

**Trans-Foreland Pipeline Project  
Project Description and Figures**

## **Description of Project**

Cook Inlet Energy, LLC (CIE) is proposing to construct an 8-inch diameter sales crude oil pipeline from its existing Kustatan Production Facility on the west side of Cook Inlet to the Kenai Pipeline Company (KPL) Tank Farm on the east side of the inlet. Portions of the pipeline will be installed on the seafloor of Cook Inlet. Figures 1 through 6 show the project area, pipeline alignment, proposed pipeline corridors and seismic map.

**Land Ownership:** CIE owns the land on the west side of Cook Inlet where the Kustatan Production Facility is located. Salamatof Native Association owns a portion of the Kustatan pipeline right-of-way (ROW), and CIE holds a ROW for the access road and pipeline corridor. CIE holds a State Non-exclusive ROW and a Fiber Optic Cable ROW at the HDD location from the top of the bluff to seafloor exit site. The State of Alaska owns Cook Inlet and the tidelands at Nikiski. The Hedberg Drive ROW is owned by Kenai Peninsula Borough (KPB) and the Kenai Spur Highway ROW is owned by the State of Alaska, Department of Transportation and Public Facilities. The proposed pipeline corridor adjacent to Kenai Spur Highway is owned by Chevron, Homer Electric Association, and KPL. KPL owns the tank farm site. Figure 1 shows the project area and Figures 2, 3, 4 and 5 show land ownership.

**Kustatan:** The 8-inch pipeline will begin at the Kustatan Production Facility, travel approximately 2.2 miles mostly in uplands along an existing pipeline ROW using the cut and cover construction method to the bluff on the west side of Cook Inlet (Figure 2). The approximately 2.2 miles (11,616 feet) long by 3 feet wide by 4 feet deep trench will be excavated using a backhoe. An existing access road parallels the pipeline corridor and will be used to access the site. Three pipelines and a fiber optic cable are currently buried in this ROW.

**West Shore Transition:** Starting at the top of bluff, the pipeline will be installed using horizontal directional drilling (HDD) for approximately 0.5 mile (2,640 feet) into Cook Inlet where it will exit onto the seafloor (Figure 2). The entry site for the HDD installation on the bluff is in uplands and will measure 30 feet long by 100 feet wide. The seafloor exit site will measure approximately 14 inches (1.2 feet) in diameter or approximately 0.00002 acres. Portions of the pipeline will be installed parallel to three existing pipelines that connect to the Osprey platform 5 miles offshore. Divers will be used to weld the HDD pipeline to the pipeline coming off the barge.

**Cook Inlet:** From the HDD exit site, the pipeline will be laid on the seafloor across Cook Inlet in a horseshoe shape using a lay barge, tugs and other support vessels (Figure 3). An anchoring system will be used, and anchors will be placed periodically along the pipeline's length. The pipeline is laid in a horseshoe shape to facilitate construction in the high tidal currents occurring between the East and West Forelands. The forelands represent the narrowest part of Cook Inlet and have the highest currents and deepest trenches. The route was also selected to minimize tidal stresses and avoid water depths greater than 200 feet, the maximum depth for safe operation by marine divers. The pipeline route does not cross any seismic faults (Figure 6).

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The length of the sea floor portion of the pipeline is approximately 26 miles (137,280 feet). The sea floor portion of the pipeline will cover a total area of approximately 3.2 acres (see Figure 3). No discharge of dredge or fill material will occur.

**Location:** The proposed route is located on private, KPB, and State of Alaska submerged and tide lands. The location information includes latitude and longitude; State parcel identification numbers; subdivision descriptions; and meridian, township, range and section numbers.

### **Latitude and Longitude:**

Northern Boundary: 60° 44' 0" N

Southern Boundary: 60° 34' 0" N

Eastern Boundary: 151°22' 0" W

Western Boundary: 151° 46' 0" W

### **State Parcel Identification:**

#### **Kustatan:**

22104024 – Salamatof Native Association, Inc.

22104042 – Cook Inlet Energy, LLC

22104006 – Cook Inlet Energy, LLC

#### **Nikiski:**

01402005 – Kenai Pipeline Company

01403033 – Chevron USA, Inc.

01403034 – Chevron USA, Inc.

01403012 – Chevron USA, Inc.

01403017 – Chevron USA, Inc.

01403012 – Homer Electric Association, Inc.

