

**DEPARTMENT OF STATE
RECORD OF DECISION AND NATIONAL INTEREST
DETERMINATION**

**TransCanada Keystone Pipeline, L.P. Application for Presidential Permit, Keystone
XL Pipeline**

Contents:

1.0 Summary

2.0 Legal Authority

3.0 Agency and Tribal Involvement and Public Comment

4.0 Project Background

5.0 Issues Considered in the Final Supplemental Environmental Impact Statement

6.0 Basis for Decision

7.0 National Interest Determination



1.0 Summary

On May 4, 2012, TransCanada Keystone Pipeline, L.P. (Keystone) submitted an application to the U.S. Department of State (Department) for a Presidential permit that would authorize construction, connection, operation, and maintenance of pipeline facilities at the U.S.-Canada border in Phillips County, Montana, to import crude oil from Canada into the United States. The proposed project, called Keystone XL (the proposed Project), would consist of approximately 1,204 miles of new, 36-inch-diameter pipeline extending from Hardisty, Alberta, to Steele City, Nebraska. The proposed Project would have the capacity to deliver up to 830,000 barrels per day (bpd) of crude oil. It would predominantly transport crude oil from the Western Canadian Sedimentary Basin (WCSB), but, subject to commercial demand, would also transport quantities of crude oil from Montana and North Dakota via a proposed pipeline and associated facilities known as the Bakken Marketlink Project. If issued, the permit would authorize operations at the border segment, which is from the international border near Morgan, Montana, to the first mainline shut-off valve within the United States located approximately 1.2 miles from the international border.

On November 6, 2015, Secretary of State Kerry determined under Executive Order 13337 that issuing a Presidential permit to Keystone for the proposed Keystone XL pipeline's border facilities would not serve the national interest, and denied the permit application (2015 Decision). On January 24, 2017, President Trump issued a Presidential Memorandum Regarding Construction of the Keystone XL Pipeline (Presidential Memorandum) which, *inter alia*, invited Keystone "to re-submit its application to the Department of State for a Presidential permit for the construction and operation of the Keystone XL Pipeline..." On January 24, 2017, President Trump also issued an Executive Order on Expediting Environmental Reviews and Approvals for High Priority Infrastructure Projects in which he set forth the general policy of the Executive Branch "to streamline and expedite, in a manner consistent with law, environmental reviews and approvals for all infrastructure projects, especially projects that are a high priority for the Nation," and cited pipelines as an example of such high priority projects.

On January 26, 2017, the Department received a re-submitted application from Keystone for the proposed Project. The re-submitted application includes minor route alterations due to agreements with local property owners for specific right-of-ways and easement access, but remains entirely within the areas previously surveyed by the Department in the 2014 Supplemental Environmental Impact Statement (EIS).

Keystone is a limited partnership organized under Delaware law with a primary business address in Houston, Texas. Its affiliate, TC Oil Pipeline Operations Inc. would operate the proposed Project. TC Oil Pipeline Operations Inc. is a limited company organized under the laws of Canada with its headquarters located in Calgary, Alberta, Canada. Both Keystone and TC Oil Pipeline Operations Inc. are owned by affiliates of TransCanada Corporation, a Canadian company with stock publicly traded on the Toronto and New York stock exchanges.

Executive Order 13337 (April 30, 2004) delegates to the Secretary of State the President's authority to receive applications for permits for the construction, connection, operation, or maintenance of facilities for the exportation or importation of petroleum, petroleum products, coal, or other fuels (except for natural gas) at the borders of the United States and to issue or deny such Presidential permits upon a national interest determination. The determination is Presidential action, made through the exercise of Presidentially delegated authorities, and therefore the requirements of the National Environmental Policy Act of 1969 (NEPA), the National Historic Preservation Act of 1966 (NHPA), the Endangered Species Act of 1973 (ESA), the Administrative Procedure Act (APA), and other similar laws and regulations that do not apply to Presidential actions are also inapplicable here. Nevertheless, the Department's review of the Presidential permit application for the proposed Project has, as a matter of policy, been conducted in a manner consistent with NEPA. A Final Supplemental EIS was released on January 31, 2014 as noted above. In the Supplemental EIS, the Department evaluated the potential construction and operational impacts of the proposed Project and alternatives that may occur without the proposed Project on a wide range of environmental and cultural resources. Similarly, as a matter of policy, the Department conducted reviews of the proposed Project consistent with Section 106 of the NHPA, as amended, and with Section 7 of the ESA. The Department solicited public comment and conducted a broad range of consultations with state, local, tribal, and foreign governments and other federal agencies as it considered Keystone's application.

Acting on behalf of the President under delegated authorities in accordance with Executive Order 13337 and the Presidential Memorandum, the Under Secretary of State for Political Affairs has determined that issuing a Presidential permit to Keystone to construct, connect, operate, and maintain at the border of the United States pipeline facilities for the import of crude oil from Canada to the United States as described in the Presidential permit application for the proposed Project would serve the national interest. Accordingly, the request for a Presidential permit is approved.

2.0 Legal Authority

The President of the United States has authority to require permits for transboundary infrastructure projects based upon his Constitutional powers. In Executive Order 13337, acting pursuant to the Constitution and laws of the United States, including Section 301 of Title 3 of the United States Code, the President delegated to the Secretary of State the authority to receive applications and make determinations regarding approval or denial of a Presidential permit for certain types of border facilities, including those for cross-border petroleum pipelines, based on the Secretary's finding as to whether issuance of a permit would serve the national interest. Because the proposed Project seeks to build new petroleum facilities that cross the international border, the authority to make a determination for the issuance of a Presidential permit for the border facilities is within the scope of authority delegated to the Secretary of State by the President. The functions assigned to the Secretary have been further delegated within the Department including to the Deputy Secretary of State, the Under Secretary of State for Political Affairs, and the Under Secretary of State for Economic Growth, Energy, and the Environment.

(Department of State Delegations of Authority No. 245-1, 118-2).

As noted above, when reviewing an application for a Presidential permit, the Secretary or his delegate is required by the Executive Order to determine if issuance of the permit would serve the national interest. The determination is made pursuant to the President's Constitutional authority. No statute establishes criteria for this determination. The President or his delegate may take into account factors he or she deems germane to the national interest. With regard to the proposed Project, the Under Secretary of State for Political Affairs has considered a range of factors, including but not limited to foreign policy; energy security; environmental, cultural, and economic impacts; and compliance with applicable law and policy. The determination is Presidential action, made through the exercise of Presidentially delegated authorities, and therefore the requirements of NEPA, the ESA, the NHPA, the APA, and other similar laws and regulations that do not apply to Presidential actions are also inapplicable here. Nevertheless, as a matter of policy and in order to inform the Under Secretary's determination regarding the national interest, the Department has reviewed the potential impacts of the action on the environment and cultural resources in a manner consistent, where appropriate, with these statutes. The purpose of preparing an environmental impact statement and undertaking the other statutory processes noted above was to produce a comprehensive review to inform decisionmakers and the relevant Executive Branch agencies about the potential environmental impacts of the proposed Project.

In accordance with the Presidential Memorandum, the agency notification and fifteen-day delay requirements of sections 1(g), 1(h) and 1(i) of Executive Order 13337 have been waived with respect to this re-submitted application.

3.0 Agency and Tribal Involvement and Public Comment

The Department conducted extensive public outreach and consultation during several stages of its consideration of Keystone's Presidential permit application in order to solicit input on issues to be considered. The Department also conducted government-to-government consultation with Indian tribes regarding historic properties in a manner consistent with the NHPA, and consulted with relevant agencies consistent with the ESA and other statutes as appropriate. Finally, the Department sought views of other federal agencies as required by Executive Order 13337. The public notice, outreach, and consultation efforts during consideration of Keystone's application are further detailed below. The Department has taken all comments and relevant information into account in making the national interest determination.

3.1 Public Notice: Upon receipt of Keystone's application in 2012, the Department published in the Federal Register a Notice of Receipt of the Keystone XL Pipeline Application (77 FR 27533, May 10, 2012). At that time, the Department also established a website that it updated with information and significant documents throughout its review of the Presidential permit application (*see* <https://keystonepipeline-xl.state.gov/>). In February 2017, the Department also published in the Federal Register a Notice of Receipt of TransCanada Keystone Pipeline, L.P.'s Re-Application for a Presidential

Permit to Construct, Connect, Operate, and Maintain Pipeline Facilities on the Border of the United States and Canada (82 FR 10429, Feb. 10, 2017).

3.2 Public Comment Periods: There has been significant opportunity for public comment on this project. On June 15, 2012, the Department published a notice in the Federal Register informing the public that it intended to prepare a Supplemental EIS (77 FR 36032). The notice also announced plans for developing the scope of the environmental review and content of the Supplemental EIS, and invited public participation in that process, including soliciting public comments. The Department received over 400,000 comments during the scoping period (including letters, cards, emails, and telephone calls), which were considered and reflected as appropriate in developing the scope of the Supplemental EIS. The Department also published all comments received during this and all other public comment periods in the review, consistent with its commitment to conduct an objective, rigorous, and transparent review process.

