

**Special Publication**

**Availability of Land for Mineral  
Exploration and Development in  
South-Central Alaska, 1985**

**By Robert G. Bottge and Michael J. Northam**



**UNITED STATES DEPARTMENT OF THE INTERIOR**

**Donald Paul Hodel, Secretary**

**BUREAU OF MINES**

**Robert C. Horton, Director**

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## ABBREVIATIONS USED IN THIS REPORT

AALRS	Alaska Automated Land Records System
ANAA	Alaska Native Allotment Act of 1906
ANCSA	Alaska Native Claims Settlement Act
ANILCA	Alaska National Interest Lands Conservation Act
BLM	Bureau of Land Management, U.S. Department of the Interior
DFG	Department of Fish and Game, State of Alaska
DNR	Department of Natural Resources, State of Alaska
DNRDL	Department of Natural Resources, Division of Land and Water Management, State of Alaska
DNRDP	Department of Natural Resources, Division of Parks and Outdoor Recreation, State of Alaska
DOD	Department of Defense (U.S.)
EO	Executive order
FS	Forest Service, U.S. Department of Agriculture
FWS	Fish and Wildlife Service, U.S. Department of the Interior
MAS	Minerals Availability System (U.S. Bureau of Mines)
MCO	Mineral closing order; State land closed to mining by order of the Commissioner of the Alaska Department of Natural Resources
MTP	Master Title Plat
NPS	National Park Service, U.S. Department of the Interior
PLO	Public land order
TA	Tentatively approved
USGS	U.S. Geological Survey, U.S. Department of the Interior

# AVAILABILITY OF LAND FOR MINERAL EXPLORATION AND DEVELOPMENT IN SOUTH-CENTRAL ALASKA, 1985

By Robert G. Bottge<sup>1</sup> and Michael J. Northam<sup>2</sup>

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## ABSTRACT

The Bureau of Mines investigated the availability of the land in south-central Alaska for exploration and mineral development of locatable minerals under State or Federal laws. The land ownership for an area of nearly 72.5 million acres in south-central Alaska was divided into 3 availability categories and 15 subcategories. In July 1985, 31.0 million acres of the study area were available for mineral exploration and development, 6.2 million acres were available with restrictions, and 35.3 million acres were unavailable.

About 23.6 million acres in the study area are underlain by mineral terranes. About 9.9 million of the 23.6 million acres are available for mineral entry, 2.4 million acres are available with restrictions, and 11.3 million acres are unavailable. While much of the land currently classified as unavailable will be reclassified once it is conveyed to the State or to Native corporations, about 22% of the unavailable lands underlain by mineral terranes are now Federal parks, preserves, wildlife refuges, wild and scenic rivers, and military lands, all of which are considered permanently unavailable for mineral exploration and development.

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## INTRODUCTION

The Bureau of Mines mission is to help ensure that the United States has an adequate and dependable supply of minerals to meet its defense and economic needs at acceptable social, environmental, energy, and economic costs. To help fulfill this mission, the Bureau is conducting a program for the 11 contiguous States from Montana to New Mexico and west that geographically compares Federal land availability for mineral exploration and development to mineral favorability on a State-by-State basis. In Alaska, where a similar study is being made, the scope of the work has been broadened to include all lands: Federal, State, and private. The passage of recent Federal legislation has created a complex distribution of Federal lands in Alaska, which cannot be understood without reviewing the status of all lands, whether in the public domain,<sup>3</sup> selected for transfer out of Federal ownership, or conveyed to the State of Alaska or to Native corporations.

Until Alaska became a State in 1959, the Federal Government essentially owned all the land. About 80% of Alaska was open public domain, 10% was in national conservation units, and 10% was in other types of Federal reserves (12).<sup>4</sup> With statehood, Alaska was given the right to choose about 104 million acres from the public domain. In 1971, the Federal Government passed the Alaska Native Claims Settlement Act (ANCSA), which established 12 regional and more than 200 village corporations to make land selections and manage money for the Native groups. The act also named numerous Native villages and gave them the right to select up to 44 million acres of land from the public domain (21). In 1980, Congress passed the Alaska National Interest Lands Conservation Act (ANILCA), which set aside up to 104 million acres statewide for addition to or creation of national parks, preserves, wildlife refuges, wild and scenic rivers, conservation areas, and recreation areas (20). ANILCA also designated areas from which the State and Native corporations could select lands to fulfill their allowances.

The regional Native corporations that have land in the study area include the following:

Ahtna, Inc.	Cook Inlet Region, Inc.
Bristol Bay Native Corp.	Doyon Ltd.
Calista Corp.	

In addition, 13 village corporations have land holdings in the study area:

Chenega Corp.	Eyak Corp.
Cheesh-na, Inc.	Gakona Corp.
Chitina Native Corp.	Iliamna Natives, Ltd.
Kluti-kaah Corp.	Kenai Native Association
Dot Lake Native Corp.	Lime Village Co.
Eklutna, Inc.	Sta-keh Corp.
English Bay Corp.	

<sup>3</sup>This and many other terms used in this report are defined in the glossary (appendix A).

<sup>4</sup>Italicized numbers in parentheses refer to items in the list of references preceding the appendixes at the end of this report.

## OBJECTIVES

Industry relies in part on Federal lands to produce the mineral resources necessary to supply the Nation. Concern over accessibility to mineral resources has been expressed by industry as well as by the Federal Government. This study shows the availability of Federal, State, and private land for mineral exploration and development in 21 quadrangles in south-central Alaska (fig. 1). It addresses those minerals subject to location under the general mining laws of the United States and analogous State laws and not those obtained by leasing. The land availability categories, which include land available for mineral exploration and development, land available with restrictions, and land that is unavailable, are compared with known mineral deposits and mineral terranes. The information in this report may help land planners and those in mineral exploration obtain an overview of land ownership and availability in the study area or in a particular quadrangle, but current detailed information for each township must be obtained from the State or Federal Master Title Plats (MTP) and historical records.

## PREVIOUS STUDIES

Prior to passage of ANILCA in 1980, several studies were done in an attempt to define problems and conflicts and to gather facts concerning land use in Alaska. Studies relating land ownership and regulations to mineral deposits or mineral entry include Hawley's work in 1973 (10) and that of Metz in 1978 (15). Hawley reviewed mineral belts and districts statewide and identified a critical problem: mineral-intensive areas were being withdrawn from mineral entry. Metz compiled statistics defining the proportion of the State that was open to mineral entry in 1978.

Another study reviewing mineral potential statewide, in the context of policy formulation and land ownership, resulted in a report by the Joint Federal-State Land Use Planning Commission (11). That report broadly reviews the mineral potential for the entire State and sets forth recommendations for use in policy decisions by the Federal and State governments. A recent report by Leask of the University of Alaska, Institute of Social and Economic Research (12), discusses the changing pattern of land ownership and management in Alaska from 1958 to 1985.

During preparation of this Bureau of Mines study, eight Federal land, river, or resource management plans were consulted (17-18, 23-28). All of them address the problems and conflicts between specific land management goals and mineral development. The "Susitna Area Plan," one of several resource inventories for various parts of the State, prepared by the Alaska State government, was useful in preparing this report (2).

This report is one of a series of six Bureau special publications discussing the land available for mining in Alaska. The first examined the availability of land for mineral exploration and development in southeastern Alaska and was completed in 1984 (16); the remaining five cover south-central, north-central (8), northern, western, and southwestern Alaska. In all reports to date, land ownership is compared with data in "Mineral Terranes of Alaska; 1982" (7). A generalized mineral terrane map for the study area is included in this report (fig. 2).

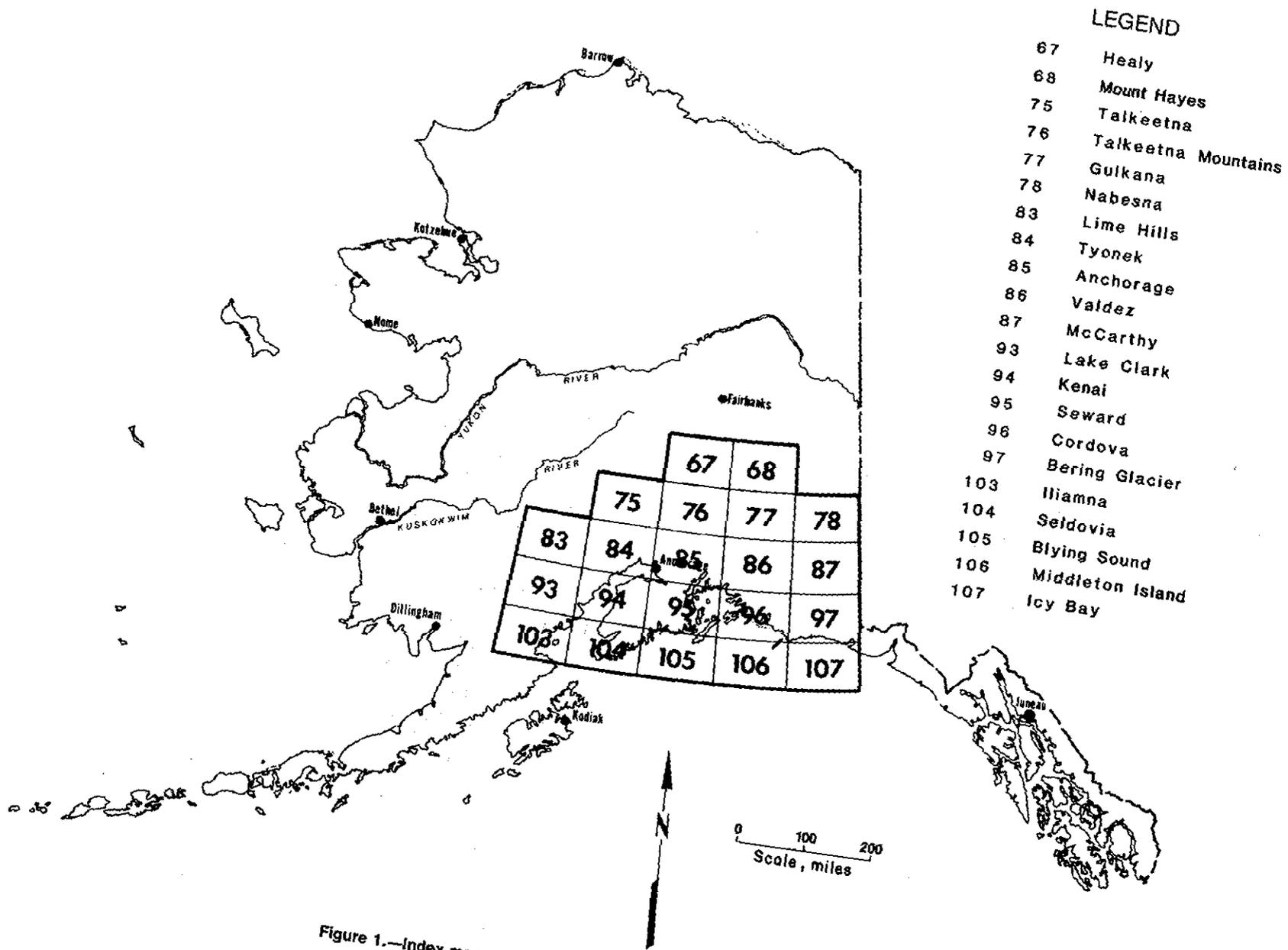
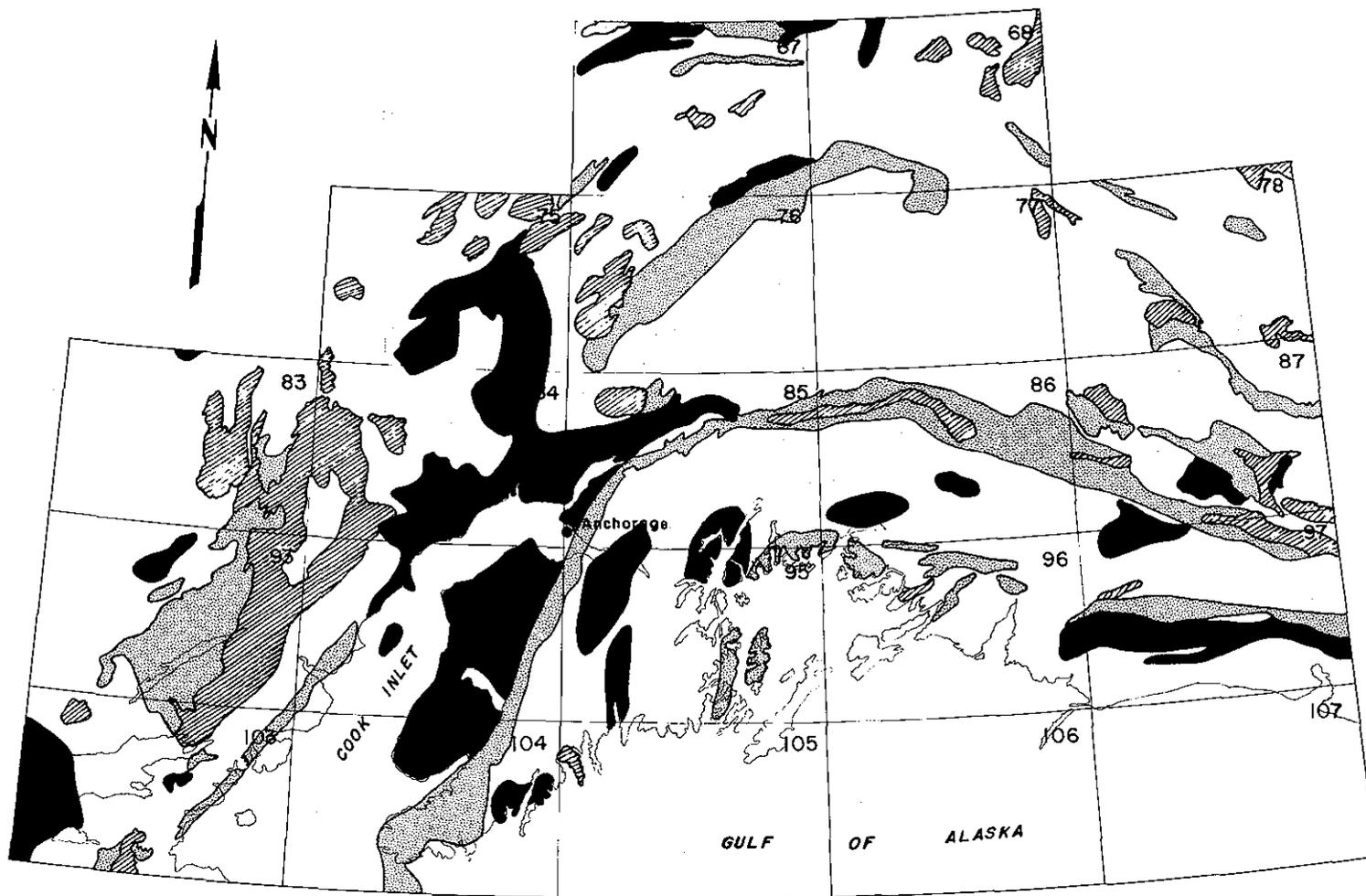


Figure 1.—Index map of Alaska showing quadrangles in study area.



LEGEND

-  Intrusive terranes  
(including granitic, felsic, mafic-ultramafic rocks)
-  Volcanic-sedimentary terranes
-  Sedimentary terranes

0 50  
Scale, miles

See figure 1 for quadrangle names.

Figure 2.—Generalized mineral terranes of south-central Alaska.

## ACKNOWLEDGMENTS

Thanks are given to William Roberts, geologist at the Bureau's Alaska Field Operations Center (AFOC), who performed some of the early plotting work, and Gary Johnson, division classification officer for the Alaska Division of Land and Water Management, who provided the information on

mineral closing orders. Parts of the text, particularly the definitions in the glossary, were copied or closely paraphrased from Robert's report (16). Charles Merrill, Jr., geologist, AFOC, assisted in data compilation.

## SCOPE AND METHODOLOGY

This report includes (1) a current inventory of State, Federal, and private land in south-central Alaska and its availability for mineral exploration and development, (2) a comparison of mineral terranes and land availability categories, and (3) a comparison of mineral deposits and mineral terranes with land availability categories.

### INVENTORY OF LAND OWNERSHIP

Two criteria were used to describe the availability of land in the study area for mineral exploration and development. The first criterion was land ownership, determined by ascertaining who possessed management authority over a given parcel of land. Land ownership in the study area was categorized into three groups: the Federal Government, the State government, and private concerns. The second criterion was the accessibility of land to mineral exploration and development, and was determined by reviewing Federal and State laws and regulations and their practical implementation by the various land-managing agencies. Land availability categories used for this study were—available, available with restrictions, and unavailable.

Computer-generated 1:250,000-scale maps showing State and Native selections and conveyances of Federal lands were purchased from the U.S. Bureau of Land Management (BLM) Public Office in Anchorage, AK. These maps were plotted from information in the Alaska Automated Land Records System (AALRS). The information was traced onto transparent polyester film, labeled, and checked against the MTP's of the Division of Land and Water Management, Alaska Department of Natural Resources (DNR), and the BLM. Several other sections of the BLM having land management responsibilities were contacted for information (17-18), as were the National Park Service (NPS) (24-28), the U.S. Fish and Wildlife Service (FWS), and the U.S. Forest Service (FS) (23). The State of Alaska agencies contacted were the Department of Natural Resources, Division of Land and Water Management (DNRDL) and Division of Parks and Outdoor Recreation (DNRDP) (3), as well as the Department of Fish and Game (DFG) (1).

Because the smallest unit mapped was a section (1 square mile) of land, a rank ordering of land availability categories was necessary to resolve multiple land ownership designations within a section. The order used was as follows:

1. Closed or unavailable.
2. Patented or private.
3. Selected.
4. Available with restrictions.
5. Open or available.

(These land categories are defined later in the report.) If a section of land included both closed and selected land, for example, the entire section was portrayed as closed or unavailable.

While the land selections allowed under ANCSA and ANILCA could be no less than one section for the State or for the Native corporations, private individuals and individual Native allotments were generally limited to 160 acres or less. The former areas were plotted as whole sections and the latter as dots centered on sections. Areas under State mineral closing orders (MCO) were plotted as whole sections whether or not the closing order included the entire section. Categorization of land availability around the cities and towns in the study area, such as Anchorage, Kenai, Seward, Palmer, and Wasilla, was simplified: all land in the immediate proximity of the cities and towns, whoever the owner, was considered land where mining would be discouraged.

The continuing selection and conveyance of land from the public domain to the State and to Native corporations makes this land status information quickly outdated. Some of the land data are for October 1984; the most recent information is for July 1985. While one final date for all data would be preferable, the use of the State and Federal MTP's during 1985 to check the computerized data received in 1984 made this impractical, as the MTP's are constantly updated. This situation exemplifies the very dynamic nature of Federal land availability in Alaska.

After the land availability categories were plotted at the 1:250,000 scale, blueprints of the maps were sent to the land management agencies for review and comments. The purpose was to ensure that the Bureau's interpretation of the various agency land management policies and plans was correct at the time it was made. Copies of the final maps were reduced to 1:500,000 scale and composited with a base map, and are included in appendix B. The 1:250,000-scale map figures for this report are on open file at the Alaska Field Operations Center offices in Anchorage, Fairbanks, and Juneau, AK (9).

### COMPILATION OF MINERAL DEPOSITS AND MINERAL TERRANES DATA

Each quadrangle map in appendix B (in envelope) shows the location of metallic mineral deposits in addition to land availability. The mineral deposit information was derived from the Bureau's Minerals Availability System (MAS) data base. Each of the computer-generated MAS location points identifies one or more mineral deposit sites within a 3-mile radius. Numbers refer to properties listed in appendix B. Appendix B also includes an indication of past production and the commodities identified at each property.

Mineral terrane information was taken from "Mineral Terranes of Alaska; 1982" (7). The maps were increased in scale from 1:1,000,000 to 1:250,000 and overlaid by the maps showing land availability and mineral deposits. Tabulations

of mineral terranes versus land availability categories are given by quadrangle in appendix C. Comparisons of mineral deposits and mineral terranes versus land availability categories are given in appendix D.

## LAND OWNERSHIP

In the study area, Federal land management responsibilities are currently divided among the following agencies, which are listed with the number of acres each administers:

National Park Service . . . . .	20,404,000
Bureau of Land Management . . . . .	10,719,000
Forest Service . . . . .	5,936,000
Fish and Wildlife Service . . . . .	2,665,000
Department of Defense . . . . .	546,000
Total . . . . .	40,270,000

Of the 72.5 million acres in the study area, the Federal Government owns the greatest amount, 40.3 million acres, or 56%. The State owns about 27.1 million acres, or 37%. The remaining 5.1 million acres, or 7%, are categorized as private lands, of which 99% is owned by Native corporations (table 1).

Table 1.—Land ownership and availability in south-central Alaska

(Thousand acres)				
Land-managing agency or type of land	Available	Available with restrictions	Unavailable	Total
FEDERAL				
Bureau of Land Management . . . . .	5,186	0	5,533	10,719
Department of Defense . . . . .	0	0	546	546
Fish and Wildlife Service . . . . .	0	0	2,665	2,665
Forest Service . . . . .	3,222	1,112	1,602	5,936
National Park Service . . . . .	0	0	20,404	20,404
Total . . . . .	8,408	1,112	130,750	140,270
STATE				
Department of Fish and Game . . . . .	0	0	1,501	1,501
Department of Natural Resources:				
Division of Land and Water Management . . . . .	22,620	0	1,695	24,315
Division of Parks and Outdoor Recreation . . . . .	0	0	1,283	1,283
Total . . . . .	22,620	0	4,479	27,099
PRIVATE <sup>2,3</sup>				
Federal land conveyed to Native corporations . . . . .	0	5,041	0	5,041
Urban and suburban lands in private ownership . . . . .	0	0	61	61
Total . . . . .	0	5,041	61	5,102
Grand total . . . . .	31,028	6,153	35,290	72,471

<sup>1</sup>Includes 11,881,000 acres selected by the State of Alaska or Native corporations under the appropriate laws. Breakdown, thousand acres:

Native lands (SN) . . . . .	3,244
State lands (SS) . . . . .	1,794
State and Native lands (SS/SN) . . . . .	1,983
Native selections in closed Federal lands (SN/CF) . . . . .	4,266
State selections in closed Federal lands (SS/CF) . . . . .	396
State and Native selections in closed Federal lands (SS/SN/CF) . . . . .	198
Total . . . . .	11,881

<sup>2</sup>Federal lands selected or conveyed to individuals are included in all the various land availability categories under "FEDERAL" above, and cannot be separated from the BLM, FWS, FS, and NPS lands listed. Breakdown, thousand acres:

Native allotments, selected . . . . .	94
Native allotments, conveyed . . . . .	35
Other private lands, selected . . . . .	276
Other private lands, conveyed . . . . .	629
Total . . . . .	1,034

<sup>3</sup>Information on State lands put into private ownership is not available.

## LAND AVAILABILITY

Federal land availability for mineral exploration and development is determined by Federal laws, agency policies, Presidential proclamations, public land orders (PLO's), and Executive orders (EO's) that govern mineral and Federal land management. The State of Alaska allows mineral en-

try by a location system on all State-owned lands except those that have been expressly closed to entry by State laws or by MCO's issued by the Commissioner, DNR, acting on recommendations from the DNRDL. A list of important Federal laws related to mineral entry is given in appendix

E, and a list of MCO's that apply to the study area is given in appendix F.<sup>5</sup>

Rights to minerals on Federal land are obtained by location, lease, or sale, depending upon the mineral and the type of Federal land involved. Locatable minerals (e.g., copper, gold, silver, etc., and certain nonmetallic minerals such as asbestos, barite, bentonite, and limestone) are subject to disposal and development through the Federal General Mining Law of 1872, as amended, on Federal lands, and Alaska statutes, title 9, Code of Civil Procedure, chapter 5, article 7, sections 38.05.185-280 on State lands. Mining claims located on State land can be leased for 55 years with right of renewal; they cannot be patented. Regulations pertaining to leasable minerals (such as coal, oil, gas, and geothermal resources) as well as the distribution of land available for leasing, are different from those for locatable minerals and are not included in this report.

### LAND AVAILABLE FOR MINING

Land available for mining is denoted "open Federal" (OF) and "open State" (OS) on the maps in appendix B. Open Federal and State lands allow new mineral exploration and development under the terms of the General Mining Law of 1872, as amended, or the Alaska statutes for public land. Management objectives in lands denoted as available allow the development of natural resources as opposed to maintaining a primitive environment that may be incompatible with mineral development. In the study area, open Federal land is administered by the BLM and the FS and open State land by the DNRDL. Federal land that is conveyed to the State or tentatively approved (TA) for conveyance to the State is available for mineral exploration and development unless withdrawn by an MCO or by a legislative statute such as for a State park. In south-central Alaska, 31.0 million acres of land are available for mining, or about 43% of the 72.5 million acres. Nearly three-fourths of the available land belongs to the State and the remainder to the Federal Government (table 1).

### LAND AVAILABLE WITH RESTRICTIONS

In one sense, all Federal land that is not closed by statute to new mineral exploration and development is available with restrictions. Federal agencies such as the FS and the BLM require the filing of mine development plans before the surface can be disturbed. No longer can open Federal land be staked and developed at the discretion of the miner without informing the land management agency. Restricted Federal land carries a more strenuous set of regulations that must be met before exploration or mining can commence. About 1.1 million acres of the Chugach Forest qualifies for this status. Though the Nellie Juan and the College Fjord areas were proposed for wilderness status in 1979, a final approval had not been granted as of July 1, 1985. Locatable minerals may be staked in the proposed wilderness area now, but the area must be managed to preserve its wilderness character until Congress has acted on the recommendations of the Secretary of Agriculture concerning the suitability or nonsuitability of a wilderness classification for the two areas (23). At this time, all of the Chugach Forest is open to mineral entry except the Copper River Delta addition, but development of a mineral pro-

perty in the proposed wilderness areas would be more difficult, if not economically impossible. Also included in this category are 5.0 million acres of Federal land conveyed to Native corporations (table 1). While some Native land may be unavailable, the regional Native cooperations in the study area generally encourage the development of their mineral resources. (5).

