.

⁴⁴⁴ Interior Population of the Least Tern Determined to Be Endangered, 50 Fed. Reg. 21,784 (May 28, 1985).

⁴⁴⁵ Interior Population of the Least Tern Determined to Be Endangered, 50 Fed. Reg. at 21,785-6.

⁴⁴⁶ Dep't of the Interior, U.S. Fish and Wildlife Service, *Interior Population of the Least Tern Recovery Plan* (Sept. 19, 1990) at 1.

(WPFO). Therefore, we recommend that State initiate formal section 7 consultation with the USFWS to evaluate the effects of the proposed Keystone XL project as identified in the DBA on the Interior least tern, piping plover, whooping crane, and western prairie fringed orchid, in addition to the American burying beetle.”⁴⁴⁷ FWS thus concludes that “the proposed Keystone XL pipeline may affect and is likely to adversely affect the whooping crane, least tern, piping plover and western prairie fringed orchid is based in part on the inclusion of the new distribution lines that will be built to deliver power to the pipeline pumping stations.”⁴⁴⁸

Additionally, referring to page 3.8-14, paragraph 3 of the DEIS, DOI states:

The DEIS states that no interior least terns were observed at the North Canadian or South Canadian rivers in Oklahoma, but foraging interior least terns were observed at the Red River on the Oklahoma and Texas border. The FWS believes the survey efforts were insufficient to confirm the presence or absence of the tern within the project area, as each area was only sampled for part of a day.⁴⁴⁹

The SDEIS does not address the inadequacy of interior least tern surveys.

Referring to DEIS page 3.8-16, paragraph 1, DOI states:

The DEIS states that limited vegetation clearing and limited human access would be required within the riparian areas: for the True Tracker Wire (3-foot wide, hand-cleared path) used during horizontal directional drilling (HDD), and for withdrawing water for hydrostatic testing.

The FWS recommends a maximum 3-foot wide, hand-cleared path, and that no clearing be conducted during the interior least tern’s breeding period (mid-April through mid-September). Installation and use of the True Tracker Wire and HDD should not be conducted during the interior least tern’s nesting period.⁴⁵⁰

State fails to address these concerns and recommendations in the SDEIS.

FWS states:

[DBA] conclusions are apparently based on the lack of documented Interior least tern sightings within the project area and not on actual survey accounts or a confirmed absence of suitable habitat for the species in the proposed [right-of-way (ROW)] in Delta, Hopkins, Lamar, and Wood counties. Although we generally agree that it is unlikely that Interior least terns would be encountered along the proposed ROW outside the Red River, it may be misleading to conclude that they may occur nowhere else. Because we have records of Interior least terns nesting at

⁴⁴⁷ FWS Comment Letter at 3.

⁴⁴⁸ *Id.*

⁴⁴⁹ DOI Comment Letter, Specific Comments at 11.

⁴⁵⁰ *Id.*, Specific Comments at 11-12.

Cooper Reservoir between Delta and Hopkins counties, we recommend that an evaluation be made to determine the potential presence of suitable habitat just downstream of Cooper Reservoir where the ROW would cross the Sulphur River, and along the proposed ROW in Delta, Hopkings, Lamar and Wood counties in Texas.⁴⁵¹

The SDEIS does not address the need for additional least tern suitable habitat surveys along the proposed project right of way.

Additionally, FWS comments that:

Breeding bird surveys up to 2 weeks prior to construction activities near potential habitat are insufficient to minimize adverse impacts to Interior least terns. In areas of potential habitat, Interior least terns present at any time during the breeding season (i.e., May 1 to August 15, inclusive). Therefore, daily surveys for nesting terns should be conducted when construction activities occur within 0.25 miles of potential nesting habitat. If nesting terns are present within 0.25-mile of construction activities, such activities should be halted until all Interior least tern young within that area have reached flight stage.⁴⁵²

The SDEIS does not address the need to require daily least tern surveys during pipeline construction activities within 0.25 miles of nesting habitat.

State must consult on the direct, indirect, cumulative, and other impacts the project will have on interior least tern, including impacts from power lines. There is no indication that such consultation has occurred. State must also address the serious concerns raised by DOI and FWS. It does not.

D. Western Prairie Fringed Orchid

The Western prairie fringed orchid (*Platanthera praeclara*) is a threatened, perennial prairie plant.⁴⁵³ The Western Prairie Fringe Orchid was listed as threatened in 1989.⁴⁵⁴ It is found in Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, and in Manitoba.⁴⁵⁵ The project will run through three of these states (Kansas, Nebraska and Oklahoma). The orchid occurs most often in mesic to wet unplowed tallgrass prairies and meadows but have been found in old fields and roadside ditches.⁴⁵⁶ The greatest threat to the orchid is habitat loss and degradation.⁴⁵⁷

⁴⁵¹ FWS Comment Letter at 6.

⁴⁵² *Id.*

⁴⁵³ US FWS, Prairie Fringed Orchids, Fact Sheet, *available at*, <http://www.fws.gov/midwest/Endangered/plants/pdf/prairiefringedorchids.pdf> (visited May 23, 2011), and attached as Exhibit T.

⁴⁵⁴ 54 Fed. Reg. 39857 (Sept. 28, 1989).

⁴⁵⁵ *Id.*

⁴⁵⁶ *Id.*

⁴⁵⁷ *Id.*

FWS states that it “does not agree with State’s determination of ‘may affect but is not likely to adversely affect’ for the WPFO due to the permanently disruptive proposed project activities, the extent of high quality WPFO habitat within the project ROW, and the identification of a WPFO specimen 85 feet from the proposed project ROW despite ‘...erratic flowering patterns with long dormancies that make detection difficult.’”⁴⁵⁸ However, the effects determination of the Western prairie fringed orchid is not changed in the SDEIS.

As with the species described above, State must consult on the direct, indirect, cumulative, and other impacts the project will have on interior least tern. There is no indication that such consultation has occurred or is occurring.

e. Impacts to other threatened, endangered and candidate species have not been properly considered

i. The SDEIS does not address DEIS comments re: the endangered American Burying Beetle

The America burying beetle (ABB) was listed as endangered in 1989.⁴⁵⁹ State fails to address concerns about the adequacy of the DEIS analysis of impacts to the ABB. For example, referring to DEIS page 3.8-33, Table 3.8.1-5, DOI states:

The Table uses the following terms under the Suitable [American burying beetle (ABB)] Habitat column: extensive, limited, unknown, and unlikely. We recommend that definitions for these terms be provided.

The DEIS also uses ‘historic, confirmed, and likely’ for the Oklahoma portion of the project. We recommend the following definitions of these terms be included:

1. Historical Range - According to specimen records, the recovery plan and available life history information, this county is within the documented historical range of the ABB.
2. Non-Historical Range - This county is not within the documented historical range of the ABB. However, suitable habitat is present and this county is adjacent to at least one county with current positive findings, suggesting ABBs are likely to be present within this county.
3. Unconfirmed - Surveys within the last 15 years are lacking or insufficient to determine presence of the ABB. However, suitable habitat is present and this county is adjacent to at least one county with current positive findings. In some instances, occurrences of ABBs have been reported by reputable individuals, but identification has not been verified by a FWS biologist or trained entomologist.
4. Confirmed - Surveys within the last 15 years have documented the presence of the ABB within the county.⁴⁶⁰

⁴⁵⁸ FWS Comment Letter at 9.

⁴⁵⁹ 54 Fed. Reg 29652 (July 13, 1989).

State ignores Interior's recommendations in the SDEIS.

Regarding artificial lighting's impact on American burying beetle, discussed at page 3.8-33, paragraph 1 in the DEIS, DOI states:

The DEIS states that construction would take place during the daylight hours and construction areas would not use artificial lighting, and concludes no impacts from artificial lighting during construction would therefore occur. This information should be reconciled with information provided in the DBA, stating that night construction might be necessary.⁴⁶¹

The use of artificial lighting and its potential effects on the American burying beetle is not addressed in the SDEIS.

Regarding increased soil temperature, discussed at page 3.8-34, paragraph 1 of the DEIS, DOI states:

The DEIS also states soil heating associated with project operation could produce some increase in the activity period for the ABB, although the overall impacts of this increased activity would likely be negligible because species survival is more closely linked to its access to carrion and the availability of whole vertebrate carcasses (USFWS 2008c).

Soil moisture is believed to be an important habitat factor. An increase in soil temperature will result in decreased soil moisture. Consequently, ABBs could be affected.⁴⁶²

The SDEIS fails to analyze the effect of soil heating on the ABB.

FWS indicates the agency's serious concerns about the impacts of the proposed project on the ABB, stating the Service:

recommends State request initiation of formal consultation on the effects to ABB from the proposed project. Conservation measures to avoid and minimize adverse project effects to the species, and compensatory mitigation to offset some of the habitat losses will be developed through further discussions with State and the project proponent.⁴⁶³

The SDEIS fails to inform the public whether formal consultation was initiated or will be in the near future.

In reference to page [3-23, paragraph 2] of the DBA, FWS states:

⁴⁶⁰ DOI Comment Letter, Specific Comments at 13-14.

⁴⁶¹ *Id.*, Specific Comments at 14.

⁴⁶² *Id.*

⁴⁶³ FWS Comment Letter at 7-8.

Based on Hoback (unpublished report) data indicates that mowing or keeping the vegetation short makes an area undesirable for ABBs. So, mowing of the ROW at least for the short term in grassland areas would be an adverse affect for ABBs. In addition, if the ROW was in woody vegetation prior to pipeline construction and is now maintained as herbaceous vegetation only, this is a long-term affect on the ABB from the operation/maintenance of the pipeline.⁴⁶⁴

The SDEIS does not address the adverse affects on American burying beetle from mowing or more permanent habitat alteration resulting from right of way construction and maintenance. This is a serious flaw in the SDEIS and no explanation is given for the omission.

Referencing the American burying beetle habitat assessment in Appendix D, Pages 3 to 5 of the DBA which states:

Temporary access roads to the construction right-of-way (ROW) and temporary contractor yards or stockpile sites will be required during construction. Access roads of varying length and width will be required roughly every mile along the pipeline route. Temporary construction stockpile sites will be up to 30 acres in size while contractor yards will be approximately 30 acres in size. Stockpile sites will be located at 30- to 80-mile intervals along the proposed route. Contractor yards are to be located approximately every 60 miles along the proposed route.

FWS comments that “this level of information is not provided in the draft BA. We recommend such detail be provided.”⁴⁶⁵ The SDEIS does not address the Service’s concerns regarding the level of detail regarding temporary road, yard, and stockpile construction information supplied by the draft BA. This information is needed to assess the full impacts of the project on the American burying beetle. No explanation is given for not addressing these concerns in the SDEIS.