In March 2013, the Department released a Draft Supplemental EIS, which was posted on the Department's website for the project. The Department distributed copies to public libraries along the pipeline route and to interested Indian tribes, federal and state agencies, elected and appointed officials, media organizations, non-governmental organizations (NGOs), private landowners, and other interested parties. On March 27, 2013, the Department published a notice in the Federal Register inviting the public to comment on the document (78 FR 18665). The Department then held a public meeting on April 18, 2013, in Grand Island, Nebraska, to receive further views from the public and other interested parties. In total, the Department received more than 1.5 million submissions during the public comment period for the Draft Supplemental EIS. These submissions came from members of the public, federal, state, and local representatives, government agencies, Indian tribes, NGOs, and other interested groups and stakeholders. All comments were considered as part of the Supplemental EIS; Volumes V and VI of the Supplemental EIS address the comments that were received.

On February 5, 2014, five days after releasing the Supplemental EIS, the Department published a notice in the Federal Register inviting members of the public to comment within 30 days on any factors they deemed relevant to the national interest determination (79 FR 6984). Executive Order 13337 allows for such a public comment process, but does not require the Department to solicit public input. The response during the 30-day public comment period was unprecedented. The Department received more than three million submissions.

All comments were reviewed by subject matter experts from several Department bureaus who were knowledgeable about the proposed Project and involved in drafting sections of this Record of Decision and National Interest Determination, as well as by the third-party contractor engaged to assist the Department with tasks relating to the review of the permit application. The contractor, with guidance from Department experts, sorted the comments into six overarching issue areas discussed in the comments—environmental impacts (including climate change), cultural resources impacts, socioeconomic impacts, energy security, foreign policy considerations, and compliance with relevant federal and

state laws and regulations. For each of these issue areas, the contractor identified a number of themes that captured the ideas or points raised by public comments. The Department's subject matter experts directly reviewed all of the issues and information raised in the public comments. The Department determined that the comments largely addressed issues that were also raised during preparation of the Supplemental EIS.

3.3 Tribal Consultation: The Department directly contacted 84 Indian tribes within the United States that could have an interest in the resources potentially affected by the proposed Project. Of the 84 Indian tribes, 67 notified the Department that they would like to consult on the proposed Project or were undecided. The Department conducted extensive government-to-government consultations with those 67 Indian tribes on the environmental, cultural, and other potential impacts of the proposed Project. In addition to communications by phone, email, and letter, Department officials held tribal meetings in October 2012 (three meetings), May 2013 (one meeting), and July 2013 (teleconference). The face-to-face meetings were held in four locations: Billings, Montana; Pierre, South Dakota; Rapid City, South Dakota; and Lincoln, Nebraska.

In addition to the government-to-government consultations, the Department engaged in discussions consistent with Section 106 of the NHPA with Indian tribes, Tribal Historic Preservation Officers, State Historical Preservation Officers, and the Advisory Council on Historic Preservation. The topics of these discussions included cultural resources, in general, as well as cultural resources surveys, Traditional Cultural Properties surveys, effects on cultural resources, and potential mitigation. Additionally, Indian tribes were provided cultural resources survey reports for the proposed Project and were invited both to conduct Traditional Cultural Property surveys funded by Keystone and to help develop and participate in the Tribal Monitoring Plan. New cultural resources survey information provided by Keystone in its re-submitted application will be shared as appropriate according to the terms and conditions of the 2013 Amended Programmatic Agreement.

3.4 Consultation with Federal and State Agencies: Ten federal entities agreed to assist the Department as Cooperating Agencies during preparation of the Supplemental EIS: the U.S. Army Corps of Engineers, the Farm Service Agency, the Natural Resource Conservation Service, the Rural Utilities Service, the Department of Energy, the Bureau of Land Management, the National Park Service, the U.S. Fish and Wildlife Service (FWS), the Pipeline and Hazardous Materials Safety Administration's Office of Pipeline Safety (PHMSA), and the U.S. Environmental Protection Agency (EPA). These agencies had significant input into the drafting of the Draft and Final Supplemental EIS.

Consistent with Section 7 of the ESA, the Department consulted with the FWS and submitted a Biological Assessment on the proposed Project. The FWS issued a Biological Opinion in 2013 that is available as an attachment to the Supplemental EIS. Prior to issuance of the 2015 Decision, consultations with the FWS were reinitiated regarding the rufa red knot (*Calidris canutus rufa*), designated a threatened species effective January 12, 2015, and the northern long-eared bat (*Myotis septentrionalis*), designated a threatened species effective May 4, 2015. Following publication of the Supplemental EIS, the Department and FWS have concluded Section 7 consultations with

regard to both the rufa red knot and the northern long-eared bat to supplement the existing Biological Opinion for the proposed Project. The Department also reviewed the 2013 Biological Opinion and received confirmation from FWS that Section 7 consultations need not be reinitiated for any other species and that, following implementation of the conservation measures contained within that Opinion, no other species included in the project area would be adversely affected.

Executive Order 13337 requires that the Secretary request the views of eight specified U.S. federal agencies with regard to the permit application. Accordingly, the Department requested the views of the Department of Defense, the Department of Justice, the Department of the Interior, the Department of Commerce, the Department of Transportation, the Department of Energy, the Department of Homeland Security, and the EPA. The Department of Justice and the Department of Commerce informed the Department that they did not plan to provide any views with regard to the permit application. The other six agencies provided their views in writing; those views were released in conjunction with the 2015 Decision.

The Department has also monitored other federal and state permitting and licensing processes, including, for example, litigation and the recent application to the Nebraska Public Service Commission concerning the proposed Project's route through that state.

3.5 Information Provided by Keystone: The Department had robust communication with Keystone throughout the review of the application for the proposed Project. Keystone responded to multiple requests for information and provided supplemental views and information on its own initiative, including through letters on February 24, 2015, June 29, 2015, February 3, 2017, and March 17, 2017. The Department has taken all information provided by Keystone into account in making the national interest determination.

4.0 Project Background

4.1 Keystone XL Project: The proposed Project would consist of approximately 1,204 miles of new, 36-inch-diameter pipeline extending from Hardisty, Alberta, to Steele City, Nebraska. Approximately 875 miles of the pipeline would be located in the United States. The pipeline would cross the international border between Saskatchewan, Canada and the United States near the town of Morgan, Montana, in Phillips County. The border segment is from the international border near Morgan, Montana, to the first mainline shut-off valve within the United States located approximately 1.2 miles from the international border. The pipeline would have the capacity to deliver up to 830,000 bpd of crude oil. Annual quantities would likely vary based on market conditions and other factors.

Subject to commercial demand, Bakken crude will enter the pipeline within the United States through the proposed Bakken Marketlink Project—a five-mile pipeline with pumps, meters, and storage tanks that would connect to the Keystone XL pipeline near Baker, Montana. The facilities would supply up to 100,000 bpd of Bakken crude oil to the proposed Keystone XL pipeline.

At its southern terminus, the proposed Project would connect to the existing Keystone Cushing Extension pipeline, which extends from Steele City, Nebraska, to Cushing, Oklahoma. The Keystone Cushing Extension in turn connects to Keystone's Gulf Coast pipeline, which extends south to Nederland, Texas, in order to serve Gulf Coast refineries.

In addition to the pipeline and potential Bakken Marketlink Project facilities, the proposed Project would include ancillary facilities. Eighteen pumping stations would be located along the Keystone XL pipeline, and two pumping stations would be added to the Keystone Cushing Extension. Keystone further anticipates new pumping capacity on the Keystone Cushing Extension in Kansas. The pipeline would be located in a 50-foot-wide permanent right of way (ROW). The temporary construction ROW would be wider—110 feet—and access roads, construction camps, and related facilities would be needed during construction.

According to the application submitted by Keystone, the primary purpose of the proposed Project would be to transport crude oil from the border with Canada to delivery points in the United States (primarily to the Gulf Coast area). The proposed Project is meant to supply U.S. refineries with crude oil of the kind found in the WCSB (often called heavy crude oil). Subject to commercial demand, the proposed Project may also provide transportation for the kind of crude oil found within the Bakken formation of North Dakota and Montana (often called light crude oil).

Most recent U.S. production growth has been from tight oil formations—unlocked through technical innovations like hydraulic fracturing and horizontal drilling—that typically yield light, sweet crude. As a result, U.S. crude production growth has tended to displace imports from other countries also producing light, sweet crude—predominately in Africa. Oil sands bitumen consists of heavy, sour, viscous crude oil that is produced and marketed differently than most domestic unconventional crudes. Many U.S. refineries, particularly in the Midwest and Gulf Coast, are optimized to process heavy crudes like those from the oil sands.

As the Supplemental EIS explains, North American production growth coupled with constraints on transporting landlocked crude oil to market have contributed to discounts on the price of landlocked crude and led to growing volumes of crude shipped by rail. This has heightened the attractiveness of the proposed Project to many in industry. Keystone has stated that the proposed Project is commercially viable and sees the demand to be substantially similar to that which existed when Keystone first applied.

The Department notes that the ultimate disposition of crude oil that would be transported by the proposed Project, as well as any refined products produced from that crude oil, would be determined by market demand and applicable law. In the absence of heavy crude oil from Canada, U.S. refineries, particularly in the Gulf Coast, will continue to rely on comparable foreign heavy crudes.

