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Dave Harbour
Director
Alaska State and Local
Government Relations

Atlantic Richfield Company
Public Affairs Division
711 Eighth Avenue
Post Office Box 360
Anchorage, Alaska 99510
Telephone 907 265 6520



A STATEMENT BY
ATLANTIC RICHFIELD COMPANY2/3/79
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Atlantic Richfield Company is gravely concerned about the escalation in the rate of federal land withdrawals from the public domain. We have consistently stated that multiple use of public lands, wherever possible, is in the best interest of the nation. This includes oil, gas and mineral exploration and development activities which can be conducted compatibly with other alternative land uses and in an environmentally sound manner. Further, we believe the nation has the right to know what resource potential exists on public lands before any permanent, single use withdrawal, such as for wilderness purposes, is determined appropriate. As presently proposed, each public land withdrawal further limits acreage accessible for oil, gas and mineral exploration and development. This potentially increases national dependence on insecure foreign sources of supply. Taken collectively, the proposed withdrawals have serious implications for the dependability of this Nation's future supplies of natural resources, U.S. balance of payments, and domestic rates of inflation.

We are particularly concerned in the case of Alaska, since it is generally recognized as the richest state in the nation with respect to potential oil, gas and mineral resources. Present land withdrawals in Alaska already total approximately 180 million acres which represents nearly 50% of the total land area of the state! In addition, lack of access across some of these withdrawn lands adds substantially to the total lands affected by the withdrawals. However, of possibly even greater importance is the fact that a significant portion of these withdrawn lands are of high resource potential. To illustrate this, attached to this paper is a map showing the current status of Alaska land withdrawals at the beginning of 1979, along with an identification of the areas of high oil and gas and mineral potential. The areas of conflict between potential resource development and the current land withdrawals are substantial and readily discernible. Also attached are written descriptions of each of the high potential resource areas identified on the map.

It is important to note that although most of the high potential areas depicted on the attached map are relatively large in size, only small fractions of these lands would be required for the development of any economically recoverable resource. Based on prior experience, such development would most likely require less than 1% of the total land area of the state. In addition, oil, gas and mineral exploration activities need not impair wildlife and scenic resources. Exploratory sites are few and far between and would usually require no permanent installations or significant surface effects unless commercial volumes of oil, gas and minerals are found. Thus, most of the areas believed to be of high potential will remain undisturbed.

Additional legislation pertaining to the withdrawal of lands in Alaska is presently under consideration by the 96th Congress (H.R. 39, S.9 and S.222). The following represents the Company's principal concerns with such legislation:

1. Wilderness Classification

The wilderness classification totally precludes resource exploration and production activities. It is our position that it is only reasonable to place land in this classification if it is devoid of significant natural resource potential.

In addition, the so-called "wilderness study" category is essentially an interim defacto wilderness classification. Legislation placing lands in this category should establish reasonably short deadlines for determining final classification.

2. Unknown Resource Potential

Exploration activities in Alaska for oil, gas and minerals are in a very early stage. As a result, most of the land proposed for withdrawal has yet to be properly evaluated. To the extent that these lands are classified in categories which do not permit resource exploration and development, Congress will be depriving the nation of its right to know the extent of the resource potential in Alaska. This is not the basis for sound land use planning.

3. Remedial Legislation

In this nation's complex economy, unforeseen impacts resulting from a particular piece of legislation often occur. As a result, it is important that legislation provide for future review should unanticipated onerous impacts develop. This has been done for example with the Clean Air Act. However, unless resource investigation is allowed to proceed on withdrawn lands, it is unlikely that evidence could ever be developed in the future to show that the issue of classification for withdrawn lands should be reopened.

4. Access Provision

The total lands in Alaska affected by this legislation may be significantly greater than intended unless an appropriate access provision across withdrawn lands is included. The legislation should allow access across conservation units to private lands and mineral leases, as well as inholdings, where access is not economically feasible otherwise. Appropriate restraints on the use of such access could be included in the legislation to ensure that it is accomplished in an environmentally sound manner. A crucial example of such a situation is the Ambler Mining District in the Brooks Range Schist Belt, potentially one of the worlds largest mineral areas (see attached description).

Atlantic Richfield Company supports preserving portions of the public domain as "forever wild" for the benefit of present and future generations. However, we also believe very strongly that our Nation's natural resources must be available for utilization. These two objectives need not be mutually exclusive. Most recently, and perhaps most effectively, this has been demonstrated by the oil and gas industry's activity in Alaska's North Slope area where essential natural resources have been developed and delivered to the lower 48 states with little negative impact on delicate ecological systems or wildlife. It is our belief that oil, gas and mineral resource exploration and development activities should be generally allowed to proceed where significant potential exists.