Regarding the American Burying beetle habitat assessments in Appendix D, pages 3 to 5 of the DBA, the Service comments that:

The BA needs to number the table on pages 3 and 4 of Appendix D, and clarify the meaning of the descriptors used in the last column of that table. There is a crucial difference between estimating the probability of occurrence of ABB in a particular county based on presence of suitable habitat, and whether there are known occurrences of ABB in a particular county based on previous sampling for the beetles. The descriptors used in the last column of the table do not clarify which type of information is presented, since ‘extensive’ and ‘limited’ could apply to either habitat- or sampling-based occurrence, while ‘unknown’ and ‘unlikely’ reasonably apply only to habitat-based probability. Further, the results of the August 2008, ABB habitat assessment along the Steele City Segment are presented

⁴⁶⁴ *Id.* at 9.

⁴⁶⁵ *Id.* at 11.

in Table 1, pages 7-20 of Appendix D do not clarify the meaning of the descriptors. For example, Wheeler County is described on page 5 as containing ‘very suitable’ habitat, yet the descriptor in the un-numbered table is ‘limited,’ and habitat at 14 of the 18 mile posts (77 percent) along the route in that county could not be evaluated due to lack of access. In Greeley County, which occurs south of Wheeler County, the descriptor used is ‘unknown,’ and habitat at 14 of the 24 mile posts (58 percent) along the route could not be evaluated due to lack of access. At some point the ability to access habitats along the ROW will be possible. Otherwise, the project will not be built in those areas. All areas along the ROW should be evaluated for habitat and species presence.⁴⁶⁶

FWS’s recommendations regarding clarification of ABB habitat assessment are likewise ignored in the SDEIS.

Again referencing the American burying beetle habitat assessment methods in Appendix D, Pages 3 to 5 of the DBA, which states:

In cases where ABB habitat was excellent, a rating of “prime” was given. Areas rated as “good” had suitable habitat with small amounts of disturbance or drier, sandier soil visible from the roadway. Areas with a rating of prime or good (4 or 5) are most likely to contain individuals of the American burying beetle. Areas rated marginal or less (3 and under) are unlikely to support this species.

FWS poses a direct question to State:

What is the justification for making such determination? We recommend [State] provide references for this.⁴⁶⁷

The SDEIS does not answer this question nor include a justification for the rating system applied to American burying beetle habitat. No explanation is given for not addressing the FWS’s concerns.

Yet again referring to Appendix D, Page 5 of the DBA, FWS comments:

The DBA does not contain sufficient information to evaluate the impacts of the proposed project on ABB. Sampling of the different habitat types for beetle occurrence may need to be done to estimate the number of beetles potentially at risk of take as a result of construction and operation of the project. In addition, compensatory mitigation to offset areas of lost habitat need to be based on biological criteria as opposed to cost of doing beetle surveys. Discussions of conservation measures for ABB will continue with State and the project proponent.⁴⁶⁸

⁴⁶⁶ *Id.*

⁴⁶⁷ *Id.* at 12.

⁴⁶⁸ *Id.*

These significant concerns are not addressed in the SDEIS.

ii. *The SDEIS fails to address comments re: the Texas Trailing Phlox*

The Texas trailing phlox was listed as endangered in 1991.⁴⁶⁹ State fails to take into account any comments on the DEIS analysis of impacts to the Texas trailing phlox in the SDEIS. Regarding the no effect determination for Texas trailing phlox, discussed at Page 1-8, paragraph 6 in the DBA, FWS states:

Information contained within the DBA indicates that a no effect determination has been made for the Texas trailing phlox. However, it appears as if this determination was based solely on the proposed project's avoidance of known populations. The habitat crossed by the project in Hardin County, Texas, should be evaluated to determine suitability for unknown populations of Texas trailing phlox. A habitat prediction model, available from the Clear Lake Ecological Services Field Office in Texas, has been developed and may be useful in assisting the project proponent in this matter.⁴⁷⁰

FWS thus concludes that:

[W]e cannot currently concur with [the] conclusion that the proposed project will have no effect on the Texas trailing phlox, and is not likely to adversely affect the Texas prairie dawn flower. The habitat survey and species presence data for these plants (discussed below) should be provided in the final biological assessment to enable adequate evaluation of impacts of the selected alternative on these endangered plants. At that time, we will determine whether they will be included in our recommendation for formal consultation.⁴⁷¹

The SDEIS does not address concerns about the adequacy of Texas trailing phlox habitat surveys, nor any other concern expressed by commentors.

iii. *The SDEIS fails to address comments re: the Texas Prairie Dawn Flower*

The Texas prairie dawn flower was listed as endangered in 1986.⁴⁷² State fails to address concerns about the adequacy of the DEIS analysis of the effects on the Texas prairie dawn flower in the SDEIS. For example, regarding potential habitat for the Texas prairie dawn flower discussed at page 3-26, paragraph 5 of the DBA, Appendix T of the DEIS, DWS states:

Within the DBA, reference is made to 139.6 acres that were identified as potential habitat for the Texas prairie dawn within the project ROW: however, only 55.8

⁴⁶⁹ 56 Fed. Reg. 49636, (Sept. 30, 1991).

⁴⁷⁰ FWS Comment Letter at 4.

⁴⁷¹ *Id.* at 3.

⁴⁷² 51 Fed. Reg. 8681 (March 13, 1986.)

acres (40%) were surveyed to detect species presence. Furthermore, as identified in the DEIS, reference is made to additional surveys that were to be conducted from late March to mid-April in 2010. The Clear Lake Ecological Service's Field Office has not received the results of the proposed additional surveys and therefore the USFWS cannot concur with the determination that the proposed pipeline may affect, but is not likely to adversely affect the Texas prairie dawn. These survey results need to be incorporated in the final biological assessment on the selected alternative.⁴⁷³

As with the Texas trailing phlox, FWS thus concludes that:

[W]e cannot currently concur with [the] conclusion that the proposed project will have no effect on the Texas trailing phlox, and is not likely to adversely affect the Texas prairie dawn flower. The habitat survey and species presence data for these plants (discussed below) should be provided in the final biological assessment to enable adequate evaluation of impacts of the selected alternative on these endangered plants. At that time, we will determine whether they will be included in our recommendation for formal consultation.⁴⁷⁴

The SDEIS does not address concerns about the adequacy of surveys for Texas prairie dawn flower habitat.

iv. The SDEIS fails to address comments re: the Sprague's Pipit

FWS states that:

The Sprague's Pipit is a species recently petitioned for listing and is not addressed in the DBA. This species can be found in the northwestern corner of South Dakota and Montana. Although this species is not yet proposed for listing, it would be prudent to conduct surveys for its presence. In addition, offsetting conservation measures should be developed for the loss of nesting habitat in grasslands destroyed during construction.⁴⁷⁵

The SDEIS acknowledges that, "Short-, medium-, or long-term loss or alteration of native grassland and sagebrush habitats through the spread of invasive plants in Montana and South Dakota from previous projects in addition to similar impacts from the proposed Project could contribute to cumulative habitat impacts for federal candidate-for-listing birds, including the greater sage-grouse and Sprague's pipit."⁴⁷⁶ Yet, there is no mention in the SDEIS that surveys will take place or mitigation measures will be put in place to offset the impacts acknowledged.

⁴⁷³ FWS Comment Letter at 8.

⁴⁷⁴ *Id.* at 3.

⁴⁷⁵ FWS Comment Letter at 3.

⁴⁷⁶ SDEIS § 3.14.3.8, at 3-170.

v. *The SDEIS fails to address comments re: the Greater Sage-Grouse*

The greater sage-grouse is a candidate for listing under the ESA, currently stuck on the list of species warranting protection but precluded by other listing priorities. Concerns expressed about the adequacy of the impacts to sage grouse in the DEIS are again unanswered by State in the SDEIS. For example, referring to the greater sage grouse discussion at page 3.8-8, paragraph 7 of the DEIS, DOI states:

The DEIS text regarding greater sage-grouse should be updated with the following: “the FWS initiated a status review to reevaluate this finding and on March 23, 2010, announced that the listing of the greater sage-grouse (rangeland) was warranted, but precluded by higher priority listing actions (FR 75, 13910). As a result of the FWS’s determination, the greater sage-grouse is a Federal candidate species.”⁴⁷⁷

The SDEIS does not address the status change of the greater sage-grouse, nor any other concern expressed by commentors.

The sage-grouse is a species of special concern. The DEIS estimates the pipeline passing within four miles of a minimum of 40 sage-grouse breeding leks in Montana and South Dakota. It states that in Montana:

Aerial lek surveys of the Project route completed by Keystone (2009c) found no undocumented sage-grouse leks within 0.6 mile of the proposed centerline in Montana or within 2 miles of proposed pump station locations; however, surveys were not comprehensive. In spring 2009, MFWP (Regions 6 and 7) conducted a lek survey in areas near a short portion of the proposed route (the survey was conducted along about 10 percent of the route in Montana); data from this survey combined with previously documented lek locations indicate that 36 sage-grouse leks were active within 4 miles of the proposed route, 24 leks were within 3 miles, 11 leks were within 2 miles, and 5 leks were within 1 mile of the proposed route (MFWP 2009b, 2009c). Because comprehensive surveys following recommended protocols were not been completed along the entire proposed route; it is likely that additional sage-grouse leks were present in the vicinity of the proposed Keystone route through Montana.⁴⁷⁸

Because accepted survey protocols may not have been followed for grouse surveys in South Dakota either, data provided in the SDEIS that zero sage-grouse leks occur along the Niemi or original route may be similarly flawed.⁴⁷⁹

Lek areas are considered particularly important for survival of sage-grouse populations not only because of breeding occurring at the leks, but most hens will nest within a few miles of the leks. Sage-grouse are shown to be highly sensitive to habitat

⁴⁷⁷ DOI Comment Letter, Specific Comments at 10-11.

⁴⁷⁸ DEIS at 3.8-9.

⁴⁷⁹ SDEIS at Tbl.4.3.7-1.

disturbance around leks. For example, local population impacts have been documented in conventional oil and gas fields where as little as one well pad per square mile, and associated infrastructure of roads and power lines have caused significant habitat abandonment.⁴⁸⁰

Sage-grouse appear to instinctually avoid tall structures, because such structures (like trees and now, power poles) are what avian predators hunt them from. The DEIS and DBA are most deficient regarding sage-grouse in its treatment of power line affects, stating that the associated construction of power lines is beyond the scope of their analysis (again punting to the local utility companies to analyze the impacts of their overhead lines), and not mentioning the “avoidance” affect that power lines exert on sage-grouse in otherwise preferred habitats.⁴⁸¹

It is likely that the mortality rate of adult sage-grouse in the region may be elevated by both increased predation near the power lines and actual collisions with the lines, and that reproductive success may decline where breeding lek attendance is affected by the proximity of towers, and nest and brood predation is enhanced by perched predatory birds such as eagles, hawks and ravens.⁴⁸²

As such, the DEIS and SDEIS do not adequately address potential impacts to greater sage-grouse. State must properly account for these impacts.

vi. *The SDEIS fails to address comments re: the Threatened Arkansas River Shiner*

The Arkansas River shiner was listed as threatened in 1998.⁴⁸³ State fails to address concerns regarding the adequacy of the DEIS impacts analysis on this listed species. For example, in reference to the Arkansas River shiner, discussed at page 3.8-27, paragraph 5 of the DEIS, DOI commented:

⁴⁸⁰ Naugle, D.E., K.E. Doherty, B.L. Walker, H.E. Copeland, M.J. Holloran, and J.D. Tack. 2011. Sage-grouse and cumulative impacts of energy development. *In* Energy development and wildlife conservation in Western North America, pp. 55-70. Island Press, Washington D.C., attached as Exhibit U.

