TransCanada is building the Keystone XL Pipeline System to transport approximately 830,000 barrels of crude oil per day from an oil supply hub near Hardisty, Alta. to delivery points at Steele City, NE., Cushing, OK., and Nederland, TX.

The basic function of a mainline pump station is to pressurize the flow of crude oil enough to allow for its continued transport through the pipeline. The pressurization is done using pumps in series. Pipeline pressure is measured at each pump station to assure that the station operates within acceptable pressure limits.

The Keystone XL Pipeline will use a series of 41 electric powered pump stations to move oil through the line – 33 pump stations in the United States and eight in Canada. Situated at approximately 50-mile (80-km) intervals along the line, groups of pumps and supporting equipment are located in a small, secure facility referred to as a pump station.

Pump stations will be built on small parcels of land approximately five to ten acres in size. A series of four to five electrically driven pump units will be installed at each station. Each pump is driven by a 6,500-horsepower electric motor, with each pump station initially having up to 32,000 horsepower of pumping power. At some stations, above-ground piping will include launching and receiving facilities for maintenance, cleaning and inspection equipment that is periodically run through the pipeline.

Pump stations include an electrical sub-station and small enclosures to house electrical, measurement and control system components. The pipeline and pump stations will be remotely monitored and controlled, 24 hours a day, seven days a week, from the Oil Control Center (OCC) in Calgary, Alta.

**Frequently Asked Questions**

**How many pump stations are proposed?**

The Keystone XL Pipeline will include eight pump stations in Canada and 33 in the United States.

**How are the locations of pump stations determined?**

Initial pump station locations are determined by pipeline hydraulics, taking into account such factors as pipe size, topography, frictional losses related to oil flow, and location of other pumps in the system. Selection of a specific pump station site also takes into account such factors as proximity to local roads, utility power lines, land use and environmental characteristics. Final locations are subject to change based on engineering and route refinements, landowner agreements, public consultation and environmental field studies.
**What permits and approvals are necessary to build a pump station?**

The Keystone XL Pipeline project, including pump station facilities, requires many permits and approvals from federal, provincial/state and local regulators. Pump stations may also be subject to local ordinances and zoning requirements.

**What does a pump station sound like?**

Sources of sound at pump stations include components such as pumps, motors, the electrical transformer and electrical shelter Air Handling Equipment. Electrically-driven pumps are the quietest type of pumps available and have the benefit of no direct air emissions. Sound levels vary depending on the number of pumps in operation, background noise in the vicinity of the pump station, proximity to the station and weather conditions. An operating station about a half-mile away would have a constant hum — similar to a secondary highway.

We install equipment and acoustical controls to ensure sound levels at the nearest residence are in compliance with state and/or local standards where they exist. In the absence of specific regulations, it is our practice to apply design standards to minimize sound levels at the nearest residence.

Baseline noise level surveys will be prepared for each pump station prior to construction. Noise levels will also be measured after the start of operations.

**Will pump stations be manned?**

Pump stations are designed to be remotely operated and controlled and generally will not be manned. Keystone pump stations will be monitored at the OCC in Calgary, Alta., which is staffed 24 hours a day, seven days a week. Technicians will be at pump station sites on a regular basis to perform routine maintenance and operation activities during normal working hours. Technicians will also be on-call to respond to emergencies or other operational events at any time.

**How will pump stations be powered?**

The pump station facilities will be served by high voltage electrical lines. At maximum pumping capacity, each pump station may draw up to 25 megawatts of electrical power. Electrical transformers, located within an electrical substation on site, will transform the incoming voltage to the appropriate level for the pump motors. Power will be purchased from local electric suppliers.

**What would happen to the pump station in the event of a power outage?**

In the event of a power outage at a pump station, the pump station would safely shut down. Small, uninterruptible power systems located at each pump station are designed to operate communications, select control equipment and emergency lighting, but not the pumps themselves. Normal operation in the case of power outage is to maintain flow through the pump station. If required, Keystone operators could elect to safely bypass the affected station, allowing the pipeline to continue to operate using upstream and downstream pump stations.

**Contact Us**

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