



Notes on Well Location and Land-net map

A separate map of the well sites and their reference land-net assures the relative location of any particular well and focuses exploration progress and success through drilling. The defined limits of the Prudhoe Bay field (Alaska Div. Oil and Gas, 1974) include the Prudhoe, Lisburne, and Kuparuk River pools in Triassic, Carboniferous, and Lower Cretaceous reservoirs, respectively. They enclose approximately 400,000 acres or nearly 18 townships. "Producible" wells dot the field, and development of the Prudhoe oil pool from multi-well pads is scheduled for completion with opening of the pipeline in 1977.

Only the Prudhoe pool has been delineated publicly, and detailed definition of its reservoirs approaches negotiated agreement for unitization purposes. Recent stepout drilling apparently followed successful tests in both the Lisburne and Kuparuk River pools. Suspended wells near and east of the hydrocarbon limits in the Sadlerochit reservoir appear to have added significantly to the productive extent of the Lisburne reservoir. Productive tests from West Sak River No. 2 and subsequent optimistic stopouts in the west also have probably added substantially to identified Kuparuk River production. Ugnu and East Ugnu wells, west of the field earlier discovered, have produced oil, probably a separate accumulation, in the Kuparuk River reservoir.

Heavy oil tested from Upper Cretaceous zones in West Sak River No. 2 and prolonged testing of the Flaxman well far to the east indicate at least some hydrocarbon resource in the younger section.

Published reserve estimates of 9.6 billion barrels of oil and 26 trillion cubic feet of gas (Morgridge and Smith, 1972) recoverable from the Sadlerochit reservoir exceed those in any other North American field. Initial evaluations (Thomas, 1969) recognized an additional billion barrels recoverable from the Kuparuk River sands. Extensions of the Kuparuk River should have added at least an equal amount. Accumulations in the Lisburne need to have a similar magnitude to be commercial; the few reported tests indicate greater reservoir capacities for the carbonate section. Ultimate recovery from the Prudhoe Bay field and area therefore, likely, will be closer to 15 than to 10 billion barrels (Tailleur, written comm., 1974) and represents the country's most concentrated supply of oil and gas.

Drilling intensity fell off sharply going away from the field. Local geologic structures westward along the high failed to produce, however, because of poor or nonexistent downdip communication between the reservoirs and overlying source beds. Holes drilled beyond the truncation of reservoirs were dry, as were those drilled downdip from the oil-water contact in reservoirs down-dropped in fault blocks or spread southward down the foreland flank of the Colville basin.

Well densities far down the flank average no more than one deep-test per 15-20 townships; however, the initial exploratory stage of drilling is considered complete because dry holes and persistent geologic conditions limit the chances of new discoveries.

About a dozen deep holes and a like number of shallow tests in the relatively disturbed belt to the south intersect locally thick or repeated basin fill deposits, two gas fields in upfolded and faulted pre-Cretaceous reservoirs, and small oil or gas accumulations in several folded sandstones in the Cretaceous clastic-wedge deposits.

Base from Harrison Bay, Beechey Point, Flaxman Island, 1955, Umiat, Sagavanirktok and Mount Michelson, 1956, 1:250,000 U.S. Geological Survey

WELL-LOCATION AND LAND-NET MAP

MAPS SHOWING LAND STATUS AND WELL LOCATIONS AND TABLES OF WELL DATA, EASTERN NORTH SLOPE PETROLEUM PROVINCE, ALASKA

COMPILED FROM ALASKA DIVISION OF OIL AND GAS MAP, DECEMBER, 1975 BY I.L. TAILLEUR, AND S.E. ENGWICHT 1978