⁴⁸¹ See DEIS table 3.8.2-1.

⁴⁸² Atamian, Michael, Chris Frey, and James Sedinger 2006. Dynamics of Greater Sage-Grouse (*Centrocercus urophasianus*) Populations in Response to Transmission Lines in Central Nevada , Progress Report: Year 5 Department of Natural Resources and Environmental Sciences University of Nevada – Reno, 1000 Valley Road, Reno, NV 89512, attached as Exhibit V; Ellis, K.L. 1984. Behavior of lekking sage grouse in response to a perched Golden Eagle, Western Birds 15:37-38, attached as Exhibit W; Hall, F., and E. Haney. 1997. Distribution and trend of sage grouse (*Centrocercus urophasianus*) in relation to overhead transmission lines in Northeastern California. California Department of Fish and Game. Unpublished Report; Lammers, Wendy M. and M.W. Collopy, 2005. The response of avian predators to a new high voltage transmission line in northern Nevada. Dept. of Nat. Resources and Env't. Sci., University of Nevada, Reno. Final Report. 87pp, attached as Exhibit X; Steenhof, K., M.N. Kochert, and J.A. Roppe. 1993, Nesting by raptors and common ravens on electrical transmission line towers, Journal of Wildlife Management 57:271-281, attached as Exhibit Y.

⁴⁸³ 63 Fed. Reg 64772, (Nov. 23, 1998).

The DEIS states the Arkansas River shiner (shiner) is potentially present in the Cimarron River in Oklahoma. This should be corrected, as the shiner is known to be present in this location.⁴⁸⁴

The SDEIS does not address this correction regarding Arkansas shiner distribution and no explanation is given for the omission.

Additionally, referring to the Arkansas River shiner critical habitat discussed at page 3.8-28, paragraph 2 of the DEIS, DOI states:

The DEIS shows that the Project would cross the North and South Canadian Rivers, and states that the Arkansas River shiner is known to occur in the South Canadian River and potentially occurs in the North Canadian River. In addition, the Project would cross designated critical habitat in the South Canadian River.

The FWS did not recommend surveys for the shiner in the South Canadian and North Canadian Rivers in Oklahoma because the presence of this species at these crossings is assumed. The FWS does, however, recommend that a 300-foot buffer from bank-full width be maintained on each side of the South Canadian River and North Canadian River. This is especially important along the South Canadian River due to the critical habitat. The FWS also recommends that a maximum 3-foot-wide, hand-cleared, path be constructed, and that no clearing be done during the shiner's spawning season (main channels in June to July, and possibly into August.)⁴⁸⁵

DOI's concerns and the FWS's recommendations were not addressed by State.

In reference to the Project's proposed construction, mitigation, and reclamation plan, discussed in Appendix B, page 62 of the DEIS, DOI states:

The DEIS states that during hydrostatic test water withdrawals, the Contractor will maintain adequate flow rates in the water body to protect aquatic life and provide for downstream uses, in compliance with regulatory and permit requirements.

The term "adequate flow" is ambiguous and subject to the aquatic life being considered. Consequently, water withdrawal location, timing, and quantity from the North Canadian, Canadian, and Red Rivers must be coordinated with and approved by the Oklahoma Ecological Services field office prior to implementation of hydrostatic testing. These rivers support the Arkansas River shiner and the interior least tern. It is important to maintain adequate flow for these species. We recommend that water not be withdrawn directly from these major rivers, but rather from an upstream tributary. The withdrawal site from the upstream tributary should be at least 0.25 mile from the main river.⁴⁸⁶

⁴⁸⁴ DOI Comment Letter, Specific Comments at 13.

⁴⁸⁵ *Id.*, Specific Comments at 13; *see also* FWS Comment Letter at 11.

⁴⁸⁶ DOI Comment Letter, Specific Comments at 21.

The SDEIS does not address these concerns about adequate flow and potential adverse affects resulting from project-related water withdrawals. No explanation is given for not addressing these potentially serious impacts.

Regarding project-related water withdrawals, discussed at page 2-25, paragraph 4 of the draft Biological Assessment (Appendix T of the DEIS), the FWS states:

Water for hydrostatic testing would generally be obtained from rivers and streams crossed by the pipeline and in accordance with federal, state, and local regulations.

Where are these locations? This information is needed to ensure the Arkansas River shiner and Interior least tern are protected.⁴⁸⁷

State fails to provide this necessary information to protect these listed species in the SDEIS.

vii. The SDEIS fails to address informational inadequacy of the analysis of impacts to the Black-Footed Ferret

The black-footed ferret was listed as endangered in 1967.⁴⁸⁸ Analysis of impacts to the black-footed ferret was entirely neglected in the SDEIS. Many of the statements made in the DEIS are not supported by citation to any science. Additionally, the SDEIS contains no discussion pertaining to the proposed pipeline's proximity to the re-introduction ferret population in South Dakota. The DEIS provides insufficient detail and attention to the impacts of the pipeline on the ferret's populations and the SDEIS fails to remedy this serious flaw.

viii. The SDEIS fails to address informational inadequacy of the analysis of impacts to the Swift Fox

The swift fox is listed as a threatened species in Canada. The proposed project is likely to adversely affect the swift fox population and imperil the active conservation efforts in the United States. The DEIS information pertaining to the swift fox was inaccurate. According to the DOI—in addition, the swift fox should be included in the trans-boundary environmental assessment more thoroughly, because it is listed as threatened in Canada. Yet, the SDEIS fails to remedy the inadequate DEIS analysis.

f. The SDEIS fails to properly account for impacts from spills

Other impacts will result from the project that will pose particular risks to wildlife, including threatened and endangered species. In addition to the issues discussed above, the SDEIS discusses the potentially severe, and numerous, harms to avian species that could

⁴⁸⁷ FWS Comment Letter at 5.

⁴⁸⁸ 32 Fed. Reg. 4001 (March 11, 1967).

result from a spill or leak from the pipeline, but fails to give detailed or quantified information regarding these impacts. This is a violation of NEPA⁴⁸⁹

State reports that:

[A] few individual shorebirds, waterfowl, raptors and passerine birds could be exposed to the spilled oil. Exposed individuals could die from hypothermia or from the toxic effects of ingesting the oil during preening, or from ingestion of oiled food and water. Potential impacts would likely be limited to a few individual birds, especially waterfowl and shorebirds that use small ponds and creeks affected by very small to small spills. If a very small to small size spill occurred during migration periods, greater numbers of birds could be affected.

...

A substantive to very large spill in terrestrial habitats could cause mortality of birds that spend time foraging or nesting on the ground, such as shorebirds, grassland nesting songbirds (passerines), and upland game birds, where they would come into direct contact with oil and oiled prey or forage. If the spilled material entered wetlands or waters, water-dependent birds such as waders, seabirds, shorebirds, and waterfowl could be exposed. ... The North Valley Grasslands, crossed by the proposed pipeline in Valley County, Montana (Montana Audubon 2008), is a designated globally Important Bird Area (IBA) supporting resident and migrant grassland nesting birds. Although not designated as an IBA along the route of the proposed pipeline, the Platte River and associated wetlands in central Nebraska are used for migration staging from mid-February to early April by more than 500,000 sandhill cranes during their northward migration. ... If a large spill moved into wetlands, adjacent riparian habitats, or open water habitats of major rivers along the ROW, waterfowl species that breed, stage, or congregate in these areas during migration could be at risk. A spill entering a major river in spring, especially at flood stage, *could significantly affect waterfowl in the short term by contaminating overflow areas or open water where spring migrants of waterfowl and shorebird species concentrate before occupying nesting areas or continuing their migration.*

...

In addition to the expected mortality due to direct oiling of adult and fledged birds, potential effects include: mortality of eggs due to secondary exposure by oiled brooding adults; loss of ducklings, goslings, and other non-fledged birds due to direct exposure; and lethal or sub-lethal effects due to direct ingestion of oil or ingestion of contaminated foods (e.g., insect larvae, mollusks, other invertebrates, or fish).

...

⁴⁸⁹ E.g., *Great Basin Mine Watch (GBMW) v. Hankins*, 456 F.3d 955, 971 (9th Cir. 2006) (finding that a cumulative impacts analysis “requires some quantified or detailed information; general statements about possible effects and some risk do not constitute a hard look.”).

In general, losses from substantive to very large spills would likely result in negligible to minor impacts to regional bird population levels but may result in significant impacts to local population levels.⁴⁹⁰

The above impacts are simply a laundry list of potential impacts to birds that may occur from spills. The SDEIS's treatment of mammals and fish are similarly vague. For instance:

Most oil spills from the proposed Project would not be expected to measurably affect fish populations in the vicinity of the proposed route. Oil spills occurring in a small body of water containing fish with restricted water exchange would be expected to kill a small number of individual fish but would not be expected to measurably affect fish populations. The same assessment would generally apply to many macroinvertebrates, amphibians, and reptiles because they are motile and generally have a wide geographic distribution. However, sessile freshwater mussels with limited geographic distribution could be affected at a population level in large to very large spills that affect a substantive segment of a stream or river.

Although very unlikely, a large to very large spill under or adjacent to a river could affect water quality, aquatic resources, and other water-associated resources, as well as subsistence and recreational fisheries in downstream areas. In the winter season, an undetected spill, especially under ice, depending on the length of time until spill detection and the volume of released oil, could affect aquatic resources downstream of the spill source. Mortality could result for fish and macroinvertebrates in deeper pools within the spill migration zone. Early-arriving birds could be exposed in any open water pools and cracks in the river ice. Depending on the season of occurrence, however, containment and cleanup of a large or very large oil spill could be difficult.⁴⁹¹

The SDEIS does not explain what "very unlikely" means. As we learned with the Deepwater Horizon spill, worst case scenarios do play out and often in ways that exceed what is envisioned.

The SDEIS should more fully detail the possible impacts from spills, including identifying specific water bodies and habitat areas at risk of a spill giving pipeline crossings and the pipeline route, what particular species and habitat exists in those areas that would be impacted, and what the true damage and clean-up cost of a severe disaster would be for specific areas.

⁴⁹⁰ SDEIS § 3.13.6.4, at 3-147 – 8.

⁴⁹¹ *Id.* § 3.13.6.4, at 3-151.

g. Impacts of Bakken and Cushing Marketlink

The addition of the Bakken and Cushing Marketlink extensions presents additional wildlife concerns that must be analyzed, as these projects will likely impact habitat and result in ancillary development like tanks, pump stations, power lines and similar ancillary development that may affect the species. However, State has indicated it will not examine these impacts at this time, claiming that:

Potential impacts of the proposed Bakken Marketlink facilities on sage grouse, interior least tern, and mountain plover, and potential impacts to habitats that they depend on, would be evaluated during environmental reviews conducted during permitting for the proposed Bakken Marketlink Project, if permits are required for the project.⁴⁹²

This abdication of responsibility is illegal. Under both the ESA and NEPA State must examine the project as a whole, including indirect effects, cumulative effects, interrelated actions, and interdependent actions. The impact of these links on species must be examined.

h. Impacts to species protected under the Migratory Bird Treaty Act are also inadequately analyzed

As we stated in our previous comments, under the Migratory Bird Treaty Act, the proposed project must avoid the take of migratory birds entirely and must minimize the loss, destruction, and degradation of migratory bird habitat. Both the DEIS and the SDEIS fail to ensure that takes of migratory birds will not occur.

