Gambell Plan Comments
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One factor is clear from the data collected on the effects of the military occupancy is that it is very difficult to effectively characterize and assess the environmental impacts within the Gambell area due to the complex hydrology and geology of the area. The highly permeable and coarse grained nature of the cobble deposits are difficult to sample. The presence of permafrost, as well as the proximity of the impacted sites to the Bering Sea and the relative hydrologic influences of Troutman Lake, makes it difficult to effectively characterize impacts to the various sites known to have been impacted by the release of contaminants during the time the military occupied the area.

Additional complications are imposed by the difficulties in gaining an understanding of the relationships of the Gambell cobble deposits (the spit) to the bedrock especially the transition at the base of the elevated mountainous area, including the interrelationship of the fractured bedrock, the talus and the on-lapping cobble deposits, This transition zone is particularly important to the source of the Gambell water supply since the infiltration gallery is charged by the groundwater deriving from this complex interrelationship. This interrelationship is also subject to seasonal changes and further complicated by the presence of contaminated cobble soils within the recharge gallery area. As I have mentioned in earlier correspondence, the hydrology of the infiltration gallery and relations to the contaminants identified in the sites located in proximity to the infiltration gallery are less than well defined.

As I mentioned in my comments on the Gambell Feasability Report, it is important to provide the Gambell residents with assurances that the environmental impacts deriving from the former military occupancy and release of contaminants at the various defined sites will not continue to affect their natural resources. The most effective way to provide this assurance is to establish a broad based monitoring program that will take into consideration the uncertainties inherent in effective site characterization due to the complex nature of the Gambell geology, hydrology, and relationship to permafrost, climatic changes and future land use to ensure that potential impacts will be identified and defined.

I recommend a more comprehensive series of monitoring wells be established and monitored throughout the Gambell area to ensure detection of contaminants will not go undetected. The Gambell residents should be provide a measure of confidence that future potential impacts will be detected and once detected effectively eliminated.