## LAND UNAVAILABLE FOR MINING

### Federal Land

Nearly 75% of the 40.3 million acres of Federal land in the study area is presently unavailable to mineral exploration and development for new locatable claims (table 1). Valid claims that existed at the time land was withdrawn for the establishment or enlargement of a park, preserve, refuge, forest, or wild and scenic river may still be developed within land management constraints. Of the legally closed Federal land, over 78% are parks, preserves, wildlife refuges, wild and scenic rivers, and military land (tables 1-2), which will remain closed to mineral entry. This land is denoted in the maps in appendix B as "closed Federal" (CF). Much of the remaining land will be conveyed to the State or to Native corporations.

### State Land

State land may be withdrawn from mineral exploration and development through legislative statute, such as for parks, and through MCO's issued by the Commissioner, DNR. In the study area, most of the parks are recreation areas and sites and are designated by triangles on the maps in appendix B. The major parks in the study area include the Chugach, Denali, and Kachemak Bay State Parks with over 1.2 million acres, or nearly 45% of the State land withdrawn by statute in south-central Alaska (table 2). They are labelled "closed State" (CS) on the quadrangle maps in appendix B.

About 16% of the 27.1 million acres of State land is unavailable for mineral exploration and development (table 1). State game refuges are available for mineral exploration and development; however, the permit requirements imposed by the DFG essentially make mining impractical in a game refuge. Therefore, wildlife refuges in the study area are considered unavailable to mining and are designated "CS" in appendix B. One dozen areas administered by the DFG are in south-central Alaska, with a total of 1.5 million acres, or 33% of the State land closed to mineral explorations by statute (table 2).

MCO's are issued by the State Department of Natural Resources when mining is considered incompatible with other uses of the land, such as remote airport runways, pipelines, land disposal subdivisions, and environmentally sensitive areas. MCO's indicate sections that have been partially or totally removed from mining. While the maps in appendix B show nearly 1.7 million acres of land in MCO's, the total is probably closer to 1 million acres. An accurate determination of the acreage in MCO's is difficult because the acreage continually changes with the implementing of new MCO's and the discontinuance of others. Those MCO's that affect State lands in the study area are listed by quadrangle in appendix F. The Tyonek quadrangle had the most MCO's (48) followed by Talkeetna (42). The Bering Glacier, Blying Sound, and Lime Hills quadrangles had either one or two MCO's each, while the Icy Bay, Mid-

<sup>5</sup>A list of PLO's, EO's, and proclamations would be too bulky to include.

Table 2.—Principal Federal and State land units closed to mineral exploration and development by statute

Unit	Quadrangle(s)	Agency	Acres
FEDERAL (4)			
Alagnak National Wild and Scenic River	Iliamna	BLM	11,000
Alaska Maritime National Wildlife Refuge	Bering Glacier, Blying Sound, Cordova, Icy Bay, Iliamna, Kenai, Middleton Island, Seldovia, Seward.	FWS	110,000
Chilikadrotna National Wild and Scenic River	Lake Clark	NPS	(?)
Delta National Wild and Scenic River	Mount Hayes, Gulkana	BLM	37,000
Denali National Park and Preserve	Healy, Talkeetna	NPS	2,627,000
Gulkana National Wild and Scenic River	Gulkana	BLM	91,000
Katmai National Park and Preserve	Iliamna	NPS	398,000
Kenai Fjords National Preserve	Blying Sound, Kenai, Seldovia, Seward	NPS	530,000
Kenai National Wildlife Refuge	Kenai, Seldovia, Seward, Tyonek	FWS	1,970,000
Lake Clark National Park and Preserve	Iliamna, Kenai, Lake Clark, Lime Hills, Seldovia, Tyonek	NPS	3,653,000
Military bases	Anchorage	DOD	546,000
Mulchatna National Wild and Scenic River	Lake Clark	NPS	(?)
Tetlin National Wildlife Refuge	Nabesna	FWS	685,000
Tiikakila National Wild and Scenic River	Lake Clark	NPS	(?)
Wrangell-Saint Elias National Park and Preserve	Bering Glacier, Cordova, Gulkana, Icy Bay, McCarthy, Nabesna, Valdez.	NPS	13,185,000
Total			23,743,000
STATE (1,3)			
Anchor River State Recreation Site	Seldovia	DNRDP	53
Anchor River State Critical Habitat Area	.. do	DFG	18,400
Bernice Lake State Recreation Site	Kenai	DNRDP	152
Big Lake State Recreation Site (East)	Anchorage	DNRDP	19
Big Lake State Recreation Site (South)	.. do	DNRDP	16
Bings Landing State Recreation Site	Kenai	DNRDP	126
Blueberry Lake State Recreation Site	Valdez	DNRDP	192
Bonnie Lake State Recreation Site	Anchorage	DNRDP	129
Caines Head State Recreation Area	Blying Sound, Seward	DNRDP	5,961
California Creek State Trail	Seward	DNRDP	58
Captain Cook State Recreation Area	Kenai	DNRDP	3,620
Chugach State Park	Anchorage, Seward	DNRDP	495,000
Clam Gulch State Critical Habitat Area	Seldovia	DFG	28,100
Clam Gulch State Recreation Area	Kenai	DNRDP	121
Copper River Delta State Critical Habitat Area	Cordova	DFG	598,000
Deadman Lake State Recreation Site	Nabesna	DNRDP	20
Deep Creek State Recreation Site	Kenai	DNRDP	128
Denali State Park	Talkeetna, Talkeetna Mountains	DNRDP	421,120
Dry Creek State Recreation Site	Gulkana	DNRDP	372
Finger Lake State Recreation Site	Anchorage	DNRDP	47
Fox River Flats State Critical Habitat Area	Seldovia	DFG	8,100
Funny River State Recreation Site	Kenai	DNRDP	455
Gardiner Creek State Recreation Site	Nabesna	DNRDP	10
Goose Bay State Game Refuge	Anchorage	DFG	12,500
Independence Mine State Historic Park	.. do	DNRDP	271
Izaak Walton State Recreation Site	Kenai	DNRDP	51
Johnson Lake State Recreation Area	.. do	DNRDP	320
Kachemak Bay State Critical Habitat Area	Seldovia	DFG	221,000
Kachemak Bay State Park	.. do	DNRDP	328,290
Kalgin Island State Critical Habitat Area	Kenai	DFG	3,900
Kasilof River State Recreation Site	.. do	DNRDP	50
Kenai River Island State Recreation Site	.. do	DNRDP	60
Kenai River State Recreation Site (Upper)	.. do	DNRDP	193
Kenai River State Recreation Site (Lower)	.. do	DNRDP	20
King Mountain State Recreation Site	Anchorage	DNRDP	20
Lake Louise State Recreation Area	Gulkana	DNRDP	90
Lake View State Recreation Site	Nabesna	DNRDP	25
Little Nelchina State Recreation Site	Valdez	DNRDP	22
Little Tonsina State Recreation Site	.. do	DNRDP	103
Long Lake State Recreation Site	Anchorage	DNRDP	480
Matanuska Glacier State Recreation Site	.. do	DNRDP	229
McNeil River State Game Site	Iliamna, Mount Katmai	DFG	75,500
Mirror Lake State Recreation Site	Anchorage	DNRDP	90
Moose Creek State Recreation Site	.. do	DNRDP	40
Morgans Landing State Recreation Area	Kenai	DNRDP	78
Nancy Lake State Recreation Area	Tyonek	DNRDP	22,685
Nancy Lake State Recreation Site	.. do	DNRDP	36
Ninilchik State Recreation Site	Kenai	DNRDP	97
Palmer Hay Flats State Game Refuge	Anchorage	DFG	29,500
Peters Creek State Recreation Site	.. do	DNRDP	52
Porcupine Creek State Recreation Site	Nabesna	DNRDP	240
Potter Point State Game Refuge	Anchorage, Tyonek	DFG	45,000
Rocky Lake State Recreation Site	Anchorage	DNRDP	48

See notes at end of table.

Table 2.—Principal Federal and State land units closed to mineral exploration and development by statute—Continued

Unit	Quadrangle(s)	Agency	Acres
STATE—Continued			
Silver King State Recreation Area	Seldovia	DNRDP	195
Slikok Creek State Recreation Site	Kenai	DNRDP	40
Sports Lake State Recreation Site	do	DNRDP	24
Squirrel Creek State Recreation Site	Valdez	DNRDP	350
Stariski State Recreation Site	Seldovia	DNRDP	30
Susitna Flats State Game Refuge	Tyonek	DFG	300,000
Thunderbird Falls State Trail	Anchorage	DNRDP	3
Tolsona Creek State Recreation Site	Gulkana	DNRDP	600
Trading Bay State Game Refuge	Kenai, Tyonek	DFG	161,000
Willow Creek State Recreation Site	Tyonek	DNRDP	240
Worthington Glacier State Recreation Site	Valdez	DNRDP	113
Total			2,783,784

BLM	Bureau of Land Management (U.S.).
DFG	Department of Fish and Game (Alaska).
DNRDP	Department of Natural Resources, Division of Parks and Outdoor Recreation (Alaska).
DOD	Department of Defense (U.S.).
FWS	Fish and Wildlife Service (U.S.).
NPS	National Park Service (U.S.).

<sup>1</sup>Estimated acreage.

<sup>2</sup>Acreage included in the Lake Clark National Park and Preserve total.

dleton Island, and Nebesna quadrangles had none. Both the trans-Alaska pipeline and the proposed natural gas pipeline corridors are protected from mineral development by MCO's, as are a large number of streams in the Iliamna and Lake Clark quadrangles. These show as dashed lines on the maps in appendix B.

### Selected Land

Selected land consists of tracts that have been selected by the State or Native corporations under terms of the Statehood Act (22), ANCSA, or ANILCA. If the selection is denied or dropped, the land remains closed to mineral entry under Federal laws until the BLM changes the MTP. Alaska statute 38.05.275 does allow mining claims to be staked on lands selected by the State. If the land is conveyed to the State, the claimant will have a preferential right against other State locators; however, if the land is denied to the State or conveyed to a Native corporation, the locator would lose all rights to the claim (6).

The State, under terms of the Statehood Act, and the Native corporations, under terms of ANCSA and ANILCA, are allowed to select some of the same lands and to select more than their entitlements. Land categories in appendix B include "SN" for land selected by Native corporations, "SS" for land selected by the State, and "SS/SN" for land selected by both. A total of 7.0 million acres of land in south-central Alaska falls into these categories, which is about 59% of the 11.9 million acres of selected lands unavailable to mineral exploration and development and 10% of the total land in the study area (table 1).

ANILCA set aside 104 million acres for the addition to or creation of parks, preserves, wildlife refuges, wild and scenic rivers, and forests. The act also allowed the State and the Native corporations to select lands within the withdrawn areas. The maps in appendix B show "SN/CF" for lands selected by the Native corporations in Federal withdrawals, "SS/CF" for State selections in Federal withdrawals, and "SS/SN/CF" for selections by both in Federal withdrawals. Approximately 4.9 million acres are included in these designations (table 1, footnote 1). This amounts to 41% of the 11.9 million acres of selected lands unavailable for mining and nearly 7% of the total study area.

### PRIVATE LAND

#### Individual and Corporate Land

The Federal Government has made land available to the State for selection under terms of the Statehood Act, to individual Natives under the Alaska Natives Allotment Act (ANAA) (19) and ANCSA, to Native corporations under ANCSA and ANILCA, and to other individuals for homesteads, homesites, patented mining claims, residential sites, and recreational sites, and as land acquired in Federal disposal sales. In general, the State and the Native regional corporations received the mineral estate along with the conveyance of the surface estate. Some of the mineral estate for the Native allotments granted under ANCSA was given to the Native corporations. Most of the subsurface estate granted with allotments under ANAA remain with the Federal Government. The reserved mineral estate under ANAA involves only coal, oil and/or gas; an allotment granted under that act may not contain valuable minerals. Under the homestead laws, the Federal Government retained the subsurface rights to lands conveyed to individuals. Mineral rights are generally held by the State when it sells its land to individuals.

Land that has been patented to the Native corporations is lettered "PN" on the maps in appendix B. To date, a total of 5.0 million acres has been conveyed to Native corporations, or 7% of the study area (table 1). Private parcels are designated in appendix B by a dot centered in the sections where they occur. One million acres have been selected or conveyed to private individuals from the various Federal land disposal programs (table 1). This acreage is spread among all of the Federal land availability categories and cannot be separated from the BLM, FWS, FS, and NPS lands listed. This acreage is included in the Federal total. The State has distributed some of its land to individuals through land disposal sales and leases. The total acreage distributed by the State in the study area is not available, but the private parcels are shown by dots in appendix B. Some of the private or patented land owned by individuals or corporations may be available for exploration and development. Terms will have to be negotiated with the land owner in each case.

## Urban and Suburban Land

Land in the urban and suburban areas of Anchorage, Cordova, Homer, Kenai, Palmer, Seward, Soldotna, Valdez, Wasilla, and Whittier are closed to exploration and mineral

development. The areas are labeled on the quadrangle maps in appendix B. Mining inside the boundaries of these cities and towns, as well as other towns and villages in the study area, would be discouraged. The areas include about 61,000 acres (table 1).

## MINERAL FAVORABILITY

### MINERAL TERRANES

A terrane is an assemblage of related rocks in a given area that are likely to contain mineral deposits that exhibit evidence of similar genesis. A knowledge of the relationships between mineral occurrences and terranes can greatly aid in the exploration for new mineral deposits and can indicate the types of minerals that can be found in each area if exploration is encouraged. Compilations of terrane type by land availability category for each quadrangle are given in appendix C and summarized in table 3.

Of the terrane types that occur in the study area, mafic volcanic rocks underlie about 8.1 million acres, marine continental sediments underlie 6.6 million acres, and granitic intrusives underlie 6.1 million acres. These three terranes account for over 88% of the recognizable terranes in the study area.

Mafic volcanic rocks, primarily basalt, can be favorable for deposits of copper and zinc, with byproduct gold and silver. Marine continental sediments, including limestones, sandstones, and shales, can be favorable for deposits of copper, lead, zinc, barium, and byproduct silver. Granitic intrusives, including granites, quartz monzonites, syenites, granodiorite, and quartz diorite, may be host rocks for a variety of deposits such as copper, gold, molybdenum, tin,

tungsten, uranium, and thorium. Related ultramafic intrusives can be favorable areas for deposits of copper, nickel, and chromium, with byproduct platinum-group elements and gold. Felsic volcanic rocks include rhyolites and quartz latites, which may be favorable for deposits of copper, lead, and zinc, with byproduct silver and gold. Trachytes and phonolites, trachyandesites, and peralkaline volcanics are favorable for uranium and thorium deposits. The mafic-ultramafic terranes are relatively small and widely scattered intrusive rocks. Gabbros can be host rocks for copper and nickel deposits, with byproduct platinum and cobalt. Other ultramafic rocks, like peridotites and dunite, may be favorable for deposits of chromium, nickel, and platinum-group elements, with byproduct cobalt. Altered sediments may represent metamorphism of existing rocks. The resulting deposits possess many of the same elemental characteristics of deposits in igneous terranes.

A total of 23.6 million acres of the 72.5 million acres in the study area are underlain by mineral terranes having potential for metallic mineral deposits (table 3). About 10 million of the 23.6 million acres, or about 42%, underlie land that is available for mineral exploration and development; 2.4 million acres, or 10%, are available with restrictions; and the remaining 11.3 million acres, 48%, are unavailable to mineral entry. Of the 2.4 million acres of land

Table 3.—Mineral terrane acreage in each land availability category, by terrane type

Land availability category	Volcanic rocks		Intrusives		Sediments		Total
	Mafic	Felsic	Maf/Ult <sup>1</sup>	Granitic	Marine <sup>2</sup>	Altered	
AVAILABLE							
OF .....	1,079.7	14.7	47.6	244.3	578.3	533.6	2,498.2
OS .....	1,644.7	281.9	191.6	2,005.4	2,717.3	567.1	7,408.0
Total available .....	2,724.4	296.6	239.2	2,249.7	3,295.6	1,100.7	9,906.2
AVAILABLE WITH RESTRICTIONS							
OFR .....	68.9	0	0	16.5	0	169.0	254.4
PN .....	791.4	4.0	21.4	241.3	1,123.4	1.3	2,182.8
Total restricted .....	860.3	4.0	21.4	257.8	1,123.4	170.3	2,437.2
UNAVAILABLE							
Federal:							
CF .....	2,119.2	56.9	46.3	2,108.9	477.5	581.0	5,389.8
Selected:							
SN .....	673.2	0	32.5	734.1	210.0	42.3	1,692.1
SS .....	198.3	0	.5	149.4	72.2	53.6	474.0
SS/SN .....	505.4	0	18.8	28.9	65.2	21.8	640.1
SN/CF .....	631.5	0	30.9	356.4	597.5	137.1	1,753.4
SS/CF .....	23.7	0	0	30.4	9.2	0	63.3
SS/SN/CF .....	61.6	0	0	2.7	77.5	0	141.8
Total Federal .....	4,212.9	56.9	129.0	3,410.8	1,509.1	835.8	10,154.5
State:							
CS .....	183.4	0	0	89.9	52.5	63.2	389.0
MCO .....	44.3	0	4.5	99.5	540.9	.6	689.8
Total State .....	227.7	0	4.5	189.4	593.4	63.8	1,078.8
Private: Municipalities .....	28.0	0	0	0	31.2	0	59.5
Total unavailable .....	4,468.6	56.9	133.5	3,600.2	2,133.7	899.6	11,292.8
Grand total .....	8,053.6	357.5	394.1	6,107.7	6,552.7	2,170.6	23,636.2
CF	Closed Federal.		OFR	Open Federal with restrictions.	SS	Selected, State.	
CS	Closed State.		OS	Open State.	<sup>1</sup> Mafic-ultramafic.		
MCO	Mineral closing order.		PN	Patented Native.	<sup>2</sup> Continental.		
OF	Open Federal.		SN	Selected, Native.			

available with restrictions, 2.1 million acres, or 88%, are held by Native corporations and may be available for development subject to the terms of the land owner. Of the 11.1 million acres that are unavailable for mineral entry, 5.3 million are in national parks, preserves, wildlife refuges, wild and scenic rivers, and military lands; about 1.6 million acres are State lands or lands that have been selected by the State, 3.4 million acres have been chosen by the Native corporations, and 0.8 million acres have been chosen by both the State and Native corporations.

## MINERAL TERRANES AND DEPOSITS

The MAS data base includes a total of 1,809 mineral deposits and occurrences in the 21 quadrangles of the study area, 605 placer and 1,204 lode; a listing of mineral occurrences and deposits is given in appendix B. Tabulations comparing the mineral deposits and mineral terranes against land availability categories, made by quadrangle, are listed in appendix D and summarized in table 4.

One-third of the mineral occurrences and deposits are

on State lands that are available for mineral exploration and development; another 20% are on available Federal lands. State lands account for less than 15% of the study area, and the available Federal lands for 30%. About 36% of the mineral deposits and occurrences are on land presently unavailable to mineral entry; about 40% of these are on Federal lands classified as parks, preserves, wildlife refuges, wild and scenic rivers, and military land.

While 249 of the 605 placer deposits are not on any recognized mineral terrane shown in "Mineral Terranes of Alaska; 1982" (7), placer deposits are stream concentrations of minerals that come from another source, so there is not necessarily an association with a mineral terrane. Three-fourths of the 1,204 lode deposits are associated with a known mineral terrane. While this is a fairly high percentage, it still points to the need for further geological study in the area to better understand the relationships between mineral occurrences and rock types. About one-third of the lode deposits occur in the mafic volcanic rocks and nearly 20% occur in altered sediments. About 23% of the mineral deposits and occurrences occur in the other four mineral terranes. One-quarter of the deposits do not occur in any recognized mineral terrane.

Table 4.—Number of mineral deposits in each land availability category, by terrane and deposit type

Land availability category	Volcanic rocks				Intrusives				Sediments				No terrane		Total	
	Mafic		Felsic		Maf/Ult <sup>1</sup>		Granitic		Marine <sup>2</sup>		Altered		P	L	P	L
	P	L	P	L	P	L	P	L	P	L						
AVAILABLE																
OF	8	57	0	0	0	7	3	7	0	2	76	104	35	45	122	222
OS	17	45	5	18	0	1	16	87	52	56	59	61	97	91	246	359
Total available	25	102	5	18	0	8	19	94	52	58	135	165	132	136	368	581
AVAILABLE WITH RESTRICTIONS																
OFR	0	4	0	0	0	0	0	0	0	0	0	13	1	7	1	24
PN	2	104	0	0	0	3	4	7	3	18	0	0	11	22	20	154
Total restricted	2	108	0	0	0	3	4	7	3	18	0	13	12	29	21	178
UNAVAILABLE																
Federal:																
CF	7	83	0	0	0	1	4	42	0	6	19	14	34	58	64	204
Selected:																
SN	7	25	0	0	0	1	4	1	0	1	3	11	18	17	32	56
SS	4	20	0	0	0	0	1	3	4	1	10	6	24	24	43	54
SS/SN	6	13	0	0	0	4	0	3	15	3	3	2	7	10	31	35
SN/CF	5	25	0	0	0	0	1	4	2	0	0	19	1	13	9	61
SS/CF	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	2
Total Federal	29	166	0	0	0	6	10	53	21	11	35	52	85	124	180	412
State:																
CS	1	5	0	0	0	0	0	2	1	2	10	5	6	6	18	20
MCO	1	6	0	0	0	0	0	0	3	1	0	1	14	5	18	13
Total State	2	11	0	0	0	0	0	2	4	3	10	6	20	11	36	33
Total unavailable	31	177	0	0	0	6	10	55	25	14	45	58	105	135	216	445
Grand total	58	387	5	18	0	17	33	156	80	90	180	236	249	300	605	1,204

CF Closed Federal.  
 CS Closed State.  
 L Lode deposit.  
 MCO Mineral closing order.  
 OF Open Federal.

OFR Open Federal with restrictions.  
 OS Open State.  
 P Placer deposit.  
 PN Patented Native.

SN Selected, Native.  
 SS Selected, State.  
<sup>1</sup>Mafic-ultramafic.  
<sup>2</sup>Continental.

## SUMMARY

The passage of several Federal laws during the past 25 years has allowed for the selection of approximately 148 million acres of Federal land by the State of Alaska and by Native corporations and individuals. Congress created new national parks, preserves, wildlife refuges, wild and scenic rivers, and forests, and enlarged others with 104 million acres. The result has been a complex configuration of 15 land availability categories on Federal, State, and private land. Some of the land is available to exploration and mineral development, but much is currently unavailable, subject to change as the BLM adjudicates each selection.

Of the 72.5 million acres in the study area, the Federal Government owns 40.3 million acres, or 56%; the State of Alaska, 27.1 million acres, 37%; and private individuals and Native corporations, 5.1 million acres, 7%. In terms of land available for mineral exploration and development, 31.0 million acres, 43%, are available; 6.2 million acres, 8%, are available with restrictions; and 35.3 million acres, 49%, are unavailable. Finally, 23.6 million acres of the study area are underlain by mineral terranes. Of this land, 9.9 million acres, 42%, are available; 2.4 million acres, 10%, are available with restrictions; and 11.3 million acres, 48%, are unavailable for mineral exploration and development.

The following major points can be made:

1. Of the approximately 31.0 million acres in the study area currently available for mineral exploration and development, two-thirds is State land. Of the 35.3 million acres currently unavailable to the mineral industry, nearly two-thirds is classified as national parks, preserves, wildlife refuges, wild and scenic rivers, and military lands on which no new exploration and development may occur now or in the future.

2. Approximately 33% of the study area, or 23.6 million acres, are underlain by recognized mineral terranes. Of the land underlain by recognized mineral terranes, nearly one-half is currently unavailable for mineral entry, and 47% of that land, or 5.3 million acres, is classified as national parks, preserves, wildlife refuges, wild and scenic rivers, and military lands. Less than 14% of the 72.5 million acres in the study area is underlain by mineral terranes that are available for mineral exploration and development.

3. There are 1,809 known mineral deposits in the study area, of which 605 are placer and 1,204 lode. One-third of the deposits are on State lands that are available for mineral entry; another 20% are on available Federal lands; about 11% of the deposits occur on land available with restrictions, mostly land owned by Native corporations; and 36% occur on land that is presently unavailable for new mineral entry.

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## APPENDIX A.—GLOSSARY<sup>1</sup>

**Acquired land**—Land in Federal ownership that was obtained by the Government through purchase, condemnation, or gift; or by exchange for such purchased, condemned, or donated land; or for timber on such land. Acquired lands are not public domain lands and are usually dedicated to a specific use.

**Adjudication**—When the BLM receives a land selection application, a thorough title search is performed on the land parcel; navigability reports are acquired if the selection encloses bodies of water; records are reviewed to determine the possible presence of unpatented and patented mining claims, etc. The BLM then makes a judicial determination, or adjudicates, as to the outcome of the application. In most cases, the land selection is either conveyed to the applicant, rejected, or suspended awaiting further information.

**Available**—Federal or State land legally open to mineral exploration and development under the General Mining Law of 1872, as amended, or under Alaska statute, sections 38.05.185 through 38.05.280.

**Available with restrictions**—Land legally open to mineral exploration and development subject to the management policies of Federal or State land management agencies, Native regional and village corporations, or private individuals. Land may be subject to the management policies of each of these entities.

**Classification**—The designation of lands as being valuable or suitable for specific purposes, uses, or resources.

**Convey**—To transfer any or all titles, surface and subsurface, to a piece of real property.

**Easement**—An interest or right in land owned by another that entitles the holder to a specific limited use, such as crossing over property to gain access to another property, installation of a sewer or water line, etc. The land crossed by such an easement is referred to as the right-of-way.

**Entry**—An application to acquire title to public lands.

**Federal land**—Land owned by the United States, without reference to how the land was acquired or what Federal agency administers the lands, but excluding lands held by the United States in trust for Indians, Aleuts, or Eskimos. Also excluded from this category are severed mineral estates (when rights to subsurface minerals are completely separate from those of the surface estate) owned by the Federal Government.