The SDEIS fails to address concerns expressed by DOI and the Service about the impacts of power lines associated with the proposed project on protected migratory birds. Regarding power line impacts to migratory birds, discussed at page 3.6-25, paragraph 5 of the DEIS, DOI commented:

Language [in the DEIS at page 3.6-25, paragraph 5] indicates measures would be taken to avoid collisions with power lines such as visually marking them with balls or flappers but does not state that wetland areas are a specific concern. Because waterfowl and other birds are especially vulnerable to power line collisions when using wetland areas during migration stopovers, we recommend that priority be given to marking (and in some cases, burying) power lines in these areas.

The FWS recommends that an additional measure be added; that all power lines constructed as part of the project comply with applicable measures in the APLIC (1994) guidance document, "Mitigating Bird Collisions with Power Lines: The State of the Art in 1994."⁴⁹³

⁴⁹² *Id.* § 3.14, at 3-209.

⁴⁹³ DOI Comment Letter, Specific Comments at 9-10.

The SDEIS makes no mention of wetlands as a priority for power line markings or application of the APLIC guidance document to power line construction, nor was any explanation given for the omission. State failed to adequately respond to these concerns.

Regarding power line proximity to wetlands, discussed at page 3.7-21, section 3.7.4.1. of the DEIS, DOI states:

The DEIS discusses the number of wetlands crossed by power lines to substations. We recommend all power lines crossing and within 100 yards of wetlands be marked to reduce and minimize the incidence of migratory bird collisions.⁴⁹⁴

The SDEIS does not address special markings for power lines within 100 yards of wetlands, nor was any explanation given for the failure to address DOI's concerns.

Referring to DEIS page 3.6-14, paragraph 1, DOI states:

We recommend that a more complete description of MBTA prohibitions be included, as follows: []The MBTA protects migratory birds, and their nests, eggs, young, and parts from possession, sale, purchase, barter, transport, import, and export, and take. For purposes of the MBTA, "take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." (50 CFR § 10.12). The MBTA applies to migratory birds identified in 50 CFR § 10.13 (defined hereafter as "migratory birds").⁴⁹⁵

The SDEIS does not provide a more complete description of the MBTA as requested by DOI. No explanation is given for failing to respond to this relatively simple request.

In reference to air quality and noise associated with the project, discussed at DEIS page ES-17, Section ES.6.12, the DOI states:

Conservation measures to reduce potential impacts of noise from blasting and from operation of the pump stations should include measures to minimize harassment of migrating whooping cranes, nesting least terns, and piping plovers. If whooping cranes are present, construction activities should cease until the species' presence is reported to the nearest Ecological Services Field Office. The Field Office will then advise Keystone officials of measures to take before activities may resume.⁴⁹⁶

The SDEIS does not address conservation measures aimed at minimizing adverse affects to migratory birds from pipeline construction and operations. No explanation is given for not responding to these concerns.

Referring to DEIS page 3.6-22, last paragraph, DOI states:

⁴⁹⁴ *Id.*, Specific Comments at 10.

⁴⁹⁵ *Id.*, Specific Comments at 7.

⁴⁹⁶ *Id.*, Specific Comments at 4.

Blasting and ripping for construction through rock outcrops (or cliffs) is not just a concern for snakes. Several species of migratory birds also use these features for nesting, foraging, and other activities. We recommend revisions, accordingly.⁴⁹⁷

The SDEIS does not address DOI's concerns and recommendations regarding blasting in potential migratory bird nesting areas and no explanation is given for the omission.

Referring to DEIS page 3.6-23, DOI states:

The DEIS states that, "If construction would occur during the raptor nesting season during January to August, pre-construction surveys would be completed to locate active nest sites to allow for appropriate construction scheduling." The final EIS should identify who will conduct the survey and provide a timeframe.⁴⁹⁸

The SDEIS does not identify surveyors or timeframes for pre-construction active nest surveys recommended by DOI to minimize adverse affects on nesting raptors. No justification for failing to address these concerns

In reference ground-nesting bird nests, discussed at DEIS page 3.6-23, Section 3.6.3, DOI states:

The [use of nest-dragging surveys to determine the presence or absence of ground-nesting migratory bird nests] needs to be added to the mitigation section for the period of April 15 to July 15 for nesting migratory birds.⁴⁹⁹

The SDEIS does not address whether nest-dragging surveys will be incorporated into project mitigation. No explanation has been given for not addressing these concerns.

Referring to DEIS page 3.6-25, paragraph 1, DOI states:

Rather than of a simple breakdown of the miles of different habitat types that will be impacted, we request a table displaying the acres that would be impacted in association with power line development. This should include a breakdown of acres by major habitat type and how many acres of impact would be permanent versus temporary.⁵⁰⁰

This table of impacted acres associated with power line development is not included in the SDEIS and no explanation is given for the omission.

Additionally, in an email dated July 1, 2010, an FWS official states that in order to avoid violations of the Migratory Bird Treaty Act, construction take place outside of

⁴⁹⁷ *Id.*, Specific Comments at 8.

⁴⁹⁸ *Id.*, Specific Comments at 9.

⁴⁹⁹ *Id.*

⁵⁰⁰ *Id.*

nesting season or that measures be taken prior to nesting season to make areas less attractive to birds for nesting.⁵⁰¹ There is no indication in the SDEIS that this concern is addressed.

i. State fails to provide references or citations for conclusory DEIS statements despite requests

In addition to failing to address substantive comments, many conclusory statements in the DEIS provide no reference and calls for citations have also gone unheeded. For example: “The DEIS makes reference to several surveys, but does not include citations. It would be a benefit to the public for the final EIS to include available supporting scientific references.”⁵⁰² DOI and the Service have identified similar instances throughout the DEIS, which the SDEIS fails entirely to address.

j. Other wildlife impacts not assessed

While many of these impacts have been touched upon above in relation to particular species, DOI makes clear that generally impacts to wildlife need to be better analyzed and quantified by the SDEIS. They are not. For example, DOI, in referring specifically to DEIS Page 3.6-14, Section 3.6.2, Potential Impacts, states that:

A number of other factors could negatively impact wildlife from project construction. These factors should be included in this discussion. They include: fugitive dust, especially in regard to road construction and vehicular traffic; disrupted wildlife movements or use of movement corridors; wildlife displacement by the pipeline or associated power lines; increase in predation due to new predator travel lanes, and, in some areas, hunting perches on power lines; displacement of ground-nesting birds that avoid areas with tall structures; invasive plants; increase in risk of wildfire, especially in regard to power lines; increased off-road traffic on trails, including unauthorized trail and road use; spills of hazardous materials; disturbance from helicopters or airplanes during construction or post-construction inspections. Finally, this section does not address the full extent of disturbance to wildlife that would occur, not just in active construction areas but also within the proximity to the pipeline roads and power lines.⁵⁰³

These impacts are for the most part unaddressed by the SDEIS. When they are addressed, they are addressed inadequately. For instance, the SDEIS generally states that “perches provided by towers and poles could increase the cumulative predation mortality for ground nesting birds, including the greater sage-grouse, interior least tern, mountain

⁵⁰¹ Email from Sean Edwards, Wildlife Biologist, US FWS, Sean_Edwards@fws.gov to Dave Beckmeyer, Managing Partner, Perennial Environmental Services, LLC dbeckmeyer@perennialenv.com, (dated July 1, 2010).

⁵⁰² DOI Comment Letter, Specific Comments at 6.

⁵⁰³ *Id.*, Specific Comments at 7.

plover, piping plover, and Sprague's pipit.”⁵⁰⁴ This analysis gives no indication as to what degree these species might be impacted by towers and poles, or how such impacts might be addressed or accounted for. Without such information it is impossible to assess the impact this project will have on these species due to increased predation caused by towers and poles. This falls far short of the “hard look” NEPA requires.

Other failures to provide quantification and specifics on impacts are not addressed by the SDEIS. For instance, DOI notes that:

The DEIS indicates that 22,493 acres would be lost or altered through project construction, but does not account for the habitat types of 7,883 acres. We suggest a table be added that provides a breakdown of the total acres (22,493) expected to be impacted by major habitat type, and by permanent versus temporary impacts. Also with regard to the 22,493 acres, please clarify whether this includes all components of the proposed action. (i.e., Are footprints of all valve stations, communication sites, storage yards, construction worker camps, roads, power lines, and substations included? Are footprints of all interrelated components of this project included?) We recommend that acres presented in the EIS include estimates of both the total project footprint and the total area impacted.⁵⁰⁵

DOI similarly states that:

The statement [in on page 3.6-19 of DEIS, last paragraph] that, “Total habitat loss due to pipeline construction would be small in the context of available habitat both because of the lineal nature of the project and because restoration would follow pipeline construction,” might be true, however, the DEIS should present the facts necessary to support this statement. We recommend that it be revised and qualified accordingly.⁵⁰⁶

These concerns only reflect a few of the many shortcomings DOI noted in its Comment Letter. State must fully address the concerns raised by DOI. It does not.

In sum, the SDEIS fails to address serious shortcomings DOI noted, and fails to provide quantification and factual support for what little analysis it does offer. Overall, it is not possible to know what exactly State is examining, as impacts are not accounted for in a way that can be quantified or objectively analyzed. Absent such information, the impacts to wildlife and species from the pipeline cannot be assessed. This is not a hard look.⁵⁰⁷

⁵⁰⁴ SDEIS § 3.14.3.8, at 3-170.

⁵⁰⁵ DOI Comment Letter, Specific Comments at 7-8.

⁵⁰⁶ *Id.*, Specific Comments at 8.