### **Subdivision Kustatan Properties:**

Cook Inlet Energy LLC; AN 0004527 US Survey 4527 Lot 1

Salamatof Native Association, Inc. AN & SECS 4 5 9 & 10 TR A EXCL US Surveys & Nat Allotments

### **Subdivision Nikiski Properties:**

Chevron USA, Inc.; Chevron Tracts Sub 2008 Addn Tract D1-A

Chevron USA, Inc.; Chevron Tracts Sub 2008 Addn Tract D1-B

Homer Electric Association Inc.; Chevron Tracts Sub B Tract F

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Chevron USA, Inc.; Chevron Tracts Sub Tract E1

Kenai Pipeline Company; PTN GL 1 W of N Kenai Rd; & PTN GL6 EXCL PTN DESC In Deed 39/134;  
& PTN TR 1 USS 1095 (HES 74) As Shown on K-672 EXCL THAT PTN DESC in deed 53/99

### **Shore Fishery Lease Case Numbers:**

ADL 52976

### **Meridian, Township, Range, Section:**

Seward Meridian

Township (T) 7 North (N), Range (R) 14 West (W), Sections (Sec.) 4, 9, 10, 11, 14, 23, 26, 35

T6N, R14W – Cook Inlet

T6N, R13W – Cook Inlet

T6N, R12W, Sec. 5, 6, 7, 18

T7N, R12W, Sec. 16, 17, 20, 21, 29, 32

**Bathymetry:** To assist in pipeline construction planning, high-resolution bathymetric data was collected in the vicinity of the proposed pipeline corridor by CIE contractors in 2011. Additional high-resolution bathymetry was collected in August 2012 in the Nikiski area, north of the docks. This area was not included in the original survey, but became necessary after the proposed pipeline corridor was rerouted to the north after consultation with the Southwest Alaska Pilots Association (SWAPA).

**Tidal Currents:** Tidal current data were obtained from the National Oceanic and Atmospheric Administration (NOAA) Center for Operational Oceanographic Products and Services (CO-OPS) from current meters deployed in the Cook Inlet project area. The meters were used to record velocities and phases of the strongest currents for future tidal current predictions. Using the 2011 Tidal Current Predictions available from NOAA, a data set with maximum predicted current velocities was assembled for Cook Inlet in the Nikiski area for 16 tidal current stations. An emphasis was placed on maximum velocities occurring during the lay barge season at the sea surface and near the sea floor. Cook Inlet currents in the vicinity of the forelands are not as strong in May and June when seafloor pipeline construction will occur. Following a review of the mapped tidal velocities, a pipeline alignment was selected that met both lay barge capabilities and sea floor depth constraints. Lay barges were assumed to have a 4-knot maximum operating cross-current limit based on information received from numerous construction companies.

**Sea Floor Pipeline Location and Construction Timing:** CIE consulted with SWAPA to determine the necessary set back distances from the Nikiski docks and to determine construction timing. Based on USFWS comments, sub-sea pipeline construction would begin after May 1.

**Nikiski:** As the pipeline nears the east shore of Cook Inlet, it will remain 1 mile offshore to avoid the anchoring procedures at the KPL, Agrium, and Arctic Slope Regional Corporation (ASRC) docks. SWAPA 1-mile recommendation was incorporated into project plans. North of the ASRC dock and Rig Tenders Dock Road, the pipeline will curve to the east and transition to a buried

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line as it leaves the seafloor. The pipeline will make landfall in the intertidal zone seaward of Hedberg Drive. The seafloor pipeline transition and construction method and pipeline depth across the intertidal zone will be determined in the next engineering phase. If trenched, the depth through the intertidal zone will be sufficient for the pipeline to remain buried through all tide cycles. The final depth will be determined during design.

After leaving the beach, the 1.6 miles of pipeline will be constructed along the Hedberg Drive and Kenai Spur Highway ROW to its terminus at the KPL Tank Farm. From the beach, the pipeline continues east, parallel to the south side of Hedberg Drive within the road ROW, to Kenai Spur Highway. At the intersection, the line turns south and will be buried on the west side of the Kenai Spur Highway in an existing utility and pipeline corridor on private land. The pipeline will turn west and enter the southeast corner of the KPL Tank Farm property and terminate at an existing pipeline header where a pigging receiver and metering skid will be installed. The pipeline trench will measure approximately 1.6 miles (8,506 feet) long by 3 feet wide by 4 feet deep (0.03 acres) (see Figures 4 and 5).