4.2 Prior Permit Application: Keystone's first application for the Keystone XL pipeline was submitted to the Department on September 19, 2008. A Final EIS was published on August 26, 2011 (2011 Final EIS). The route proposed in 2008 included the same U.S.-Canadian crossing as the border currently proposed Project, but a different pipeline route in the United States. That route traversed a substantial portion of the Sand Hills Region of Nebraska, as identified by the Nebraska Department of Environmental Quality (NDEQ). Moreover, the 2011 Final EIS route went from Montana to Steele City, Nebraska, and then from Cushing, Oklahoma, to the Gulf Coast area.

In November 2011, the Department determined that additional information was needed to fully evaluate the application—in particular, information about alternative routes within Nebraska that would avoid the NDEQ-identified Sand Hills Region. In late December 2011, Congress enacted a provision of the Temporary Payroll Tax Cut Continuation Act that sought to require the President to make a decision on the Presidential permit for the 2008 application within 60 days. At the time, the prior administration determined that the deadline did not allow sufficient time for the Department to prepare a rigorous, transparent, and objective review of an alternative route through Nebraska. Accordingly, the Presidential permit was denied.

In February 2012, Keystone informed the Department that it considered the Gulf Coast portion of the originally proposed pipeline project (from Cushing, Oklahoma, to the Gulf Coast area) to have independent economic utility, and indicated that Keystone intended to proceed with construction of the Gulf Coast pipeline as a separate project, called the Gulf Coast Project. The Gulf Coast Project did not require a Presidential permit because it does not cross an international border. Construction on the Gulf Coast Project is now complete.

On May 4, 2012, Keystone filed a new Presidential permit application for the Keystone XL Project. The proposed Project has a new route and a new stated purpose and need. The new proposed route differs from the 2011 Final EIS Route in two significant ways: 1) it would avoid the environmentally sensitive NDEQ-identified Sand Hills Region and 2) it would terminate at Steele City, Nebraska. From Steele City, existing pipelines would transport the crude oil to the Gulf Coast area. The proposed Project no longer includes a southern segment.

In addition to the NDEQ-identified Sand Hills Region, the proposed Project route would avoid other areas in Nebraska (including portions of Keya Paha County) that have been identified by the NDEQ as having soil and topographic characteristics similar to the Sand Hills Region. The proposed Project route would also avoid or move further away from water wellhead protection areas for the towns of Clarks and Western, Nebraska.

On November 6, 2015, Secretary of State Kerry determined under Executive Order 13337 that issuing a Presidential permit to Keystone for the proposed Keystone XL pipeline's border facilities would not serve the national interest, and denied the permit application in the 2015 Decision. On January 24, 2017, President Trump issued the Presidential Memorandum which, inter alia, invited Keystone "to re-submit its application to the

Department of State for a Presidential Permit for the construction and operation of the Keystone XL Pipeline. . . .” On January 26, 2017, the Department received a re-submitted application from Keystone for the proposed Project. The proposed route in the re-submitted application includes minor route alterations due to changes in right-of-way and easement agreements with local property owners, but remains entirely within the area previously examined by the Department in the Supplemental EIS.

5.0 Issues Considered in the Final Supplemental Environmental Impact Statement

This Record of Decision and National Interest Determination is informed by the Supplemental EIS prepared by the Department and published in January 2014, which identified and analyzed a broad range of potential impacts of the proposed Project. The Presidential Memorandum directed the Department to consider to the maximum extent permitted by law the Supplemental EIS “and the environmental analysis, consultation, and review described in that document (including appendices)” to satisfy any provision of law that requires executive department consultation or review, including any applicable requirements of NEPA. As described above, the Department’s determination with respect to an application for a Presidential permit is Presidential action, made through the exercise of Presidentially delegated authorities, and therefore the requirements of NEPA, the ESA, the NHPA, the APA, and other similar laws and regulations that do not apply to Presidential actions are inapplicable. As a matter of policy, however, and in order to inform the Department’s determination regarding the national interest, the Department has reviewed the potential impacts of the proposed Project on the environment and cultural resources in a manner consistent, where appropriate, with these statutes.

The Supplemental EIS presents information and analysis on a range of potential impacts of the proposed Project. It also describes the tribal consultations undertaken as part of the Supplemental EIS process. The Supplemental EIS also considers reasonable alternative pipeline routes and No Action Alternative scenarios.

Key topics in the Supplemental EIS, particularly those that received significant public interest, are described below. The Supplemental EIS reflects the expected environmental impacts of the proposed Project. Certain topics examined therein such as greenhouse gas (GHG) emissions analysis and market analysis are dynamic, although, for the reasons discussed below, the Supplemental EIS continues to inform the Department’s national interest determination in respect of these topics. With respect to other topics such as threatened and endangered species, changes brought about either by the passage of time or differences in underlying law or regulations are noted. The Department has reviewed and considered these changes and concluded that they do not represent substantial changes, do not present significant new information, and do not affect the continued reliability of the Supplemental EIS.

5.1 Greenhouse Gas (GHG) Emissions: GHG emissions and the potential climate change impacts associated with the proposed Project were key areas of interest highlighted by the comments received by the Department. The Supplemental EIS evaluates the relationship between the proposed Project with respect to GHG emissions

and climate change from the following perspectives:

- The GHG emissions associated with the construction and operation of the proposed Project and its connected actions;
- The indirect lifecycle (wells-to-wheels) GHG emissions associated with the WCSB crude oil that would be transported by the proposed Project as compared to the GHG emissions of the crudes it may displace; and
- How the GHG emissions associated with the proposed Project cumulatively contribute to climate change.

GHG Emissions Associated with Construction and Operation

According to the Supplemental EIS, the proposed Project would emit approximately 0.24 million metric tons of carbon dioxide (CO₂) equivalents (MMTCO₂e) per year during the construction period. These emissions would be emitted directly through fuel use in construction vehicles and equipment as well as land clearing activities, including open burning, and indirectly from electricity usage. To operate and maintain the pipeline, approximately 1.44 MMTCO₂e would be emitted per year, largely attributable to electricity use for pump station power, fuel for vehicles and aircraft for maintenance and inspections, and fugitive methane emissions at connections. The 1.44 MMTCO₂e emissions would be equivalent to GHG emissions from approximately 300,000 passenger vehicles operating for one year, or 71,928 homes using electricity for one year.

GHG Emissions Associated with the Indirect Lifecycle of WCSB Crudes

To enable a more comprehensive understanding of the potential indirect GHG impact of the proposed Project, it is important to consider the wider GHG emissions associated with the crude oil that would be transported by the proposed Project. A lifecycle analysis is a technique used to evaluate the environmental aspects and impacts (in this case GHGs) that are associated with a product, process, or service from raw materials acquisition through production, use, and end-of-life (wells-to-wheels). This approach evaluates the GHG implications of the WCSB crudes that would be transported by the proposed Project compared to other crude oils that would likely be replaced or displaced by those WCSB crudes in U.S. refineries (hereinafter, reference crudes). The actual increase in GHG lifecycle emissions attributable to the proposed Project depends on whether or how much approval and use of the pipeline would cause an increase in oil sands production. Conclusions drawn from the Department's market review, detailed further below, indicate that the proposed Project would be unlikely to significantly impact the rate of extraction in the oil sands and is therefore not likely to lead to a significant net increase in GHG emissions.

The Supplemental EIS analysis considers wells-to-wheels GHG emissions, including extraction, processing, transportation, refining, and refined product use (such as combustion of gasoline in cars) of WCSB crudes compared to other reference crudes, including heavy slates. The lifecycle analysis also considers the implications associated with other generated products during the lifecycle stages (so-called co-products) such as

petroleum coke. The largest single source of GHG emissions in the lifecycle analysis is the finished-fuel combustion of refined petroleum fuel products, which is consistent for different crude oils.

WCSB crudes are generally more GHG intensive than other crudes they would replace or displace in U.S. refineries, and emit an estimated 17 percent more GHGs on a lifecycle basis than the average barrel of crude oil refined in the United States. As the EPA notes in its letter of February 2, 2015 to the Secretary, “oil sands crude is substantially more carbon intensive than reference crudes and its use will significantly contribute to carbon pollution.”

According to the Supplemental EIS, the total lifecycle emissions associated with production, refining, and combustion of 830,000 bpd of oil sands crude oil transported through the proposed Project is approximately 147 to 168 MMTCO₂e per year. The annual lifecycle GHG emissions from 830,000 bpd of the four reference crudes examined in the Supplemental EIS are estimated to be 124 to 159 MMTCO₂e. The range of incremental GHG emissions for crude oil that would be transported by the proposed Project is estimated to be 1.3 to 27.4 MMTCO₂e annually. The estimated range of potential emissions is large because there are many variables, such as which reference crude is used for the comparison and which study is used for the comparison. Nevertheless, at the high end, the Supplemental EIS states that 27.4 MMTCO₂e per year is equivalent to the annual GHG emissions from 5.7 million passenger vehicles or 7.8 coal-fired power plants.