⁵⁰⁷ *See, e.g., GBMW*, 456 F.3d at 971 (finding that a cumulative impacts analysis “requires some quantified or detailed information; general statements about possible effects and some risk do not constitute a hard look.”).

k. Pelly Amendment

In 1971, the United States Congress enacted the Pelly Amendment to the *Fisherman's Protective Act* of 1967⁵⁰⁸ in response to concerns about the harmful effect of international salmon fishing on the high seas, and in recognition that international agreements often lack the necessary enforcement provisions to conserve species effectively. Under the Pelly Amendment, if the Secretary of the Interior determines that “nationals of a foreign country, directly or indirectly, are engaging in trade or taking which diminishes the effectiveness of an international program for endangered or threatened species,” the Secretary must certify that fact to the President of the United States.⁵⁰⁹

Revisions to the Pelly Amendment in 1992 define the term “taking” as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect” or to “attempt” to engage in any such conduct.⁵¹⁰ This definition tracks the definition of “take” in the United States Endangered Species Act (ESA), 16 U.S.C. § 1532. The U.S. Supreme Court has upheld regulations issued by the Department of Interior which construe this definition to prohibit “significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.”⁵¹¹

To implement the Pelly Amendment, the Secretary of Interior must periodically monitor the activities of foreign nationals that may affect international endangered and threatened species programs and must promptly investigate activities that may be cause for a Pelly certification.⁵¹² The Secretary's duties are mandatory; he or she must conduct the prescribed monitoring and investigations and certify countries when the statutory criteria are met.⁵¹³ Upon receipt of a Pelly certification, the President may direct the Secretary of the Treasury to prohibit the importation into the United States of any products from the offending country for any duration the President deems appropriate and to the extent that such prohibition is sanctioned by the General Agreement on Tariffs and Trade (GATT).⁵¹⁴ Within 60 days of certification, the President must notify Congress of any action taken pursuant to the certification.⁵¹⁵ If the President decides not to impose sanctions, he must inform Congress of the reasons for that decision.⁵¹⁶

i. *Application of the Pelly Amendment to the tar sands operations*

The tar sands operations in Alberta affect migratory birds in two important ways. First, strip-mining of over one million acres of forests and wetlands in Alberta's boreal

⁵⁰⁸ 22 U.S.C. § 1978, as amended by Pub. L. No. 95-376, 92 Stat. 714 (Sept. 18, 1978).

⁵⁰⁹ *Id.* § 1978(a)(2).

⁵¹⁰ *Id.* § 1978(h)(7).

⁵¹¹ 50 C.F.R. § 17.3; *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*, 515 U.S. 687 (1995).

⁵¹² 22 U.S.C. § 1978(a)(3).

⁵¹³ *Japan Whaling Association v. American Cetacean Society*, 478 U.S. 221 (1986).

⁵¹⁴ 22 U.S.C. § 1978(a)(4).

⁵¹⁵ *Id.* § 1978(b).

⁵¹⁶ *Id.*

forest will result in the loss of important breeding habitat for millions of birds. The Boreal supports more than 25 percent of the global populations of 149 bird species, many of which are endangered or at risk. Continued habitat destruction and fragmentation due to tar sands extraction activities would result in the loss of between 6.4 million and 166 million forest-dependent birds over 30 to 50 years.⁵¹⁷ Second, tar sands tailings ponds present a serious threat to the hundreds of thousands of waterfowl that migrate through the Athabasca River valley each year. The tailings ponds are produced as a by-product of tar sands mining and contain a toxic mixture of bitumen, salts, naphthenic acids, and polycyclic aromatic hydrocarbons (PAHs) together with water, sand, silt, and fine clay. Waterfowl and shorebirds mistaking tailings ponds for lakes can become oiled with waste bitumen after landing in a pond. Oiled birds can become weighed down and incapable of flight or can face death from hypothermia after their feathers lose their insulating properties.⁵¹⁸ In April, 2008 more than 1,600 ducks died after landing in a tailings pond operated by Syncrude Canada.

The Migratory Bird Convention was signed between the United States and the United Kingdom (on behalf of Canada) in 1916 for the purpose of protecting birds that migrate between the U.S. and Canada. Under the Migratory Bird Treaty Act, which implements the Migratory Bird Convention, it is prohibited, unless permitted by regulations, to “pursue, hunt, take, capture, kill, attempt to take, capture or kill ... at any time, or in any manner, any migratory bird, included in the terms of this Convention ... for the protection of migratory birds.”⁵¹⁹

The Western Hemisphere Convention entered into force with respect to the United States in 1942. The Convention requires the adoption of “appropriate measures for the protection of migratory birds of economic or aesthetic value.”

Habitat destruction and fragmentation and tailings ponds are killing or injuring migratory bird species either directly or by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. The harm to birds caused by the Canadian tar sands operations clearly diminishes the effectiveness of both the Migratory Bird Convention and the Western Hemisphere Convention. Accordingly, the statutory criteria for certification under the Pelly Amendment have been met.

The standard for certification – “diminishes the effectiveness of an international treaty” – is broad. Many factors could trigger a finding of diminished effectiveness including non-ratification or non-observance of a treaty, but Pelly is not predicated on the violation of a treaty. In other words, Canada doesn’t have to violate the Migratory Bird Convention or the Western Hemisphere Convention in order to diminish the effectiveness of the Convention. Moreover, if the agency finds that tar sands development does diminish the effectiveness of these treaties, the Secretary must certify Canada to the President.

⁵¹⁷ See, Jeff Wells et. al., *Danger In the Nursery: Impact on Birds of Tar Sands Oil Development in Canada’s Boreal Forest*, at 13 (NRDC, Dec. 2008).

⁵¹⁸ *Id.* at 8.

⁵¹⁹ 16 U.S.C. § 703.

The fact that tar sands diminishes the effectiveness of the treaties protecting migratory birds and triggers requirements under the Pelly Amendment has not been analyzed by State. This must be considered under NEPA. Moreover, the fact that the project would have the impact of furthering activities in Canada that diminish the effectiveness of these treaties and trigger requirements under the Pelly Amendment – up to and including trade sanctions – clearly demonstrate that this project is not the national interest and the Presidential Permit for it should not be issued.

I. The SDEIS does not analyze potential violations of the Lacey Act.

The Lacey Act of 1990 provides civil and criminal penalties for actions that harm protected plant and animal species. 16 U.S.C. §1371 *et seq.* Specifically, the Lacey Act prohibits the “take” of any plant or animal in “violation of any law or regulation of any State or in violation of any foreign law.” 16 U.S.C. §1372(a)(2)(A). “The term ‘taken’ means captured, killed, or collected. 16 U.S.C. §1371(i). As set forth above, the Keystone XL pipeline will result in the take of numerous protected species in violation of US, state, tribal and foreign laws. The Lacey Act makes this a federal offense, subjecting TransCanada, and individual actors to civil and criminal offenses. The SDEIS has not analyze the likelihood of Lacey Act violations or the potential impacts.

8. The SDEIS Fails to Properly Analyze the Pipeline’s Impacts to Water Resources and Wetlands

Numerous objections were raised to State’s inadequate analysis of impacts to wetlands and water resources in the DEIS by several commenters, including the Environmental Protection Agency (EPA). Most of these deficiencies were not addressed by State in the SDEIS. State’s meager analysis of the impacts to wetland and water resources, and its failure to address the shortcomings of the DEIS continues to be in violation of both NEPA and the Clean Water Act (CWA).

a. Impacts to wetlands continue to be improperly assessed and concerns regarding wetlands raised in previous comments are largely ignored by State

Despite the objections previously raised which are detailed below, the SDEIS’s analysis of impacts to wetlands essentially boils down to a conclusion that for the most part State’s previous analysis in the DEIS does not need to be revisited. State says:

There have been not changes to the environmental assessment presented in this section, including assessment of the electrical distribution lines and substations and the Big Bend to Witten 230-kV transmission line (formerly the Lower Brule to Witten 230-kV transmission line); therefore it is not included in the SDEIS. The draft EIS subsection can be downloaded at www.keystonepipeline-xl.state.gov. Potential impacts associated with the

Bakken Marketlink Project and the Cushing Marketlink Project are addressed in Section 3.15 of this SDEIS.⁵²⁰

Of course, simply referring back to the DEIS and not addressing the significant concerns raised by EPA and others is a continued failure to take a “hard look” at how the proposed project will impact wetlands and water resources. The fact of the matter is that State’s analysis simply leaves too many questions inadequately answered or simply unaddressed. This violates NEPA.

i. Many of EPA’s and DOI’s comments were not addressed.

A sister agency of State – the EPA –made clear in a comment letter dated July 16, 2010 that the DEIS fails to properly analyze myriad wetlands impacts. DOI echoes these comments. The SDEIS simply fails to address most of EPA’s concerns, leaving these deficiencies in place.

The following are concerns EPA raised, and State’s failure to properly address them in the SDEIS. The extent to which the SDEIS ignores EPA’s concerns is startling.

EPA states that:

The Draft EIS identifies 746 areas of aquatic resources that would be affected by pipeline construction and operations, but does not identify impacts associated with ancillary facilities and connected actions, including staging areas, work camps and storage locations. We recommend that additional information be developed to ensure that a complete estimate of potential impacts is provided.⁵²¹

These impacts are not addressed by the SDEIS.

EPA states that:

EPA recommends that the USACE/EPA regulations that address compensatory mitigation for losses of aquatic resources be reviewed, and that compensatory mitigation consistent with these regulations...be developed that will adequately compensate for potential losses of wetland functions and services from pipeline construction and operation along the entire route be included in the revised Draft EIS.⁵²²

Similarly, DOI states that:

If wetland cannot be avoided altogether, buffer areas around wetlands should be a minimum of 100 feet to help maintain the buffering vegetation

⁵²⁰ SDEIS § 3.4, at 3-21.

⁵²¹ EPA Comment Letter at 6.

⁵²² *Id.* Detailed Comments at 7.

at the edge of the wetland. All wetland impacts should be mitigated, with specific mitigation measures to be coordinated with the FWS and the Corps.⁵²³

DOI moreover, notes the difficulties in achieving wetlands mitigation and state that these challenges should be discussed and analyzed:

The DEIS proposes to mitigate construction and operation activities in wetlands. Suggest that the final EIS include scientific studies that describe the methods used and success rates of wetland restorations from other pipeline construction projects. It would also be beneficial to the public for the final EIS to discuss any potential long-term impacts, such as leaks or catastrophic failures of the pipeline, and propose a plan to mitigate such potential impacts. The public should benefit from understanding that the effectiveness of wetland restoration is not well understood, and that procedures for restoration of wetlands have been primarily developed through trial and error (USGS, 2006). The final EIS should discuss available studies on this subject. (See USGS (2004) wetland restoration database).

The DEIS makes reference to several surveys, but does not include citations. It would be a benefit to the public for the final EIS to include available supporting scientific references. In addition, the DEIS indicates that surveys will be conducted in the future. The final EIS should identify who is scheduled to conduct these surveys and the timeframe for conducting them.⁵²⁴

These concerns are not addressed by the SDEIS.

EPA states that it would:

[R]ecommend that the revised Draft EIS include a conceptual wetland monitoring plan that would, throughout a period of time (normally five years), direct field evaluations of those wetlands crossed by the pipeline to assure wetland functions and values are recovering. The monitoring plan should also include the wetland mitigation sites.⁵²⁵

No such monitoring plan is mentioned the SDEIS.

EPA states that:

We recommend that Keystone work with each EPA Region and USACE district to determine what kind of compensation would be required for the

⁵²³ DOI Comment Letter, Specific Comments at 21,

⁵²⁴ *Id.*, Specific Comments at 6.

⁵²⁵ EPA Comment Letter, Detailed Comments at 7.

permanent conversion of forested wetland to herbaceous wetland, and Keystone continue to work with the EPA Regions and the USACE Districts to develop a Wetland Mitigation Plan for review and consideration in the revised Draft EIS.⁵²⁶

This recommendation is not addressed by the SDEIS.