**Onshore Construction Method:** The buried portions of the pipeline will be installed using the cut and cover construction method. The trench will be excavated using a backhoe. Overburden will be stockpiled along the length of the trench. Two stockpiles will be created with the topsoil segregated to preserve the native seed bank. Wetlands outside of the pipeline excavation area will be flagged and avoided. For construction through wetland areas, overburden will be stockpiled on adjacent uplands.

Once the pipeline is laid, the overburden will be used as backfill in the trench. The segregated topsoil placed on top of the trench and mounded to account for settlement. The disturbed area will be fertilized to facilitate growth of the native seeds preserved within the topsoil. Fertilizer will not be used on the beach. Existing roads paralleling the pipeline corridor will be used to access the site.

**Staging Areas:** An existing pad at the CIE Kustatan Production Facility will be used to stage construction equipment and supplies on the west side of Cook Inlet. On the east side of the inlet, an existing pad at the KPL Tank Farm will be used to stage construction equipment and supplies. No materials will be staged on the beach or along the pipeline ROW. Both staging areas are located in uplands and each will measure approximately 250 feet long by 500 feet wide. It is possible use of an existing pad owned by Chevron may be negotiated for short-term use as a construction staging area. All of the staging areas are located in uplands.

**Material Sites:** On the west side of Cook Inlet, the existing, permitted CIE 1.5-mile gravel pit will be used for sand and gravel as needed to supplement material removed from the trench for construction. On the east side of Cook Inlet, an existing commercial operation will be contracted to provide sand and gravel as needed.

**Project Purpose:** The new pipeline is needed to bypass the aging infrastructure on the west side of Cook Inlet, to eliminate the risk of volcanic activity and ice movements to oil shipments through the Drift River Terminal, to eliminate the need to move crude oil on tankers/barges across Cook Inlet, to reduce transportation expenses, and eliminate barge traffic between Drift River and KPL dock. The purpose of a project is to install an 8-inch sales crude oil pipeline

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between Kustatan Point and Nikiski. Currently sales crude oil on the west side of Cook Inlet moves through a series of pipelines to the Drift River tank farm. The oil is then loaded onto barges and transported across the inlet to the KPL dock in Nikiski. The oil is offloaded from the barge and into tanks at the refinery. Because the Drift River Oil Terminal is located near the foot of Mt. Redoubt, an active volcano, there have been major interruptions to oil movements during periods of volcanic activity.

**Construction Schedule:** Construction of the pipeline is scheduled for April through August 2014. Clearing of the Kustatan Point ROW will take place in the late fall 2013. The seafloor portion of the pipeline will be laid in May and/or June 2014 to avoid conflicts with commercial and set net fishing. Construction across the tidelands on the east side of the inlet will also occur in May and June 2014. The HDD will be installed prior to the seafloor pipeline in April and/or May 2014. The remaining onshore portions will be installed after the seafloor portion is completed, but before the end of August 2014. Hydrostatic testing will occur immediately after installation.

**Construction Personnel:** Construction personnel will be hired locally to the greatest extent practical. Others will be billeted at existing commercial facilities or housed at the CIE camp at West McArthur River. No temporary construction camps will be necessary.

### **Description of Avoidance, Minimization, and Compensation**

**Avoidance:** The project is designed to avoid wetland impacts and take advantage of existing disturbed corridors where available. The pipeline was routed to avoid undisturbed wetlands except 430 feet (0.03 acres) of intertidal wetlands west of Hedberg Drive in Nikiski. HDD is being used to install the pipeline to avoid impacts to the beach on the west side of Cook Inlet near Kustatan Point.

The HDD penetration site approximately 0.5 miles offshore of Kustatan Point covers approximately 0.00002 acres of waters of the U.S. The pipeline will be laid on the top of the sea floor across Cook Inlet and covers approximately 3.2 acres. No dredge or fill material will be placed.

To avoid impacts to anchoring procedures at the Nikiski docks and to ship traffic and commercial fishing vessels, SWAPA and USCG were consulted to determine the optimum seafloor pipeline route and construction timing. Construction timing will allow the project to avoid impacts to ship traffic transiting the area, commercial fishing vessels, and set netters. The pipeline has been located to avoid impacts to the anchoring procedures at the Nikiski docks.

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**Figure 1**

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**Figure 2**

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**Figure 3**

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**Figure 4**

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**Figure 5**

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**Figure 6**