**Fee**—The estate a person has, where lands are owned by that person and the person's heirs absolutely, with unconditional power of disposition during the person's life, and descending to the person's heirs upon his or her death. Fee title (the same as fee simple or fee absolute title) is conveyed by patent, deed, or grant.

**Historical index**—A chronological summary of all actions which affect, have affected, or will affect the title to, disposition of, or use status of lands and resources within a township.

**Leasable minerals**—Minerals such as coal, oil shale, oil and gas, phosphate, potash, chlorides, sulfates, carbonates, sodium, geothermal resources and associated byproducts—all minerals on the Outer Continental Shelf and all minerals except for salable minerals on acquired lands.

**Legal (formal) restrictions**—Closure of Federal land to mining and/or mineral leasing, or restraints on mineral exploration and development, by statute (law), executive order, secretarial order, public land order, or other formal method.

**Locatable minerals**—Whatever are recognized as minerals by the standard authorities, whether metallic or other substance, when found in public lands in quantity and quality sufficient to render the lands valuable on account thereof. This class of minerals also includes the uncommon varieties of sand, stone, gravel, cinders, pumice, or pumicite and excludes minerals specifically designated as leasable or salable minerals. Minerals may be acquired under the General Mining Law of 1872, as amended.

**Management restriction**—Closure of Federal or State land to mining and/or mineral leasing, or restraints on mineral exploration and development, by agency policy, management decision, or other discretionary method.

**Master title plat**—A composite of the survey plats of a township which shows ownership and land status.

**Meridian**—A north-south line from which longitudes and azimuths are reckoned; a plane-directed normal to the globe defining such a line.

**Mineral**—Inorganic and certain organic substances occurring naturally, with characteristics and economic uses that bring them within the purview of mineral laws; a substance that may be obtained under applicable laws from Federal land by purchase, lease, or mining claim.

**Mineral deposit**—A mass of naturally occurring minerals that may or may not have economic value.

**Mineral exploration and development**—The sequence of activities that includes the search for and acquisition of mineral deposits, the study and work necessary to determine if such deposits are feasible to mine, and the preparation, if warranted, of a deposit for production (extraction). These activities generally will not be undertaken by private companies or by individuals without a reasonable expectation that they could produce at a profit any valuable deposit which might be discovered.

**Mineral favorability**—The occurrence of economic minerals in deposits that are richer than their average crustal abundance due to normal geologic processes. Favorability can be ascertained if the genesis and subsequent history of the rocks in an area are known.

**Mineral terrane**—An assemblage of related rocks that contains significant mineral occurrences or deposits and occupies a particular geographic area.

**Multiple use**—The management of public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; the practice in which a given land area functions in two or more compatible ways.

**Patent**—A document by which the United States conveys legal title to some portion of the public lands.

**Priority use area (emphasis area)**—An area where a particular resource, such as wildlife habitat, receives management emphasis or priority. The areas are either unique, significant, or best suited for the development, management, use, or protection of a resource. The principles of multiple use and sustained yield are maintained in each priority use area. Many different uses may be allowed in each priority area, but the priority use supercedes all others. Other land uses may have limits placed on them to prevent

<sup>1</sup>Many of these terms are defined by T.S. Malley in his book, "Mineral Title Examination" (13).

conflicts with the priority resource. In some instances, a use totally incompatible with the priority resource may be excluded.

**Public domain land**—Original public domain land acquired by the Federal Government from foreign nations and Indian tribes (through purchase, conquest, and treaty) as a foundation upon which to build the Nation. These lands have never left Federal ownership and are disposed of only under the authority of Congress. Public domain lands also include land in Federal ownership that was obtained by the Government in exchange for other public domain land or for timber on public domain land.

**Public land**—Any land and interest in land owned by the United States within the several States and administered by the Secretary of the Interior through the BLM, without regard to how the United States acquired ownership, except (1) lands located on the Outer Continental Shelf, and (2) lands held for the benefit of Indians, Aleuts, and Eskimos. Includes public domain and acquired lands.

**Public land order**—An order effecting, modifying, or canceling a reservation or withdrawal. Such an order is issued by the Secretary of the Interior pursuant to power of the President delegated to the Secretary by Executive Order No. 9146 of April 24, 1943.

**Range**—A north-south tier of townships. A range of townships is described by its relationship to the principle meridian.

**Recreation land**—A tract of public land (usually several thousand acres) on which outdoor recreation or wildlife habitat has been determined to be the primary use. Recreation lands may have facilities for intensive recreation use or they may remain in a relatively undeveloped condition. Where wilderness values predominate, an area may be preserved in a primitive, roadless condition. (See special recreation management area.)

**Regulations**—Regulations are rules promulgated by State and Federal agencies to implement the law and ensure uniform application of the law. Although regulations are not created by the legislature and thus do not have the effect of law, they generally have a statutory authority, and violations are legally punishable.

**Restrictions**—Restraints of all types on mineral exploration and development on Federal and private land. In this study, restrictions are classified as either legal or management restrictions, depending upon the authority or method by which they are effected. All degrees of restraint are included, ranging from normal regulations and standard stipulations of compliance to closure of Federal land to mining and/or mineral leasing.

**Salable minerals**—Minerals such as common varieties of sand, stone, gravel, cinders, pumice, pumicite, and clay

that may be acquired under the Materials Act of 1947, as amended.

**Section**—The unit of subdivision of a township, with boundaries conforming to the rectangular system of surveys, nominally 1 square mile, containing 640 acres.

**Segregation**—Any action, such as withdrawal, that suspends the operation of all or some of the public land laws, including the mining and mineral leasing laws. A mineral segregation occurs when such an action suspends the operation of the mining and mineral leasing laws for particular Federal land. Three distinct methods of segregation are classification, withdrawal, and reservation.

**Special recreation management area**—Area requiring explicit recreation management to achieve specific recreation objectives and provide specific recreation opportunities. Special management areas are identified in the resource management plan, which also defines the management objectives for the area. Major recreation investments are concentrated in these areas.

**Township**—The unit of survey on public lands; normally a quadrangle approximately 6 miles on a side, with boundaries conforming to meridians and parallels within established limits, containing 36 sections, some of which are designed to correct for the convergence of meridians or range lines.

**Unavailable**—Federal or State land closed to mineral exploration and development by legislative intent, public land order, withdrawal, or agency regulations. This category includes Federal land selected by Native regional and village corporations and/or the State of Alaska but not yet conveyed.

**Wilderness area**—An area of undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation, protected and managed so as to preserve its natural conditions. This category includes designated wilderness areas in the National Wilderness Preservation System.

**Wilderness study area**—An area designated by a Federal agency or Congress for consideration as a possible addition to the National Wilderness Preservation System. The area is managed to preserve wilderness characteristics until it is determined whether it should or should not be added to the National Wilderness Preservation System. This category includes further planning areas and instant study areas.

**Withdrawal**—A formal action withholding an area of Federal land from settlement, sale, location, or entry, under some or all of the general land laws, for the purpose of limiting activities under those laws in order to maintain other public values in the area or reserve the area for a particular public purpose or program. Withdrawals also include lands that have been dedicated to public purposes.

## APPENDIX B.—LAND AVAILABILITY MAPS AND LISTING OF MINERAL DEPOSITS

### LISTING OF MINERAL DEPOSITS IN SOUTH-CENTRAL ALASKA

The listing of deposits that follows the key below was compiled from the Bureau's MAS data base in July 1985. The deposits are grouped by USGS 1:250,000-scale quadrangles, and the 21 quadrangles that encompass south-central Alaska are reproduced at 1:500,000 scale as figures B-1 through B-21 (maps included in envelope). The maps show the locations of the listed deposits (by map location number) and the distribution of land in terms of the land availability categories defined in this report. The key defines the various fields and modifiers used in the listing of deposits.

#### Key

Map location	Map location numbers correspond to points plotted on figures B-1 through B-21. (However, not all mineral deposits are represented on these maps. Because of limitations of plot representation at a 1:500,000 scale, the locations were "clustered." A deposit listed with a map location number is represented by that number on the respective quadrangle. Deposits listed without a number lie within a 3-mile radius of the preceding deposit listed with a map location number.)								
MAS sequence No.	Number that keys the deposit to corresponding MAS files.								
Deposit name	Name of deposit or occurrence used by MAS; other names are not listed.								
Commodities	Metals and other commodities of interest, in decreasing order of importance.								
Abbreviations	<table> <tr> <td>P</td> <td>Producer or past producer</td> </tr> <tr> <td>PGE</td> <td>Platinum-group elements</td> </tr> <tr> <td>REE</td> <td>Rare-earth elements</td> </tr> <tr> <td>S&amp;G</td> <td>Sand and gravel</td> </tr> </table>	P	Producer or past producer	PGE	Platinum-group elements	REE	Rare-earth elements	S&G	Sand and gravel
P	Producer or past producer								
PGE	Platinum-group elements								
REE	Rare-earth elements								
S&G	Sand and gravel								

NOTES.—Where entries are absent, no information is available. In the headings that identify the quadrangles, the number in parentheses is the MAS quadrangle number (as shown in figure 1).

## LISTING OF MINERAL DEPOSITS

Map location	MAS sequence No.	Deposit name	Commodities	Map location	MAS sequence No.	Deposit name	Commodities
ANCHORAGE QUADRANGLE (85)				ANCHORAGE QUADRANGLE—Continued			
1	0020850129	Pooman Creek (P)	Au, Ag	46	0020850058	Gold Bullion (P)	Au, Ag, Cu, Mg
	0020850255	Sleigh Creek	Au		0020850060	Kelly-Willow	Au
2	0020850128	South Creek (P)	Au, Ag		0020850061	Independence (P)	Au
3	0020850212	Permanente Cement Limestone	Ca		0020850062	Jap	Au
4	0020859004	Dan Livermore (P)	Au	47	0020850063	Martin (P)	Au, Ag
5	0020850127	Alfred Creek (P)	Au, Ag, PGE		0020850227	Agnes No. 1	Au
6	0020850195	Boulder Creek Coal	Coal	48	0020850079	Rae-Wallace (P)	Au, Ag
7	0020850256	Eureka Creek	Au	49	0020850187	Kings River	Coal
8	0020850144	Caribou Creek (P)	Au, Ag	50	0020859009	Glacier View Equipment, Matanuska River (P)	Au
9	0020850241	Kings River Placer			0020859010	Fortress Mining— Matanuska River (P)	Au
10	0020859011	Fortress Mining-Fortress Creek (P)	Au	51	0020850093	Lone Tree Gulch	Cu, Au, Ag, Zn
	0020859012	Glacier View Equipment- Fortress Creek (P)	Au	52	0020850190	Coal Creek (P)	Coal
11	0020850071	Blue Quartz Mining Co.	Au		0020850237	Tramway 1-5	
12	0020850217	Agate Ridge	Gemstone	53	0020850121	Craigie Creek	Au, Ag, W
13	0020850073	Lane	Au, Ag, Cu, Mo		0020850229	Davey	Au
	0020850076	Little Gem	Au, Ag	54	0020850124	Little Susitna River (P)	Au, Ag, Cu, W
	0020850088	Snowbird (P)	Au, Ag		0020850209	Last Chance Mine Claim	Au
	0020850142	Old Joe 1-2	Au	55	0020850192	Matanuska River Coal	Coal
14	0020850188	Kings River Lode	Cu	56	0020850236	Rock Glacier Creek	Au
15	0020859014	James & Ron Aldrich (P)	Au	57	0020850080	Rae	Au, Ag
16	0020850193	Anthracite Ridge	Coal	58	0020850185	Young Creek	Coal
17	0020850221	Red Cap 1-2	Au	59	0020850059	Mammoth	Au
18	0020850226	Ruth 1-2	Au		0020850122	Upper Willow Creek	Au, Ag, Cu
	0020850239	Water-Rat One			0020850216	Hatcher Pass	Au
19	0020850135	Salted Wonder	Cr		0020850268	Hatcher Creek	Au
20	0020850086	Homebuilder	Au	60	0020850147	Glacier Creek	Au
	0020850087	Mary Ann	Au	61	0020859005	Pass Products Inc. (P)	Au
	0020850089	Mogul	Au, Ag, Cu, Mo	62	0020850123	Fishhook Creek (P)	Au, Ag
	0020850090	Reed Creek Copper	Cu, Au, Mo		0020850155	Fabian & Moore	Clay
21	0020850126	Boulder Creek (P)	Au, Ag, PGE		0020850246	Little Susitna Sulfide	
22	0020850148	Hicks Creek	Au		0020859003	Rainbows End (P)	Au
23	0020850098	Sheep Mountain	Cu, Ag, Au		0020859015	Walter Schumacher (P)	Au
24	0020850238	Three Musketeers 1-3		63	0020850244	Houston Trail Mine	
25	0020850267	McRoberts Creek	Hg	64	0020850120	Grubstake Gulch (P)	Au, Ag
26	0020850074	Fern (P)	Au, Ag, Pb, W, Mo		0020850215	Soapstone No. 1	Talc
	0020850075	Talkeetna	Au, Ag, Mo		0020850223	Midas	Au
	0020850077	Webfoot	Au, Ag	65	0020850119	Willow Creek (P)	Au, Ag
27	0020850057	Brassel Brothers	Au	66	0020850202	Clifford	Au, Cu
	0020850067	Marion Twin (P)	Au, Ag, Pb	67	0020850050	Thorpe (Grubstake Gulch) (P)	Au, Ag
	0020850068	Schroff-O'Neil	Au, Ag, Pb, Cu, Zn		0020850219	Green Arrow	Talc
	0020850070	Bronson & France	Au, Ag, Cu, Pb, Mo	68	0020850186	Carpenter Creek	Coal
	0020850072	Smith	Au	69	0020850051	Wheeler, Betts & Dimmick	Au
	0020850245	Lake 4250			0020850207	Bootsie 1-4	Ni
28	0020850125	Chickaloon River (P)	Au, Ag		0020850218	Pearl	Talc
29	0020850078	Arch	Au		0020850232	Praise No. 1	Au
	0020850083	Gold Quartz	Au, Ag	70	0020850153	Harrison No. 1	Clay
	0020850085	Opal	Au, Ag		0020850181	Evan Jones (P)	Coal
30	0020850137	Gypsum Creek (P)	Gypsum		0020850182	Eska Mine (P)	Coal, clay
31	0020850167	Castle Mountain Mine	Coal		0020850213	Mag 1-2	Au
32	0020850197	Drill Lake	Oil	71	0020850228	King Tut 1-2	Clay
	0020850211	California Creek	Au		0020850234	Mag 1-2	
33	0020850084	Archangel	Au	72	0020850175	Miller	Au
	0020850200	Idaho Peak	U	73	0020850183	William Rhinehart & Associates	Coal
34	0020850064	Bluebird	Au	74	0020850242	Government Creek	Au
	0020850065	High Grade (P)	Au, Ag	75	0020850168	Leasing Unit 1 (P)	Coal
	0020850066	Gold Cord (P)	Au, Ag, Cu, Pb, W, Zn		0020850179	Howard-Jesson (P)	Coal
	0020850069	Newman and Miller	Au		0020850180	Rawson Mine (P)	Coal
	0020850166	Ready Bullion	Au, Ag	76	0020859006	Lloyd Sackett (P)	Au
35	0020850240	Orca 1-3		77	0020850247	CC 1-68	Au, Ag, Cu, Pb, Mo, Ni
36	0020850056	Thorpe (Craigie Creek)	Au, Ag, Cu		0020850253	Nelchina River	
37	0020850235	Cascade Creek	Au	78	0020850252	R J	
38	0020859002	Glacier View Equipment, Caribou Creek (P)	Au	79	0020850174	Barrett, Lohnes, Thorpe & Pomroy	Coal
39	0020850139	Sheep Mountain Sand & Gravel	S&G	80	0020850243	Charity	
40	0020850184	Red Mountain	Coal	81	0020850251	Rusty Nail 1-2	
41	0020850081	Stiles (P)	Au, Ag	82	0020850149	Moose Creek	Au
	0020850082	Mabel (P)	Au, Ag, Cu, Pb, Zn, Mo		0020850178	Coal Permit 010399	Coal
	0020850150	Gold Standard 1-2	Au	83	0020850171	Bartholf	Coal
42	0020850189	Chickaloon (P)	Coal	84	0020850169	Houston Coal Co. (P)	Coal
43	0020850052	Lucky Shot (P)	Au, Ag, Cu		0020850210	Ina Rose 1-4	Clay
	0020850053	Panhandle	Au, Cu	85	0020850224	Metal Creek Lode	Au
	0020850054	Kempf	Au	86	0020850206	Lazy Mountain	Au, Ag
	0020850055	Golden Light	Au	87	0020850006	Wolverine Chromite	Cr, Ni, Co
44	0020850091	Maverick	Au	88	0020850204	No. 1 Black Center	W, Fe, Cu
	0020850092	Lonesome (P)	Au, Ag	89	0020850173	Finger Lake	Ca
	0020859007	Bryson Allen Twidwell, Jr. (P)	Au	90	0020850097	Glacier Fork Lode	Cu, Au, Ag
45	0020850145	Matanuska River	Au	91	0020850172	Wasilla Lake	Ca
				92	0020850170	Lucille Lake	Ca
				93	0020850130	Three Sisters 1-4	Pb

## LISTING OF MINERAL DEPOSITS—Continued

Map location	MAS sequence No.	Deposit name	Commodities	Map location	MAS sequence No.	Deposit name	Commodities
ANCHORAGE QUADRANGLE—Continued				BERING GLACIER QUADRANGLE—Continued			
94	0020850096	Jim Creek	Cu, Au, Pb, Zn	14	0020970023	Yakataga River (P)	Au, PGE
95	0020850131	Jim Lake	W, Ni		0020979001	Alaskan Mining & Processing Co. (P)	Au
	0020850231	Glory Canyon Mine	Au	15	0020970009	Oil Creek	Oil
96	0020850225	Sarah J 1-3	Au	16	0020970008	White River-Maiden Creek (P)	Au
97	0020850272	Big Lake	Clay	17	0020970007	White River (P)	Au
98	0020850160	Friday Creek	Au	18	0020979004	G. & L. Placier (P)	Au
99	0020850214	Blue Streak	Cu, S		0020979005	Cape Co.-Dick Medley (P)	Au
100	0020850095	Eklutna Tunnel	Hg	19	0020979006	George H. Fennimore	Au
101	0020850001	Highway	Cr, Cu, Au, PGE	20	0020970003	Munday Creek	Oil
	0020850230	Anne Elizabeth		21	0020970010	Mosca 4 Claim (P)	Au
102	0020850269	Fall Creek	W	22	0020970004	Poul Creek	Oil
103	0020850002	Pioneer Creek	Cr	23	0020970006	Crooked Creek	Oil
104	0020850203	Knik River	Au	24	0020970005	Lawrence Creek	Oil
105	0020850005	West Twin Peak	Cr		0020979002	Western Minerals (P)	Au
106	0020850132	Metal Creek (P)	Au, Ag, PGE, W	25	0020979007	Northcoast Mining (P)	Au
	0020859008	Mike A. Conner (P)	Au	26	0020970002	Johnston Creek	Oil
107	0020850222	Hunter Creek	Au	27	0020979008	Northcoast Mining (P)	Au
108	0020850004	Thunderbird Creek	Cr	BLYING SOUND QUADRANGLE (105)			
109	0020850094	Myers	Pb, Zn, Cu	1	0021050012	Reynolds Alaska	Cu
110	0020850133	Glacier Fork	Au, W	2	0021050001	Wauthosh	Au
111	0020850003	Mount Eklutna	Cr		0021050003	Blaine	Au
112	0020850198	Eklutna River	Sn	3	0021050010	Peterson	Cu, Zn, Au, Ag
113	0020850152	Eagle River	Au		0021050011	Feather Bed	Cu
	0020850154	Waldron No. 1	Clay	4	0021050002	Glen	Au
114	0020850099	Jessie B.	Au, Cu, Pb		0021050004	No Sweat	Au
115	0020850196	Oil Seep	Oil	5	0021050014	Latouche Island (P)	Cu Au, Zn
116	0020850116	Alaska Peat (P)	Coal	6	0021050013	Elrington Island	Cu
117	0020850233	Campbell Creek		7	0021050005	Stanton	Ba
118	0020850199	Whirley Bird 1-2		8	0021050008	Iron Mask	Cu, Zn
119	0020850100	Eagle River	Au, Ag, Cu, Pb, Zn		0021050009	Fairview	Cu
	0020850176	Raven Creek	Au	9	0021050007	Lietzke	Cu
120	0020850103	Barry Arm	Au, Ag, Cu, Sb	10	0021050006	White Sands	Au
	0020850106	Paymaster	Au	CORDOVA QUADRANGLE (96)			
121	0020850115	Miners River	Cu, Au, Ag	1	0020960004	Orion	Au
122	0020850112	Cann & Minor	Au	2	0020960005	Bayview	Cu
	0020850194	College Fiord	Au	3	0020960047	Bremmer River	Au
123	0020850102	Black & Hogan	Au, Ag, Pb, Zn	4	0020960006	Jack Bay No. 2	Cu
	0020850191	Homestake	Au		0020960007	Jack Bay No. 3	Cu
124	0020850141	Rabbit Creek	Au	5	0020960048	Standard Mines Co.	Au, Pb, Cu
125	0020850271	American Roofing	Clay	6	0020960058	Hidden Treasure	Cu, Pb, Zn, Au
126	0020850114	Brown Bear	Pb, Zn	7	0020960059	McNaughton & Turner	Cu
127	0020850165	Columbia Red Metals Group	Au, Ag, Cu	8	0020960082	Copper Crown	Cu, Au, Zn
128	0020850113	Miners River Nickel	Ni		0020960084	Vesuvius—Wrangle	Cu, Zn
129	0020850220	Miners Bay Discovery	Au	9	0020960001	Ellamar (P)	Cu, Au, Ag, Pb, Zn
130	0020850104	Reiter & Olson	Au, Sb, Pb, Cu		0020960062	Ella	Cu
131	0020850107	Simonton & Mills	Au, Cu, Pb	10	0020960060	Rua	Cu
132	0020850161	Mountain Ridge	Au		0020960061	Wagner	Cu
	0020850162	Wandersum Jaspergem	Gemstone		0020960063	Reynolds-Alaska (P)	Cu
133	0020850108	Walters, Brasslin & Atkinson	Au, Pb, Zn		0020960064	Fielder and Hemple	Cu
	0020850101	Barnes (P)	Au, Ag, Cu, Pb, Zn, Mo		0020960089	Sunnyside	Cu, Zn
135	0020850140	McClure Creek Mine	Au	11	0020960065	Falck	Cu, Zn
136	0020850105	Mitchell & Myers	Au, Pb		0020960072	Acco	Cu
137	0020850254	Crow Creek	Au		0020960077	Steinmetz Z	Cu
	0020859001	McCarthy, Reynolds & McLinn (P)	Au		0020960078	Tibbits	Cu
138	0020850109	Last Chance No. 2	Au		0020960081	Mogul Group (P)	Cu, Zn
139	0020850111	Griset & Benson	Au	12	0020960003	Bligh Island (P)	Au
140	0020850164	Bird Creek (P)	Au, Ag	13	0020960075	Montezuma	Cu, Zn, Au
141	0020850205	Rainbow Ridge Lode	Au, Fe, Ca		0020960076	Standard Copper (P)	Cu, Zn
142	0020850117	Wells Bay	Cu		0020960080	Dewdrop No. 1	Cu
143	0020850118	Long Bay	Cu	14	0020960068	Chisna Consolidated	Cu
144	0020850110	Cameron	Au		0020960069	Landlocked Bay (P)	Cu, Zn, Au
145	0020850151	Rainbow Creek (P)	Au, Ag		0020960070	Threeman, Landlocked Bay	Cu
BERING GLACIER QUADRANGLE (97)					0020960071	Keystone (P)	Cu
1	0020970022	Amy Creek	Au		0020960073	Alaska Commercial Co. (P)	Cu, Zn, Pb, Au, Ag, As
2	0020970011	Bearhole Creek	Cu		0020960074	Hemple Copper Co.	Cu, Au, Ag, Zn
3	0020970018	Kiagna River	Au		0020960079	Steinmetz	Cu
4	0020970012	Unnamed occurrence	Au	15	0020960002	Cloudman Bay	Cu
5	0020970013	Natural Arch	Cu	16	0020960067	Dolan and Rystrom	Cu
6	0020970021	Fourth Berg Lake	Coal	17	0020960066	Threeman-Billygoat	Cu
7	0020970020	Second Berg Lake	Coal	18	0020960011	Banzer	Cu, Au, Pb, Zn
8	0020970016	Canyon Creek	Coal	19	0020960008	Whalen and Nelson	Cu
	0020970019	Carbon Mountain	Coal	20	0020960010	Fidalgo Mining Co. (P)	Cu, Au
9	0020970015	Wardall Ridge	Coal		0020960013	Merchant	Cu
	0020970017	Clear Creek	Coal	21	0020960009	Guthrie and Bellola	Cu
10	0020970024	Bering River	Coal	22	0020960014	Schlosser (P)	Cu, Zn
11	0020970014	Duktoth River	Coal		0020960015	Dickey Copper Co. (P)	Cu, Zn, Au
12	0020979003	Ralph Swarthout (P)	Au				
13	0020970001	Yakataga Beach (P)	Au, Ag, Fe, Cr, Cu, Ti				