EPA states that:

We recommend that the revised Draft EIS provide additional information on the proposed widths of construction zones and right-of-ways for all wetland crossings, along with a clearer explanation of which wetland areas will be re-vegetated and which will not allow re-establishment of scrub-shrub and forested wetlands.⁵²⁷

Such information is not provided in the SDEIS.

EPA states that it:

[R]ecommend[s] including a clearer explanation of which wetlands are considered “of special concern and value” and which are considered “standard,” as well as the management implications of those designations.⁵²⁸

No such explanations are provided by the SDEIS.

EPA states that:

We recommend that the revised Draft EIS provide additional information on the status of the efforts to avoid locating specific mainline valves in wetland areas.⁵²⁹

This issue is not addressed by the SDEIS. Indeed, the SDEIS indicates that changes to pipeline design from the project analyzed by the DEIS would include even more specific mainline valves (SMV).⁵³⁰ Yet, State still fails to address EPA’s concerns regarding the placement of SMVs in wetland areas.

EPA states that:

[E]stimates [of forested wetlands that will be affected during construction and operation of the pipeline] do not include the number of acres disturbed

⁵²⁶ *Id.*

⁵²⁷ *Id.*

⁵²⁸ *Id.*

⁵²⁹ *Id.*

⁵³⁰ SDEIS § 2.2.2, at 2-3 – 4.

by associated access roads or construction camps; we recommend that these estimates be revised to include all potential impacts.⁵³¹

These impacts are not addressed by the SDEIS.

EPA states that:

We also recommend that the revised Draft EIS address compliance with E.O. 11990 (Protection of Wetlands), including the requirement to ensure mitigation of unavoidable impacts to all wetlands and waters of the U.S. on Federal lands and facilities.⁵³²

DOI similarly states that:

We strongly recommend avoiding wetlands [everywhere, not just on federal land]. Where avoidance is not feasible, we recommend directionally drilling under wetlands. The DEIS does not mention directionally drilling of wetlands as an option, we recommend this be included as an option in the FEIS. Directional drilling is especially important in wetlands that are unable to be crossed utilizing the “standard wetland crossing method” and potentially requiring a 35-foot trench width. We further recommend that a wetland mitigation plan be developed describing the different types, conditions, and sizes of wetlands that will be impacted and how these impacts will be mitigated. No net loss should be the goal of the wetland mitigation plan. This information should be part of the FEIS.⁵³³

These concerns are not addressed by the SDEIS.

EPA states that:

Equal mitigation commitments should be made for connected actions, including transmission lines.⁵³⁴

This recommendation is not addressed by the SDEIS.

EPA also notes that:

[I]mpacts to wetlands from ancillary facilities and access roads outside the 110-foot ROW have not yet been identified and assessed. While EPA recognizes that the exact locations of all the ancillary facilities required for support of construction and operation of the pipeline have not yet been determined, their omission may result in underestimation of potential

⁵³¹ EPA Comment Letter, Detailed Comments at 8.

⁵³² *Id.*

⁵³³ DOI Comment Letter, Specific Comments at 20.

⁵³⁴ EPA Comment Letter, Detailed Comments at 8.

impacts of the proposed project. The locations, lengths, and designs for ancillary facilities should be identified and described as clearly and completely as possible in the revised Draft EIS to allow understanding of all site-specific impacts.⁵³⁵

These impacts are not assessed or identified in the SDEIS. This is a major omission that not only touches on impacts to wetlands, but to water resources generally, to wildlife, air quality, and a host of other issues. The SDEIS does mention that four camps will be needed in Montana and South Dakota, each about 80 acres in size. But it also states that “[d]epending on the final construction spread configuration and construction schedule, additional or larger camps may be required. The number and size of camps would be determined based on the time available to complete construction and to meet Keystone’s commercial commitments.”⁵³⁶

As to roads, the SDEIS is similarly unspecific and vague. It states that, “If the proposed Project receives all permits and approvals, Keystone would work with state and local road officials, the pipeline construction contractor, and a third-party road consultant to identify routes that would be used for moving materials and equipment between storage and work yards to the pipeline, valve, and pump station construction sites.”⁵³⁷ However, it gives no meaningful estimate of the number of roads that will be built, where they will be built, and what resources will be impacted by such roads. Absent more information, it is impossible to assess the impacts from these ancillary developments, and the SDEIS as well as the DEIS fail to properly analyze such impacts. This falls short of the “hard look” NEPA requires.

The EPA also raises important concerns regarding valuable prairie pothole wetlands and bottomland hardwood forested wetlands, stating these wetlands “are of generally high ecological importance and difficult to replace on the landscape.”⁵³⁸ EPA recommends that horizontal directional drilling be used to avoid impacts to these resources, but State does not mention these concerns in the SDEIS. The SDEIS continues to fail to address the legal uncertainty concerning these wetlands and how that might impact their level of protection from project impacts.

The concerns EPA expressed in its July 16, 2010 letter led it to determine that the DEIS was not adequate and give the SDEIS its lowest rating – EU3 (Environmentally Unsatisfactory – Inadequate Information).⁵³⁹ State’s failure to address the concerns and correct the deficiencies in State’s analysis EPA articulated indicates that the SDEIS is also inadequate, and State has not met its obligation to take a hard look at wetland impacts as required by NEPA.

⁵³⁵ *Id.*, Detailed Comments at 9-10.

⁵³⁶ SDEIS § 2.2.7.4, at 2-5.

⁵³⁷ *Id.* § 2.2.7.5, at 2-8.

⁵³⁸ EPA Comment Letter, Detailed Comments at 7.

⁵³⁹ EPA Comment Letter at 7.

ii. *Other concerns raised in comments were not addressed by the SDEIS.*

Commenters concerns raised in our comments to the DEIS were also not addressed. We refer State back to these comments, but also outline certain concerns below and again touch upon why State is in violation of both NEPA and the CWA.

As we previously stated, due to a 2003 guidance document interpreting the SWANCC decision,⁵⁴⁰ the Corps is not protecting geographically isolated wetlands such as prairie potholes and rainwater basins under the CWA. As explained in our previous comments, this has meant that safeguards like mitigation have not been applied to impacts that have occurred to these waters in many instances. Since the DEIS was issued, EPA and the Corps have issued a proposed new Guidance that would, if adopted, provide some level of protections to certain of these so-called “isolated” wetlands under a case-by-case analysis.⁵⁴¹ This guidance could potentially change whether the Corps would choose to assert protections over certain of these resources. However, protections for these valuable waters would by no means be assured. State has continued in its failure to assess the impacts to these legally vulnerable waters. It should examine how the proposed guidance would impact protections to vulnerable waters that it would affect. Continued failure to look at how current case law and Administrative actions impact the protections that are being afforded these valuable resources violates NEPA.

iii. *Impacts from additional ancillary developments are not analyzed.*

As we stated previously, the project will impact, in addition to the pipeline route, wetlands and water resources associated with 30 new pump stations, 74 intermediate mainline valves of which 24 are check valves located downstream of major river crossings, approximately 50 new access roads, and approximately 400 temporary access roads.⁵⁴² The DEIS did not assess the associated developments.

The SDEIS states that there will be two additional links: the Bakken and the Cushing Marketlinks,⁵⁴³ a new tank farm at Cushing,⁵⁴⁴ and additional camps.⁵⁴⁵ These new additions are substantial. For instance, the Bakken Marketlink would consist of piping, booster pumps, meter manifolds and two tank terminals.⁵⁴⁶ The Cushing Marketlink Project would include construction and operation of receipt custody transfer metering systems and two 350,000-barrel batch accumulation tanks.⁵⁴⁷

⁵⁴⁰ Joint Memorandum on SWANCC Decision, 68 Fed. Reg. 1991, 1995 (Jan, 15, 2003).

⁵⁴¹ U.S. EPA and U.S. Army Corps of Engineers, Draft Guidance on Identifying Waters Protected by the Clean Water Act, available at, http://water.epa.gov/lawsregs/guidance/wetlands/upload/wous_guidance_4-2011.pdf, and attached as Exhibit Z.

⁵⁴² DEIS, Project Description, § 2.1, at 2-2.

⁵⁴³ SDEIS § 2.5, at 2-19.

⁵⁴⁴ *Id.* § 2.2.6, at 2-4.

⁵⁴⁵ *Id.* § 2.2.7.4, at 2-5 – 2.7.

⁵⁴⁶ *Id.* § 2.5.3, at 2-20.

⁵⁴⁷ *Id.* § 2.5.4, at 2-21.

State fails to analyze these impacts as well. As to the two major links, State claims that an analysis will have to wait for another day:

Keystone Marketlink LLC may be required to obtain permits to construct and operate the planned Marketlink projects, and if permits are required, permit applications for these projects would be reviewed and acted on by agencies other than DOS. Those reviews would address potential impacts in greater detail and would identify any appropriate mitigation measures that would avoid or minimize impacts.⁵⁴⁸

Kicking the can of review down the road is not taking a hard look. These projects involve additional pipelines, sizable tanks, and other potential disturbances that could impact wetlands and other water resources. While State claims that the site of a pump and tank farm do not contain waterbodies, it fails to look at potential impacts to wetlands and water resources at other developments associated with these links.⁵⁴⁹ This does not comply with NEPA.

b. Impacts to water resources are not adequately analyzed

EPA and other commenters raised a series of concerns regarding deficiencies in State's analysis of the impacts of the pipeline on water resources, particularly groundwater. The SDEIS does provide some additional information regarding impacts to waters from spills, but otherwise the SDEIS does not address significant gaps in the analysis of the DEIS.

In general, the SDEIS states:

Supplemental information on the existing groundwater conditions along the proposed route is provided in this resource section as an aid to understanding the potential groundwater impacts due to an accidental release of crude oil during operation of the proposed Project as discussed in Sections 3.13 and 4.3. As noted below, the inclusion of this expanded information in the analysis did not affect results of the assessment of the potential impacts of construction and normal operation of the proposed Project on groundwater. The best available information consists of records from 1955 to 2010. Some of the older data may not reflect existing conditions at some of the locations included in the analysis.⁵⁵⁰

EPA's concerns and State's responses (or lack thereof) in the SDEIS are detailed below.

EPA states that:

⁵⁴⁸ *Id.* § 3.15, at 3-209.

⁵⁴⁹ *Id.* § 3.15, at 3-209 – 10.

⁵⁵⁰ SDEIS § 3.3, at 3-5.

We recommend that further commitments to protect sensitive waterbodies be provided. The Draft EIS states that 341 perennial waterbodies would be crossed during the construction of the proposed project, and that four techniques would be used to cross perennial waterbodies.... For each perennial waterbody crossing, a site specific engineering and geomorphologic analysis would determine the best method to use to avoid and reduce aquatic impacts.... EPA recommends the revised Draft EIS evaluate the potential impacts to water quality, aquatic species, riparian and wetland habitat from the various water crossing methods to determine which method would be both practicable and environmentally preferable.⁵⁵¹

The SDEIS mentions requirements under the PHMSA regulations that valves are required at water crossings that are over 100 feet.⁵⁵² It also states that, “In addition, the depth of [pipe] burial at waterbodies, ditches, drainages, and other similar features would be 60 inches, except in rocky areas where the minimum burial depth would be 36 to 48 inches. Where major waterbodies are crossed using the HDD method, the depth from the streambed to the top of the pipe would be substantively greater than 60 inches.”⁵⁵³ However, the impacts of various crossing methods and whether such methods are practicable or environmentally preferable are not addressed, and it is also not discussed whether these depths would, in fact, be protective of sensitive water bodies.

