

Description of Avoidance, Minimization, and Compensation – Put 29 Access Road and Mine Site

Hilcorp Alaska, LLC (Hilcorp) proposes the following measures to avoid, minimize and compensate for impacts to waters of the United States from activities involving discharges of dredged or fill material:

1. Avoidance of impacts to waters of the U.S., including wetlands:

- Hilcorp has reviewed options to avoid construction of the proposed Put 29 Mine Site and Access Road, but the option to construct could not be avoided. Ongoing development in the Prudhoe Bay Unit requires additional sources of gravel. The proposed mine site will be excavated in phases pending the need for gravel. When gravel is used, Hilcorp minimizes the footprint necessary for new pad development by optimizing the well spacing and row layout. Hilcorp also minimizes wetlands disturbance by using existing pads as much as possible. However, pad extensions or new pads are required from time to time for exploration drilling and production facilities.
- The proposed mine site and access road is designed with the minimum footprint consistent with safety and engineering constraints;
- Hilcorp employs deep mining to reduce surface area disturbance;
- The construction of the proposed mine site avoids the following impacts:
 - Avoids impacting as many lakes, ponds and streams as possible;
 - Avoids Anadromous Water crossings to the maximum extent possible;
 - Avoids impacting pristine wetlands to develop a new gravel source;
 - Will use existing material sites and local existing roads to the maximum extent possible.

2. Minimization of unavoidable impacts to waters of the U.S., including wetlands:

- The proposed mine site construction has been designed to minimize the area disturbed. The overburden will be removed and placed to maximize the conservation, segregation and stockpiling of the organic overburden for use in reclamation and restoration projects.
- Once mining is completed, overburden will be placed back into the pit to reduce and buttress side slopes and limit area required for storage.
- Hilcorp will construct berms around the margin of the proposed mine site to serve as a thermal barrier. This barrier will help to preserve the underlying permafrost and prevent the melting of ice wedges and thermokarsting. Without this insulation, exposed ice wedges may melt and erode back from the edge of the pit with the potential to drain adjacent wetlands. The slope stability gained by this practice will greatly increase the potential for future valuable habitat for avian species. The thermal berms will also prevent transmission of water, which is a major safety concern in an active mine site. The result of these berms is a net benefit for wetland preservation.

- Hilcorp minimizes the amount of gravel necessary by minimizing the footprint necessary for additional development wells and associated infrastructure including providing access to the existing well rows for drilling, completion and operation of existing wells. Hilcorp designs the footprint of well pads to minimize impacts while still drilling new development wells and working on existing wells. This minimizes the amount of gravel expansion required at this site.

3. Compensation for unavoidable impacts to waters of the U.S., including wetlands:

- Through Avoidance and Minimization, Hilcorp has worked to limit the impact to wetlands.
- Hilcorp examined permittee responsible mitigation; including creation/restoration and preservation. Wetland creation/restoration on the North Slope is impracticable because wetlands are primarily developed through permafrost action (taking hundreds of years to develop) and the growing season is only 60 days. This prevents any reasonable success goals from being achieved that would show replacement of lost functions, as required by regulation.
- Hilcorp continues to commit to continued improvement of fish passage routes where existing roads and pads meet streams, creeks and rivers.
- Hilcorp has avoided potential impacts by methods listed in Section 1 above, and minimized potential impacts by methods listed in Section 2. Avoidance and minimization is proposed to the maximum extent practicable. Hilcorp proposes that the described avoidance and minimization measures satisfy the mitigation requirements under the Corps' various statutory authorities and therefore propose that no compensatory mitigation is appropriate or should be required.