GHG lifecycle emissions analysis performed by the Department after publication of the Supplemental EIS in the context of the environmental review for a Presidential permit for another pipeline, Enbridge’s Line 67 Expansion, estimates that GHG emissions from WCSB crude may be five to 20 percent higher than previously indicated. Using the Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) model, an alternative “well-to-wheels” fuel-cycle model developed by the Argonne National Laboratory (Argonne National Laboratory 2016, 2015), the Line 67 Expansion Draft Supplemental EIS places emissions per barrel of WCSB at 584 kg CO₂-eq per barrel, compared to approximately 485-555 kg CO₂-eq per barrel to in the Supplemental EIS for the proposed Project.¹

The estimates provided in the Supplemental EIS characterize the potential increase in emissions attributable to the proposed Project if one assumes that approval or denial of the proposed Project would directly result in a change in production of 830,000 bpd of oil sands crudes in Canada. That is because the estimates represent the total incremental emissions associated with production and consumption of 830,000 bpd of oil sands crude

¹ The primary driver for the Department’s determination for Line 67 is the assumption that coke produced in the process of extraction of WCSB would not offset the use of coal as a source of energy to fuel WCSB extraction. If coke displaces coal, WCSB emissions would be 528 kg CO₂-eq per barrel according to the Line 67 Expansion Supplemental EIS. We note that comparing lifecycle greenhouse gas emissions to the U.S. average mix in GREET could potentially lead to over-estimating the change in emissions from using heavy WCSB crude oil, and under-estimating the change from using lighter WCSB crude oil.

above and beyond the current baseline compared to the reference crudes. However, as discussed further below, the Department's analysis continues to show that the approval of this proposed Project is unlikely to have a substantial effect on the rate of extraction of the oil sands and is also therefore unlikely to directly result in significant change in production in oil sands crudes in Canada.

5.2 Market Analysis

Proposed Project's Impact on Oil Sands Production

The Supplemental EIS utilizes analysis of evolving market conditions, transportation costs, oil-sands supply costs, and varying supply-demand scenarios to inform conclusions about the proposed Project's potential impact on oil sands production. The analysis concluded at the time it was published in January 2014 that approval or denial of any one crude oil transport project, including the proposed Project, would be unlikely to significantly impact the rate of extraction in the oil sands, or the continued demand for heavy crude oil at refineries in the United States. The Supplemental EIS balances this position by emphasizing that uncertainty underlies a number of key variables critical to projecting Canadian production growth.

Generally, the dominant drivers of oil sands development remain more global than any single infrastructure project. Oil sands production and investment could slow or accelerate depending on oil price trends, regulations, and technological developments, but the potential effects of those factors on the industry's rate of expansion need not be conflated with the more limited effects of individual pipelines. Under most market conditions, alternative transportation infrastructure would allow growing oil sands production to reach markets irrespective of the proposed Project. Most recently, this has been demonstrated by the growth in rail loading capacity in Western Canada, which as of February 25, 2017, the National Energy Board (NEB) of Canada now estimates at over 1,075,000 bpd. This significant rail capacity has been utilized to export over 160 million barrels of Canadian crude oil to the United States since 2011. The Supplemental EIS also determined that construction of the proposed Project would have some effect on discrete decisions about whether to develop specific oil sands projects if (1) no new pipeline capacity to Canadian ports or to the United States becomes operational and (2) the price of oil in the long run persists at a level where other transport options are no longer economical.

Coupled with supply growth in the WCSB, major crude oil export pipelines from the region have largely operated at, or near, capacity for several years; an observation highlighted by Prime Minister Trudeau on November 29, 2016 when he announced the conditional approval of Kinder Morgan's expansion of the Trans Mountain pipeline from Alberta to the port at Vancouver, British Columbia, which would increase the pipeline's capacity from 300,000 bpd to 890,000 bpd of crude oil. Kinder Morgan expects to begin construction of the Trans Mountain pipeline in September 2017. Current market projections from the Energy Information Administration (EIA) and the International Energy Agency (IEA) anticipate production growth in Canadian WCSB to continue, even when factoring in delays and cancellations of certain planned large-scale greenfield

projects resulting from the current crude oil price environment, further stressing the capability of existing pipeline infrastructure to keep pace with supply growth, and suggesting that there continues to be sustained demand for additional pipeline capacity. This near-term production growth in the WCSB is due largely to the start of other projects with long lead-times and continued incremental investment by certain market players to expand production from existing brownfield projects.

The impact on oil sands development is difficult to gauge with precision, in part because the cost differential between other modes of transport and pipelines may change over time, and production costs vary from one oil sands development to another. While the Department does not know all of the production costs or other investment factors for specific Canadian projects, the Supplemental EIS concluded that many projects are expected to break even when sustained oil prices are in the range of \$65-\$75 per barrel. On this basis, the Department's analysis found that oil sands production is expected to be most sensitive to transport costs with oil prices in or below that range.

Since the publication of the Supplemental EIS, the price of benchmark West Texas Intermediate (WTI) crude oil has declined by over 50 percent from \$98.23 per barrel in January 2014 to approximately \$48 per barrel at present. This represents a sizeable near-term price decline; however, the Department notes that the 30-year real price average (i.e., the nominal price adjusted for inflation using March 2017 \$) of WTI crude is \$55 per barrel. Although prices have rebounded from 2016 lows, global liquids production for the time being continues to outpace consumption. Organization for Economic Cooperation and Development commercial stocks of crude oil remain approximately 300 million barrels above the five-year average. This includes U.S. commercial oil stocks, which are at an all-time high of 528 million barrels or approximately 35 days of domestic supply needs. The EIA expects a relatively balanced oil market in the next two years, with inventory builds averaging 100,000 bpd in 2017 and 200,000 bpd in 2018. However, the Department underscores that short-term fluctuations in price driven by current market supply and demand dynamics are less indicative of the industry's general outlook than the broader macroeconomic forces that drive investment in the oil and gas sector.

In making long-term investment decisions, companies often distinguish between new development and production from existing projects with previously sunk capital costs. While oil prices consistently below supply costs over the long-term may lead some investors to delay or even cancel some future projects, decisions about proceeding with or expanding existing projects and those already under construction or with financing in place are largely based on marginal operating costs. In general, existing projects and those under development are unlikely to slow or stop unless revenues persistently fall below current operating costs, which are much lower than total supply costs (\$20 to \$40 per barrel according to most estimates reviewed). Most reports further indicate that oil sands supply costs have fallen in the lower-price environment. Collectively, these factors help to explain why Canadian crude oil production, including from the oil sands, has proven resilient despite lower oil prices, including a period during the first quarter of 2016 when price remained at or below \$40 per barrel. These market observations also

explain the growth trends expected by the Department and other market energy information organizations, such as the EIA, which predicts 340,000 bpd in crude production growth in Canada through 2018.

The Department recognizes that oil prices are volatile, particularly over the short term. However, the long-term trends that drive WCSB crude oil production and the amount of new transportation capacity needed to meet them, coupled with the documented ability of Canadian upstream producers to sustain production during a period of lower oil prices, lead the Department to have confidence in the forecasts presented by market experts at the EIA and IEA, and affirm the Department's conclusion that such infrastructure is supported by mid- and long-term market outlooks.

Crude-by-Rail

In recent years, industry has looked toward existing Canadian crude oil production forecasts and commercial realities tied to prevailing midstream bottlenecks as justification for further investment in alternative crude oil transportation. Although there are a number of possible alternative transportation avenues for crude from the oil sands to reach U.S. or other markets, significant investment has been made in the development of crude-by-rail loading and off-loading facilities throughout North America. Current WCSB rail loading capacity has been estimated to exceed 1,075,000 bpd, with potential to expand further. Under current market conditions, existing pipelines coupled with crude-by-rail facilities will likely have the capacity to accommodate new supply from upstream projects under construction and in various stages of completion in western Canada. Although existing rail capacity moderates the impact of pipeline constraints, according to NEB of Canada, it remains a more expensive form of transportation than pipelines, an observation that supports the economic utility and commercial viability of new pipeline infrastructure. Additionally, as stated in the Supplemental EIS, per unit rail transport of WCSB oil would be more GHG-intensive than transport by pipeline when accounting for the total aggregate lifecycle GHG emissions (including direct and indirect emissions).

The extent to which rail transport will actually occur, however, or would prove to be a major form of transport for WCSB crude to the United States in the long term, remains uncertain. Utilization of rail facilities will depend upon many factors, including the availability of cheaper pipeline transport options from the respective production areas, the rate of growth in emerging areas of crude production, demand from refineries that may be better served by rail from these sources, differences in the price of oil paid in the production areas and the price of oil paid at the refinery markets (particularly on the coasts), and arbitrage opportunities that may be available through faster rail-based transport.

Producers seeking to preserve margins in the face of narrowing price gaps between Western Canada Select crude, WTI, and other crudes such as the Mexican Maya, may seek to maximize the efficiency of existing pipeline infrastructure in lieu of rail. Moreover, implementation of new Department of Transportation rules intended to improve the safe transportation of large quantities of crude-by-rail may lead to a marginal

increase in crude-by-rail costs.

5.3 Potential Spill Risk and Safety Impacts: Many concerns were raised in comments received by the Department regarding the potential environmental effects of a pipeline release, leak, and/or spill. The Supplemental EIS analyzes impacts from potential releases from the proposed Project by analyzing historical spill data. The analysis identifies the types of pipeline system components that historically have been the source of spills, the sizes of those spills, and the distances those spills would likely travel. The resulting potential impacts to natural resources, such as surface waters and groundwater, are also evaluated and mitigation measures are included that are designed to prevent, detect, minimize, and respond to oil spills.

