



### NATIONAL PETROLEUM RESERVE-ALASKA



• PINGO OR PINGO-LIKE FEATURE  
(Some dots represent 2 or 3 pingos)

This preliminary map shows the distribution of 732 pingos and pingo-like features in the National Petroleum Reserve in Alaska. All pingos on the Arctic Coastal Plain were mapped from air photos. A careful examination was made of air photos of the area east of the Usuktuk River because pingos were observed there during field investigations in 1977. Pingos were not observed west of the Usuktuk River during field studies by John R. Williams in 1977 (oral commun. 1978) and none were detected during scanning of the air photos for this study. Air photos of the foothills west of the Ikpikuk River were not examined, and the locations of two pingos in this region were supplied by Warren E. Yeend. A pingo is an ice-cored dome-shaped hillock which occurs in permafrost. Pingos are of two types, open-system and closed-system (Müller 1963). Closed-system pingos occur in areas of continuous permafrost and grow as a result of hydrostatic pressure created by the freezing of confined saturated sediments. Closed-system pingos almost exclusively occur in lake basins which have been drained or partially drained. Open-system pingos occur in discontinuous permafrost where hydraulic pressure of water confined by permafrost is sufficient to heave overlying material. All the features mapped here are interpreted as closed-system pingos. Almost all the pingos occur in eolian sand or eolian sand which has been reworked by fluvial processes (Williams and others 1977). Many of the pingos are large; some as large as 200 m in diameter. A few large pingo-like features are as wide as 200 m and longer than 600 m. Most pingos are less than 30 m high.

- Selected References
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Planimetry and selected topography from U.S.G.S. Quadrangle Sheets  
Base map compiled for HUSKY OIL OPERATIONS, INC. July 1977  
by ALASKA MAP SERVICE, INC.

### PRELIMINARY MAP OF PINGOS IN NATIONAL PETROLEUM RESERVE IN ALASKA

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This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards and nomenclature.