DESCRIPTION OF HIGH POTENTIAL
OIL AND GAS AREAS
STATE OF ALASKA

Atlantic Richfield Company, through its Land and Exploration Departments in the Alaska Region, has identified the areas of Alaska with high oil and gas potential. These sedimentary basins are depicted on the attached map. A write-up describing each of the indicated high potential oil and gas areas is also attached.

Definitions used in the following material:

Basin means an area in which sediments have accumulated through geologic time.

High Oil and Gas Potential means areas in Basins in which conditions are favorable for significant hydrocarbon accumulations. These favorable conditions include the existence of rocks capable of generating hydrocarbons (source rocks), porous and permeable rocks capable of holding oil or gas (reservoir rocks), together with the arrangement of those rocks in such a manner as to trap hydrocarbons (structural and stratigraphic traps).

ALASKA BASIN DATA SHEET
NORTH ALASKA DISTRICT

BASIN: North Slope (Hydrocarbon Basin #1 on attached map)

Note: The North Slope Basin Area includes but is not limited to the National Petroleum Reserve of Alaska (NPRA), the Prudhoe Bay Field area and the Arctic National Wildlife Range. Most prominent among these areas for future exploration potential is the Arctic National Wildlife Range.

Area: Arctic National Wildlife Range (Red Area at East End of North Slope Basin)

Location: Northeastern Alaska

Area: 10,000 square miles - estimate

Number of Discovered Oil and Gas Fields: None

Footage Drilled: None

Sedimentary Section Thickness: +20,000 feet

Age of Prospective Section: Tertiary-Mississippian

Comments: The Arctic National Wildlife Range is the eastern portion of the North Slope Basin (Colville Geosyncline). Therefore, the same general kinds of rocks are expected in the subsurface here as are encountered in NPRA and the area between the Colville and Canning Rivers. This proximity and close relationship to very large proven reserves is enough to allow the assignment of high potential to this area, but there are other encouraging factors. There are two oil seeps and one oil-saturated sand at the surface within the area. The oil sand is associated with a large anticline (the Marsh Creek Anticline) which contains a thick section of Upper Tertiary sediments. There is no seismic information in the Wildlife Range because of governmental restrictions; consequently, the subsurface configuration of the prospective horizons is unknown. However, the presence of at least one large surficially exposed anticline indicates a structural regime in which there might be expected well-developed structural traps and associated oil and gas fields. The nearby mountains contain exposures of rocks equivalent and similar to those productive at Prudhoe in addition to younger rocks with potential reservoir quality which are not present at Prudhoe.

The portion of the Arctic National Wildlife Range with highest potential is the 1.3 million acres of the northern coastal plane bordering on the Beaufort Sea. This portion of the Wildlife Range contains all the prerequisites of a highly prospective hydrocarbon producing province. As described, there are hydrocarbon indications at the surface, the area is contiguous with a highly prolific oil producing area, and well-developed structures and reservoir quality rock can easily be projected into the area. However, the lack of seismic data precludes the definition of specific drillable plays.

ALASKA BASIN DATA SHEET
NORTH ALASKA DISTRICT

Basin: Kotzebue-Hope (Hydrocarbon Basin #2 on the attached map)

Location: Western Alaska

Area: 30,000 square miles - estimate

Number of Discovered Oil and Gas Fields: None

Production: None

Oil Seeps: None

Number of Exploratory Wells Drilled: 2

Footage Drilled: 14,684 feet

Sedimentary Section Thickness: +8000 feet

Age of Prospective Section: Tertiary-Cretaceous

Comments: The petroleum potential of the Kotzebue-Hope Basin is largely confined to the offshore areas. There have been two onshore wells and no offshore wells drilled in the basin. The two wells drilled were the Socal Cape Espenberg No. 1 and Socal Nimiuk Point No. 1. Neither of these wells encountered any hydrocarbons.

There are indications from seismic data that there are at least 8000 feet of prospective stratigraphic section in the offshore area associated with a structural setting which could easily have the proper conformation to provide a trap for hydrocarbons. The stratigraphic section of interest is Upper Cretaceous and/or Tertiary. These rocks unconformably overlie older deformed rocks of the Brooks Range orogen.