The Supplemental EIS analyzes historical crude oil pipeline incident data within the PHMSA and National Response Center incident databases. Over a period of ten years, from January 2002 through July 2012, a total of 1,692 incidents were reported in the United States, of which 321 were reported to be pipe incidents and 1,027 incidents were reported to involve different equipment components such as tanks, valves, or pumps.

Most spills over this period were small. Of the 1,692 incidents between 2002 and 2012, 79 percent of the incidents were in the small (zero to 50 barrel) range—roughly equivalent to a spill of up to 2,100 gallons. Four percent of the incidents were in the large (greater than 1,000 barrel) range. If a pipeline spill were to occur, the severity of its impact would depend on the volume and aerial extent of oil released; the distance of the impacted entity from the spill source; site-specific environmental circumstances, including climate and species present; and the timing and nature of response efforts.

An oil spill that reaches a surface waterbody or wetland could cause effects such as reduced dissolved oxygen levels or high benzene contaminant levels. The Supplemental EIS states that acute toxicity could occur if substantial amounts of crude oil were to enter rivers and streams. If diluted bitumen is accidentally released and it flowed into surface water, the diluent fraction would tend to volatilize or dissolve into the water, leaving bitumen behind to sink or become suspended. Upwards of 25 percent of residual hydrocarbons could be reasonably removed by natural attenuation, while active recovery methods would be required for remediation of the remaining spill volume. Aggressive cleanup methods could mix oil and water, which might result in longer-lasting impacts to sensitive waterbody habitat. Passive cleanup methods are less likely to impact resources, but require a timeframe on the order of tens of years.

There are 39 stream crossings within 40 miles upstream of protected or specially designated segments of the Niobrara and Missouri rivers, which are in proximity to the proposed Project route. The shortest distance an oil spill would have to travel to impact a protected waterbody is approximately 28.5 miles. Based on an analysis of PHMSA historical incident data of large-diameter pipeline releases, the probability of a spill occurring that would convey oil to a protected waterbody is once every 542 years.

Spilled crude oil could affect wildlife directly and indirectly. Direct effects include

physical processes such as oiling and toxicological effects, which could cause sickness or mortality. Indirect effects include habitat impacts, nutrient cycling disruptions, and alterations to the ecosystem.

A surface release could produce localized effects on plant populations by direct oiling or by oil permeating through the soil, affecting root systems and indirectly affecting plant respiration and nutrient uptake. Generally, most past spills on terrestrial habitats have caused minor ecological damage, and ecosystems have shown a good potential for recovery.

At the time of the release of the Supplemental EIS, there were 1,232 identified wells within the potential range of a large spill from the proposed Project. In Nebraska, the potential spill range from the proposed Project overlaps with the Steele City Wellhead Protection Area. Keystone agreed to provide an alternative water supply if an accidental release from the proposed Project contaminates groundwater or surface water used as potable water or for irrigation or industrial purposes.

Normal operations would be expected to result in less than one human injury per year. In the event of a spill, human health exposure pathways could include direct contact with crude oil, inhalation of airborne emissions from crude oil, or consumption of food or water contaminated by either the crude oil or components of the crude oil. Mitigation measures, including spill response and containment and emergency response plans, would reduce and minimize human and environmental exposures.

Keystone has agreed to incorporate additional mitigation measures in the design, construction, and operation of the proposed Project, in some instances exceeding what is normally required, including 59 Special Conditions, 57 of which were recommended by PHMSA. These commitments by Keystone remain in effect. Many of these mitigation measures are intended to reduce the likelihood of a release occurring. Other measures provide mitigation intended to reduce the consequences and impact of a spill should such an event occur.

Since the publication of the Supplemental EIS, several new studies related to cleanup of diluted bitumen have been published. The National Academy of Science (NAS) 2016 study, *Spills of Diluted Bitumen from Pipelines: A Comparative Study of Environmental Fate, Effects, and Response*, found that diluted bitumen presents more challenges for cleanup response than other types of oil commonly moved by pipeline. The NAS 2016 study also found that various government agencies (PHMSA, EPA, and the U.S. Coast Guard) and first responders are in need of more training and better communication in order to adequately and effectively address spills of diluted bitumen.

But as described in the Supplemental EIS, Appendix Z, *Compiled Mitigation Measures*, Keystone has agreed to develop and carry out multiple mitigation measures including developing monitoring plans and response plans, among other spill and spill-prevention mitigation measures. For example, if a spill were to occur, Keystone would provide material safety data sheets to first responders within one hour of the occurrence, and

would provide potable water for any affected communities, businesses, or affected entities within the spill area. Additionally, during the development and construction phase of the project, Keystone has agreed to consult with local emergency responders during development of an Emergency Response Plan (ERP) and update its mitigation and spill response plans with new knowledge or information on the chemistry of diluted bitumen as it becomes available. Accordingly, the measures that Keystone has already committed to—including commitments relating to development of an ERP and other mitigation plans that account for new information—adequately address the new challenges, training needs, and communication needs identified in the NAS 2016 study.

The Supplemental EIS also discusses transportation by rail, in particular as part of the No Action Alternative scenarios (in other words, scenarios that may occur if the proposed Project were denied), and concludes that transport by rail likely results in a greater number of injuries and fatalities per ton-mile than transportation by pipeline, as well as a greater number of accidental releases of crude oil and a greater overall volume of crude oil released. However, the average size of an accidental release associated with crude-by-rail transportation is smaller than the average size of an accidental release associated with a pipeline.

5.4 Socioeconomic Impacts: Socioeconomic impacts associated with the proposed Project were also of particular concern in the comments received by the Department throughout its process. The Supplemental EIS analyzes these impacts and provides information regarding economic activity that may result from an approval of the proposed Project.

Employment and Economic Activity

The Department utilized subject matter experts and established methodologies to characterize the macroeconomic impacts of the proposed Project in the Supplemental EIS. Benchmarking against 2010 economic data, construction spending on the proposed Project was found to support a combined total of approximately 42,100 jobs throughout the United States for the up to two-year construction period. Of these jobs, approximately 16,100 would be direct jobs supported at firms that are awarded contracts for goods and services, including construction, by Keystone. The other approximately 26,000 jobs would result from indirect and induced spending; this would consist of goods and services purchased by the construction contractors and spending by employees working for either the construction contractor or for any supplier of goods and services required in the construction process. About 12,000 jobs, or 29 percent of the total 42,100 jobs, would be supported in Montana, South Dakota, Nebraska, and Kansas.

Of the 42,100 supported jobs described above, approximately 3,900 (or 1,950 per year if construction took two years) would comprise a direct, temporary, construction workforce in the proposed Project area. Employment supported by construction of the proposed Project would translate to approximately \$2.05 billion in employee earnings. Of this, approximately 20 percent (\$405 million in earnings) would be allocated to workers in the proposed Project area. The remaining 80 percent, or \$1.6 billion, would occur in other locations around the country.

According to Keystone, once the proposed Project enters service, operations would require approximately 50 total employees in the United States: 35 permanent employees and 15 temporary contractors. This small number would result in negligible impacts on population, housing, and public services in the proposed Project area.

The total estimated property tax from the proposed Project in the first full year of operations would be approximately \$55.6 million spread across 27 counties in three states. This impact to local property tax revenue receipts would be substantial for many counties, constituting a property tax revenue benefit of 10 percent or more in 17 of these 27 counties. Operation of the proposed Project is not expected to have an impact on residential or agricultural property values.

Construction contracts, materials, and support purchased in the United States would total approximately \$3.1 billion. Another approximately \$233 million would be spent on construction camps for workers in remote locations of Montana, South Dakota, and northern Nebraska. Construction of the proposed Project would contribute approximately \$3.4 billion to the U.S. gross domestic product (GDP). This figure includes not only earnings by workers, but all other income earned by businesses and individuals engaged in the production of goods and services demanded by the proposed Project, such as profits, rent, interest, and dividends.

According to the U.S. Bureau of Economic Analysis, the U.S. oil and gas industry contributed 1.1% to total U.S. GDP in 2015. The proposed Project would make a meaningful contribution to this critically important sector of U.S. economy.

Since 2010, from which data the economic data was benchmarked, the U.S. economy has returned closer to full employment capacity but simultaneously has seen relative economic weakness in certain sectors and states due to the downturn in global energy prices in 2014. As a result, the economic benefits in terms of job creation from the proposed Project may be significantly different than the initial estimates.

Health Impacts

A number of commenters raised concerns about the potential for impacts on human health associated with the proposed Project. The Department took into account, with peer-reviewed research where appropriate, impacts to human health throughout the various resource areas in the Supplemental EIS.

For example, in the Potential Releases chapter, the Supplemental EIS examined potential health risks associated with exposure to crude oil and other relevant chemicals, were there to be a spill. In the Air Quality and Noise chapter, the Supplemental EIS addressed air pollution that would be associated with the construction and operation of the proposed Project. In the Cumulative Effects Assessment and Extraterritorial Concerns chapter, the Supplemental EIS described potential changes in pollution associated with refineries. Finally, the Supplemental EIS also examined potential human health impacts in Canada associated with oil sands development and pipeline construction and operation.

Environmental Justice

According to the Office of Environmental Justice in EPA, environmental justice refers to the “fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” A total of 17 separate census areas with minority and/or low income populations could potentially be affected by construction or operation of the proposed Project. Temporary environmental justice impacts during construction could include exposure to construction dust and noise, disruption to traffic patterns, and increased competition for medical or health services in underserved populations. Positive impacts could include increased employment and earnings.