EPA states that:

Pipeline routing alternatives that avoid Sole Source Aquifers, SWPAs [Source Water Protection Areas], and wellhead protection zones are preferred; if the pipeline route is unable to avoid these areas, EPA recommends that specific mitigation measures be developed, including installation of double lining, corrosion protection, cathodic protection, water quality monitoring, and state-of-the-art leak detection methods.⁵⁵⁴

The SDEIS claims that the pipeline does not cross sole source aquifers in Montana, South Dakota, Nebraska or Texas. Although the proposed pipeline route does not cross any sole-source aquifers in Oklahoma, the route would pass to the east of the Arbuckle-Simpson aquifer, a designated sole-source aquifer by EPA Region 6.⁵⁵⁵ Also, 8 private wells would be with 100 feet of pipeline in Montana.⁵⁵⁶ The pipeline would cross with 1 mile of 36 SWPAs in Texas and 3 private wells with 100 feet in Texas.⁵⁵⁷ The pipeline would pass through one SWPA in South Dakota.⁵⁵⁸ It would cross 9 SWPA in Nebraska

⁵⁵¹ EPA Comment Letter, Detailed Comments at 8.

⁵⁵² SDEIS § 3.13.1.1, at 3-83.

⁵⁵³ *Id.* § 2.3.1, at 2-12.

⁵⁵⁴ EPA Comment Letter, Detailed Comments at 8-9.

⁵⁵⁵ SDEIS § 3.3.1.1, at 3-16.

⁵⁵⁶ *Id.* § 3.3.1.1, at 3-12.

⁵⁵⁷ *Id.* § 3.3.1.1, at 3-12.

⁵⁵⁸ *Id.* § 3.3.1.1, at 3-13.

and within 100 feet of 29 private wells in that state.⁵⁵⁹ However, there is no indication that the SDEIS sought to revise the preferred route of the pipeline to avoid these areas.

In terms of the protective measures EPA recommends, the SDEIS states that, “To protect against corrosion, an external coating (fusion-bonded epoxy, or FBE) would be applied to the pipeline and all buried facilities, and cathodic protection (CP) would be applied to the pipeline by impressed current. These measures would be provided in compliance with 49 CFR Part 195, Subpart H (Corrosion Control) and the requirements of 14 of the PHMSA 57 Special Conditions (see Appendix C of this SDEIS).”⁵⁶⁰ The SDEIS also generally says that the pipeline will comply with “industry standards.”⁵⁶¹

But this discussion simply asserts that new pipes are less corrosive than old ones. The SDEIS says:

Significant improvements in corrosion control technology applied to pipelines installed since the 1950s have resulted in reduced corrosion-related incident frequencies. Accordingly, the oldest pipelines (pre-1950) experience a disproportionate frequency of corrosion-related failures. In contrast, the proposed Project would incorporate state-of-the-practice corrosion control methods based on current industry standards, current PHMSA requirements, and the set of Project-specific Special Conditions developed by PHMSA and incorporated into the proposed Project plan (see Sections 2.3 and 3.13.4.5).⁵⁶²

It does not analyze the actual effectiveness of these pipelines, or explain various failures in newer pipelines. This failure is further discussed in **Section III, C, 2** herein.

Concerns over water quality monitoring also appear to be ignored. EPA states that: [W]e recommend that Keystone would mitigate impacts to wells that may occur during construction or by pipeline spills/leaks, by transporting potable water to the affected site, drilling a new well, or other appropriate measures. Applicable mitigation measures should be described in the revised Draft EIS.⁵⁶³

The SDEIS says little on this, other than that PHMSA regulations require response plans to spills. The SDEIS claims that the response plan, once it exists, will be reviewed by PHMSA.⁵⁶⁴ The adequacy or details of such a plan are not discussed, other than to say that one is not available but it “would have the same general approach but would have many specific differences” from the response plan for the Keystone Oil Pipeline, which is already

⁵⁵⁹ *Id.* § 3.3.1.1, at 3-15.

⁵⁶⁰ *Id.* § 2.3.1, at 2-12.

⁵⁶¹ *Id.* § 3.13.1.1, at 3-85.

⁵⁶² *Id.* § 3.13.1.2, at 3-91 (citations omitted).

⁵⁶³ EPA Comment Letter, Detailed Comments at 9.

⁵⁶⁴ SDEIS § 2.4.2.2, at 2-16.

approved.⁵⁶⁵ This is a key omission. It is impossible to evaluate a response plan that does not exist.

EPA states also that:

We recommend that the revised Draft EIS provide additional information as to the potential for adverse impacts to [the Ogallala Aquifer].⁵⁶⁶

More information on the Ogallala aquifer is supplied in Section 3.3 of the SDEIS, but few measures are taken to avoid these impacts.

The SDEIS admits that:

During construction and operation of the proposed Project, potential minor, short- to longer-term groundwater quality degradation is possible from equipment and vehicle spills or leaks. Substantive spills of refined products, especially diesel or gasoline, and substantive to very large spills of crude oil may reach groundwater where the overlying soils are porous and the upper boundary of the water table is relatively near the surface. Areas near major wetlands and meandering streams or rivers as well as the Sand Hills topographic region of Nebraska are key examples of locations where the water table may be close to the surface. In some of these areas, it may be difficult to distinguish between groundwater and surface water.⁵⁶⁷

As the above indicates, the Sand Hills region and underlying aquifer resources, including the Ogallala, are of particular concern. However, the proposed pipeline route will not avoid the sensitive Sand Hills area, despite the fact that reasonable alternatives exist that would avoid the Sand Hills region and the aquifer. As discussed herein, State improperly dismisses these alternatives and fails to properly analyze them.

State has admitted that a spill in the Sand Hills region would be hard to contain and would likely result in contamination of ground water sources. It states that:

DOS acknowledges that in areas such as the Sand Hills region, where groundwater may be very shallow (less than 10 feet bgs), *some level of groundwater impact would likely occur even with very rapid and efficient spill response*. Although cleanup and remediation efforts would be more complicated and potentially of longer duration if groundwater were affected, the extent of aerial contamination would be limited primarily depending on the size of the release.⁵⁶⁸

⁵⁶⁵ *Id.* § 2.4.2.2, at 2-17.

⁵⁶⁶ EPA Comment Letter, Detailed Comments at 9.

⁵⁶⁷ SDEIS § 3.13.6.3, at 3-143.

⁵⁶⁸ *Id.* § 3.13.6.3, at 3-145 – 6 (emphasis added).

Various other concerns that were raised are not addressed. For instance, EPA states that:

[W]e recommend that the revised Draft EIS include a discussion of the Niobrara River’s status as a National Scenic River... and how the proposed crossing would not conflict with its status as a National Scenic River.⁵⁶⁹

This concern is not addressed in the SDEIS. EPA also states that:

The Draft EIS states (p. 3.3-29) that the Lower Brule to Witten 230-kV transmission line would have “negligible effects on water resources” – we recommend that additional information be provided to support this conclusion.⁵⁷⁰

These impacts are not addressed.

Additionally, EPA states that:

[W]e note that [] there are numerous proposed water crossings that are located upstream of water supply reservoirs [based on the information provided in Appendix E-4 of the DEIS]. We recommend that the revised Draft EIS include an analysis of potential impacts to these reservoirs in the event of a spill.⁵⁷¹

The SDEIS states that industry standards would be followed, which “require[] mainline block valves on the upstream side of major river crossings and public water supply reservoirs, and either a block valve or a check valve on the downstream side.”⁵⁷² Section 3.13.6.3 of the SDEIS generally addresses spill risks to surface waters, simultaneously downplaying those risks while acknowledging that they can be significant:

Spills could affect surface freshwater quality if spilled material reaches waterbodies directly or from flowing over the land. However, the vast majority of spills would likely be confined to construction yards, areas in or adjacent to the proposed pipeline ROW, or along access roads. The volumes of *most* spills would likely be very small to small (see spill size categories in Section 3.13.2.1). In addition, for some portion of the winter months each year, in the northernmost portions of the route, spill responders could remove much of the spilled material from frozen ground or ice-covered waterbodies prior to snowmelt. *During the rest of the year, spills could reach and affect wetlands, ponds and lakes, as well as creeks and rivers before spill response is initiated or completed.*⁵⁷³

⁵⁶⁹ *Id.*

⁵⁷⁰ EPA Comment Letter, Detailed Comments at 9.

⁵⁷¹ *Id.*

⁵⁷² SDEIS § 3.13.1.1., at 3-85.

⁵⁷³ *Id.* § 3.13.6.3, at 3-141 – 2 (emphasis added).

If spills were to reach water resources, the possible effects range the gamut of potential impacts with no specific information provided to adequately assess what the actual risks are:

Since the majority of oil spills are small in volume, these smaller spills if reaching larger lakes, would result in minimal effects on overall water quality, *assuming* the lake volume is substantially larger than the volume of spilled oil. Decreases in DO levels would be negligible in most cases but may be greater in large to very large spills that cover much of the water surface for a day or more. Direct toxicity would be short-term because of the high dilution volume in these lakes and the rapid evaporation of most of the potentially toxic lighter hydrocarbons. Spreading of a spill over a lake surface may have a minor to major effect on water aesthetics and recreational use. This effect could exist for days to a few weeks until the oil was removed.⁵⁷⁴

Saying a spill's impacts could have "minor to major" impacts is like saying a person's credit worthiness may range from good to bad, or a road may be safe or unsafe to travel. It falls short of a hard look that provides information upon which impacts can be assessed. As such, it violates NEPA.

9. The SEIS Does Not Analyze Impacts to the Ogallala Aquifer and Sandhills

As we explained in our DEIS comments, DOS has failed to analyze the impacts to the Ogallala Aquifer and Sandhills or analyze alternative routes that would avoid these resources.⁵⁷⁵ The SDEIS has still failed to analyze the full range of potential impacts this project would have on these resources.

a. **Ogallala Aquifer**

The Keystone XL pipeline will pass through areas where groundwater is close to the surface and where rural populations rely entirely on groundwater for domestic and agricultural water supply.⁵⁷⁶ Perhaps the most significant of these water resources is the already-troubled Ogallala Aquifer, which extends throughout a significant portion of the Great Plains and is a critical source of water supply. The Ogallala is close to surface and is overlain by soils permeable to oil.

Among the many substances in crude-oil are chemicals such as benzene, toluene, ethylbenzene, xylene and other lightweight chemical compounds. These compounds are more water soluble and can disperse further and more rapidly in both surface and ground waters than other crude oil substances. The record for pipeline safety is troubling. The DEIS shows that on average, there have been 5 "serious" spills nationwide from hazardous

⁵⁷⁴ *Id.* § 3.13.6.3, at 3-142 (emphasis added).

⁵⁷⁵ DEIS Comments, at 38-39, 82-84, 108-111; *see also* Exhibits K and N.