When the offshore areas become available for exploratory drilling, it will be necessary that nearby onshore areas be available for operational bases. Then, if economical hydrocarbons are discovered, nearby onshore areas will be necessary for use as supply centers and production facilities. In addition, an onshore pipeline corridor will probably be necessary from this area to either an ice-free port or to southern markets. The position of this corridor can best be located only after the oil and/or gas fields have been discovered, the markets are determined and the most economical transportation route is determined. Should the corridor be selected prior to these events, it would probably result in cost overruns due to its improper positioning. This would also be true for onshore operational support bases and production facilities.

ALASKA BASIN DATA SHEET
SOUTH ALASKA DISTRICT

Basin: Norton Sound (Hydrocarbon Basin #3 on the attached map)

Location: Western Alaska

Area: 41,000 square miles

Number of Discovered Oil and Gas Fields: None

Production: None

Oil Seeps: One prominent gas seep of heavier hydrocarbons has been discovered offshore 24 miles south of Nome by a marine seep survey.

Number of Exploratory Wells Drilled: None--excludes very shallow (200 feet?) wells drilled at Nome for reported gas (marsh-gas?).

Footage Drilled: None

Sedimentary Section Thickness: 13,000 to 15,000 feet

Age of Prospective Section: Tertiary

Comments: This important exploratory basin could be inaccessible if extensive withdrawals of the onshore area to the south (the Bethel area) occur. This would preclude a reasonable pipeline route to ice-free terminals farther south. Also, the coastal area should not be so withdrawn as to preclude the necessary harbor and onshore support facilities necessary for oil and gas development.

ALASKA BASIN DATA SHEET
SOUTH ALASKA DISTRICT

Basin: Bristol Bay (Hydrocarbon Basin #4 on the attached map)

Location: Western Alaska

Area: 80,000 square miles - estimate

Number of Discovered Oil and Gas Fields: None

Production: None

Oil Seeps: Several along onshore Alaska Peninsula

Number of Exploratory Wells Drilled: 20

Footage Drilled: 175,000 feet

Sedimentary Section Thickness: Tertiary 31,000 Maximum
Mesozoic 30,000 Estimate

Age of Prospective Section: Tertiary - Primary
Mesozoic - Secondary

Comments: The Bristol Bay Basin, as outlined, includes the offshore Bristol Bay Area, the Nushagak Area and most of the Alaska Peninsula. The critical area in this basin (rated 2) is the offshore Bristol Bay Area. The critical onshore land areas subject to withdrawal are those along the Alaska Peninsula. Most if not all of the good harbors along the Alaska Peninsula are on the south side of the Peninsula; however, the Bristol Bay Basin is off the north shore of the Peninsula. Therefore, it is paramount that access from these south side harbors to the north shore be maintained, and any land withdrawals must be avoided along the Peninsula that would bar north or south shore development or reasonable connecting access across the Peninsula.

In addition, the Alaska Peninsula itself is considered to have potential in the Mesozoic and most of the 20 wells listed have all been drilled onshore along this trend. Also, any offshore basins developed south of the Peninsula will require harbor and support facilities along the Peninsula's south shore; therefore, lands on the Peninsula are critical to the needs of: (1) discoveries offshore to the north, (2) discoveries offshore to the south, and (3) discoveries onshore along the Peninsula proper.

Finally, if Mesozoic discoveries are made in the Bristol Bay Basin, the onshore area at the head of Bristol Bay (the Nushagak area) will become prospective.

ALASKA BASIN DATA SHEET
SOUTH ALASKA DISTRICT

Basin: Cook Inlet (Hydrocarbon Basin #5 on the attached map)

Location: Southcentral Alaska

Area: 29,000 square miles

Number of Discovered Oil and Gas Fields: 22

Production: 835,000,000 barrels of oil through January 1979
1,500,000,000 cu.ft. gas through January 1979

Oil Seeps: Several onshore along the west side of Lower Cook Inlet

Number of Exploratory Wells Drilled: 210

Sedimentary Section Thickness: Up to 30,000 feet Tertiary
Up to 25,000 feet Mesozoic

Age of Prospective Section: Tertiary and Mesozoic

Comments: Although many facilities now exist on the east side of Cook Inlet, our anticipated drilling activity in Lower Cook Inlet will be high and a complete closing of the west shore of Cook Inlet will preclude any petroleum staging areas, airstrips, or other needed facilities on this side. Furthermore, even though good harbor facilities exist on the east side along the Lower Denai Peninsula, actions by the State and Federal Governments indicate a reluctance to permit petroleum type activities. The specific actions are the taking back by the State of certain oil leases in Kachemak Bay and the elimination of OCS lease blocks by the Federal Government along the eastern tier of the Lower Cook Inlet OCS sale area for environmental purposes

ALASKA BASIN DATA SHEET
SOUTH DISTRICT ALASKA

Basin: Gulf of Alaska (Hydrocarbon Basin #6 on the attached map)

Location: Southcentral and southeast Alaska

Area: 37,000 square miles

Number of Discovered Oil & Gas Fields: One oil field - the Katalla Oil Field which was produced up to 1935 from very shallow wells and seeps.