Minority or low-income populations could be more vulnerable should an oil release occur along the segment of the pipeline that transits through their communities. Further, Indian tribes with significant dependence on natural resources could be disproportionately affected.

Mitigation of environmental justice concerns would include ensuring adequate communication with affected populations, such as through public awareness materials in appropriate languages so as to ensure an appropriate level of emergency preparedness. With respect to employment opportunities, Keystone has committed to employee and supplier diversity and has programs in place to mitigate impacts on vulnerable populations.

Some comments, particularly from Indian tribes, have expressed concern that temporary camps of construction workers along the proposed Project route may increase crime and otherwise disrupt local communities. In their letters to the Department of February 2, 2015, the Department of Homeland Security and the Department of the Interior also expressed concerns in this regard. Keystone committed to take several measures to ensure greater safety for those communities along the route, including security provisions and a code of conduct for the workers.

5.5 Physical Disturbance Impacts:

Water Resources

Construction and operation of the proposed Project could result in temporary and permanent surface water impacts, including stream sedimentation, changes in stream channels and stability, and temporary reduction in stream flow. The proposed Project’s pipeline route would avoid surface water whenever possible, but would cross approximately 1,073 surface water bodies, including 56 perennial rivers and streams, as well as approximately 24 miles of mapped floodplains. Mitigation measures would include tunneling the pipeline underneath major rivers to mitigate construction impacts, erosion control during construction, and restoration of waterbodies as soon as practical after construction.

Wetlands

The proposed Project would affect approximately 383 acres of wetlands, two acres of which may be permanently lost. Remaining wetlands affected by the proposed Project would remain as functioning wetlands, provided that impact minimization and restoration efforts described in the mitigation plan are successful. The proposed route includes modifications to the route that Keystone originally proposed in 2012 to avoid wetland areas (such as the sensitive NDEQ-identified Sand Hills Region) and Keystone has committed to additional mitigation measures. Additionally, Keystone has identified mitigation measures for the protection of sensitive areas, including wetlands, such as industry-standard avoidance measures and best practices for working near sensitive areas as described in the Construction, Mitigation, and Reclamation Plan (CMRP), as well as a commitment to abide by all state, local, and tribal regulations and requirements. Finally, Keystone will work with state and local response agencies to develop and carry-out mitigation measures related to work near wetlands.

Threatened and Endangered Species

Thirteen federally listed threatened or endangered species occur in the proposed project area. The endangered American burying beetle (*Nicrophorus americanus*) is the only species that is likely to be adversely affected by the proposed Project, but other species could potentially be affected. These include the federally endangered black-footed ferret (*Mustela nigripes*), interior least tern (*Sternula antillarum*), whooping crane (*Grus americana*), and pallid sturgeon (*Scaphirhynchus albus*); and the threatened piping plover (*Charadrius melodus*), western prairie fringed orchid (*Platanthera praeclara*), northern long-eared bat (*Myotis septentrionalis*), and rufa red knot (*Calidris canutus rufa*).

The FWS issued a Biological Opinion in May 2013 to the Department regarding potential impacts of the proposed Project on seven federally protected species. The American burying beetle was the only species determined by the FWS to likely be adversely affected by the proposed Project. Since that time, two additional species have become federally listed as threatened—the northern long-eared bat and the rufa red knot. The consultations for both species were completed, with the FWS concurring in a “may affect, but is not likely to adversely affect” determination. The Department also reviewed the 2013 Biological Opinion and received confirmation from FWS that Section 7 consultations need not be reinitiated for any other species and that, following implementation of the conservation measures contained within that Opinion, no other species included in the project area would be adversely affected. The Department is committed to ensuring that all measures identified in the 2013 Biological Opinion, as supplemented, are implemented, including by Keystone.

Geology and Soils

The proposed Project’s pipeline route extends through relatively flat and stable areas, and the potential for seismic hazards (earthquakes), landslides, or subsidence (sink holes) is low. The route would avoid the NDEQ-identified Sand Hills Region, where soils are particularly susceptible to damage from pipeline construction. Potential impacts to soil resources in other areas associated with construction or operation of the proposed Project and connected actions include soil erosion, loss of topsoil, soil compaction, an increase in

the proportion of large rocks in the topsoil, soil mixing, soil contamination, and related reductions in the productivity of desirable vegetation or crops. Mitigation measures would include construction of temporary erosion control systems, implementation of topsoil segregation methods, and restoration of the ROW after construction.

Terrestrial Vegetation

Potential construction and operations-related impacts to terrestrial vegetation resources associated with the proposed Project include impacts to cultivated crops, developed land, grassland/pasture, upland forest, open water, forested wetlands, emergent herbaceous wetlands, and shrub-scrub communities. The proposed Project route would impact biologically unique landscapes and vegetation communities of conservation concern. Keystone committed to restore areas to preconstruction conditions as practicable, and reseed disturbed areas, and to use specific best management practices and procedures to minimize and mitigate the potential impacts to native prairie areas.

Wildlife

The proposed Project would cause minor impacts to wildlife and wildlife habitat. Potential impacts to wildlife include habitat loss, alteration, and fragmentation; direct mortality during construction and operation (e.g., wildlife collisions with vehicles and power lines/power poles); and reduced survival or reproduction due to stress or avoidance of feeding caused by factors such as construction and operations noise and increased human activity. Mitigation measures to reduce potential construction and operations-related effects to wildlife where habitat is entered would include construction timing restrictions and buffer zones developed in consultation with regulatory agencies as well as measures to minimize adverse effects to wildlife habitats. Keystone committed to develop and implement a conservation plan for migratory birds and bald and golden eagles and their habitats in consultation with the FWS.

Fisheries

Impacts to fisheries within the rivers and perennial streams crossed by the proposed Project route would occur during construction and would be temporary. The CMRP contains measures for waterbody crossings to reduce potential effects on fish and aquatic/stream bank habitat and otherwise minimize potential impacts to fisheries resources. Mitigation measures would include best practices in open-cut stream crossings to reduce stream bed disturbance, sediment impacts, and interference with spawning periods; crossing under large rivers using horizontal directional drilling methods; minimization of vehicle contact with surface waters; and development of site-specific contingency plans to address unintended releases of drilling fluids that include preventative measures and a spill response plan.

Land Use, Recreation, and Visual Resources

Approximately 15,296 acres of land would be affected by construction of the proposed Project, though only approximately 5,569 acres would be retained for operation within permanent easements along the pipeline ROW and at the locations of ancillary facilities (e.g., access roads, pump stations). Approximately 89 percent of the total affected acreage (13,597 acres) is privately owned and the remainder government-owned.

Rangeland (approximately 63 percent) and agricultural land (approximately 33 percent) comprise the vast majority of land use types that would be affected by construction. Impacts to land use resources include lease or acquisition and development of the pipeline ROW and land for ancillary facilities (e.g., access roads, pump stations, and construction camps), damage to agricultural features and productivity, visual impacts, and increased dust and noise.

Construction activities would temporarily affect recreational traffic and use patterns in special management and recreational areas, such as historic or scenic trails and rivers with recreational designations. Impacts of operation of the proposed Project on recreation would be minimal.

Visual impacts associated with the proposed Project would primarily occur during construction, when pipeline and ancillary facility construction, trenching, and facilities such as pipe yards would be visible. Permanent visual impacts following operation would include the presence of new ancillary facilities as well as visual disturbances in the landscape, such as tree removal, along the pipeline route.

Keystone committed to compensate landowners for construction- and operation-related impacts. It would implement measures to reduce impacts to land uses, recreation, and visual resources such as topsoil protection, restoring disturbed areas, and developing traffic access and management plans.

Air Quality and Noise

Construction dust and emissions from construction equipment would typically be localized, intermittent, and temporary since pipeline construction would move through an area relatively quickly. During normal operation of the proposed Project, there would be only minor emissions from valves and pumping equipment at the pump stations. Keystone would implement mitigation measures to reduce air quality impacts, including dust control measures and compliance with state and local air quality restrictions.

Construction noise impacts would also be localized, intermittent, and temporary. Noise impacts from operation of the pipeline would be limited to the electrically driven pump stations. During construction, Keystone would limit the hours during which activities with high-decibel noise levels are conducted in residential areas, require noise mitigation procedures, and develop site-specific mitigation plans to comply with regulations. During operations, Keystone would implement a noise control plan to mitigate noise impacts at affected sites and, as necessary, install sound barriers.

5.6 Cultural Resources: Pipeline construction may present a risk to historic and cultural resources unless appropriately addressed through avoidance or mitigation. This risk was a key concern for Indian tribes and other commenters. The Department of Interior in its February 2, 2015 letter to the Secretary reiterated these concerns. The Department concluded a Programmatic Agreement (an agreement with several interested parties that contemplates mitigation of certain cultural resources impacts in the event of construction). The Programmatic Agreement is appended to the Supplemental EIS, and

was concluded in consultation with Indian tribes, federal and state agencies, and the permit applicant. The Department incorporated input from Indian tribes to amend the Programmatic Agreement on cultural resources that had been developed for Keystone's 2008 permit application. The Programmatic Agreement describes the processes that would be followed by Keystone and applicable state and federal agencies to identify cultural resources and to avoid or mitigate adverse impacts.