## LISTING OF MINERAL DEPOSITS—Continued

Map location	MAS sequence No.	Deposit name	Commodities	Map location	MAS sequence No.	Deposit name	Commodities
CORDOVA QUADRANGLE—Continued				GULKANA QUADRANGLE—Continued			
23	0020960012	Red Head No. 1	Au	26	0020770017	Silver Creek	Ag, Cu, Pb, Zn, Au
24	0020960042	Ellis, Boone & Ibeck 1	Cu	27	0020770013	Lady K Barite	Ba
25	0020960041	Boswell, Holt & Flynn	Cu	28	0020770011	Hogan Hill	Au, Cu
26	0020960043	Ellis, Boone & Ibeck No. 2	Cu	29	0020770007	Clare and Paul	Au
27	0020960050	Green Top	Cu	30	0020770006	Mendeltna Creek	
28	0020960038	Hanson and Co. No. 1	Cu	31	0020770010	Nadina River	PGE
	0020960039	Hanson and Co. No. 2	Cu	32	0020770005	Nelchina Cache	Au
29	0020960040	Head of Bay	Cu	HEALY QUADRANGLE (67)			
30	0020960020	Flynn & Co., Nelson Bay	Cu	1	0020670164	Winter Creek	Au
	0020960037	Shepard-Maxpherson	Cu	2	0020670059	Moose Creek (P)	Au
31	0020960044	Ellis, Boone & Ibeck No. 3	Cu	3	0020670041	McCuen Gulch (P)	Au
32	0020960046	Wilson Point	Au, Ag		0020670042	Needle Rock	
33	0020960035	Wash and Waskey No. 1	Cu	4	0020670015	Lower Newman Creek	Au
	0020960036	Wash and Waskey No. 2	Cu	5	0020670043	Fox Gulch (P)	Au
34	0020960033	Boswell and Lowe	Cu	6	0020670035	Upper Moose Creek	
	0020960034	Rosecrans and Co.	Cu	7	0020670038	Exter Creek	
35	0020960032	Emerald	Cu		0020670172	Lower Dexter Creek	
36	0020960030	Cordova Copper Co.	Cu	8	0020670014	Slide Creek	
	0020960031	Armstrong Exploration	Cu	9	0020670056	Marguerite Creek (P)	Au
37	0020960021	Hawkins Island No. 1	Cu	10	0020670178	Platt Creek (P)	Au
	0020960022	Hawkins Island No. 2	Cu	11	0020670016	Upper Newman Creek	Au
	0020960023	Revenue	Cu		0020679005	Paul Watkins White (P)	Au
38	0020960029	Dalton Boswell Lowe	Cu	12	0020670012	Sheep Creek	Zn, Pb, Au, Ag
39	0020960028	US and Mountain Group	Cu	13	0020679004	Thistle Creek Mining Co. (P)	Au
40	0020960024	Armstrong Exploration Co. No. 1	Cu	14	0020670017	Dry Creek (P)	Au
	0020960083	Glendar Quarry (P)	Stone	15	0020670055	Marguerite Creek Lode	
41	0020960026	Kippin and Co.	Cu	16	0020670009	Chute Creek (P)	Au
42	0020960025	Flynn and Scott	Cu	17	0020670018	Dry Creek Flanks	Au, Zn, Pb, Ag
43	0020960027	Kelly and Macormac	Cu	18	0020670034	Last Chance Creek	
44	0020960045	Bayview No. 1	Au	19	0020670033	Kenny Claims	
	0020960018	Flynn & Co., Orca Claim	Cu	20	0020670037	Surprise Creek	
	0020960019	Hartney Bay	Cu	21	0020670065	Popovitch Creek	Au
45	0020960051	Bear Creek Mining Co.	Au, As	22	0020670039	Sanderson Creek Drainage	
	0020960052	Lucky Strike Mining Co.	Au, Ag	23	0020670064	Lignite Creek Coal (P)	Coal
	0020960053	McKinley Lake Mining Co.	Au, As	24	0020670040	Sanderson Creek	Au
46	0020960017	Tansey 2	Cu	25	0020670032	Keevy Peak	
47	0020960049	Chugat No. 1	Cu	26	0020670066	Lignite Creek	Au
48	0020960016	Tansey 1	Cu	27	0020670023	Portage Creek (P)	Au
49	0020960054	Bering River Coal North	Coal	28	0020670013	Upper Chute Creek	
50	0020960055	Bering River Coal South	Coal	29	0020670019	Rod Claims	
51	0020960056	Whale Claim	Au	30	0020670063	Nenana River Coal (P)	Coal
52	0020960057	Wingham Island Development	Au	31	0020670026	Rock Creek	
GULKANA QUADRANGLE (77)				32	0020670031	Upper Copper Creek	
1	0020770021	Slana River	Cu, Fe, Ag	33	0020670048	Gagnon Creek	Au
	0020770028	Judy	Au, Cu, Ag, Fe		0020670050	Healy Clay	Clay
2	0020770014	Association		34	0020670044	Gold Run Creek (P)	Au
	0020770015	Gonad (P)	Au		0020670049	Healy Creek (P)	Au
	0020770034	Red Rock Cayon (P)	Au	35	0020670046	Alaska Creek	Au
	0020770041	Brendenmuhl	Au		0020670047	French Gulch	Au
3	0020770037	Shnu Creek	Au		0020670090	Usibelli Coal Mine (P)	Coal
4	0020770012	Discovery	Au		0020670167	Usibelli Gold	Au
5	0020770022	Silver Bowl	Cu, Fe, Ag		0020670168	Usibelli Poker Flat (P)	Coal
6	0020770023	Granite Creek (P)	Au	36	0020670029	Copper Creek	
7	0020770038	Excelsior Creek	Au		0020670030	Canyon Creek	
8	0020770001	Maclaren River (P)	Au	37	0020670010	Kansas Creek	Sb, Au, Pb, Zn
9	0020770024	Jody-Slana	Cu, Fe	38	0020670011	Kansas Creek Upper	Sb, Au, Pb, Zn
10	0020770025	Ptarmigan West	Cu, Fe	39	0020670005	Suntrana Creek Clay and Shale	Al
11	0020770027	Burns	Pb, Ag, Au, Ba		0020670051	Suntrana Clay	Clay
12	0020770045	Magnum	U	40	0020670020	Glory Creek	Au, Ag, Sb, Pb, Zn
13	0020770046	Meier Lake	Cu, Fe	41	0020670024	Virginia Creek	Zn, Pb, Au, Ag
14	0020770036	The Dome	Ag, Pb	42	0020670067	Dry Creek Coal (P)	Coal
15	0020770026	Indian	Ag, Pb, Cu, Au		0020670068	Dry Creek Clay	Clay
16	0020770043	Yellow Cat	Pb	43	0020670028	Cody Creek	Sb
17	0020770047	Long Lake Lead	Pb, Mo, Cu, Zn	44	0020670052	Moody Creek	Coal
18	0020770030	Boulder Creek (P)	Au	45	0020670062	Antler Creek	
	0020770031	Slope Creek (P)	Au, Ag, Bi, Cu	46	0020670025	Anderson Mountain	Zn, Pb, Au, Ag
19	0020770032	Grubstake Creek (P)	Au, Ag, Cu	47	0020670070	Sunday Creek	Au
	0020770042	Stephanie	Cu	48	0020670021	West Fork	
20	0020770029	Hidden Creek		49	0020670053	Sugar Loaf	Au
	0020770044	Galena	Pb		0020670054	Sugar Loaf Mountain	Perlite
21	0020770019	Silver Shield	Ag, Pb, Cu, Au	50	0020670045	Eagle Creek	Au
	0020770035	Unnamed occurrence	Ag, Cu, Pb	51	0020670166	Sanctuary River	Coal
22	0020770020	Flat	Au	52	0020670036	Upper Moody Creek	
23	0020770040	French Creek Discovery	Au	53	0020670022	West Fork Upper	
24	0020770018	Discovery	Au	54	0020670071	Savage River	Coal
	0020770048	Flat Lake	Zn, Pb	55	0020670072	Teklanika River	Coal
25	0020770016	Lucky People	U, Fe	56	0020670061	Icworm Gulch	Au
	0020770033	Gold Quartz	Au, Ag, Cu, Pb, Zn	57	0020670073	Sushana	Coal
	0020770039	Ahtell Creek	Au	58	0020670027	Grizzly Creek (P)	Au
				59	0020670069	Hines Creek	Coal

## LISTING OF MINERAL DEPOSITS—Continued

Map location	MAS sequence No.	Deposit name	Commodities	Map location	MAS sequence No.	Deposit name	Commodities
HEALY QUADRANGLE—Continued				HEALY QUADRANGLE—Continued			
60	0020670074	North Wyoming Hills	Ag, Pb	113	0020670171	Lower Windy Susitna River	
61	0020670057	Yanert River	Au	114	0020670140	Long Copeland Creek	
62	0020670058	Yanert Coal Mine (P)	Coal	115	0020670101	Wickersham Creek	Au
63	0020670075	Hess Mountain	Au		0020670106	Wickersham Lode	
64	0020670078	Sable Mountain	Coal	116	0020670176	Timberline Mine (P)	Au
65	0020670076	Calico Creek	Perlite	117	0020670139	McCallie Creek	
66	0020670077	West Fork Calico Creek	Perlite	118	0020670107	Gold Creek	Au
67	0020670079	Polychrome Mountain (P)	Coal	119	0020670104	Susitna River Bridge	Au
68	0020670080	Polychrome Pass	Perlite	120	0020670135	Antimony Creek	Au, Sb
69	0020670081	Toklat River	Au	121	0020670109	Windy Creek	Cu, Ag, Au
70	0020670085	Fairbanks Meridian, T 16 S		122	0020670103	Susitna	Au, Ag, Cu, Oil
71	0020670083	West Fork Susitna Glacier		123	0020670099	Middle Butte Creek	
	0020670084	Fairbanks Meridian, T 17 S			0020670100	Butte Creek Gold	Au
	0020670086	VABM 5756 Fork			0020679001	Jeff Silbaugh (P)	Au
	0020670173	West Fork Susitna Glacier		124	0020670138	Shotgun Creek Lode	Au, Ag, Cu
72	0020670174	Schist Creek Lode	Au, Cu, Mo	125	0020670003	Partin Creek	Au, Ag, Cu, Pb, Zn, Sb
73	0020670087	Windy Creek Nenana River	Au				
74	0020670175	Reindeer Hills	Au	126	0020670132	Honolulu Station	Au
75	0020670001	Cantwell Aluminous Shale	Al	127	0020670137	Shotgun Creek Placer	Au
76	0020670092	Nenana, T 17 S	Au	128	0020670129	Honolulu	
77	0020670097	Jack River	Au, Ag	129	0020670108	Southwest Butte Creek	
78	0020670091	Nenana, T 18 S		130	0020670098	Butte Creek	Cu, Fe, Au
79	0020670093	Wells Creek	Au	131	0020670136	Eldridge Coal Creek	Au, Mn
80	0020670095	Seattle Creek	Au	122	0020670103	Susitna	Au, Ag, Cu, Oil
	0020670096	Lower Seattle Creek		123	0020670099	Middle Butte Creek	
81	0020670145	Dunkle Mine (P)	Coal, Au, Ag, Sb, Cu		0020670100	Butte Creek Gold	Au
					0020670001	Jeff Silbaugh (P)	Au
82	0020670144	Costello	Au, Ag, Cu, As, Pb	124	0020670138	Shotgun Creek Lode	Au, Ag, Cu
83	0020679003	J. & S. Mining (P)	Au	125	0020670003	Partin Creek	Au, Ag, Cu, Pb, Zn, Sb
84	0020670143	Chulitna West	Au				
85	0020670130	Coal Creek (P)	Coal	126	0020670132	Honolulu Station	Au
86	0020670146	Colorado Creek	Au, Ag, Sb, Cu	127	0020670137	Shotgun Creek Placer	Au
	0020670163	Colorado Creek Placer	Au	128	0020670129	Honolulu	
	0020670165	Lode Creek	Au	129	0020670108	Southwest Butte Creek	
87	0020670131	Broad Pass (P)	Coal	130	0020670098	Butte Creek	Cu, Fe, Au
88	0020670155	Lower Bryn Mawr Creek	Au, Ag, Cu, Pb, Zn	131	0020670136	Eldridge Coal Creek	Au, Mn
	0020670162	Lookout Mountain	Ag, Pb, Zn	132	0020670002	Eldridge Glacier	Cr, Ni, Cu, Au, Co
89	0020670154	Golden Zone (P)	Au, Ag, Cu, Pb, Zn	133	0020670128	Portage Creek Head	
	0020670156	Bryn Mawr Creek	Au, Cu				
	0020670157	Bryn Mawr Head	Au, Cu, Zn				
	0020670158	Upper Bryn Mawr Creek					
90	0020670161	Blind Creek	Au, Ag, Pb	1	0021030034	Frying Pan	Fe
91	0020670113	Grogg Creek	Au	2	0021030044	Knutson	Au, Ag, Cu
92	0020670118	Lucky Gulch Creek (P)	Au	3	0021030005	Marsh Creek	Cu, Fe
	0020679002	Claude H. Morris, Jr. (P)	Au	4	0021030004	Iniskin River	Cu
93	0020670134	Costello Bull River	Au	5	0021030045	Silver Queen	Ag
94	0020670153	Copper King	Au, Ag, Cu, As, Zn, Pb	6	0021030046	Millet	Cu, Au
				7	0021030006	Iniskin Bay	Fe
	0020670160	Long Creek	Bi, Cu, Au, Ag, S	8	0021030022	Fritz Creek	Oil
95	0020670114	Roosevelt Creek	Au	9	0021030042	Pile	Fe
	0020670126	Lucky Hill Top	Au	10	0021030024	Dry Bay	Oil
96	0020670119	Gold Hill	Au, Ag, Pb, Zn	11	0021030041	Success	Cu
	0020670124	White Creek (P)	Au, Cu, Pb	12	0021030040	Durant	Cu
97	0020670120	Upper Timberline Creek Lode	Au, Ag	13	0021030023	Bowser Creek	Oil
				14	0021030001	Iliamna	Fe, Ti
	0020670121	Lower Timberline Creek Lode (P)	Au, Ag	15	0021030026	Copper King	Cu, Fe
				16	0021030037	Easy	Fe
	0020670122	Timberline Creek	Au	17	0021030039	Duryea	Pb, Zn, Au, Ag
	0020670125	Dry Creek Placer	Au	18	0021030038	Groundhog	
	0020670127	Timberline Placer	Au, Ag	19	0021030047	Anelson	Au
98	0020670159	Copeland Long Creeks	Au, Cu, PGE	20	0021030021	Oil Bay	Oil
99	0020670007	Valdez Creek (P)	Au, Ag, U	21	0021030027	Dutton	Cu, Au, Mo, Fe
	0020670169	Willow Creek	Au	22	0021030033	Meadow	Fe
	0020670177	Denali Mine (P)	Au, Ag	23	0021030020	Iniskin	Oil
	0020679006	Smith/Prouty-Valdez Creek		24	0021030025	Diamond Point	Au, Ag, Cu
100	0020670115	Eldorado Creek	Au	25	0021030036	Karen	Fe
	0020670116	Black Creek	Au	26	0021030002	White Gull Island	Ag, Ca
	0020670117	Black Creek Lode	Au	27	0021030003	ALC 50-58	Ca
101	0020670141	Canyon Creek	Au, Cu, Pb, Sn, Zn	28	0021030035	North Upper Copper Lake	Au
102	0020670123	Rusty Creek	Au	29	0021030032	South Upper Copper Lake	Au, Mo
103	0020670149	Christy Copeland Creek	Au, Ag, Cu, Pb, Zn	30	0021030019	ALC 21-29	Ca
104	0020670148	Lower Long Creek	Au	31	0021030015	Ursus	Fe
105	0020670111	Fourth of July Creek	Au	32	0021030016	Ursus Cove	Cu
	0020670112	Fourth of July Bench		33	0021030030	Fog Pond	Au, Cu
106	0020670142	Ohio Creek	Au, Cu, Pb, Zn	34	0021030031	Sister	
107	0020670151	Copeland SW		35	0021030048	Aukney	Au
108	0020670008	Denali	Cu, Ag	36	0021030017	Augustine Island	Pumice
	0020670110	Clearwater Mountains	Cu	37	0021030013	Bruin Bay	Fe, Pb, Zn
109	0020670105	Susitna, Indiana Pup Tributary	Au		0021030014	Contact Point	Oil
				38	0021030018	High Risk Venture	
110	0020670133	Middle Fork Chulitna	Au	39	0021030029	Gib	Fe
111	0020670004	Unnamed occurrence	Cr	40	0021030009	Lake	Fe
112	0020670170	Windy Creek Susitna River	Au, Ag	41	0021030012	Chenik	Fe, Ni, Cu, Au, Ag, Zn





## LISTING OF MINERAL DEPOSITS—Continued

Map location	MAS sequence No.	Deposit name	Commodities	Map location	MAS sequence No.	Deposit name	Commodities
MOUNT HAYES QUADRANGLE—Continued				NABESNA QUADRANGLE—Continued			
83	0020680007	Yukon Group	Cu, Mn, Au, Ag, Fe	17	0020780050	Willow Creek	Au
84	0020680075	Chistochina River	Au, PGE, Ag, W	18	0020780121	Cheslina	Au
	0020680145	Unnamed occurrence No. 7	Au, Ag, Cu	19	0020780088	Kat I	
85	0020680068	Slate Creek (P)	Au, PGE	20	0020780079	Cheslina River	Au
	0020680069	Miller Gulch (P)	Au, PGE	21	0020780052	Unnamed occurrence	Pb, Ag
	0020680085	California	Coal		0020780052	Trail Creek	Au
	0020680089	Iron Gulch Lode	Fe	22	0020780081	Unnamed occurrence	Au
	0020680146	Unnamed occurrence No. 8	Au		0020780111	No Name	Au
	0020689012	Territorial Corp. (P)	Au	23	0020780003	Unnamed occurrence	Au, Pb, Zn
86	0020680132	Slate Creek		24	0020780004	Rock Creek	Mo
87	0020680030	Little Clearwater	Au	25	0020780083	Corundum	Abrasive
88	0020680066	Gunn Creek	Au, Cr, W, Zn	26	0020780080	Vicki (P)	Au
89	0020680070	Ruby Gulch (P)	Au	27	0020780082	Skyline	Au
90	0020680088	Chisna Pass		28	0020780007	Unnamed occurrence	Cu
91	0020680027	Mendeltna	U	28	0020780126	Unnamed	Cr
92	0020680078	West Fork Chistochina River	Au	29	0020780078	Bee Jay	Cu, Pb, Au, Ag
	0020680095	Chester		30	0020780006	Boyden Creek	Cu
93	0020680142	Unnamed occurrence No. 4	Au, Cu, Ag	31	0020780008	Unnamed occurrence	Cu
94	0020680082	Chisna Coal	Coal	32	0020780101	Boyden	Au
	0020680083	Chisna Ridge	Au, Ag, Cu, Fe	33	0020780009	Golden Eagle	Cu, Au
	0020680090	Coppertone	Cu		0020780010	Nabesna (P)	Cu, Au, Pb, Ag, Zn
95	0020680010	Tok River		34	0020780077	Camp Creek	Cu
96	0020680005	Middle Fork Chistochina River (P)	Au, Ag, PGE, Cu, Pb	35	0020780011	Camp Creek	Cu
	0020680079	Limestone Creek	Au	36	0020780124	Sheep Creek Mining Co.	
	0020689013	Northern Resources Co. (P)	Au	37	0020780120	Rebo	Cu, Au
98	0020680106	Lucky Lady	Au	38	0020780075	Cooper Pass	Au, Cu
99	0020680080	Ptarmigan Creek	Au	39	0020780069	Carden Creek	Au
	0020680081	Ptarmigan	Mo, Au	40	0020780017	Unnamed occurrence	Cu, Mo
100	0020689002	Shenandoah Miners (P)	Au		0020780092	Bond Creek	Cu
101	0020680098	Chitti Stain	Cu, Ag	41	0020780098	Monte Cristo Creek	Au
102	0020680156	Unnamed occurrence No. 17	Au, Cu, Ni	42	0020780114	Neil	Cu
103	0020680003	Gillett Pass	Cr, Ni	43	0020780099	Marie Nabesna	
104	0020680092	Summit	Au	44	0020780102	Monte Cristo Creek	Cu
105	0020680071	Chisna River (P)	Au	45	0020780015	Orange Hill	Cu, Mo, Zn, Au, Ag
	0020680072	Lower Chisna River (P)	Au		0020780076	M.S. 1414	Cu, Au, Mo, Ag
	0020689014	Chisna Mining Co. (P)	Au		0020780103	N. W. Explorer	Cu, Mo, Au, Ag
106	0020680108	Chistochina R E Drng	Cu	46	0020780016	Bond Creek	Cu, Mo
107	0020680097	Amphi			0020780100	Nikonda Creek	
108	0020680091	Red Bear		47	0020780012	Monte Cristo Creek	Mo
109	0020680135	Siana	Cu, Au, Ni	48	0020780037	Reynolds	Cu
110	0020680076	Chistochina River, Dempsey	Au, Ag	49	0020780014	Unnamed occurrence	Cu
111	0020680096	Richardson Highway, Paxson	Cu	50	0020780013	Unnamed occurrence	Au, Pb, Zn
112	0020689003	Melvin & Rocky Adkins (P)	Au	51	0020780018	Unnamed occurrence	Pb
	0020680004	C & O Mining Co. (P)	Au	52	0020780119	Nabob	Cu, Au
	0020689005	D & E Mining (P)	Au	53	0020780053	Notch Creek	Au
113	0020680113	Corkscrew Creek	Au	54	0020780019	Unnamed occurrence	Cu
	0020689007	Jack L. Dees (P)	Au	55	0020780104	Sheephead	Cu, Au, Fe
114	0020680093	Gakona River Tributary	Au	56	0020780070	Beaver	Au, Cu
115	0020680073	Daisy Creek	Au	57	0020780023	Unnamed occurrence	Cu
116	0020689006	John W. Frost (P)	Au		0020780024	Unnamed occurrence	Cu
	0020689008	Bill Sipple (P)	Au	58	0020780039	Unnamed occurrence	Cu
117	0020680109	Red Streak Gulch	Au	59	0020780020	Unnamed occurrence	Cu
118	0020680107	Jack Creek	Au		0020780021	Gay 1-4	Au, Co
119	0020680100	Paxson Mountain	Cu, Au, Ag	60	0020780113	Gay	Cu
120	0020680134	Alteration	Cu, Au, Ag		0020780074	J C	Au
121	0020680077	Eagle Creek	Au, Ag, PGE	61	0020780055	Chavolda Creek (P)	Au
122	0020680099	Gulkana River, Paxson			0020780056	Glacier Creek (P)	Au
123	0020680136	Siana River Tributary	Au		0020780057	Discovery Gulch (P)	Au
NABESNA QUADRANGLE (78)					0020780110	Jay	Au
1	0020780095	Armco	Au	62	0020780071	Fourmile Creek	Au
	0020780096	Toklat			0020780115	Susan	Cu, Au, Ag, Pb
2	0020780087	Montana	Cu, Pb, Au	63	0020780022	Unnamed Occurrence	Cu
3	0020780097	Mineral Point	Ag	64	0020780054	Dry Gulch (P)	Au
4	0020780094	Mineral Lake Group	Cu, Au	65	0020780058	Poorman Creek (P)	Au
5	0020780090	Corky	Asb		0020780059	Gold Run Creek (P)	Au
6	0020780091	Mentasta Pass	Au		0020780106	Ron	
7	0020780085	Rose Mountain	Au		0020789003	Howard C. Fix (P)	Au
8	0020780122	Scottie Creek	Au	66	0020780062	Snow Gulch (P)	Au
9	0020780125	Moose Creek	Au		0020780063	Coarse Money Creek (P)	Au
10	0020780001	Unnamed occurrence	Cu		0020780064	Bonanza Creek (P)	Au, Ag, Zn, Cu, Pb
11	0020780002	Unnamed occurrence	Cu		0020789001	Ivan Thorall	Au
12	0020780093	Indian	Pb	67	0020780025	Unnamed occurrence	Cu, Zn
13	0020780086	Discovery	Au	68	0020780060	Skookum Creek (P)	Au
14	0020789002	Black Bear Mining (P)	Au		0020780061	Little Eldorado Creek (P)	Au
15	0020780048	Slope Creek (P)	Au, Ag		0020780105	Chickenlicken	Au
	0020780049	Boulder Creek (P)	Gemstone	69	0020780109	Upper Chathenda Creek	Cu
16	0020780089	Discovery Gemstone		70	0020780035	Johnson Creek	Cu
				71	0020780041	Baultoff Creek	Cu
				72	0020780031	Big Eldorado Lode	Cu, Au
					0020780065	Big Eldorado Creek (P)	Au, Ag
				73	0020780026	Nabesna Glacier	Cu, Zn
				74	0020780027	Unnamed occurrence	Cu, Pb, Zn