Production: 154,000 barrels estimate from Katalla Oil Field

Oil Seeps: Numerous

Number of Exploratory Wells Drilled: 36 (does not include an estimated 44 shallow wells of the Katalla area).

Footage Drilled: 353,000 feet (does not include Katalla wells)

Sedimentary Section Thickness: Up to 25,000 feet

Age of Prospective Section: Tertiary

Comments: This area lies both onshore and offshore and future discoveries may lie along a coastal strip almost 300 miles long. Some of the proposed D(2) acquisitions would greatly limit accessible areas onshore for support facilities and/or pipeline construction to port facilities as well as limiting, or closing out many harbors to access.

HIGH POTENTIAL AREAS MINERAL RESOURCES

Atlantic Richfield Company, through its subsidiary the Anaconda Company, has identified areas of Alaska with high mineral potential. This information is based on our limited knowledge of the true mineral potential in Alaska. The lands described in the following pages and identified on the attached map represent our best guess as to selected areas that have high potential for economic mineral development.

Definitions used in the following material:

High Mineral Potential means that an area has geological characteristics considered favorable for economic concentrations of minerals. In the areas outlined, additional geologic work is needed to actually locate a mineral deposit.

Gross Metal Value is the dollar value of a potential deposit obtained by multiplying estimated total pounds of metal by the current market price. Gross metal value is not the profit a company will obtain by developing a mineral deposit; in high cost areas such as Alaska, the amount of profit derived from mining a metal deposit will be relatively small. It is important to realize that these areas could have several mineral deposits, each with the gross metal value indicated.

DESCRIPTION OF HIGH POTENTIAL
MINERAL EXPLORATION AREAS
STATE OF ALASKA

1. BROOKS RANGE SCHIST BELT (Mineral Area A on the attached map)

Mineral Potential: The Brooks Range Schist Belt contains the Ambler District, potentially one of the world's largest mineral areas. If it is allowed to be developed, the Ambler District will become a major base metal mining district. The known mineral reserves of the district have a Gross Metal Value of approximately 7.5 billion dollars. Several of the known deposits are only partially delineated by drilling and the Gross Metal Value of the district is expected to increase with further exploration. The lack of a transportation system and uncertainties about access across withdrawn areas are preventing the development of the Ambler District deposits.

Rocks similar to the Ambler District are known to occur in a belt of rocks as illustrated on the map. A large part of this favorable rock type occurs inside the federal withdrawals and has not been prospected. Recent exploration along the belt outside of the proposed federal withdrawals produced a new discovery of mineralization in 1978.

Possible Land Conflicts: A portion of one of the known deposits of the Ambler District, the Sun Deposit, is inside the Gates of the Arctic National Monument. In addition, transportation to the Ambler District is blocked to the east by the "Boot" of the Gates of the Arctic National Monument. Access from the west is blocked by the proposed Selawik and Koyukuk National wildlife refuges. If an access corridor is not provided in the pending Alaska lands legislation, the deposits of the Ambler District will most likely never be developed.

2. NORTHERN BROOKS RANGE (Mineral Area B on the attached map)

Mineral Potential: In 1976 and 1977 discoveries of outcropping lead, zinc, silver mineralization and Paleozoic carbonate rocks were made by industry exploration teams. The deposits occur in a belt of rocks which form the northern edge of the Brooks Range. This same belt of rocks continues into the Yukon territory where similar lead, zinc, silver deposits are already producing metals and economic benefits. One ore body of this type can be expected to have a Gross Metal Value in excess of several billion dollars. Exploration activity in areas of the belt outside of federal land withdrawals was very intense during this 1978 field session.

Possible Land Conflicts: The favorable rocks are found in parts of Noatak National Monument, NPRA, Gates of the Arctic National Monument, the Arctic National Wildlife Refuge, and the Arctic National Wildlife Range. Access from the known deposits to the transportation system of interior Alaska is also blocked off by federal land withdrawals.