The proposed Project was designed to avoid disturbing cultural resources listed in the National Register of Historic Places (NRHP), those considered to be eligible for listing in the NRHP, and others of potential concern that have not been evaluated for NRHP listing, to the extent possible. With regard to cultural resources that cannot be avoided, Keystone has committed to minimize and mitigate impacts whenever feasible. Additionally, Keystone would implement Unanticipated Discovery Plans in order to ensure minimization of impacts to as-yet-unknown cultural resources that might be inadvertently encountered during construction or operation of the proposed Project.

5.7 Cumulative Effects: The cumulative effects analysis in the Supplemental EIS evaluates the way that the proposed Project's impacts interact with the effects of other past, present, or reasonably foreseeable future actions or projects. The goal of the cumulative impacts analysis is to identify situations where sets of comparatively small individual impacts, taken together, constitute a larger collective impact. Cumulative effects associated with the proposed Project and connected actions vary among individual environmental resources and locations. Generally, where long-term or permanent impacts from the proposed Project are absent, the potential for additive cumulative effects with other past, present, and reasonably foreseeable future projects is negligible.

5.8 Alternatives: The Supplemental EIS provides a detailed description of the categories of alternatives to the proposed Project that were analyzed, as well as the alternative screening process and the detailed alternatives identified for further evaluation.

Consistent with NEPA and Council on Environmental Quality (CEQ) regulations, the Department compared the proposed Project with four reasonable alternatives: a pipeline that partly follows an alternative route (the "I-90 Corridor Pipeline Alternative"), and three different "No Action Alternative" scenarios that could result if the Presidential permit is not granted and the crude oil from the WCSB and the Bakken formations is carried on a different form of transport.

Consistent with CEQ regulations and the Department's authority, the Supplemental EIS specifically identifies the alternatives that are before the decisionmaker in considering the application and making the national interest determination pursuant to Executive Order 13337: the No Action Alternative (Permit denial) and the proposed Project (Permit approval).

No Action Alternative

The Supplemental EIS separately analyzed three No Action Alternative scenarios, which are described briefly below. The No Action Alternative analysis considers what would

likely happen if the Presidential permit would be denied or the proposed Project would not otherwise implemented. It includes the Status Quo Baseline, which serves as a benchmark against which other alternatives are evaluated. Under the Status Quo Baseline, the proposed Project would not be constructed, its capacity to transport WCSB crude would not be replaced, and the resulting direct, indirect, and cumulative impacts that are described in this Supplemental EIS would not occur. The Status Quo Baseline is a snapshot of the crude oil production and delivery systems at January 2014 levels.

The No Action Alternative includes analysis of three alternative transport scenarios that, based on the findings of the market analysis, are believed to meet the proposed Project's purpose (i.e., providing WCSB and Bakken crude oil to meet refinery demand in the Gulf Coast area) if the Presidential permit for the proposed Project were denied, or if the pipeline were otherwise not constructed. Under the alternative transport scenarios, other environmental impacts would occur in lieu of the proposed Project. The Supplemental EIS includes analysis of various combinations of transportation modes for oil, including truck, barge, tanker, and rail. These scenarios are considered representative of the crude oil transport alternatives with which the market could respond in the absence of the proposed Project. These three alternative transport scenarios (the Rail and Pipeline Scenario, Rail and Tanker Scenario, and Rail Direct to the Gulf Coast Scenario) are described below.

Rail and Pipeline Scenario: Under this scenario, WCSB and Bakken crude oil (in the form of dilbit or synbit) would be shipped via rail from Lloydminster, Saskatchewan, and Epping, North Dakota respectively (the nearest rail terminal served by two Class I rail companies for both locations), to Stroud, Oklahoma, where it would be temporarily stored and then transported via existing and expanded pipelines approximately 17 miles to Cushing, Oklahoma to interconnect with the interstate oil pipeline system. This scenario would require the construction of two new or expanded rail loading terminals in Lloydminster, Saskatchewan (the possible loading point for WCSB crude oil), one new terminal in Epping, North Dakota (the representative loading point for Bakken crude oil), seven new terminals in Stroud, and up to 14 unit trains (consisting of approximately 100 cars carrying the same material and destined for the same delivery location) per day (12 from Lloydminster and two from Epping) to transport the equivalent volume of crude oil as would be transported by the proposed Project.

Rail and Tanker Scenario: The second transportation scenario assumes WCSB and Bakken crude oil would be transported by rail from Lloydminster to a western Canada port (assumed to be Prince Rupert, British Columbia), where it would be loaded onto Suezmax tankers (capable of carrying approximately 986,000 barrels of WCSB crude oil) for transport to the U.S. Gulf Coast (Houston and/or Port Arthur) via the Panama Canal. Bakken crude would be shipped from Epping to Stroud via BNSF Railway or Union Pacific rail lines, similar to the method described under the rail and pipeline scenario. The rail and tanker scenario would require up to 12 unit trains per day between Lloydminster and Prince Rupert, and up to two unit trains per day between Epping and Stroud. This scenario would require the construction of two new or expanded rail loading facilities in Lloydminster with other existing terminals in the area handling the

majority of the WCSB for shipping to Prince Rupert. Facilities in Prince Rupert would include a new rail unloading and storage facility and a new marine terminal encompassing approximately 4,200 acres and capable of accommodating two Suezmax tankers. For the Bakken crude portion of this Scenario, one new rail terminal would be necessary in both Epping, North Dakota, and Stroud, Nebraska.

Rail Direct to the Gulf Coast Scenario: The third transportation scenario assumes that WCSB and Bakken crude oil would be shipped by rail from Lloydminster, Saskatchewan, and Epping, North Dakota, directly to existing rail facilities in the Gulf Coast region capable of off-loading up to 14 unit trains per day. These existing facilities would then either ship the crude oil by pipeline or barge the short distance to nearby refineries. As with the rail and tanker scenario, this scenario would likely require construction of up to two new or expanded terminals to accommodate the additional WCSB shipments out of Canada. One new rail loading terminal would be needed in Epping to ship Bakken crude oil. Sufficient off-loading rail facilities currently exist or are proposed in the Gulf Coast area such that no new terminals would need to be built under this scenario.

Comparison of Alternatives Before the Decisionmaker

The Supplemental EIS provides detailed analysis of the differences between these alternatives. With regard to GHG emissions, during operation of the No Action Alternative transportation scenarios, including rail and combination modes, the increased number of trains along the rail routes would produce GHG emissions from diesel fuel combustion and electricity generation to support rail terminal operations. Annual GHG emissions (direct and indirect) attributed to the No Action transportation scenarios would be greater than for the proposed Project, but those emissions relate solely to the movement of equivalent amounts of oil from Alberta to the Gulf Coast. Construction of the rail terminals would also involve large numbers of truck trips to transport construction materials and equipment. This increased traffic could cause congestion on roads. Increased shipment of crude by rail could reduce rail capacity available for other goods.

Transportation by rail would likely lead to a greater number of injuries and fatalities per ton-mile than transportation by pipeline, as well as a greater number of accidental releases of crude oil and a greater overall volume of crude oil released. However, the average size of an accidental release associated with crude-by-rail transportation is smaller than the average accidental release associated with a pipeline. Physical disturbance impacts of the No Action Alternative would vary depending upon the modes of transportation chosen by shippers. All three scenarios would require new or expanded facilities, likely concentrated near loading and off-loading terminals. Nevertheless, expansion of infrastructure would affect fewer acres of land (1,500-6,427) during construction than a new pipeline. During operations, the No Action Alternative would permanently affect between 1,500 acres and 6,303 acres of land, compared to 5,309 acres for the proposed Project.

6.0 Basis for Decision

Acting on behalf of the President of the United States under authority delegated by the Secretary of State to him, the Under Secretary of State for Political Affairs has determined that it serves the national interest to issue a Presidential permit to TransCanada Keystone Pipeline, L.P. to construct, connect, operate, and maintain pipeline facilities at the U.S.-Canada border in Phillips County, Montana, as part of the proposed Project. In accordance with the Presidential Memorandum dated January 24, 2017, and Executive Order 13337, the Department has considered Keystone's Presidential permit application originally filed with the Department on May 4, 2012 and re-submitted to the Department on January 26, 2017, and all input received over the course of the Department's review. The determination to issue a Presidential permit for the proposed Project is based on consideration of a broad range of factors, including the following assessments:

- The Department finds that the proposed Project will meaningfully support U.S. energy security by providing additional infrastructure for the dependable supply of crude oil. Global energy security is a vital part of U.S. national security. Moreover, crude oil is vital to the U.S. economy and is used to produce transportation fuels, fuel oils for heating and electricity generation, asphalt for our roads, and petrochemical feedstocks used for the manufacturing of chemicals, synthetic rubber, and a variety of plastics. Accordingly, the Department works closely with our international partners to ensure that adequate supplies of energy reach the global economy and to help manage geopolitical changes arising from shifting patterns of energy production and consumption. Whether promoting national and regional markets that facilitate financing for transformational and clean energy or inspiring civil society and governments to embrace transparent and responsible development of natural resources, the Department works to ensure energy is employed as a tool for stability, security, and prosperity. For U.S. policymakers, this has often translated into an acute focus on oil markets. Historically, oil has been a major source of U.S. energy security concerns due to our relatively high volume of net imports, and oil's economic importance and military uses. Such concerns are well founded. Over the past year, crude oil supply disruptions internationally have trended noticeably higher when controlling for Iran's return to the international oil market. Largely attributable to political instability and manipulative market tactics on the part of OPEC, when compared to disruptions at the time of the 2015 Decision, today unplanned disruptions are over 500,000 bpd higher, having reached a peak high of nearly one million bpd in September 2016. Moreover, OPEC's total spare capacity remains at or below two million bpd, which provides very little cushion for fluctuations in supply in a context of rapidly rising demand or further geopolitical disruptions. While U.S. oil imports have abated sharply in recent years, the United States remains a net oil importer. Moreover, even if the United States were self-sufficient in terms of meeting its domestic energy needs, because oil is traded globally, the United States would stay integrated with global oil markets and subject to global price volatility. Accordingly, the U.S. national interest in ensuring access to stable, reliable, and affordable energy supplies will persist in the foreseeable future.
- Canada's role as the largest and fastest-growing source of U.S. crude imports cannot

be dismissed. According to the latest statistics from the EIA, the United States imported 3.17 million bpd of crude oil from Canada in 2016, which accounted for more than 43 percent of total U.S. crude oil imports. Although domestic production growth from tight oil formations, which is predominately light crude, continues to supplant the majority of international alternatives, U.S. imports of Canadian crude oil are increasing. The vast majority of these imports reach U.S. markets via existing pipeline infrastructure between Canada and the United States. A growing share, however, reaches markets by rail. Over 160 million barrels of Canadian crude oil has been imported by rail from Canada since 2011. Current estimates for WCSB rail loading capacity show crude oil transport by rail has potential to grow further.

- Canadian oil is a relatively stable and secure source of energy supply for many reasons, and few countries share all of the political or physical characteristics that enable Canada to remain in this position. Its producing areas are physically close to the U.S. market, and there are limited chokepoints to disrupt trade between Canada and the United States. Canada has a low likelihood of political unrest, resource nationalism, or conflict—above-ground factors that sometimes disrupt oil production in other regions. Additionally, it is not a member of OPEC, which acts to restrict oil production and influence market conditions. The Canadian oil sector is efficiently run, without undue political interference. Canadian oil sands projects have low production decline rates compared to conventional oil fields, providing greater geologic certainty of future supply levels. Moreover, as the Canadian Government’s conditional approval of the Trans Mountain pipeline illustrates, failure to approve new transboundary pipeline infrastructure may redirect this source of reliable supply to Asian markets.
- Any impact on prices for refined petroleum products would be minimal if the proposed Project is approved. The Supplemental EIS recognized that the proposed Project is unlikely to have a meaningful effect on crude flows and domestic fuel prices. While crude oil prices matter to those involved in producing oil or refining oil into products, most Americans are mainly concerned with the price of gasoline and other refined products. The price of those refined products in the United States continues to be set largely by global crude prices, which are tied to global production and consumption, rather than the availability of pipelines. The findings in the Supplemental EIS have been reinforced by EIA studies that assert that U.S. gasoline prices move with the international benchmark Brent crude oil price rather than WTI. Accordingly, energy security concerns stemming from the proposed Project’s impact on domestic fuel prices are largely unwarranted—cross-border pipeline capacity does not measurably translate into lower retail gasoline prices. Oil trade is driven by commercial considerations and occurs in the context of a globally traded market in which crude oil and products are relatively fungible. The market continually adjusts both logistically and in terms of price to balance global supply and demand. As a result, the level or origin of U.S. oil imports has a minimal impact on the prices U.S. consumers pay for refined products.
- By itself the proposed Project is unlikely to significantly impact the level of GHG-

intensive extraction of oil sands crude or the continued demand for heavy crude oil at refineries in the United States. As stated in the Supplemental EIS, the dominant drivers of oil sands development remain more global than any single infrastructure project. Moreover, under most market conditions, alternative transportation infrastructure would allow growing oil sands production to reach markets irrespective of the proposed Project. Still, uncertainties about the future growth of oil sands production remain. Oil prices are volatile, particularly over the short term. However, the long-term price and technological trends that drive WCSB crude oil production and subsequently the amount of new transportation capacity needed to meet them, coupled with the documented ability of Canadian upstream producers to sustain production during a brief period of lower oil prices, leads the Department to have confidence in the forecasts presented by market experts at the EIA and IEA, and affirms the Department's conclusion that such infrastructure is supported by mid- and long-term market outlooks.

- In the 2015 Decision, the Department determined that approval of the proposed Project at that time would have undercut the credibility and influence of the United States in urging other countries to address climate change. Since then, there have been numerous developments related to global action to address climate change, including announcements by many countries of their plans to do so. In this changed global context, a decision to approve this proposed Project at this time would not undermine U.S. objectives in this area. Moreover, a decision to approve this proposed Project would support U.S. priorities relating to energy security, economic development, and infrastructure.
- The Department recognizes the importance of the proposed Project to Canada and places great significance on maintaining strong bilateral relations. The United States and Canada are the closest of allies, economic partners, and friends. This unique bilateral relationship is based on shared history, common values, and a vast and intricate network of ties between our federal governments, states, cities, and people. In many economic sectors the United States and Canada enjoy deeper, more integrated structures than found even among European Union member states. The United States has over \$2 billion in trade per day, U.S.-Canadian supply chains are interlinked, and U.S. and Canadian companies are heavily invested in each other's markets. The two countries coordinate closely on most foreign policy issues and have a robust partnership in critical areas around the world. Irrespective of the proposed Project, our relationship with Canada will endure. However, the United States recognizes Canada's interest in the completion of the proposed Project and finds that it is in the United States' interest to strengthen the role Canada plays as a secure conduit for crude oil to reach the U.S. market, and more broadly, to ensure our shared interests in energy, environmental, and economic issues continue to prosper.
- The Department considered the economic benefits of the proposed Project for the United States using an input-output model calibrated to 2010 data. During construction over a two-year period, the model estimates spending on the proposed Project would support approximately 42,100 jobs (direct, indirect, and induced jobs

combined), of which approximately 3,900 would be direct construction jobs. The majority of these jobs would be short-term in nature. According to the applicant, were the proposed Project to enter service, operations would require approximately 50 employees in the United States, consisting of 35 full-time employees and 15 temporary contractors. The proposed Project would also generate tax revenue for communities in the pipeline's path and it was estimated that pipeline activity would contribute \$3.4 billion to U.S. GDP. Since 2010, the U. S. economy has returned closer to full employment capacity but simultaneously has seen relative economic weakness in certain sectors and states due to the downturn in global energy prices in 2014. As a result, the economic benefits in terms of job creation from the proposed Project may be more significant than the initial estimates. The economic benefits are likely to be meaningful and reflect the importance policymakers place on positive near- and long-term economic growth.

- There are a variety of potential environmental and cultural impacts associated with the proposed Project, just as there would be for alternative methods of transporting crude oil. TransCanada Keystone Pipeline, L.P. has agreed to abide by all the terms and conditions of the mitigation measures outlined in the Supplemental EIS, including all Appendices and supplements, follow all state, local, and tribal laws and regulations with respect to the construction and operation of the proposed Project, follow monitoring and reporting requirements, and carry out response activities of any spills if they occur. Additionally, the Department has considered the concerns of some Indian tribes raised in the context of the proposed Project regarding sacred cultural sites and avoidance of adverse impacts to the environment, including to surface and groundwater resources.

Having weighed multiple policy considerations, the Under Secretary of State for Political Affairs finds that, at this time, the proposed Project's potential to bolster U.S. energy security by providing additional infrastructure for the dependable supply of crude oil, its role in supporting, directly and indirectly, a significant number of U.S. jobs and provide increased revenues to local communities that will bolster the U.S. economy, its ability to reinforce our bilateral relationship with Canada, and its limited impact on other factors considered by the Department, all contribute to a determination that issuance of a Presidential permit for this proposed Project serves the national interest.

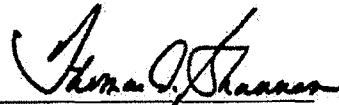
7.0 National Interest Determination

Pursuant to the authority vested in me under Executive Order 13337 of April 30, 2004, the Presidential Memorandum dated January 24, 2017, and Department of State Delegation of Authority No. 118-2 of January 26, 2006, I hereby determine that issuance of a permit to TransCanada Keystone Pipeline, L.P. (Keystone), a limited partnership organized under the laws of the State of Delaware, to construct, connect, operate, and maintain facilities at the border of the United States and Canada for the transport of crude oil from Canada to the United States across the international boundary in Phillips County, Montana, would serve the national interest.

The Presidential permit issued to TransCanada Keystone Pipeline, L.P. shall include authorizations to construct, connect, operate and maintain facilities at the border of the United States facilities for the transport of crude oil from Canada to the United States as described in the Presidential permit application dated January 26, 2017. No actions shall be taken by TransCanada Keystone Pipeline, L.P. pursuant to this authorization prior to Keystone's acquisition of all other necessary federal, state, and local permits and approvals from agencies of competent jurisdiction.

23 March 2017

Date



Thomas A. Shannon, Jr.
Under Secretary of State for Political
Affairs