## LISTING OF MINERAL DEPOSITS—Continued

Map location	MAS sequence No.	Deposit name	Commodities	Map location	MAS sequence No.	Deposit name	Commodities
NABESNA QUADRANGLE—Continued				SEWARD QUADRANGLE—Continued			
75	0020780107	Canyon Creek	Au		0020950068	Conley and McChesney (P)	Au, Cu, Pb, Zn
76	0020780116	Mary Ellen	Cu, Au, Ag, Pb, Mo	5	0020950134	Anderson	Cu
77	0020780028	Cross Creek	Pb, Ag, Zn	6	0020950274	Indian Placer (P)	Au
	0020780029	Unnamed occurrence	Cu, Pb, Zn		0020959001	Redmond Sons (P)	Au
78	0020780032	Chathenda Creek	Cu, Au	7	0020950272	Indian Creek (P)	Au, Pb
	0020780033	Unnamed Occurrence	Au	8	0020950276	Discovery Claim, Falls Creek	Au
	0020780066	Chathenda Creek (P)	Au		0020950277	Huslia Placer 1-132	Au, PGE
79	0020780034	Erie	Au, Pb, Zn	9	0020950236	Skypilot	Au
80	0020780040	Gravel Creek	Cu	10	0020950226	Granite (P)	Sb, Cu, Au, Pb, Zn
81	0020780108	AMC			0020950230	Joseph Harris	Au
82	0020780045	Unnamed occurrence	Cu		0020959036	Western Alaska Mining & Outfitters (P)	Au
83	0020780046	Carole	Cu	11	0020950227	Anderson-Yannes 1-4	Au
84	0020780118	Iris	Cu	12	0020950251	Winner Creek (P)	Au
85	0020780047	Eureka Creek	Cu, Au, Pb, Zn		0020959025	Yukon Mining Co. of Akaska (P)	Au
	0020780112	Thor	Cu	13	0020950062	Griset 1-4	Au
86	0020780044	Unnamed occurrence	Cu		0020950063	Mountain 1-4	Au
87	0020780042	Floyd	Cu, Au, Ag		0020950065	Fodenberg and Bloom	Au
88	0020780043	Horsfeld	Cu		0020950066	Lucky Swede (P)	Au, Cu, Pb, Ag
89	0020780038	Carl Creek	Cu, Mo	14	0020950237	Sweepstake	Sb, Cu, Au, Pb, Zn
90	0020780072	Dark Moon	Au	15	0020950238	Unnamed occurrence	Pb
91	0020780067	Bryan Creek (P)	Au, Cu	16	0020950256	California Creek (P)	Au
92	0020780030	Unnamed occurrence	Cu	17	0020950283	Gull Rock No. 1	Au
93	0020780123	CCCU Group		18	0020950052	Siwash Bay	Cu
94	0020780068	Horsfall Creek (P)	Au, Ag	19	0020950064	Golden Wonder 1 & 9	Au, Cu, Pb, Zn
95	0020780073	Nabesna	Au	20	0020950224	Yakima Ledge	Cu, Au, Pb, Zn
SELDOVIA QUADRANGLE (104)				21	0020950059	Tolson and Station	Au, Zn
1	0021040045	Dcurtis (P)	Coal		0020950060	Carter	Au
2	0021040052	Anchor Point (P)	Au		0020950061	Arrowhead, Golden Wonder (P)	Au, Pb, Zn
3	0021040047	Fritz Creek (P)	Coal	22	0020950050	Cedar Bay	Cu, Zn
4	0021040046	Bradley (P)	Coal		0020950051	Wells Bay Gold and Copper Mining	Cu
5	0021040028	Two Arm Bay	Au	23	0020950129	Gold Queen	Au
6	0021040051	Bluff	Au	24	0020950225	Reed, Gauthier & Cooper	Cu, Au, Zn
7	0021040043	Sandy Mount		25	0020950239	Hermann and Eaton (P)	Cu, Au, Pb, Zn
	0021040044	Kachemak Bay	Au	26	0020950223	Banner (P)	Au, Pb, Zn
8	0021040050	Alice Mae	Au	27	0020950269	Bird Point (P)	Cu, Au, Pb
9	0021040048	Mine Camp	Coal	28	0020950264	Cleverport	Au
	0021040049	Homer	Coal		0020950275	Bear Creek (P)	Au, Ag
10	0021040029	Kusturin and Johanson	Cu, Au		0020950278	Alaskan Axeman 1-2	Au
11	0021040041	Halibut Cove			0020950304	Lower Bear Creek (P)	Au
12	0021040030	S-3		29	0020950295	Resurrection Creek (P)	Au, Ag
13	0021040026	Unnamed occurrence	Cu	30	0020950280	Lower Cripple Creek No. 1	Au
	0021040027	Lost Dutchman	Au		0020959021	Lloyd L. Tyree (P)	Au
	0021040019	Hatcher	Au, Ag, Cu, Pb, Zn	31	0020950222	Hummer Vein	Cu, Au, Pb
	0021040020	Nuka Bay	Au, Ag	32	0020950252	Kern Creek (P)	Au
15	0021040018	Frank (P)	Au, Ag	33	0020950054	Stewart and Fish	Au
16	0021040016	Nuka Bay (P)	Au, Ag	34	0020950268	Sixmile Creek (P)	Au
	0021040017	Alaska Hills (P)	Au		0020950270	Snipers Point 1-2	Au
17	0021040015	Glass and Heifner (P)	Au, Ag, Pb, Cu, Zn	35	0020950249	Peterson Creek	Au
	0021049001	Larry Mc Culloch (P)	Au	36	0020950273	Coon and Plowman	Au, Pb, Ag, Zn
18	0021040021	Sonny Fox (P)	Au, Ag, Cu, Pb, Zn		0020959038	Sunrise Exploration Services (P)	Au
19	0021040022	Big Surprise	Au	37	0020950255	Twentymile River	Au
	0021040023	Johnston & Degan	Au, Ag, Pb	38	0020950248	Peak 1-2	Au
	0021040024	Goayne (P)	Au, Ag, Pb	39	0020950281	Boese Creek Mining Co.	Au
20	0021040014	Beauty Bay	Au, Ag, Cu, Pb, Zn		0020959005	Art Manginelli (P)	Au
21	0021040053	Nukalaska (P)	Au, Cu, Pb		0020959032	Association Fianancial Services (P)	Au
22	0021040025	Tidewater	Au	40	0020950253	Peterson Discovery (P)	Au
23	0021040039	Sadie Cove		41	0020950049	Jensen	Cu
24	0021040036	Flounder	Au		0020950312	Nelson & Ryst	Cu
25	0021040013	Sather	Cu, Pb, Zn, Ag, Au	42	0020950233	Dunklee & Reilly	Cu, Au, Pb, Zn
26	0021040033	Gray Cliff	Ca		0020950234	Lansing	Au, Pb, Zn
27	0021040054	Unnamed occurrence	Graphite		0020950235	Tomboy	Au, Pb
28	0021040034	Queen	Si	43	0020959015	W. H. Mining Association (P)	Au
29	0021040032	Coal Cove (P)	Coal	44	0020950257	Sawmill Creek (P)	Au, Pb, Zn
30	0021040057	Windy River Chromite	Cr	45	0020950232	Homestake	Au
31	0021040035	Josephine	Stone	46	0020950286	Gold Stamp Group (P)	Au
32	0021040001	Red Mountain (P)	Cr, Fe, Si, Co, Ni		0020950287	Nearhouse & Smith (P)	Au, Ag, Pb
33	0021040031	Port Graham	Au	47	0020950159	Hope Mining (P)	Au
34	0021040011	Port Dick	Cu, Zn, Au		0020959019	Gary L. Bloom (P)	Au
35	0021040010	M.D.A. No. 2		48	0020950263	Seattle Creek (P)	Au
36	0021040009	Mills & Trimble	Cu, Ni, Au, Ag	49	0020950285	Lost Frontier Mine No. 1	Au
37	0021040008	Rock	Zn, Cu, Au		0020950294	Robinson & Bowman	Au, Pb, Ag
38	0021040002	Claim Point (P)	Cr, Fe, Al	50	0020950136	Lone Star	Au
39	0021040012	Gore Point	Hg	51	0020950315	Byers	Cu
SEWARD QUADRANGLE (95)				52	0020950316	Chamberlain	Cu
1	0020950231	Michael Vincent	Au	53	0020950058	Kavanaugh and Boon (P)	Au, Pb
2	0020950228	Dominick Ledge	Cu, Au, Zn	54	0020950244	Portage Mine (P)	Au
3	0020950250	Crow Creek (P)	Au, Cu, Ag				
	0020950308	Lucky Won (P)	Au, Ag, Cu				
4	0020950067	North Star (P)	Au				

## LISTING OF MINERAL DEPOSITS—Continued

Map location	MAS sequence No.	Deposit name	Commodities	Map location	MAS sequence No.	Deposit name	Commodities
SEWARD QUADRANGLE—Continued				SEWARD QUADRANGLE—Continued			
55	0020950053	Eldorado Claims	Au		0020950010	Sunrise Uranium 1-99	U
56	0020950161	Pay Streak (P)	Au	104	0020950217	Johnson and Skeen	Au
	0020950286	Hoper Mining Co.	Au	105	0020950147	Timberline Creek 1-7 (P)	Au
	0020950302	Palmer Creek (P)	Au	106	0020950167	Colorado Group	Au, Ag
	0020950003	Four Gold Mining (P)	Au	107	0020950221	Unnamed occurrence	Mo
	0020959004	J. J. Mining (P)	Au	108	0020950314	Lakeview Mining	Au
57	0020950055	Gray Brothers	Au	109	0020950164	Gladiator	Au, Ag
58	0020950288	Kenai Star (P)	Au, Cu, Pb, Zn		0020950165	Marigold	Au
59	0020950242	Bullion Ledge	Au		0020950166	Johnson	Au, Ag
	0020950243	Golden Giant Group	Au, Pb, Zn		0020950189	Gilpatrick (P)	Au, Pb, Ag, Zn
60	0020950306	Mull Claims (P)	Au		0020950191	Alaska Oracle (P)	Au, Pb, Mo, Zn
61	0020950011	Ingram Creek	Au		0020950202	Apex	Au
	0020950262	Quill 1-4	Au	110	0020950163	Summit Lake No. 2	Au
62	0020950289	Downing	Cu, Au, Pb, Zn		0020950199	Minerals North No. 1	Au
63	0020950245	Bata-Sullivan 1-4	Au	111	0020950171	Boundary Bill (P)	Au
	0020950247	Billings Creek Discovery	Au		0020950190	Slate Creek	Au, Ag, Pb
64	0020959039	Sunrise Exploration Services (P)	Au		0020950194	Discovery (P)	Au
	0020950290	Sunshine Group	Au	112	0020950204	Bobby Fraction (P)	Au
66	0020950057	Fish Collins and Stewart	Au		0020950216	North Star Lode	Au
67	0020950291	Teddy Bear	Cu, Au, Pb, Zn	113	0020950192	McMillan (P)	Au
68	0020959010	Miles Messinger (P)	Au		0020950193	Swetmann	Cu, Au, Ag, Pb
	0020959011	William D. Estes (P)	Au	114	0020950215	Devils Creek	Au
	0020950174	Lower Gulch Creek (P)	Au	115	0020959020	Northland Mining (P)	Au
69	0020959002	B & C Mining Co. (P)	Au	116	0020950201	Lois Lode	Au, Ag
	0020959009	Henry W. Waterfield (P)	Au	117	0020950182	Marguerita, Quartz Creek (P)	Au
	0020950126	Unnamed occurrence	Au		0020950195	Quartz Creek (P)	Au
	0020950246	Ernest King	Au		0020950196	Quartz Creek Lode	Cu, Au, Pb, Zn
71	0020950056	Esther Group	Au		0020950307	Kelly Claim	Au
72	0020950076	Singolton 1-4	Au		0020959008	Nova Associates (P)	Au
73	0020950300	Gulch Creek	Au		0020959029	George W. Zimmer (P)	Au
74	0020950259	Tincan Creek	Au		0020959034	Leslie Pederson & Jim Miller (P)	Au
	0020959026	Yukon Mining Co. (P)	Au	118	0020950103	Desert Queens Mining Co.	
75	0020950298	Traxinger	U	119	0020950007	Dave & Zola No. 1	Au
76	0020950292	Lucky Strike (P)	Au, AG, Pb, Zn	120	0020950214	Hargood 1-3	Au
77	0020950135	Portage Pass Mining Co.	Cu	121	0020950137	McClure Bay	Au
78	0020950301	Myrtle (P)	Au	122	0020950213	Discovery	Au
	0020950305	Sanders	Au		0020959027	John Bugli (P)	Au
79	0020950293	Donaldson Creek	Au	123	0020950313	Upper Trail Lake	Cu
	0020950299	Hillside Mine	Au	124	0020959012	Clyde Holbrook (P)	Au, Ag, Cu
80	0020950141	Jones Creek Mine 1-2	Au	125	0020950211	Crescent Discovery	Au
81	0020950144	Bertha Creek (P)	Au		0020950212	Hergord 1-2	Au
	0020950145	SS Lode Claim	Au		0020950303	Crescent Creek (P)	Au
	0020950157	La Petite Rouge (P)	Au		0020959014	Edward & Jennie Ellis (P)	Au
	0020950258	Broken Foot	Au		0020959023	Paul Roderick (P)	Au
82	0020950158	Silvertip Creek (P)	Au	126	0020950112	Case (P)	Au
83	0020950187	Frenchy Creek	Au		0020950138	Grant Lake Dryer 1-2 (P)	Au
84	0020950069	Culross Group (P)	Au		0020959013	Lark Mountain & Kenai Mining Co. (P)	Au
	0020950070	Culross (P)	Cu, Au, Pb, Zn, Ag		0020959037	Grant Lake Mining Co. (P)	Au
85	0020950241	Hillside	Cu, Au, Pb, Zn	127	0020950005	Broadview	Au
86	0020950220	Snodgrass and Panicci	Au	128	0020950046	Disk Island	Cu
87	0020959007	D. J. Buckmeier (P)	Au	129	0020950131	Kenai River (P)	Au
88	0020950309	Golden Horseshoe (P)	Au	130	0020950130	Cooper Creek (P)	Au
89	0020950183	Pass Creek Mine 4-5 (P)	Au		0020959018	Lorena Keating (P)	Au
90	0020950146	River Boy 1-9 (P)	Au	131	0020950123	Lyengholm, Hargood and Larson	Sb
	0020950155	Lynx Creek (P)	Au		0020950119	Dike Prospect	Au
	0020950156	Bench Creek (P)	Au	132	0020950139	Russian River Limestone	Ca
91	0020950160	Jones (P)	Au	133	0020950042	Crown Copper	Cu, Zn
	0020950162	Block Creek (P)	Au		0020950045	Louis Bay	Cu
	0020950267	Canyon Creek (P)	Au	134	0020950074	Kings Bay Placer (P)	Au
	0020959031	Gary L. Leibeg (P)	Au	135	0020959017	Sherman C. Smith (P)	Au
92	0020950178	Pass Creek	Au	136	0020950122	Victory No. 1	Sb
93	0020950143	Blue Dawn	Au		0020950124	Snow Shoe 1-4	Au
94	0020950179	Dempsey	Au	137	0020950095	East Point Mine	Au
95	0020950218	Discovery	Au		0020950114	Kenai-Alaska Gold Co. (P)	Au, Pb, Zn
	0020950219	John K. Abernathy (P)	Au		0020950116	Skeen-Lechner Mining Co. (P)	Au, Pb, Zn
96	0020950172	Shell Mine 1-4 (P)	Au	138	0020950181	Stetson 1-4 (P)	Au
	0020950176	June Mine	Au	139	0020950044	Knight Island Mining and Development	Cu, Zn
	0020950177	Fresno Creek (P)	Au, Pb, Ag		0020950111	Falls Creek (P)	Au
	0020950318	Shell Mine (P)	Au, Pb, Ag	140	0020950121	Vindicator	Au
97	0020950173	Ansooa 1-2	Au	141	0020950113	Skeen Mountain 1-5	Au
	0020950180	Keno	Au	142	0020950115	California-Alaska Mining Co. (P)	Au, Pb, Zn
	0020950148	Seward Gold-Telluride	Au, Pb, Zn	143	0020950128	Blue Fiord	Au
	0020950153	Ready Bullion 1-2 (P)	Cu	144	0020959030	D & G Mining Associates (P)	Au
99	0020950150	Mills Creek (P)	Au	145	0020950140	Betty Lee	Au
100	0020950142	Lucky 4, 1-12 (P)	Au	146	0020959024	Robert Tucker & James Leggett (P)	Au
	0020950016	Rocky Joe Bell (P)	Au	147	0020950096	Dunrovin 1-3	Au, Cu
101	0020950149	Brewster 1-2	Au				
102	0020950168	Iron Mask	Au				
	0020950169	Independence Group	Au				
	0020950170	Mascot	Au				
	0020950022	Nancy A. Hollingsworth (P)	Au				
103	0020950008	Uraluck Exploration	U				

## LISTING OF MINERAL DEPOSITS—Continued

Map location	MAS sequence No.	Deposit name	Commodities	Map location	MAS sequence No.	Deposit name	Commodities
SEWARD QUADRANGLE—Continued				SEWARD QUADRANGLE—Continued			
149	0020950043	Unnamed occurrence	Cu, Zn		0020950004	Northwest Exploration HA 3-14	Cu
	0020950048	Snowstone Group	Cu, Zn	199	0020950317	Elrington Island	Cu
150	0020950110	Ballaine and Nelson	Au	200	0020950083	Keith 1-130	Cu, Au, Zn
151	0020950041	Lower Harring Bay	Cu	201	0020950073	Sheppard 1A, 1B, 2 (P)	Au
152	0020950120	Shermo No. 1	Au	202	0020950001	Latouche Island Copper Mining Co. (P)	Cu, Zn
153	0020950107	Golden Victory 1-3 (P)	Au		0020950015	Alameda, South	Cu, Zn
	0020950109	Seward Bonanza	Cu, Au, Pb, Zn	TALKEETNA QUADRANGLE (75)			
	0020950117	Lazy Jane No. 1	Au	1	0020750021	Boedeker	Au
154	0020950040	South Arm	Cu	2	0020750016	J&K	Au, Ag, Pb
155	0020950047	NW Exploration, Pandora 1-4	Cu	3	0020750014	Grandview	Pb, Ag, Zn, W, Au, Cu
156	0020950319	Chenega Island	Mn	4	0020750020	Cummins	Au
157	0020950118	Victor Pup No. 1	Cu, Zn	5	0020750038	Lacuna Glacier	Cr
158	0020950038	Pandora (P)	Cu, Zn	6	0020750036	Bluff Creek	Coal
159	0020950039	Monarch	Cu		0020750060	Crown Bluff	
160	0020950036	Marsha Bay 1-6	Cu	7	0020750047	Tokositna River	Au
	0020950037	Copper Bullion	Cu, Zn, Fe, S	8	0020750085	Crown First 1-5	
161	0020950034	Nellie Group	Cu	9	0020750054	Lookout 1-2	
	0020950035	Jonesy (P)	Cu	10	0020750059	Second Creek	
162	0020950105	Brown Bear	Au, Pb, Zn	11	0020750076	Bear Creek (P)	Au
	0020950106	Devil Club Ledge	Au		0020759028	Eddie D. Koontz (P)	Au
163	0020950102	Porcupine	Au, Pb, Zn	12	0020750077	Ramsdyke Creek (P)	Au
164	0020950030	Twentieth Century Knight Island	Cu	13	0020750045	Buster & Gomphonema Buster	
	0020950033	Knight Island Alaska Copper Co.	Cu, Zn	14	0020750046	Bearcreek Mining (P)	Au
165	0020950032	Marsha Bay	Cu, Zn	15	0020750022	Curry	Mo
166	0020950071	Jackpot Bay	Au, Pb, Ag, Zn, Cu	16	0020750012	Long Creek (P)	Au, Ag, PGE
167	0020950101	Primrose Group (P)	Au, Cu, Sb, Pb, Zn	17	0020750031	First Creek (P)	Au
	0020950028	Primrose Mining Co. (P)	Au	18	0020750062	Little Bird West 1-8	
168	0020950031	Knight Island Copper Co. U&I	Cu, Zn	19	0020750009	Canyon Creek (P)	Au, Ag, PGE, Sn
	0020950133	Copper Coin (P)	Cu		0020759031	William Lee Sheffield (P)	Au
169	0020950029	Schoonover	Au	20	0020750007	Poorman Creek (P)	Au, Ag, PGE, Sn, U
170	0020950100	Overland	Au		0020750063	Felsite 1-2	
171	0020950098	Hale-Peel-Lyngholm	Au		0020759002	Cibola Co. (P)	Au
172	0020950026	Copper Bay	Cu, Zn	21	0020750018	Colby	Au
	0020950027	Cathead Bay	Cu		0020750019	Bradley	Au, W
	0020950132	Moore (P)	Cu	22	0020750030	Bird Creek (P)	Au, W, Cu
173	0020950028	Mallard Group	Cu, Au		0020759001	Wawbeek Mining Co. (P)	Au
174	0020950025	Graham and Harrison	Cu	23	0020750008	Willow Creek (P)	Au, Ag, PGE, Sn
175	0020950097	Mizpah Ledge	Cu, Au, Pb, Zn	24	0020759019	Dutch Creek Mining Co. (P)	Au
176	0020950024	Snug Harbor	Cu, Zn	25	0020750066	Cripple Creek	
177	0020950022	Home Camp Group	Cu, Zn	26	0020750052	Conglomerate Discovery 1-10	Au
	0020950023	Harvey	Cu		0020750071	Cottonwood Creek (P)	Au
178	0020950020	Minnie	Cu, Zn	27	0020750015	Shellabarger Pass	Au, Ag, Cu, Zn
	0020950021	Mummy Bay	Cu	28	0020750017	Upper Nugget Creek	Au
179	0020950084	Mile Seven	Au, Pb, Zn	29	0020750070	Dutch Creek (P)	Au
	0020950085	Lenard	Au	30	0020750029	Gold Creek (P)	Au
180	0020950104	Redman	Au		0020750037	Blueberry Ridge	Au
181	0020950018	Wilcox	Cu		0020759021	Peter & Rinda Hasson (P)	Au
	0020950019	Hogan, Hample and Egan	Cu	31	0020750042	McKinley View Corp. 1-14	Au
182	0020950017	Hogan Bay (P)	Cu, Zn	32	0020759012	Delbert E. Wisbey (P)	Au
183	0020950087	Mile Four	Au	33	0020750081	Pioneer Creek (P)	Au
184	0020950088	Cannibal	Au	34	0020750083	Bunco Creek	Au
	0020950089	Ponko	Au	35	0020759017	Allen W. Hanson (P)	Au
185	0020950090	Bay City 1-2 (P)	Au		0020759018	Allen Hanson (P)	Au
186	0020950077	Prospect No. 69	Cu, Au		0020759022	Rocknother Fellers-Bill Stroth (P)	Au
	0020950078	Redman and Guyot	Cu	36	0020750064	Coffee Creek	
187	0020950086	Kana Gold Mine (P)	Au	37	0020750006	Nugget Creek (P)	Au, Ag, Sn, W
	0020950091	Last Chance Mine	Au, Ag		0020759013	Y. R. Stubblefield (P)	Au
188	0020950082	Rusty	Au		0020759014	Martin & Jean Herzog (P)	Au
	0020950093	Rengo & Roca's Fourth of July	Au		0020759015	Martin & Jean Herzog (P)	Au
189	0020950075	Day Harbor	Cu, Au	38	0020750050	Coal Creek	Au
190	0020950092	Northern Light 1-6	Au, Cu, Pb, Zn	39	0020750082	Colorado Creek	
191	0020950072	Shoo Fly Claims	Cu	40	0020759011	Rock Hard Mining Co. (P)	Au
192	0020950094	Ashland Gold Mine (P)	Au	41	0020759030	Kelly Keisling & Denis Dewane (P)	Au
193	0020950012	Lin 1-201	Cu		0020759032	Sandford Resources (P)	Au
	0020950013	Alameda, North	Cu, Zn	42	0020750055	Whistler Creek	Au
194	0020950006	Wilson Bay	Cu, S	43	0020759023	Mike Hamilton	Au
	0020950009	Beatson (P)	Cu, Au, Ag, Zn, Pb, Ni		0020759026	Philip Brandl (P)	Au
195	0020950125	PV&M No. 1	Au	44	0020750044	Peters Creek (P)	Au, Ag
	0020950035	Ronald Douglas Wilks (P)	Au	45	0020750002	Cache Creek (P)	Au, Ag, PGE, Sn, W, U
196	0020950014	Alameda, Central	Cu, Zn		0020750005	Thunder Creek (P)	Au, Ag, Sn, Cu, W
197	0020950079	Real Thing	Cu, Fe		0020750010	Falls Creek (P)	Au, Ag
	0020950080	Copper Chief	Cu	46	0020750091	California Creek	
	0020950081	Iron Cap	Cu, Fe	47	0020750004	Dollar Creek (P)	Au, Ag, Sn
198	0020950002	Iron Mountain Group (P)	Cu, S, Zn, Au, Ag, Fe				
	0020950003	Horseshoe 1-16 (P)	Cu, Au, Pb, Ag, Zn, S				