3. SOUTHEAST ALASKA (Mineral Area C on the attached map)

Mineral Potential: All of Southeast Alaska is known to be highly mineralized. The deposits may be classified into three distinct groups:

- a. Porphyry molybdenum deposits. The second largest molybdenum deposit in North America, the Quartz-Hill deposit, occurs in Southeast Alaska. Numerous other prospects containing mineralization of this type are known but have not yet been extensively prospected. The Gross Metal Value of the Quartz-Hill deposit is approximately 7 billion dollars.
- b. Platinum group metals associated with ultramafic intrusive rocks. The platinum group metals (platinum & palladium) and copper, nickel and chrome are known to be associated with ultramafic intrusive rocks. Large bodies of this rock type occur throughout Southeast Alaska and several of them have produced minor quantities of these metals. The largest copper-nickel deposit in the United States is located in Glacier Bay National Monument. The Gross Metal Value of these deposits is in excess of a billion dollars.
- c. Massive sulfide copper, lead, zinc, and silver deposits similar to those of the Ambler District are known to occur in Southeast Alaska. These deposits could have a Gross Metal Value of .5 to 1 + billion dollars.

Possible Land Conflicts: The Quartz-Hill molybdenum deposit is located inside the newly created Misty Fjords National Monument. The Greens Creek silver, lead, zinc-gold deposit is located within the newly created Admiralty Island National Monument. Several known copper-nickel rich ultramafic intrusives are inside of Forest Service withdrawals. A large part of the known mineral areas in Southeast Alaska were included in Forest Service RARE II and Section 204b withdrawals.

4. SEWARD PENINSULA (Mineral Area D on the attached map)

Mineral Potential: The northwestern Seward Peninsula is the only area in the United States that has the potential to develop economic reserves of tin. During war time, this area becomes strategically important to the security of the nation. In addition, the area has produced over 6-1/2 million ounces of gold since the start of the 20th century.

Possible Land Conflicts: A large part of the prospective area containing tin mineralization is inside of the newly created Bering Land Bridge National Monument and will be closed to mineral development.

5. KENNECOTT (Mineral Area E on the attached map)

Mineral Potential: The copper mines at Kennecott, Alaska have been a major producer of copper. These extremely high grade copper deposits are the type needed to develop a mine in high cost areas such as Alaska. The deposits are extremely difficult to find but the potential for additional discoveries remains high.

5. KENNECOTT (Cont.)

Possible Land Conflicts: The entire area is included in the newly created Wrangell-St. Elias National Monument.

6. NORTHERN ALASKA RANGE (Mineral Area F on the attached map)

Mineral Potential: A belt of favorable rocks for the formation of massive sulfide copper, silver, lead-zinc deposits has been recently recognized in the Northern Alaska Range. These deposits were discovered as recently as 1975 and 1976. Their potential Gross Metal Value is in excess of one billion dollars.

Possible Land Conflicts: The belt of favorable rocks extends into the newly created Mt. McKinley National Monument and the Tetlin withdrawal 204 E area.

7. ALASKA PENINSULA (Mineral Area G on the attached map)

Mineral Potential: The Alaska Peninsula contains numerous exposures of intrusive rocks which carry mineralization similar to the copper deposits (copper, molybdenum, silver & tin) in the southwestern lower 48. Because of its strategic location near tide water the development of these deposits would be facilitated. The Gross Metal Values of these type of deposits is approximately a billion dollars.

Possible Land Conflicts: Most of the favorable area is withdrawn as a study area or part of the newly created Katmai and Becharof National Monuments.

8. EASTERN ALASKA-PRECAMBRIAN PALEOZOIC (Mineral Area H on the attached map)

Mineral Potential: Some of the largest ore deposits in the world are contained in rocks of Precambrian age. Rocks of equivalent age are thought to exist in this little explored region of Alaska. An ore deposit of this type is expected to have Gross Metal Values in excess of 1 billion dollars (copper, lead, zinc & silver).

Possible Land Conflicts: A large part of the favorable area occurs in the newly created Yukon-Charlie and Yukon Flats National Monuments. The remainder of the area is withdrawn under the BLM 204 actions.

9. GOODNEWS BAY (Mineral Area I on the attached map)

Mineral Potential: The Goodnews Bay area has been the principal source of platinum metal in the United States. Most of the production in this area has come from placer deposits; however, the source of the placers is thought to be a belt of ultramafic intrusive rock which are known to contain this type of mineralization. The Gross Metal Value of deposits of this strategic metal and copper/nickel deposits could be in excess of 1 billion dollars.

Possible Land Conflicts: Almost all of the prospective area is currently withdrawn from mineral exploration under the Togiak and Yukon Delta 204 withdrawals.

Alaska National Interest Lands — High Potential Mineral and Oil Areas