⁵⁷⁶ *See* Bartolino, J.R. and W.L. Cunningham, *Ground-water Depletion Across the Nation*, United States Geological Survey (2003), available at <http://pubs.usgs.gov/fs/fs-103-03/> (last visited June 29, 2010).

liquid pipeline systems.⁵⁷⁷ The number of “significant” spills is even greater at 143 per year over the last 20 years, with a gross loss of 137,821 barrels spilled and less than half that amount being “recovered.”⁵⁷⁸ The causes of these spills are myriad: corrosion, human error, excavation damage natural force damage and other causes.⁵⁷⁹ Given that the DEIS projects that between .81 and 3.86 spills or leaks spilling between 18,000 and 60,000 gallons per year are likely to occur,⁵⁸⁰ these compounds pose a serious threat to water quality. A significant spill could migrate into the groundwater and impact drinking water and irrigation water supplies.⁵⁸¹ Moreover, the DEIS’s conclusion that “large to very large spills would be unlikely to occur” needs to be re-evaluated in light of the painful on-going lesson in the Gulf of Mexico where promises about the safety of oil technology have rung tragically hollow.

The DEIS’ overall estimation of spill frequency is inaccurate and should be reevaluated in light of the failures of the TransCanada’s Keystone I pipeline. The DEIS estimates that there will be 2.2 spills in the Keystone XL pipeline over 10 years.⁵⁸² However, the EIS for Keystone I similarly predicted between 1.4 and 1.9 spills over 10 years.⁵⁸³ Since beginning of operation of the state-of-the-art Keystone pipeline less than a year ago, there have been at least twelve spills.⁵⁸⁴ Several of the spills have occurred since the Keystone XL SDEIS was published. This constitutes new information about spill frequency and exposes the flawed spill frequency projections in the DEIS and SDEIS. This information should be reevaluated in a second supplemental EIS.

The DEIS acknowledges that impacts to waters – both surface and ground – from spills may occur. The DEIS states that “[a] large spill could affect drinking water sources and irrigation water supplies.”⁵⁸⁵ The DEIS also concedes that “[s]ubstantial spills of refined products, especially diesel and substantial to very large spills of crude oil may reach groundwater where the overlying soils are porous and not water saturated, and the water table is relatively near the surface.”⁵⁸⁶ In a curt analysis, the DEIS on the one hand concludes that “it is not anticipated that groundwater quality would be affected by disposal activities, spills or leaks during construction activities,” but on the other hand concedes that “shallow or near-surface aquifers are ... present beneath the proposed [pipeline] route.”⁵⁸⁷ Similarly, the DEIS notes that “[r]outine operation and maintenance is not expected to affect groundwater resources; however, if a crude oil release occurred, crude oil could migrate into subsurface aquifers and into areas where these aquifers are used for water supplies.”⁵⁸⁸

⁵⁷⁷ DEIS at tbl. 3.13.2-1.

⁵⁷⁸ DEIS at tbl. 3.13.2-2.

⁵⁷⁹ DEIS at tbl. 3.13.2-3.

⁵⁸⁰ DEIS at tbl. 3.13.3-1,

⁵⁸¹ DEIS at 3.13-40 – 42.

⁵⁸² DEIS, 3.13-15.

⁵⁸³ Keystone FEIS, 3.13-10.

⁵⁸⁴ See *supra* section IV.C.2.b.

⁵⁸⁵ DEIS at 3.13-41.

⁵⁸⁶ DEIS at 3.13-42.

⁵⁸⁷ *Id.*

⁵⁸⁸ *Id.*

Despite these brushed aside major risks, the DOS's conclusion that there is little cause for worry is based on its belief that "Keystone's ERP" would handle any potential event.⁵⁸⁹

This faith is misplaced, and fails to adequately describe the unique risks associated with a spill in this area. A spill in the Ogallala Aquifer could prove catastrophic. The proposed pipeline would bring crude through fragile sand hills over the Ogallala Aquifer. The soil in this area is extremely porous and any leaks would be quickly absorbed like a sponge, contaminating the drinking water and agricultural irrigation waters potentially as widely as from South Dakota to Texas. The aquifer is already imperiled by being overused and many researchers are concerned it will dry up in coming decades, threatening drinking supplies for many states.⁵⁹⁰ The toxics spilling from a tar sands pipeline could be devastating.

The SDEIS does not remedy any of these deficiencies in the DEIS. It only adds some additional information as part of the discussion of the environmental setting, such as a discussion of groundwater depths.⁵⁹¹

b. The Sand Hills

The DEIS also fails to address numerous important questions about the potential impacts to the Sand Hills region of Nebraska. The Sand Hills are eolian deposits that cover about 20,000 square miles, much of which lies above the Ogallala Aquifer. The DEIS does not analyze how geology, vegetation, soil composition and land use could impact how oil would be dispersed into and through surface or groundwater or identify areas with characteristics that put them at greater risk. Again, given the likelihood of a significant oil spill, this treatment of the potentially catastrophic impacts of the pipeline on water resources is inadequate.

Although the DEIS acknowledges that "conservation of native prairie remnants is a high priority throughout the project area" and that the Sand Hills are "one of the few remaining examples of a functioning prairie ecosystem," its analysis of the impacts to this important area is incomplete. The inadequacy of the analysis is alarming, given that the pipeline route will cross over 336 miles of native grasslands that may take a century or more to recover from the excavation. These are irreplaceable resources of national and international value that cannot simply be replanted.

⁵⁸⁹ *Id.*

⁵⁹⁰ See US Geological Survey, *Groundwater Depletion*, available at, <http://ga.water.usgs.gov/edu/gwdepletion.html> (last visited June 25, 2010), (finding that "water levels [in the Ogallala aquifer] have declined more than 100 feet in some areas and the saturated thickness has been reduced by more than half in others" and that overdrawing groundwater can result in wells running dry); Guru, Manjula V., and James E. Horne, *The Ogallala Aquifer*, The Kerr Center for the Sustainable Agriculture (2000), at 7-8, available at http://www.kerrcenter.com/publications/ogallala_aquifer.pdf ("[F]or thirty years the High Plains irrigators have been consuming aquifer water at a rate conservatively estimated to be ten times the rate of natural recharge.").

⁵⁹¹ SEIS, at 3.3.1-1 to 3.3.1-5

In recent years increasing amounts of scarce remaining native grasslands have been plowed under to meet agricultural needs. The native prairie remnants on the High Plains and Great Plains are biologically unique, contain high biological diversity, and provide critical ecosystem services to the region, including carbon sequestration. Pipeline construction and operation will permanently alter this ecosystem by causing increased soil erosion, introduction and expansion of noxious weed populations, long-term damage to delicate soils, alteration of vegetation due to increased soil temperatures, and a risk of minor to catastrophic spills along the full Pipeline route.⁵⁹²

There are numerous questions that we do not know about the Sand Hills that further NEPA analysis should address. For example:⁵⁹³

- What are the effects of increased soil temperature on soil moisture content and what are the differences in heat conductivity between soil types?
- Is it possible to re-vegetate affected Sand Hills sites to native plant species? If so, how long would it take, and how expensive would it be?
- How will the heat from the buried pipeline affect plant growth and physiology, crop yields, and surface and groundwater temperatures?
- What methods will be used to detect oil pollution in groundwater? Will aerial thermal infrared mapping be used to detect leaks?
- Have pipelines previously been built in areas with sandy soils and high water tables, and if so, what emergency response and remediation measures were used? What role will Nebraska's Department of Environmental Quality play?
- We know the a pipeline leak or spill in the Sandhilllls will have a high likelihood of reaching the groundwater, but how quickly would that contamination spread to surface water (lakes and wetlands, etc)?
- How would a crude oil spill affect property values, in terms of liability issues and negative public perception of "contaminated properties."

Proposed mitigation measures are inadequate to protect these delicate ecosystems. Stockpiling topsoil to a depth of 12 inches will not preserve native grasses whose root systems may extend many feet below the surface, nor will it preserve Sand Hill areas where there is no topsoil. In addition, many mitigation measures are proposed only for agricultural and residential areas, apparently leaving delicate grasslands exempted. At a minimum, all mitigation measures should apply to grassland and prairie ecosystems and be formalized as enforceable permit conditions

⁵⁹² DEIS at 3.5.5.

⁵⁹³ For a more detailed discussion of these issues, see Exhibit AA, "Faculty Response to Pipeline Questions 11-30-10"; see also Exhibit C, "Questions and Concerns from Nebraska Experts."

V. KEYSTONE XL DOES NOT SERVE THE NATIONAL INTEREST

These comments have focused on the deficiencies of the NEPA process, and the SDEIS in particular. Our previous comments highlighted the deficiencies in the DEIS and set forth some of the reasons that this project would not serve the national interest. If the deficiencies in the DEIS and SDEIS were corrected, a full and fair analysis of the projects' impacts and alternatives would demonstrate that this project does not serve the national interest.

While the Keystone XL is supposedly being proposed to meet our energy needs, the record shows that it is not needed.⁵⁹⁴ There is currently overcapacity in the pipeline system that will remain through at least 2020 with or without this project. The EnSys Report and the Verleger analysis reveal that the real reason for this pipeline is to allow oil producers to alleviate a perceived "glut" of oil in the Midwest, which would mean higher prices at U.S. gas stations and higher profits for producers. The pipeline will send large volumes of highly pressurized, toxic and dangerous diluted bitumen through America's heartland, threatening the sensitive Ogallala Aquifer and other irreplaceable resources. It would increase tar sands development in Canada, which is destroying Alberta's boreal forests, poisoning local communities' water supplies, impacting wildlife species and migratory birds, leaving vast expanses of toxic tailings lakes, and emitting high levels of greenhouse gas emissions. Perhaps most importantly, Keystone XL represents a choice between shifting to a clean-energy economy and locking the U.S. into reliance on the dirtiest fuel on earth for decades to come.

The Notice of Availability of the SDEIS stated that there would be a separate comment period to allow input on these issues.⁵⁹⁵ As such, we reserve the opportunity to provide more detailed comments on the national interest determination at a later date.

VI. CONCLUSION

For the reasons set forth above, as well as those presented in our previous comments of July 2, 2010, we urge the Department of State to remedy deficiencies in the DEIS and SDEIS. Further environmental analysis must be conducted to meet the requirements of NEPA. Once the full range of impacts of Keystone XL are considered, it will become even more apparent that this project is not in our national interest and must be denied.

Thank you for the opportunity to provide comments on this important matter. If you have any questions about these comments, please contact me at 303-449-5595 ext. 100.

⁵⁹⁴ In fact, there has been widespread speculation that the oil transported through Keystone XL would be refined in PADD III refineries and then shipped to overseas markets via ports in the Gulf of Mexico. We request a full analysis of the likelihood of this scenario as part of any second supplemental analysis, and as part of the National Interest Determination. In addition, we request that any Presidential Permit for Keystone XL include a condition prohibiting the export of oil transported through Keystone XL.

⁵⁹⁵ 76 Fed. Reg. 22745 (April 22, 2011).

Respectfully submitted,



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