## LISTING OF MINERAL DEPOSITS—Continued

Map location	MAS sequence No.	Deposit name	Commodities	Map location	MAS sequence No.	Deposit name	Commodities
TALKEETNA QUADRANGLE—Continued				TALKEETNA MOUNTAINS QUADRANGLE—Continued			
	0020750035	Short Creek (P)	Coal	25	0020760017	Unnamed occurrence	Cu
48	0020759025	Allen W. Hanson (P)	Au	26	0020760043	Riverside 1-3	Cu
	0020759027	Fred and Earl Negus (P)	Au	27	0020760016	Unnamed occurrence	Au, Ag, Cu
49	0020750067	Janice Creek Mine		28	0020760014	Red Ridge 1-82	Au, Ag
	0020750084	Side Creek			0020769011	Placer Evaluation Inc.	Au
50	0020750058	Crown Wetbutt	Au	29	0020769012	Harold F. Parker (P)	Au
51	0020750003	Windy Creek (P)	Au, Ag, Sn, Cu, W	30	0020760052	B&M 1-4	Au, PGE
	0020750028	Cheechako Gulch (P)	Au	31	0020760013	Talkeetna River	Cu
	0020750090	Porcupine Hill 1-2		32	0020760015	Unnamed occurrence	Cu
	0020759004	Fred Swingler/John Whitley (P)	Au	33	0020760078	Huh 1-3	
	0020759005	Harold L. Soule (P)	Au	34	0020760079	Lucky Strike No. 1	
	0020759009	Dennis C. Mitchell (P)	Au	35	0020760055	Oshetna River	
52	0020759006	George H. McCullough (P)	Au	36	0020760080	Old Gold 1-2	
53	0020750086	String Creek		37	0020760012	Talkeetna Group	Cu, Au, Ag, Fe
54	0020750092	Little Husky		38	0020760006	Copper Queen	Cu, Au
55	0020750053	Deep Creek		39	0020760054	Little Oshetna River	
56	0020750049	Mickey Mouse Mining		40	0020760007	Copper King	Cu, Au, Ag
57	0020750069	Wolverine Creek (P)	Au		0020760034	Iron Creek	Cu
58	0020750075	Spruce Creek (P)	Au	41	0020760009	Phoenix	Cu
	0020759008	Charles M. Miknich (P)	Au		0020760010	Eastview	Cu
	0020759016	Thomas R. Anthony (P)	Au		0020760011	Blue Lode	Cu
59	0020750032	Camp Creek	Au	42	0020760008	Copper Wonder	Cu, Fe
60	0020750088	Starlite Mine		43	0020769014	Nelchina Mines (P)	Au
61	0020759020	Doyle E. Currier (P)	Au	44	0020769007	William K. Defrang (P)	Au
62	0020750056	Kutil 141B			0020769009	Jeffrey L. Bettis (P)	Au
63	0020750061	Martin Creek		45	0020760056	Walker Creek	
64	0020750025	Pass Creek (P)	Au	46	0020769001	Earl Krinke (P)	Au
65	0020750065	C-Plat 1-22		47	0020760020	Granite Creek (P)	Au
66	0020750040	Friendly Bear	Au	48	0020760059	Granite 1-4	
	0020750041	Martin	Au	49	0020760061	BG 1-32	
67	0020750027	Mills Creek (P)	Au	50	0020760023	Fourth of July Creek (P)	Au
68	0020750026	Twin Creek (P)	Au	51	0020760024	Daisy Creek (P)	Au
69	0020750078	Susitna River (P)	Au		0020760075	Grizzly Creek	
70	0020759007	C. T. C. (P)	Au	52	0020760044	Grayling	Au
71	0020750087	Little Bear Creek		53	0020760019	Roaring Creek (P)	Au
72	0020750033	Cache Creek Road	Au	54	0020760022	Yacko Creek (P)	Au
		Discovery			0020769004	Bookout Enterprises (P)	
73	0020750051	Donkey Creek	Au	55	0020769006	Oro Fino Mining Co. (P)	Au
74	0020750072	Eagle Creek (P)	Au		0020760021	Gold Creek, tributary of Oshetna River (P)	Au
75	0020750073	Independence Creek (P)	Au	56	0020760072	Nunatak 1-10	
76	0020750074	Lake Creek (P)	Au, PGE	57	0020760067	Sally's Big Nugget	
77	0020750011	Kahiltna River (P)	Au, Ag, PGE	58	0020760045	Upper Limits	
	0020750093	Peters Creek 1-16		59	0020760036	Tyone Creek	Au
78	0020759010	PMX Mines (P)	Au	60	0020769003	Elvis L. Cole & Ron Swavely (P)	Au
79	0020750080	Yenlo Creek	Au	61	0020760078	Nicolle Creek	
80	0020750057	Crown Yenlo 1-9		62	0020769002	Bonanza Mining Co. (P)	Au
81	0020750024	Kichatna River (P)	Au, PGE	63	0020760035	Little Nelchina River	Au
82	0020759003	Landtec Natural Resource Co. (P)	Au	64	0020760058	Theo Atwater	Au
	0020759029	Hard Rock Mining Co. (P)	Au	65	0020760025	Mazuma Creek (P)	Au
83	0020759024	Samuel Randolph Bailey	Au	66	0020760038	North Fork Kashwitna River	Cu, Au, Ag
84	0020750023	Montana	Fe	67	0020760028	Crooked Creek (P)	Au
85	0020750068	Good Vibrations		68	0020760030	Willow Creek	Au
86	0020750043	Long Lake	U, REE	69	0020760031	Cottonwood Creek	Au
				70	0020760046	Lyndee 1-3	
TALKEETNA MOUNTAINS QUADRANGLE (76)				71	0020760037	Caribou Creek	Au
1	0020760060	Lake Placid			0020769013	Hamilton Mining Enterprises (P)	Au
2	0020760063	Coal Creek Tin	Sn, Cu	72	0020760057	Old Man Creek	Au
3	0020740051	Grizzly Bear 1-56	Cu	73	0020760027	North Creek (P)	Au, PGE
4	0020760050	Big Lake		74	0020760029	Sleigh Creek	Au
5	0020760062	Eldridge Glacier	Au, Ag, Fe		0020769005	Poorman Mine (P)	Au
6	0020760053	Amphi Theater 1-25		75	0020760068	Al's Discovery	Au
7	0020760069	Indian 1-6	Ag, Au, Cu, Bi	76	0020760026	Albert Creek (P)	Au, PGE
8	0020760005	Treasure Creek	Mo, Cu, Zn	TYONEK QUADRANGLE (84)			
9	0020760002	Mint	Ag, Cu, Pb, Au, Sb	1	0020840013	Shirley Lake	U
10	0020760004	Caribou 1-59	Mo, Cu, Zn	2	0020840014	Skwentna River	Au, Ag, Cu, Pb
11	0020760049	August 1-8		3	0020840001	Kahiltna River (P)	Au, Ag, Sn, W, PGE, Th
12	0020760033	Indian River		4	0020840019	Tracy 1-2	Au
13	0020760077	Second Creek Claim		5	0020840011	Mount Estelle	Cu, Pb, Zn, Au
14	0020760048	Jay Creek		6	0020840012	Everett Mining Co.	
15	0020760041	Moose Horn No. 1		7	0020840020	Lost Gold No. 1	Au
16	0020760018	Susitna River (P)	Au	8	0020840003	Hayes Glaciers	Mo
	0020769008	D. & O. Ventures (P)	Au	9	0020840016	Frances 1-2	Au
17	0020760042	Fog Creek		10	0020840004	D.C. 1-4	Mo
18	0020760032	Gold Creek (P)	Au		0020840031	Trimble 1-35	
19	0020760047	Watana Rainbow		11	0020840018	Texas Creek	Au
20	0020760001	Ihly	Pb, Ag	12	0020840007	Kay No. 1Au	
21	0020760039	Hope 1 & 2 Association		13	0020840006	Hay 1-45	Au, Mo
22	0020760074	Chunilna 1-3					
23	0020760040	Grizzly No. 1					
24	0020760003	Chunilna Creek (P)	Au, Ag				

## LISTING OF MINERAL DEPOSITS--Continued

Map location	MAS sequence No.	Deposit name	Commodities	Map location	MAS sequence No.	Deposit name	Commodities
TYONEK QUADRANGLE--Continued				VALDEZ QUADRANGLE--Continued			
	0020840032	Hayes Glacier	Cu, Au, Mo	53	0020860117	Reis	Au
14	0020840017	Beluga Discovery 1-8	Au		0020860137	Chief Okemos	Au
15	0020840015	Alder Creek	Au	54	0020860051	Quitsch	Au, Pb
16	0020840005	D.J.Y. 1-4	Mo	55	0020860147	Stuart Creek	W, Zn, Fe
17	0020840028	Yentna River	Coal	56	0020860132	Ethel Mine	Au
18	0020840027	Wolverine Creek	Au		0020860133	Von Gunther	Au
19	0020840029	Susitna Station	Coal		0020860135	Slide (P)	Au
20	0020840002	Unnamed occurrence	Pb, Zn		0020860136	Ethel Mining Co.	Au
21	0020840026	Lewis River (P)	Au, Ag	57	0020860101	Tiekel River (P)	Au
22	0020840022	Sue 1-16		58	0020860042	Big Four (Mineral Creek) (P)	Au, Pb, Zn
23	0020840025	Theodore River	Au		0020860043	Hercules (P)	Au, Pb, Zn
24	0020840030	Beluga River Placer	Au		0020860044	Monte Carlo (P)	Au, Pb
25	0020840024	Beluga River	Coal		0020860048	Mountain View	Au, Pb
26	0020840010	Cook Inlet Shoals	Ti	59	0020860024	Rambler (P)	Au
27	0020840021	Straight Creek	Pumice		0020860145	Ivanhoe	Cu
28	0020840023	Tyonek Creek	Coal	60	0020860049	Little Giant (P)	Au, Cu, Pb, Zn
29	0020840009	Tyonek	Ti	61	0020860058	Ethel (P)	Au, Pb
VALDEZ QUADRANGLE (86)					0020860059	Blue Ribbon	Au
1	0020860077	Silica Blast	Si	62	0020860045	45	Au, Cu, Pb, Zn
2	0020860086	Nadina River	PGE		0020860046	High Grade	Au, Pb
3	0020860078	Horvath	Au	63	0020860056	Ibex	Au
4	0020860087	Chichokna	Au		0020860057	Donohue (P)	Au
5	0020860079	Susan	Au	64	0020860021	Gold King (P)	Au, Sb, Cu, Pb, Zn
6	0020860080	Chitty Lode	Cu, Ag, Au	65	0020860020	Ruff & Tuff (P)	Au, Ag
7	0020860088	Long Glacier		66	0020860022	Cameron-Johnson (P)	Au, Pb, Zn
8	0020860083	Willow Mountain	Cu, Au	67	0020860113	Townsend and Holland	Au
9	0020860084	Kimball Pass	Au	68	0020860052	Pinochle	Au
10	0020860157	Unnamed	Cu, Ni	69	0020860050	Ramsay-Rutherford (P)	Au, Ag, Cu, Pb, Zn
11	0020860120	Long Glacier	Fe	70	0020860041	Mineral Creek (P)	Au
12	0020860127	Dottie	Au	71	0020860023	Minnie (P)	Au, Pb, Zn
	0020860128	Alaska Copper Mines	Cu	72	0020860054	Valdez Bonanza	Au
13	0020860085	Dust Creek	Au	73	0020860134	McIntosh	Au, Ag, Pb, Cu
14	0020860125	Crawford	U	74	0020860053	Rose Johnson (P)	Au, Zn, Cu
15	0020860126	Copper Creek (P)	Cu, Ag	75	0020860047	Alaskan	Au, Cu, Pb, Zn
16	0020860081	Mahlo River	Au	76	0020860138	Sullivan	Au
17	0020860139	Bluebird (Kotsina River)	Cu, Au		0020860148	Worthington Glacier	W, Zr
18	0020860123	Hubbard Elliott Mine (P)	Cu, Au, Ag	77	0020860073	McCallum	Au
	0020860124	Elliott Creek (P)	Cu, Au	78	0020860025	National (P)	Au
19	0020860140	Copper King	Au, Cu		0020860026	Mayfield (P)	Au, Cu, Pb, Zn
20	0020860082	Manker Creek	Au	79	0020860033	Seacoast Mining Co.	Au, Cu, Pb, Zn
21	0020860122	Benito Creek	Au, Ag, Cu		0020860035	Guthrie & Belloli	Au, Cu, Pb, Zn
22	0020860089	Unicorn	Au	80	0020860027	Bessie Williams	Au
23	0020860003	Liberty Falls	Mn	81	0020860036	Cube (P)	Au, Cu, Pb, Zn
24	0020860002	Dust Mountain	Cr		0020860038	Thompson-Ford (P)	Au, Cu, Pb, Zn
	0020860005	Dust Creek	Cr	82	0020860131	Imperial	Au
25	0020860121	Iron Mountain	Cu		0020860040	Gold Creek	Au
26	0020860150	Gravel Pits	W, Fe	83	0020860074	Noble Mineral	Au
27	0020860001	Bernard Mountain	Cr, Ni, PGE		0020860075	Yellow Bar	Au
28	0020860090	Magnet	Fe	84	0020860151	Devinney and Dolan (P)	Au, Pb
	0020860144	Opal	Au		0020860028	Hecla	Au, Ag, Pb
29	0020860143	Five Mile Creek	Au, Ag, Pb		0020860029	Palmer	Au
30	0020860091	Irish-Karen	Cu, Mm, Ba		0020860030	Silver Gem (P)	Au, Ag, Sb, Pb, Zn
31	0020860094	Chitina	Au		0020860129	Gold Standard	Au
32	0020860109	Nerelna	Au	85	0020860098	Little Bremner River (P)	Au
33	0020860093	Quartz Creek Placer	Au	86	0020860031	Bluebird	Au, Cu, Pb
34	0020860108	Porcupine	Ag, Pb		0020860032	Alice (P)	Au, Ag, Cu, Pb, Zn
35	0020860092	Fourth of July Creek (P)	Au	87	0020860111	Thompson Pass	Au, Cu
36	0020860106	Blackney	Cu	88	0020860019	Sealey-Davis (P)	Au, Cu, Pb, Zn
37	0020860107	Coronado Copper	Cu, Ni, Fe		0020860034	Gold Bluff (P)	Au, Cu, Pb, Zn
	0020860130	Lucky Six Group	Au		0020860037	Cliff (P)	Au, Pb, Zn
38	0020860095	Rockpile	Au, Ag, As, S, Fe	89	0020860039	Alaska Gold Hill	Au
39	0020860149	Unnamed occurrence	W, Zr	90	0020860156	Clear Creek Prospect	W, Au, Co
40	0020860097	Quartz Creek	Au, Pb, Cu	91	0020860070	Ticksit	Au, Ag
41	0020860099	Ernestine Creek	Au	92	0020860071	Columbia	Au
42	0020860102	Fall Creek (P)	Au	93	0020860067	Rainy Day	Au
43	0020860100	Ernestine Creek Lode	Au		0020860068	Patten	Au
44	0020860096	Wetzler (P)	Au, Pb, Zn, Cu	94	0020860110	Wortman Creek	Au
45	0020860119	Swuwa Creek	Au, Ag, Zn, Ni, Pb	95	0020860069	Golden	Au
46	0020860105	Divide Creek	Cu	96	0020860065	Lowe River	W
47	0020860103	Midnight			0020860066	Black Bear 1-4	PGE
48	0020860115	Lyle Johnson	U	97	0020860064	Solomon Gulch	Au
	0020860152	Tiekel Lode Prospect	Au	98	0020860060	Jack Bay	Cu, Zn, Pb
49	0020860118	Ross	Au, Pb	99	0020860063	Addison Powell (P)	Au, Ag, Cu
	0020860141	Boulder Creek (P)	Au		0020860142	Sulphide Gulch (P)	Au, W, Cu
50	0020860055	Knowles	Au, Pb	100	0020860062	Midas (P)	Cu, Au, Ag, Pb, Zn
51	0020860116	Eagle (P)	Au, Pb		0020860076	Bayview	Cu
52	0020860104	Spirit Mountain	Ni, Cu, Co, Ag, PGE	101	0020860061	Curley Kidney (P)	Au
				102	0020860072	Orion	Au

## APPENDIX C.—MINERAL TERRANE ACREAGE IN EACH LAND AVAILABILITY CATEGORY, BY TERRANE TYPE, FOR EACH QUADRANGLE

(Thousand acres. Availability categories for which there is no corresponding mineral terrane acreage of any type are not listed.)

Land availability category	Volcanic rocks		Intrusives		Sediments		Total
	Mafic	Felsic	Maf/Ult <sup>1</sup>	Granitic	Marine <sup>2</sup>	Altered	
<b>ANCHORAGE QUADRANGLE (85)</b>							
AVAILABLE							
OF .....	42.1	0	2.3	0	1.5	54.2	100.1
OS .....	328.7	0	56.7	139.6	425.8	38.4	989.2
Total available .....	370.8	0	59.0	139.6	427.3	92.6	1,089.3
AVAILABLE WITH RESTRICTIONS							
OFR .....	26.2	0	0	0	0	99.2	125.4
PN .....	2.2	0	.1	0	92.7	0	95.0
Total restricted .....	28.4	0	.1	0	92.7	99.2	220.4
UNAVAILABLE							
Federal:							
CF .....	34.6	0	0	0	37.6	0	72.2
Selected:							
SN .....	2.5	0	0	0	.4	5.1	8.0
SS .....	10.8	0	0	0	.3	0	11.1
SS/SN .....	32.1	0	0	0	5.2	0	37.3
Total Federal .....	80.0	0	0	0	43.5	5.1	128.6
State:							
CS .....	35.5	0	0	0	0	0	35.5
MCO .....	11.5	0	0	1.9	65.3	0	78.7
Total State .....	47.0	0	0	1.9	65.3	0	114.2
Private: Urban borough .....	28.3	0	0	0	31.2	0	59.5
Total unavailable .....	155.3	0	0	1.9	140.0	5.1	302.3
Grand total .....	554.5	0	59.1	141.5	660.0	198.9	1,612.0
<b>BERING GLACIER QUADRANGLE (97)</b>							
AVAILABLE							
OF .....	170.7	0	0	6.1	392.5	0	569.3
OS .....	0	0	0	0	20.8	0	20.8
Total available .....	170.7	0	0	6.1	413.3	0	590.1
AVAILABLE WITH RESTRICTIONS							
PN (total restricted) .....	0	0	0	0	48.6	0	48.6
UNAVAILABLE							
CF .....	461.6	0	0	297.3	177.7	123.0	1,059.6
Selected:							
SN .....	0	0	0	0	51.6	0	51.6
SN/CF .....	0	0	0	0	4.7	10.8	15.5
Total unavailable .....	461.6	0	0	297.3	234.0	133.8	1,126.7
Grand total .....	632.3	0	0	303.4	695.9	133.8	1,765.4
<b>BLYING SOUND QUADRANGLE (105)</b>							
AVAILABLE							
OS (total available) .....	3.4	0	0.6	0	0	0.8	4.8
AVAILABLE WITH RESTRICTIONS							
PN (total restricted) .....	9.2	0	0	0	0	0	9.2
UNAVAILABLE							
Federal:							
CF .....	3.2	0	0	38.5	0	0	41.7
Selected:							
SN .....	0	0	0	1.6	0	0	1.6
SS .....	1.0	0	0	0	0	0	1.0
SN/CF .....	0	0	0	12.9	0	0	12.9
Total Federal .....	4.2	0	0	53.0	0	0	57.2
State:							
CS .....	0	0	0	0	0	3.3	3.3
MCO .....	8.3	0	0	0	0	.6	8.9
Total State .....	8.3	0	0	0	0	3.9	12.2
Total unavailable .....	12.5	0	0	53.0	0	3.9	69.4
Grand total .....	25.1	0	.6	53.0	0	4.7	83.4

See explanatory notes at end of table.

**MINERAL TERRANE ACREAGE IN EACH LAND AVAILABILITY CATEGORY,  
BY TERRANE TYPE, FOR EACH QUADRANGLE—Continued**

Land availability category	Volcanic rocks		Intrusives		Sediments		Total
	Mafic	Felsic	Maf/Ult <sup>1</sup>	Granitic	Marine <sup>2</sup>	Altered	
<b>CORDOVA QUADRANGLE (96)</b>							
<b>AVAILABLE</b>							
OF .....	197.6	0	0	72.9	52.2	4.3	327.0
OS .....	83.3	0	0	7.6	0	0	90.9
Total available .....	280.9	0	0	80.5	52.2	4.3	417.9
<b>AVAILABLE WITH RESTRICTIONS</b>							
OFFR .....	3.2	0	0	0	0	0	3.2
PN .....	64.7	0	0	5.9	27.5	0	98.1
Total restricted .....	67.9	0	0	5.9	27.5	0	101.3
<b>UNAVAILABLE</b>							
SN .....	105.3	0	0	13.3	0	8.0	126.6
SS .....	0	0	0	1.9	0	0	1.9
SS/SN .....	1.5	0	0	0	0	0	1.5
Total unavailable .....	106.8	0	0	15.2	0	8.0	130.0
Grand total .....	455.6	0	0	101.6	79.7	12.3	649.2
<b>GULKANA QUADRANGLE (77)</b>							
<b>AVAILABLE</b>							
OF .....	31.2	0	0	0	0	0	31.2
OS .....	15.3	0	0	24.7	0	0	40.0
Total available .....	46.5	0	0	24.7	0	0	71.2
<b>AVAILABLE WITH RESTRICTIONS</b>							
PN (total restricted) .....	0	0	0	19.3	0	0	19.3
<b>UNAVAILABLE</b>							
CF .....	0	0	0	2.0	0	0	2.0
Selected:							
SN .....	37.1	0	0	14.2	0	0	51.3
SS .....	1.9	0	0	3.0	0	0	4.9
SS/SN .....	0	0	0	7.5	0	0	7.5
SS/SN/CF .....	0	0	0	1.9	0	0	1.9
Total unavailable .....	39.0	0	0	28.6	0	0	67.6
Grand total .....	85.5	0	0	72.6	0	0	158.1
<b>HEALY QUADRANGLE (67)</b>							
<b>AVAILABLE</b>							
OF .....	148.5	0	0	116.0	6.1	0	270.6
OS .....	7.3	213.2	0	47.1	236.6	0	504.2
Total available .....	155.8	213.2	0	163.1	242.7	0	774.8
<b>AVAILABLE WITH RESTRICTIONS</b>							
PN (total restricted) .....	0	0	0	20.5	8.9	0	29.4
<b>UNAVAILABLE</b>							
Federal:							
CF .....	0	50.3	0	12.3	71.5	0	134.1
Selected:							
SN .....	8.2	0	0	11.4	1.5	0	21.1
SS .....	41.8	0	0	1.2	7.2	0	50.2
SS/SN .....	0	0	0	0	.8	0	.8
SS/CF .....	0	0	0	1.1	0	0	1.1
Total Federal .....	50.0	50.3	0	26.0	81.0	0	207.3
State: MCO (total State) .....	0	0	0	0	88.3	0	88.3
Total unavailable .....	50.0	50.3	0	26.0	169.3	0	295.6
Grand total .....	205.8	263.5	0	209.6	420.9	0	1,099.8
<b>ILIAMNA QUADRANGLE (103)</b>							
<b>AVAILABLE</b>							
OF .....	4.5	0	0	0	84.0	0	88.5
OS .....	18.3	0	0	88.7	102.6	0	209.6
Total available .....	22.8	0	0	88.7	186.6	0	298.1
<b>AVAILABLE WITH RESTRICTIONS</b>							
PN (total restricted) .....	6.0	0	0	50.1	63.6	0	119.7
<b>UNAVAILABLE</b>							
Federal:							
CF .....	60.8	0	0	34.0	23.4	0	118.2
Selected:							
SN .....	54.7	0	0	5.2	145.4	0	205.3
SS .....	24.8	0	0	92.1	11.4	0	128.3
SS/SN .....	88.3	0	0	10.5	21.8	0	120.6
SN/CF .....	31.4	0	0	0	10.4	0	41.8
SS/CF .....	7.0	0	0	0	0	0	7.0
SS/SN/CF .....	22.9	0	0	0	0	22.9	22.9
Total Federal .....	289.9	0	0	141.8	212.4	0	644.1
State: CS (total State) .....	0	0	0	17.3	0	0	17.3
Total unavailable .....	289.9	0	0	159.1	212.4	0	661.4
Grand total .....	318.7	0	0	297.9	462.6	0	1,079.2

See explanatory notes at end of table.

**MINERAL TERRANE ACREAGE IN EACH LAND AVAILABILITY CATEGORY,  
BY TERRANE TYPE, FOR EACH QUADRANGLE—Continued**

Land availability category	Volcanic rocks		Intrusives		Sediments		Total
	Mafic	Felsic	Maf/Ult <sup>1</sup>	Granitic	Marine <sup>2</sup>	Altered	
<b>KENAI QUADRANGLE (94)</b>							
<b>AVAILABLE</b>							
OS (total available)	13.1	0	0	12.3	286.6	0	312.0
<b>AVAILABLE WITH RESTRICTIONS</b>							
PN (total restricted)	19.5	0	0	0	401.3	0	420.8
<b>UNAVAILABLE</b>							
<b>Federal:</b>							
CF	68.5	0	0	141.8	50.0	0	260.3
<b>Selected:</b>							
SN	13.6	0	0	65.0	4.1	0	82.7
SS	6.7	0	0	0	14.7	0	21.4
SS/SN	0	0	0	0	1.0	0	1.0
SN/CF	227.0	0	0	17.7	551.2	0	795.9
SS/CF	0	0	0	0	.6	0	.6
SS/SN/CF	0	0	0	0	65.2	0	65.2
Total Federal	315.8	0	0	224.5	686.8	0	1,227.1
State: MCO (total State)	3.2	0	0	0	54.4	0	57.6
Total unavailable	319.0	0	0	224.5	741.2	0	1,284.7
Grand total	351.6	0	0	236.8	1,429.1	0	2,017.5
<b>LAKE CLARK QUADRANGLE (93)</b>							
<b>AVAILABLE</b>							
OF	5.7	0	0	.5	0	0	6.2
OS	139.8	0	0	17.0	0	96.4	253.2
Total available	145.5	0	0	17.5	0	96.4	259.4
<b>AVAILABLE WITH RESTRICTIONS</b>							
PN (total restricted)	55.0	0	0	0	0	0	55.0
<b>UNAVAILABLE</b>							
CF	79.3	0	0	545.9	0	0	625.2
<b>Selected:</b>							
SN	4.8	0	0	0	0	0	4.8
SS	26.6	0	0	0	0	0	26.6
SN/CF	0	0	0	304.4	0	29.5	333.9
SS/CF	3.4	0	0	28.7	0	0	32.1
SS/SN/CF	15.2	0	0	.8	0	0	16.0
Total unavailable	129.3	0	0	879.8	0	29.5	1,038.6
Grand total	329.8	0	0	897.3	0	125.9	1,353.0
<b>LIMES HILLS QUADRANGLE (83)</b>							
<b>AVAILABLE</b>							
OF	0	0	0	0	4.3	0	4.3
OS	43.0	0	0	609.6	7.7	0	660.3
Total available	43.0	0	0	609.6	12.0	0	664.6
<b>UNAVAILABLE</b>							
<b>Federal:</b>							
CF	49.5	0	0	12.7	0	0	62.2
SN	130.8	0	0	314.6	0	0	445.4
Total Federal	180.3	0	0	327.3	0	0	507.6
State: MCO (total State)	0	0	0	0	17.0	0	17.0
Total unavailable	180.3	0	0	327.3	17.0	0	524.6
Grand total	223.3	0	0	936.9	29.0	0	1,189.2
<b>MCCARTHY QUADRANGLE (87)</b>							
<b>AVAILABLE WITH RESTRICTIONS</b>							
PN (total restricted)	3.2	0	0	1.7	0	0	4.9
<b>UNAVAILABLE</b>							
<b>Federal:</b>							
CF	854.7	0	24.1	386.8	0	350.1	1,615.7
<b>Selected:</b>							
SN/CF	156.0	0	23.4	2.3	0	.2	181.9
SS/CF	12.2	0	0	.6	0	0	12.8
Total Federal	1,022.9	0	47.5	389.7	0	350.3	1,810.4
State: MCO (total State)	1.5	0	4.5	2.3	0	0	8.3
Total unavailable	1,024.4	0	52.0	392.0	0	350.3	1,818.7
Grand total	1,027.6	0	52.0	393.7	0	350.3	1,823.6
<b>MIDDLETON ISLAND QUADRANGLE (106)</b>							
<b>AVAILABLE</b>							
OF (total available)	0.9	0	0	1.1	0	0	2.0
<b>UNAVAILABLE</b>							
SN (total unavailable)	.6	0	0	0	0	0	.6
Grand total	1.5	0	0	1.1	0	0	2.6

See explanatory notes at end of table.

**MINERAL TERRANE ACREAGE IN EACH LAND AVAILABILITY CATEGORY,  
BY TERRANE TYPE, FOR EACH QUADRANGLE—Continued**

Land availability category	Volcanic rocks		Intrusives		Sediments		Total
	Mafic	Felsic	Maf/Ult <sup>1</sup>	Granitic	Marine <sup>2</sup>	Altered	
<b>MOUNT HAYES QUADRANGLE (68)</b>							
<b>AVAILABLE</b>							
OF .....	281.1	14.7	13.3	5.4	0	1.1	315.6
OS .....	102.4	61.8	.7	220.7	19.1	0	404.7
Total available .....	383.5	76.5	14.0	226.1	19.1	1.1	720.3
<b>AVAILABLE WITH RESTRICTIONS</b>							
PN (total restricted) .....	2.6	4.0	0	75.2	0	0	81.8
<b>UNAVAILABLE</b>							
Federal:							
CF .....	6.3	0	0	0	82.5	0	88.8
Selected:							
SN .....	14.3	0	0	.6	0	0	14.9
SS .....	24.8	0	.4	3.8	11.3	0	40.3
SS/SN .....	11.2	0	1.4	1.1	0	0	13.7
SS/CF .....	1.1	0	0	0	8.6	0	9.7
Total Federal .....	57.7	0	1.8	5.5	102.4	0	167.4
State: MCO (total State) .....	1.9	0	0	23.0	1.0	0	25.9
Total unavailable .....	59.6	0	1.8	28.5	103.4	0	193.3
Grand total .....	445.7	80.5	15.8	329.8	122.5	1.1	995.4
<b>NABESNA QUADRANGLE (78)</b>							
<b>AVAILABLE</b>							
OF .....	5.2	0	1.1	1.0	0	0	7.3
OS .....	23.5	0	0	55.4	0	0	78.9
Total available .....	28.7	0	1.1	56.4	0	0	86.2
<b>AVAILABLE WITH RESTRICTIONS</b>							
PN (total restricted) .....	85.3	0	2.5	27.3	0	0	115.1
<b>UNAVAILABLE</b>							
CF .....	288.2	0	2.1	161.2	0	0	451.5
Selected:							
SN .....	63.2	0	2.4	4.6	0	0	70.2
SS .....	.1	0	0	0	0	0	.1
SS/SN .....	0	0	0	3.6	0	0	3.6
Total unavailable .....	351.5	0	4.5	169.4	0	0	525.4
Grand total .....	465.5	0	8.1	253.1	0	0	726.7
<b>SELDOVIA QUADRANGLE (104)</b>							
<b>AVAILABLE</b>							
OS (total available) .....	81.4	0	7.9	0	231.2	0	320.5
<b>AVAILABLE WITH RESTRICTIONS</b>							
PN (total restricted) .....	188.1	0	4.0	0	109.7	0	301.8
<b>UNAVAILABLE</b>							
Federal:							
CF .....	51.4	0	0	1.1	20.5	28.0	101.0
Selected:							
SN .....	20.8	0	0	0	.3	0	21.1
SS .....	0	0	0	0	7.2	0	7.2
SS/SN .....	0	0	0	0	.6	0	.6
SN/CF .....	149.1	0	0	9.3	35.9	96.6	290.9
SS/SN/CF .....	23.0	0	0	0	12.3	0	35.3
Total Federal .....	244.3	0	0	10.4	76.8	124.6	456.1
State:							
CS .....	147.9	0	0	0	18.4	0	166.3
MCO .....	7.0	0	0	0	30.1	0	37.1
Total State .....	154.9	0	0	0	48.5	0	203.4
Total unavailable .....	399.2	0	0	10.4	125.3	124.6	659.5
Grand total .....	668.7	0	11.9	10.4	466.2	124.6	1,281.8

See explanatory notes at end of table.

**MINERAL TERRANE ACREAGE IN EACH LAND AVAILABILITY CATEGORY,  
BY TERRANE TYPE, FOR EACH QUADRANGLE—Continued**

Land availability category	Volcanic rocks		Intrusives		Sediments		Total
	Mafic	Felsic	Maf/Ult <sup>1</sup>	Granitic	Marine <sup>2</sup>	Altered	
<b>SEWARD QUADRANGLE (95)</b>							
<b>AVAILABLE</b>							
OF .....	112.4	0	1.2	41.2	0	371.3	526.1
OS .....	0	0	3.7	7.5	0	142.6	153.8
Total available .....	112.4	0	4.9	48.7	0	513.9	679.9
<b>AVAILABLE WITH RESTRICTIONS</b>							
OFF .....	28.0	0	0	16.5	0	31.4	75.9
PN .....	65.5	0	0	12.4	0	1.3	79.2
Total restricted .....	93.5	0	0	28.9	0	32.7	155.1
<b>UNAVAILABLE</b>							
Federal:							
CF .....	41.3	0	0	0	0	0	41.3
Selected:							
SN .....	45.1	0	.1	0	0	22.5	67.7
SS .....	13.6	0	.1	5.1	0	27.5	46.3
SS/SN .....	2.4	0	0	.6	0	8.6	11.6
Total Federal .....	102.4	0	.2	5.7	0	58.6	166.9
State: CS (total State) .....	0	0	0	0	0	32.4	32.4
Total unavailable .....	102.4	0	.2	5.7	0	91.0	199.3
Grand total .....	308.3	0	5.1	83.3	0	637.6	1,034.3
<b>TALKEETNA QUADRANGLE (75)</b>							
<b>AVAILABLE</b>							
OF .....	0	0	0	0	28.9	15.6	44.5
OS .....	2.8	2.3	0	43.2	518.2	125.2	691.7
Total available .....	2.8	2.3	0	43.2	547.1	140.8	736.2
<b>UNAVAILABLE</b>							
Federal:							
CF .....	15.2	6.6	18.9	459.7	10.5	79.9	590.8
Selected:							
SS .....	0	0	0	0	20.1	26.1	46.2
SS/SN .....	0	0	0	0	9.9	13.2	23.1
Total Federal .....	15.2	6.6	18.9	459.7	40.5	119.2	660.1
State: CS (total State) .....	0	0	0	29.5	14.4	27.5	71.4
Total unavailable .....	15.2	6.6	18.9	489.2	54.9	146.7	731.5
Grand total .....	18.0	8.9	18.9	532.4	602.0	287.5	1,467.7
<b>TALKEETNA MOUNTAINS QUADRANGLE (76)</b>							
<b>AVAILABLE</b>							
OF .....	154.6	0	0	0	8.8	0.1	163.5
OS .....	410.3	0	0	241.8	7.9	15.1	675.1
Total available .....	564.9	0	0	241.8	16.7	15.2	838.6
<b>AVAILABLE WITH RESTRICTIONS</b>							
PN (total restricted) .....	1.1	0	0	18.0	0	0	19.1
<b>UNAVAILABLE</b>							
Federal:							
SN .....	28.9	0	0	58.0	0	0	86.9
SS .....	46.2	0	0	37.6	0	0	83.8
SS/SN .....	316.5	0	0	5.6	21.2	0	343.3
Total Federal .....	391.6	0	0	101.2	21.2	0	514.0
State:							
CS .....	0	0	0	43.1	2.2	0	45.3
MCO .....	10.9	0	0	45.4	0	0	56.3
Total State .....	10.9	0	0	88.5	2.2	0	101.6
Total unavailable .....	402.5	0	0	189.7	23.4	0	615.6
Grand total .....	968.5	0	0	449.5	40.1	15.2	1,473.3

See explanatory notes at end of table.

**MINERAL TERRANE ACREAGE IN EACH LAND AVAILABILITY CATEGORY,  
BY TERRANE TYPE, FOR EACH QUADRANGLE—Continued**

Land availability category	Volcanic rocks		Intrusives		Sediments		Total
	Mafic	Felsic	Maf/Ult <sup>1</sup>	Granitic	Marine <sup>2</sup>	Altered	
<b>TYONEK QUADRANGLE (84)</b>							
<b>AVAILABLE</b>							
OS (total available) .....	0	4.6	0	483.5	860.8	0	1,348.9
<b>AVAILABLE WITH RESTRICTIONS</b>							
PN (total restricted) .....	0	0	0	1.7	371.1	0	372.8
<b>UNAVAILABLE</b>							
Federal:							
CF .....	0	0	0	0	3.8	0	3.8
Selected:							
SN .....	0	0	0	245.6	6.7	0	252.3
SS .....	0	0	0	4.7	0	0	4.7
SN/CF .....	1.3	0	0	0	0	0	1.3
Total Federal .....	1.3	0	0	250.3	10.5	0	262.1
State							
CS .....	0	0	0	0	17.5	0	17.5
MCO .....	0	0	0	26.9	284.8	0	311.7
Total State .....	0	0	0	26.9	302.3	0	329.2
Total unavailable .....	1.3	0	0	277.2	312.8	0	591.3
Grand total .....	1.3	4.6	0	762.4	1,544.7	0	2,313.0
<b>VALDEZ QUADRANGLE (86)</b>							
<b>AVAILABLE</b>							
OF .....	4.2	0	29.7	0	0	87.0	120.9
OS .....	372.1	0	122.0	6.7	0	148.6	649.4
Total available .....	376.3	0	151.7	6.7	0	235.6	770.3
<b>AVAILABLE WITH RESTRICTIONS</b>							
OFR .....	11.5	0	0	0	0	38.4	49.9
PN .....	289.0	0	14.8	9.2	0	0	313.0
Total restricted .....	300.5	0	14.8	9.2	0	38.4	362.9
<b>UNAVAILABLE</b>							
CF .....	25.6	0	1.2	15.7	0	0	42.5
Selected:							
SN .....	143.3	0	30.0	0	0	6.7	180.0
SS/SN .....	53.4	0	17.4	0	0	0	70.8
SN/CF .....	66.7	0	7.5	9.8	0	0	84.0
SS/SN/CF .....	.5	0	0	0	0	0	.5
Total unavailable .....	289.5	0	56.1	25.5	0	6.7	377.8
Grand total .....	966.3	0	222.6	41.4	0	280.7	1,511.0

CF Closed Federal.  
CS Closed State.  
MCO Mineral closing order.  
OF Open Federal.

OFR Open Federal with restrictions.  
OS Open State.  
PN Patented Native.  
SN Selected, Native.

SS Selected, State.  
<sup>1</sup>Mafic-ultramafic.  
<sup>2</sup>Continental.

## APPENDIX D.—NUMBER OF MINERAL DEPOSITS IN EACH LAND AVAILABILITY CATEGORY, BY TERRANE AND DEPOSIT TYPE, FOR EACH QUADRANGLE

(Availability categories for which there are no corresponding mineral deposits of any type are not listed.)

Land availability category	Volcanic rocks		Intrusives				Sediments				No terrane		Total			
	Mafic		Felsic		Maf/Ult <sup>1</sup>		Granitic		Marine <sup>2</sup>		Altered		P	L	P	L
	P	L	P	L	P	L	P	L	P	L	P	L				
<b>ANCHORAGE QUADRANGLE (85)</b>																
AVAILABLE																
OF .....	0	3	0	0	0	0	0	0	0	0	2	1	3	1	5	5
OS .....	4	8	0	0	0	0	11	61	5	27	0	2	7	12	27	110
Total available .....	4	11	0	0	0	0	11	61	5	27	2	3	10	13	32	115
AVAILABLE WITH RESTRICTIONS																
OFFR .....	0	0	0	0	0	0	0	0	0	0	0	8	0	1	0	9
PN .....	0	0	0	0	0	1	0	0	1	3	0	0	1	0	2	4
Total restricted .....	0	0	0	0	0	1	0	0	1	3	0	8	1	1	2	13
UNAVAILABLE																
Federal:																
SN .....	0	1	0	0	0	0	0	0	0	0	0	3	3	0	3	4
SS .....	1	1	0	0	0	0	0	0	0	0	0	0	7	1	8	2
SS/SN .....	2	3	0	0	0	4	0	0	0	0	0	0	2	2	4	9
Total Federal .....	3	5	0	0	0	4	0	0	0	0	0	3	12	3	15	15
State:																
CS .....	1	1	0	0	0	0	0	0	0	0	2	1	1	5	4	7
MCO .....	1	1	0	0	0	0	0	0	1	0	0	0	0	0	2	1
Total State .....	2	2	0	0	0	0	0	0	1	0	2	1	1	5	6	8
Total unavailable .....	5	7	0	0	0	4	0	0	1	0	2	4	13	8	21	23
Grand total .....	9	18	0	0	0	5	11	61	7	30	4	15	24	22	55	151
<b>BERING GLACIER QUADRANGLE (97)</b>																
AVAILABLE																
OS (total available) .....	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	0
AVAILABLE WITH RESTRICTIONS																
PN (total restricted) .....	0	0	0	0	0	0	0	0	0	7	0	0	3	0	3	7
UNAVAILABLE																
CF .....	1	2	0	0	0	0	0	0	0	0	1	0	0	1	2	3
Selected:																
SN .....	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1
SS .....	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0
Total unavailable .....	1	2	0	0	0	0	0	0	0	1	1	0	4	0	6	4
Grand total .....	1	2	0	0	0	0	0	0	0	8	1	0	13	1	15	11
<b>BLYING SOUND QUADRANGLE (105)</b>																
AVAILABLE																
OF .....	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
OS .....	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total available .....	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
AVAILABLE WITH RESTRICTIONS																
PN (total restricted) .....	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
UNAVAILABLE																
Federal: SN/CF (total Federal) .....	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
State: MCO (total State) .....	0	5	0	0	0	0	0	0	0	0	0	0	4	0	4	5
Total unavailable .....	0	5	0	0	0	0	1	0	0	0	0	0	4	0	5	5
Grand total .....	0	6	0	0	0	0	1	0	0	0	0	0	4	2	5	8
<b>CORDOVA QUADRANGLE (96)</b>																
AVAILABLE																
OF (total available) .....	0	6	0	0	0	0	0	0	0	1	0	0	0	5	0	12
AVAILABLE WITH RESTRICTIONS																
PN (total restricted) .....	0	42	0	0	0	0	0	1	0	1	0	0	1	7	1	51
UNAVAILABLE																
CF .....	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Selected:																
SN .....	0	9	0	0	0	0	0	0	0	0	0	3	1	4	1	16
SS/SN .....	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
SN/CF .....	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Total unavailable .....	1	9	0	0	0	0	0	0	0	0	0	3	2	5	3	17
Grand total .....	1	57	0	0	0	0	0	1	0	2	0	3	3	17	4	80
<b>GULKANA QUADRANGLE (77)</b>																
AVAILABLE																
OF .....	1	0	0	0	0	0	0	0	0	0	0	0	2	0	3	0
OS .....	2	0	0	0	0	0	1	8	0	0	0	0	6	7	9	15
Total available .....	3	0	0	0	0	0	1	8	0	0	0	0	8	7	12	15
AVAILABLE WITH RESTRICTIONS																
PN (total restricted) .....	0	0	0	0	0	0	1	1	0	0	0	0	1	2	2	3
UNAVAILABLE																
SN .....	3	1	0	0	0	0	0	0	0	0	0	0	0	0	3	1
SS/SN .....	0	0	0	0	0	0	0	3	0	0	0	0	1	3	1	6
Total unavailable .....	3	1	0	0	0	0	0	3	0	0	0	0	1	3	4	7
Grand total .....	6	1	0	0	0	0	2	12	0	0	0	0	10	12	18	25

See explanatory notes at end of table.

**NUMBER OF MINERAL DEPOSITS IN EACH LAND AVAILABILITY CATEGORY, BY TERRANE AND DEPOSIT TYPE,  
FOR EACH QUADRANGLE—Continued**

Land availability category	Volcanic rocks				Intrusives				Sediments				No terrane		Total	
	Mafic		Felsic		Ma/Ut <sup>1</sup>		Granitic		Marine <sup>2</sup>		Altered		P	L	P	L
	P	L	P	L	P	L	P	L	P	L	P	L				
<b>ILIAMNA QUADRANGLE (103)</b>																
<b>AVAILABLE</b>																
OF .....	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2
OS .....	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	5
Total available .....	0	4	0	0	0	0	0	0	0	0	0	0	0	3	0	7
<b>AVAILABLE WITH RESTRICTIONS</b>																
PN (total restricted) .....	0	2	0	0	0	0	0	0	0	1	0	0	0	5	0	8
<b>UNAVAILABLE</b>																
OF .....	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	3
Selected:																
SN .....	0	6	0	0	0	0	0	0	0	0	0	0	0	2	0	8
SS .....	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	3
SS/SN .....	0	6	0	0	0	0	0	0	0	1	0	0	0	5	0	12
Total unavailable .....	0	14	0	0	0	0	0	1	0	1	0	0	0	10	0	26
Grand total .....	0	20	0	0	0	0	0	1	0	2	0	0	0	18	0	41
<b>HEALY QUADRANGLE (67)</b>																
<b>AVAILABLE</b>																
OF .....	0	6	0	0	0	0	3	3	0	0	17	6	3	7	23	22
OS .....	0	0	5	11	0	0	1	1	19	17	0	0	5	18	30	47
Total available .....	0	6	5	11	0	0	4	4	19	17	17	6	8	25	53	69
<b>AVAILABLE WITH RESTRICTIONS</b>																
PN (total restricted) .....	0	0	0	0	0	0	1	1	0	2	0	0	1	1	2	4
<b>UNAVAILABLE</b>																
CF .....	0	0	0	0	0	0	0	2	0	5	0	0	2	10	2	17
Selected:																
SN .....	0	0	0	0	0	0	4	0	0	0	2	0	0	0	6	0
SS .....	1	9	0	0	0	0	0	1	0	0	0	0	1	6	2	16
SS/CF .....	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	2
Total unavailable .....	1	9	0	0	0	0	4	3	0	5	2	0	4	18	11	35
Grand total .....	1	15	5	11	0	0	9	8	19	24	19	6	13	44	66	108
<b>KENAI QUADRANGLE (94)</b>																
<b>AVAILABLE</b>																
OS (total available) .....	0	0	0	0	0	0	0	0	3	3	0	0	0	1	3	4
<b>AVAILABLE WITH RESTRICTIONS</b>																
PN (total restricted) .....	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	1
<b>UNAVAILABLE</b>																
Federal:																
CF .....	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2
Selected: SN/CF .....	1	0	0	0	0	0	0	0	2	0	0	0	0	5	3	5
Total Federal .....	1	0	0	0	0	0	0	1	2	0	0	0	0	6	3	7
State: MCO (total State) .....	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total unavailable .....	1	0	0	0	0	0	0	1	2	0	0	0	0	7	3	8
Grand total .....	1	1	0	0	0	0	0	1	6	3	0	0	0	8	7	13
<b>LAKE CLARK QUADRANGLE (93)</b>																
<b>AVAILABLE</b>																
OS (total available) .....	0	0	0	0	0	0	0	0	0	0	4	1	0	0	4	1
<b>AVAILABLE WITH RESTRICTIONS</b>																
PN (total restricted) .....	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>UNAVAILABLE</b>																
Federal:																
CF .....	2	2	0	0	0	0	0	1	0	0	0	0	0	1	2	4
Selected:																
SS .....	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
SN/CF .....	2	10	0	0	0	0	0	0	0	0	0	0	0	0	2	10
Total Federal .....	4	12	0	0	0	0	0	1	0	0	0	0	1	1	5	14
State: MCO (total State) .....	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
Total unavailable .....	4	12	0	0	0	0	0	1	0	0	0	0	3	1	7	14
Grand total .....	4	13	0	0	0	0	0	1	0	0	4	1	3	1	11	16
<b>LIME HILLS (83)</b>																
<b>AVAILABLE</b>																
OS (total available) .....	0	2	0	0	0	0	0	5	0	0	0	0	0	3	0	10
<b>UNAVAILABLE</b>																
SN/CF (total unavailable) .....	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	3
Grand total .....	0	3	0	0	0	0	0	7	0	0	0	0	0	3	0	13

See explanatory notes at end of table.

**NUMBER OF MINERAL DEPOSITS IN EACH LAND AVAILABILITY CATEGORY, BY TERRANE AND DEPOSIT TYPE,  
FOR EACH QUADRANGLE—Continued**

Land availability category	Volcanic rocks		Intrusives				Sediments		No terrane		Total					
	Mafic		Felsic		Maf/Ult <sup>1</sup>		Granitic		Marine <sup>2</sup>		Altered					
	P	L	P	L	P	L	P	L	P	L	P	L				
<b>MCCARTHY QUADRANGLE (87)</b>																
AVAILABLE WITH RESTRICTIONS																
PN (total restricted)	0	4	0	0	0	0	0	2	0	0	0	0	0	6		
UNAVAILABLE																
Federal:																
CF	3	56	0	0	0	1	1	6	0	0	13	13	5	9	22	85
Selected: SN/CF	2	11	0	0	0	0	0	2	0	0	0	0	0	3	2	16
Total Federal	5	67	0	0	0	1	1	8	0	0	13	13	5	12	24	101
State: MCO (total State)	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
Total unavailable	5	67	0	0	0	1	1	8	0	0	13	13	5	14	24	103
Grand total	5	71	0	0	0	1	1	10	0	0	13	13	5	14	24	109
<b>MOUNT HAYES QUADRANGLE (68)</b>																
AVAILABLE																
OF	7	22	0	0	0	3	0	2	0	0	0	0	10	14	17	41
OS	7	9	0	5	0	0	3	2	1	1	0	0	13	16	24	33
Total available	14	31	0	5	0	3	3	4	1	1	0	0	23	30	41	74
AVAILABLE WITH RESTRICTIONS																
PN (total restricted)	1	1	0	0	0	0	1	0	0	0	0	0	0	0	2	1
UNAVAILABLE																
CF	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Selected:																
SN	1	1	0	0	0	0	0	0	0	0	0	0	7	0	8	1
SS	1	4	0	0	0	0	1	1	0	0	0	0	12	16	14	21
SS/SN	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total unavailable	2	8	0	0	0	0	1	1	0	0	0	0	19	17	22	26
Grand total	17	40	0	5	0	3	5	5	1	1	0	0	42	47	65	101
<b>NABESNA QUADRANGLE (78)</b>																
AVAILABLE																
OS (total available)	0	2	0	0	0	0	0	1	0	0	0	0	0	1	0	4
AVAILABLE WITH RESTRICTIONS																
PN (total restricted)	0	3	0	0	0	0	0	1	0	0	0	0	0	4	0	8
UNAVAILABLE																
CF	0	17	0	0	0	0	1	30	0	0	0	0	23	27	24	74
Selected:																
SN	1	1	0	0	0	0	0	0	0	0	0	0	1	2	2	3
SS/SN	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0
SN/CF	0	3	0	0	0	0	0	0	0	0	0	0	0	3	0	6
Total unavailable	1	21	0	0	0	0	1	30	0	0	0	0	26	32	28	83
Grand total	1	26	0	0	0	0	1	32	0	0	0	0	26	37	28	95
<b>SELDOVIA QUADRANGLE (104)</b>																
AVAILABLE																
OS (total available)	0	1	0	0	0	0	0	0	1	1	0	0	0	0	1	2
AVAILABLE WITH RESTRICTIONS																
PN (total restricted)	0	9	0	0	0	2	0	0	0	2	0	0	0	0	0	13
UNAVAILABLE																
Federal:																
SS	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
SN/CF	0	0	0	0	0	0	0	0	0	0	0	19	0	1	0	20
Total Federal	0	0	0	0	0	0	0	0	0	1	0	19	0	1	0	21
State: CS (total State)	0	4	0	0	1	2	0	0	0	0	0	0	0	1	1	7
Total unavailable	0	4	0	0	1	2	0	0	0	1	0	19	0	2	1	28
Grand total	0	14	0	0	1	4	0	0	1	4	0	19	0	2	2	43
<b>SEWARD QUADRANGLE (95)</b>																
AVAILABLE																
OF	0	13	0	0	0	0	0	2	0	0	55	92	9	6	64	113
OS	0	3	0	0	0	0	0	2	0	0	39	22	3	1	42	28
Total available	0	16	0	0	0	0	0	4	0	0	94	114	12	7	106	141
AVAILABLE WITH RESTRICTIONS																
OFR	0	4	0	0	0	0	0	0	0	0	0	0	1	4	1	8
PN	0	26	0	0	0	0	0	0	0	0	0	0	0	2	0	28
Total restricted	0	30	0	0	0	0	0	0	0	0	0	0	1	6	1	36
UNAVAILABLE																
Federal:																
CF	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Selected:																
SN	0	5	0	0	0	0	0	0	0	0	1	2	2	7	3	14
SS	0	5	0	0	0	0	0	0	0	0	5	1	0	0	5	6
SS/SN	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Federal	1	11	0	0	0	0	0	0	0	0	6	3	2	8	9	22
State: CS (total State)	0	0	0	0	0	0	0	0	0	0	2	2	2	0	4	2
Total unavailable	1	11	0	0	0	0	0	0	0	0	8	5	4	8	13	24
Grand total	1	57	0	0	0	0	0	4	0	0	102	119	17	21	120	201

See explanatory notes at end of table.

**NUMBER OF MINERAL DEPOSITS IN EACH LAND AVAILABILITY CATEGORY, BY TERRANE AND DEPOSIT TYPE, FOR EACH QUADRANGLE—Continued**

Land availability category	Volcanic rocks				Intrusives				Sediments				No terrane		Total	
	Mafic		Felsic		Mat/Ult <sup>1</sup>		Granitic		Marine <sup>2</sup>		Altered		P	L	P	L
	P	L	P	L	P	L	P	L	P	L	P	L				
<b>TALKEETNA QUADRANGLE (75)</b>																
AVAILABLE																
OS (total available) .....	0	1	0	1	0	0	0	0	18	2	12	1	10	4	40	9
UNAVAILABLE																
Federal:																
CF .....	0	0	0	0	0	0	2	2	0	1	5	1	1	1	8	5
Selected:																
SS .....	0	0	0	0	0	0	0	0	4	0	5	5	0	0	9	5
SS/SN .....	0	0	0	0	0	0	0	0	.15	2	3	0	0	0	18	2
Total Federal .....	0	0	0	0	0	0	2	2	19	3	13	6	1	1	35	12
State:																
CS .....	0	0	0	0	0	0	0	0	0	0	6	2	3	0	9	2
MCO .....	0	0	0	0	0	0	0	0	2	0	0	0	8	2	10	2
Total State .....	0	0	0	0	0	0	0	0	2	0	6	2	11	2	19	4
Total unavailable .....	0	0	0	0	0	0	2	2	21	3	19	8	12	3	54	16
Grand total .....	0	1	0	1	0	0	2	2	39	5	31	9	22	7	94	25
<b>TALKEETNA MOUNTAINS QUADRANGLE (76)</b>																
AVAILABLE																
OF .....	0	2	0	0	0	0	0	0	0	0	0	0	4	0	4	2
OS .....	3	16	0	0	0	0	0	0	0	0	1	0	33	8	37	24
Total available .....	3	18	0	0	0	0	0	0	0	0	1	0	37	8	41	26
AVAILABLE WITH RESTRICTIONS																
PN (total restricted) .....	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0
UNAVAILABLE																
Federal:																
SN .....	0	0	0	0	0	0	0	0	0	0	0	2	3	0	3	2
SS .....	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
SS/SN .....	3	0	0	0	0	0	0	0	0	0	0	2	2	0	5	2
Total Federal .....	4	0	0	0	0	0	0	0	0	0	0	4	5	0	9	4
State:																
CS .....	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
MCO .....	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Total State .....	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	3
Total unavailable .....	4	0	0	0	0	0	0	2	0	0	0	5	5	0	9	7
Grand total .....	7	18	0	0	0	0	0	2	0	0	1	5	46	8	54	33
<b>TYONEK QUADRANGLE (84)</b>																
AVAILABLE																
OS (total available) .....	0	0	0	1	0	0	0	6	4	2	0	0	7	5	11	14
AVAILABLE WITH RESTRICTIONS																
PN (total restricted) .....	0	0	0	0	0	0	1	1	1	2	0	0	0	0	2	3
UNAVAILABLE																
MCO (total unavailable) .....	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Grand total .....	0	0	0	1	0	0	1	7	5	5	0	0	7	5	13	18
<b>VALDEZ QUADRANGLE (86)</b>																
AVAILABLE																
OF .....	0	4	0	0	0	4	0	0	0	1	2	5	4	10	6	24
OS .....	1	0	0	0	0	1	0	1	1	3	3	35	7	12	12	52
Total available .....	1	4	0	0	0	5	0	1	1	4	5	40	11	22	18	76
AVAILABLE WITH RESTRICTIONS																
OFR .....	0	0	0	0	0	0	0	0	0	0	0	5	0	2	0	7
PN .....	1	14	0	0	0	0	0	0	0	0	0	0	0	1	1	15
Total restricted .....	1	14	0	0	0	0	0	0	0	0	0	5	0	3	1	22
UNAVAILABLE																
CF .....	0	5	0	0	0	0	0	0	0	0	0	0	3	3	3	8
Selected:																
SN .....	2	1	0	0	0	1	0	1	0	0	0	1	0	2	2	6
SN/CF .....	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total unavailable .....	2	6	0	0	0	1	0	1	0	0	0	1	3	6	5	15
Grand total .....	4	24	0	0	0	6	0	2	1	4	5	46	14	31	24	113

CF Closed Federal  
 CS Closed State.  
 L Lode.  
 MCO Mineral closing order.  
 OF Open Federal.

OFR Open Federal with restrictions.  
 OS Open State.  
 P Placer.  
 PN Patented Native.  
 SN Selected, Native.

SS Selected, State.  
<sup>1</sup>Mafic-ultramafic.  
<sup>2</sup>Continental.

## APPENDIX E.—MAJOR FEDERAL LAWS AFFECTING MINERAL EXPLORATION AND DEVELOPMENT<sup>1</sup>

**Act of March 3, 1807 (2 Stat. 448)**—First mineral land leasing act, reserved lead mines and adjacent areas to the Federal Government for future disposal, and provided for their lease to private parties for limited terms. Later related acts reserved specific minerals (salt springs, lead, and hot springs) in certain States from sale and/or provided for leasing. Most Federal mineral lands were available by leasing from 1807 to 1846.

**Act of April 25, 1812 (2 Stat. 716)**—General Land Office was organized as a bureau in the Treasury Department. It was transferred in 1849 to the Department of the Interior and abolished in 1946 when its functions were merged with the Department of the Interior's Grazing Office to form the Bureau of Land Management. Responsible for public land laws relating to surveys, disposal, and other activities concerning administration and management of the public land.

**Act of July 11, 1846 (9 Stat. 37)**—Authorized sale of lead mines in the Upper Mississippi Valley and in Arkansas at public auction for \$2.50/acre. Other related acts provided for survey and sale of mineral land in various States, and authorized preemptive rights for mineral land. Period of Federal mineral land sales extended from 1846 to 1866. Some mineral land was sold under the agricultural laws for various reasons.

**Act of May 20, 1862 (12 Stat. 392)—Homestead Act of 1862**—This and later homestead acts allowed settlers to enter nonmineral public land for agricultural purposes, meet certain conditions for improvements, and obtain a patent (title) to the land, including the minerals in most cases. Many of these lands have subsequently yielded substantial mineral deposits.

**Act of March 3, 1865 (13 Stat. 529)**—Coal lands could be disposed from public lands. For actual coal mining operations, up to 160 acres of land could be acquired at a minimum rate of \$20.00/acre.

**Act of July 26, 1866 (14 Stat. 251)—Mining Act of 1866**—All mineral lands of the public domain were declared open to exploration and occupation. The act provided for location of lode mining claims, and upon expenditure of at least \$1,000 in improvements, a patent could be purchased at the rate of \$5.00/acre. The law allowed only one location per lode and limited each location to 200 feet along the lode or vein.

**Act of July 9, 1870 (16 Stat. 217)—Placer Claims Act of 1870**—This act amended the Act of July 26, 1866, to include placer locations. It allowed placer claims to conform to legal subdivision on surveyed lands. Placer claims could not exceed 160 acres for any one person or association of persons. Payment for patent of placer claims was \$2.5/acre.

**Act of May 10, 1872 (17 Stat. 91)—General Mining Law of 1872**—This well-known act replaced much of the 1866 and 1870 laws. It declared "all valuable mineral deposits in lands belonging to the United States. . . to be free and open to exploration and purchase." It authorized placer and lode mining claims to be located by a procedure that is largely unchanged to this day. The act also required that not less than \$100 worth of work be performed on each claim per year. Patents could be issued for claims containing "valuable deposits" upon expenditure of \$500 worth of work. Later acts excluded varieties of leasable and salable minerals from the purview of the General Mining Law.

**Act of March 3, 1873 (17 Stat. 607)**—Entry could be made on vacant coal lands belonging to the United States.

**Act of March 3, 1877 (19 Stat. 377)—Desert Land Entries Act**—Provided for entry and disposal of arid land, non-mineral in character, in tracts of up to 640 acres in size at only \$0.25/acre, with patent to follow upon proof that the land had been irrigated.

**Act of March 3, 1879 (20 Stat. 394)**—Established the office of Director of the Geological Survey. Duties included geology and mineral resource studies and classification of the public lands.

**Act of June 4, 1897 (30 Stat. 34)—National Forest System Organic Act of 1897**—Provided for administration and management of the national forest reserves established by Presidential proclamation under the Act of March 3, 1891, to improve and protect the forest, and secure favorable conditions for waterflows and a supply of timber. Administration transferred from the Department of the Interior to the Agriculture Department in 1905. Vacant unappropriated Federal land in the National Forest System is generally open to entry under the mining and mineral leasing laws, subject to rules and regulations governing the forest. The first major closure of public lands to disposal under nonmineral, but not mineral, land laws.

**Act of May 14, 1898 (30 Stat. 409; 43 USC 270), as amended**—This act and its amendments extended the homestead laws to Alaska. In general, the act required that proposed homesteads be surveyed. The only minerals that could be reserved were coal, oil, and gas. If the land was found to be valuable for other minerals prior to patent, the homestead would be rejected.

**Act of May 14, 1898 (30 Stat. 413), as amended August 23, 1958 (72 Stat. 730; 43 USC 687a)**—Provided procedure for affidavits of location, including filing, publishing, and posting of notices in Alaska. Also authorized the sale of tracts not to exceed 80 acres for trade and manufacturing sites. The lands had to be nonmineral in character. However, if the lands were valuable for coal, oil, and gas, such deposits could be reserved under the Act of March 8, 1922 (42 Stat. 415; 43 USC 376).

**Act of May 14, 1898 (30 Stat. 415)**—Canadians were given the same mining rights in Alaska as United States citizens had in Canada.

**Act of June 6, 1900 (31 Stat. 327)**—Mining laws of the United States were extended to Alaska. The act specified a 90-day time period and place for filing notices of location for mining claims in Alaska.

**Act of June 17, 1902 (32 Stat. 388)—Reclamation Act of 1902**—Authorized withdrawal of land for irrigation projects and all land believed to be susceptible to irrigation from such projects. Such land was segregated from operation of the mining laws but has remained open to mineral leasing, with restrictions, since 1920. In addition, the Act of October 2, 1888, as amended, effected an automatic withdrawal of all land actually designated or selected for reservoirs, ditches, or canals for irrigation purposes, unless otherwise provided by law.

**Act of April 28, 1904 (3 Stat. 525)**—Gave procedure for locating coal lands in Alaska.

**Act of May 17, 1906 (34 Stat. 197)—Alaska Native Allotment Act**—Authorized Alaska Natives to apply for title on up to 160 acres of nonmineral land that they had used in the "customary Native manner," either for residence or subsistence purposes. Such land could not have any mineral value other than for coal, oil, or gas.

<sup>1</sup>Many of these laws were compiled from "Mining Law" (14) by T. S. Malley.

**Act of June 8, 1906 (34 Stat. 225)—Antiquities Act of 1906**—Provided for protection of cultural resources on Federal land, specified penalties for violations, and authorized the President to proclaim lands containing historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest as national monuments; such areas were reserved from operation of the mining and mineral leasing laws, unless specifically provided otherwise.

**Act of March 3, 1909 (35 Stat. 844)—Coal Lands Act of 1909**—This was the first land disposal act that reserved mineral rights to the United States. Land being disposed of for agricultural purposes was severed from its subsurface estate, with the contained coal reserved to the United States, except that amount used for domestic purposes. Many acts of this type followed, reserving all or some of the mineral rights to the United States.

**Act of May 16, 1910 (36 Stat. 369)—Bureau of Mines Organic Act**—Bureau of Mines was established with duties covering health and safety, conservation, research, and prevention of waste in the mineral industries.

**Act of June 25, 1910 (36 Stat. 847)—General Withdrawal Act (Pickett Act)**—Authorized the President to temporarily withdraw from settlement, location, sale, or entry any of the public lands of the United States and reserve the same for water power sites, irrigation, or classification of lands until withdrawal is revoked by the President or by an act of Congress. The withdrawn lands remain open to exploration and location under the mining laws of the United States as they apply to metalliferous minerals.

**Act of February 18, 1911 (36 Stat. 917)—Reclamation Homesteads Act, as amended by the Act of August 13, 1914 (Stat. 689; 43 USC 436)**—To qualify for reclamation withdrawal, lands must be nonmineral in character. However, valuable leasable minerals may be specifically reserved in a patent pursuant to 30 USC 121-123.

**Act of August 25, 1916 (39 Stat. 535)—National Park Service Organic Act**—Established the National Park Service to administer existing and future national parks and monuments "to conserve the scenery and the natural and historic objects and the wildlife therein to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." Most units of the National Park System are specifically withdrawn from all mineral development.

**Act of December 29, 1916 (39 Stat. 863)—Stockraising Homestead Act of 1916**—Authorized entries on the public land for stockraising (grazing) purposes, but unlike earlier homestead acts, this act reserved all minerals to the United States whether or not the land was considered to be valuable for any mineral. Minerals in these lands are open to location and patent under the mining laws, with appropriate compensation due to the surface owner if damages occur from these activities. This act is not applicable to Alaska.

**Act of February 25, 1920 (41 Stat. 437)—Mineral Leasing Act of 1920**—Removed deposits of coal, phosphate, sodium, oil, oil shale, and gas from disposal under the mining laws, and made such deposits subject to a leasing system. The law specifies rental and royalty rates, lease size, and terms for each leasable mineral, and it provides for non-competitive prospecting permits and competitive bidding on known geologic structures. This act grants the Secretary of the Interior broad discretion in granting permits and leases. Although later amended to include other minerals and change certain requirements, the act remains the method of disposal of leasable-type minerals.

**Act of June 10, 1920 (41 Stat. 1063)—Federal Water Power Act**—Section 24 of the act provided that filing an application for a permit or license for a power site automatically withdraws the land from all other forms of disposal; classification of land as valuable for powersite purposes by the U.S. Geological Survey also effects a withdrawal under the act. Such withdrawals were opened, with restrictions, by the Act of August 11, 1955.

**Act of May 25, 1926 (44 Stat. 629)—Native Townsite Act**—Provided an opportunity for individual Alaska Natives to obtain title to lands in the public domain. Designated lands were withdrawn, boundaries surveyed, and lands subdivided. Once a patent was issued for the townsite, the lands were withdrawn from the public domain.

**Act of June 14, 1926 (44 Stat. 741)—Recreation and Public Purposes Act**—Provided for reservation of public land chiefly valuable for recreational purposes, and for the lease, exchange, or sale of such land to State and local governments. All minerals in such lands are reserved to the United States and are unavailable under the mining and mineral leasing laws.

**Act of February 7, 1927 (44 Stat. 1057)—Amendment to Mineral Leasing Act of 1920**—Authorized the Secretary of the Interior to grant prospecting permits and preference-right leases for chlorides, sulfates, carbonates, borates, silicates, or nitrates of potash.

**Act of March 3, 1927 (44 Stat. 1354; 43 USC 687a)—Homesite Act of 1927, as amended**—Authorized the sale of homesites not to exceed 5 acres in size. The lands had to be nonmineral in character, except that lands valuable in coal, oil, or gas deposits were subject to disposition under the provisions of the Act of March 8, 1922 (42 Stat. 415; 43 USC 270).

**Act of December 22, 1928 (45 Stat. 1069)—Color of Title Act**—Authorized the issuance of patents for public land erroneously held for a specified period in good faith. Minerals may be reserved to the United States or included in the patent.

**Act of April 23, 1932 (47 Stat. 136)**—Public lands withdrawn under the reclamation laws could be open to location and patent under the general mining laws with certain rights reserved to the United States.

**Act of May 2, 1932 (47 Stat. 14)**—States that made lieu land selections because the original grant lands were classified as valuable for minerals and hence, not available, could relinquish the lieu selections and acquire the mineral lands if still available.

**Act of May 4, 1934 (48 Stat. 663)**—The general mining laws of the United States were extended to Alaska.

**Act of June 16, 1934 (48 Stat. 977)**—Amended the Mineral Leasing Act of 1920, to provide that if water in sufficient quality and quantity is discovered while drilling an oil and gas well that land is to be reserved as a waterhole.

**Act of June 28, 1934 (48 Stat. 1269)—Taylor Grazing Act of 1934**—Marking the end of liberal Federal disposal policies on nonmineral public land, the act provided for management of all unreserved public land, except in Alaska, withdrawal of all vacant public land for classification (but not from entry under the mining laws), and establishment of grazing districts and the Grazing Service.

**Act of June 1, 1938 (52 Stat. 609)—Small Tract Act**—Permitted the lease or sale of tracts of public land of 5 acres or less that were valuable for recreational, home, or business site purposes. All minerals were reserved to the United States. Classification of land for small tract disposal segregated the land from location under the mining laws. This act was repealed by the Federal Land Policy and Management Act of 1976.

**Act of June 7, 1939 (53 Stat. 811)**—Authorized the President to stockpile strategic and critical minerals, and the Secretary of the Interior to investigate and develop new sources of such minerals.

**Act of May 7, 1941 (55 Stat. 177)**—This coal mine safety act authorized inspectors of coal mines and the distribution of health and safety information.

**Act of September 27, 1944 (58 Stat. 745)**—Authorized the Secretary of the Interior to dispose of sand, stone, and gravel on public lands.

**Reorganization Plan No. 3 of 1946 (60 Stat. 1097)**—Authorized the Secretary of the Interior to lease, with the concurrent approval of the Secretary of Agriculture, those minerals in acquired national forest and grassland that are disposed of by location on public land. Also established the Bureau of Land Management with combined functions of the General Land Office and the Grazing Service.

**Act of July 31, 1947 (61 Stat. 681)—Materials Act of 1947 (Public Law 291)**—Authorized disposal of materials including, but not limited to, sand, stone, gravel, and common clay on public lands through a sales system. If the appraised value of the material exceeds \$1,000, it must be disposed by competitive bidding. The law also provided for free use of such materials for noncommercial use by government and nonprofit agencies.

**Act of August 7, 1947 (61 Stat. 913)—Mineral Leasing Act for Acquired Lands (Public Law 382)**—Authorized the Secretary of the Interior to issue mineral leases on acquired lands, subject to concurrence of the surface management agency.

**Act of June 21, 1949 (63 Stat. 214)**—Deferment of assessment work on mining claims may be approved if the claimant is denied access to his property.

**Act of June 30, 1950 (64 Stat. 311)**—Development of mineral resources was extended to certain public lands not open to such development at the date of this act.

**Act of May 22, 1953 (67 Stat. 29)—Submerged Lands Act**—Granted title of land beneath navigable waters to the respective States. The act also confirmed that the seaward boundary of the coastal States extends 3 miles from the coastline of the State.

**Act of August 7, 1953 (67 Stat. 462)—Outer Continental Shelf Lands Act**—Extended the jurisdiction of the United States to include that part of the Continental Shelf outside the 3-mile zone. The act also authorized the Secretary of the Interior to grant mineral leases on the Outer Continental Shelf through a competitive bidding system.

**Act of August 12, 1953 (67 Stat. 539)**—Validated certain mining claims located on lands that, at the time of location, were under a prospecting permit or mineral lease. In the event a mineral patent should issue, a mineral reservation is made to the United States.

**Act of August 13, 1954 (68 Stat. 708)—Multiple Mineral Development Act of 1954 (Public Law 585)**—Amended the mining and mineral leasing laws to permit multiple development of both locatable and leasable minerals on the same tract of land. If a mineral patent is issued, a reservation is made to the United States for the leasable minerals.

**Act of August 30, 1954 (68 Stat. 919)—Atomic Energy Act of 1954**—Authorized the Atomic Energy Commission, and now the Department of Energy, to issue leases for exploration and mining of fissionable materials on Federal lands.

**Act of July 23, 1955 (69 Stat. 367)—Surface Resources Act of 1955 (Public Law 167)**—Defined com-

mon varieties of sand, stone, gravel, pumice, pumicite, cinders, and petrified wood, and excluded such mineral materials from location under the general mining laws; they are salable under the Materials Act of 1947. The act also authorized the United States to manage and dispose of surface resources that are not incident to mining on unpatented mining claims. Procedures were outlined for determining title uncertainties on unpatented mining claims.

**Act of August 11, 1955 (69 Stat. 679)—Uraniferous Lignite Act of 1955 (Public Law 357)**—Permitted location of mining claims for uranium and other fissionable source materials on public land classified or known to be valuable for lignite coal.

**Act of August 11, 1955 (69 Stat. 681)—Mining Claims Rights Restoration Act of 1955 (Public Law 359)**—Provided for location of mining claims on approximately 7 million acres of land previously withdrawn or reserved for power site development. Mineral development is liable to risk from any future power development. Location of placer claims is subject to additional requirements, and placer mining may be denied by the Secretary of the Interior if such operation would substantially interfere with other uses of the land.

**Act of July 20, 1956 (70 Stat. 592)**—Provided that any reserved mineral deposit located prior to the Mineral Leasing Act of 1920 is subject to disposal by mineral patent.

**Act of July 3, 1958 (72 Stat. 323)**—Provided that oil and gas leases may be issued pursuant to the Mineral Leasing Act of 1920 for lands beneath nontidal or navigable Alaskan waters.

**Act of July 7, 1958 (72 Stat. 339)—The Statehood Act (Public Law 85-508)**—Authorized the selection of 104 million acres from unreserved public domain lands, title to the beds of the State's navigable rivers and lakes, and ownership of submerged lands up to 3 miles off the coast of Alaska.

**Act of August 21, 1958 (72 Stat. 700)**—Authorized the Secretary of the Interior to develop a program to encourage exploration for mineral reserves by private industry.

**Act of September 2, 1958 (72 Stat. 1701)**—Geological, geochemical, and geophysical surveys may be used to fulfill the \$100 annual labor requirement needed to maintain a legal unpatented mining claim. These surveys may be used for 2 consecutive years, but may not exceed 5 years, and must be conducted by qualified experts.

**Act of March 18, 1960 (74 Stat. 7)—Placer Claims Millsite Act of 1960 (Public Law 86-390)**—Provided for location and patent of up to 5 acres of nonmineral land in connection with a placer mining claim.

**Act of June 12, 1960 (74 Stat. 215)—Multiple-Use, Sustained-Yield Act of 1960 (Public Law 86-517)**—Directed the Secretary of Agriculture to develop and administer the renewable surface resources of the national forests for multiple use and sustained yield, giving due consideration to the relative values of the various resources (outdoor recreation, range, timber, watershed, and wildlife and fish purposes) in particular areas. The establishment and maintenance of areas of wilderness are consistent with the purposes and provisions of this act; the act does not affect the use or administration of the mineral resources of national forest lands.

**Act of September 1, 1960 (74 Stat. 785)**—This amendment to the Mineral Leasing Act of 1920 specified new requirements for the leasing act minerals, including maximum leasehold per State, application procedures, and assignment procedures.

**Act of August 17, 1961 (75 Stat. 384)**—Authorized the Secretary of the Interior to sell lands in Alaska with known oil, gas, or coal deposits.

**Act of September 26, 1962 (76 Stat. 652)**—Petriified wood is defined and removed from the category of locatable minerals. Limited quantities of petrified wood may be obtained from the public lands on a free-use basis.

**Act of October 23, 1962 (76 Stat. 1127)—Mining Claim Occupancy Act of 1962**—Authorized the Secretary of the Interior to convey interests up to fee simple title of 5 acres or less to residential occupants of unpatented mining claims on which valuable improvements have been made.

**Act of December 17, 1963 (77 Stat. 392)—Clean Air Act (Public Law 88-206)**—Established a national program to control air pollution. Under the act, as amended, standards are set for air quality and attainment status is determined by area. Permits are required for new sources of air pollution, including mining and milling operations.

**Act of September 3, 1964 (78 Stat. 890)—Wilderness Act (Public Law 88-577)**—Created the National Wilderness Preservation System and provided for its administration in such a manner as will leave it unimpaired for future use and enjoyment as wilderness. All Federal land in the system was closed to operations under the mining and mineral leasing laws, subject to valid existing rights, after midnight December 31, 1983.

**Act of September 19, 1964 (78 Stat. 986)—Classification and Multiple Use Act of 1964**—Authorized the Secretary of the Interior to classify and manage Bureau of Land Management land for retention or for disposal, and for multiple use, including specification of dominant uses and preclusion of inconsistent uses in an area. Notice of proposed classification segregated the land from the mining and mineral leasing laws.

**Act of September 16, 1966 (80 Stat. 772)—Federal Metal and Nonmetallic Mine Safety Act**—Increased requirements for mine safety.

**Act of October 15, 1966 (80 Stat. 915)—National Historic Preservation Act of 1966**—Expanded Federal support for historical preservation through the National Register of Historic Places, a list of places protected from destruction by any project involving Federal action. All agencies must review the effect of a project on any district, site, building, structure, or object on the National Register.

**Act of October 2, 1968 (82 Stat. 906)—Wild and Scenic Rivers Act of 1968 (Public Law 90-542)**—Created the Wild and Scenic Rivers System to preserve certain selected rivers of the Nation from further development; these are managed to preserve the scenic, recreational, geologic, historic, cultural, wildlife, or other values that justified designation. Minerals on Federal land within 1/4 mile of each bank of a designated river are withdrawn from the mining and mineral leasing laws. All public lands within 2 miles on either side of a proposed river corridor are also withdrawn, pending study.

**Act of January 1, 1970 (83 Stat. 852)—National Environmental Policy Act of 1969 (Public Law 91-190)**—Declared a national policy of "productive and enjoyable harmony between man and his environment." The act requires a detailed environmental analysis for all "major Federal actions significantly affecting the quality of the human environment." The permitting process mandated by the mining and mineral leasing laws has subjected many projects to the purview of this law, and substantial costs have resulted from the required environmental studies and mitigation of environmental impacts.

**Act of December 24, 1970 (84 Stat. 1566)—Geothermal Steam Act of 1970 (Public Law 91-581)**—Authorized the leasing of geothermal resources and associated byproducts in public lands through competitive and noncompetitive leasing systems. The Geothermal Energy Research, Development, and Demonstration Act of 1974 was passed to promote the development and utilization of geothermal resources.

**Act of December 31, 1970 (84 Stat. 1876)—Mining and Minerals Policy Act of 1970 (Public Law 91-631)**—Declared that the Federal Government policy is to encourage private enterprise in the development of (1) a sound and stable domestic minerals industry, (2) domestic mineral deposits, (3) minerals research, and (4) methods for reclamation in the minerals industry.

**Act of December 18, 1971 (85 Stat. 688)—The Alaska Native Claims Settlement Act (Public Law 92-203)**—Alaska Natives were awarded nearly \$1 billion and 44 million acres of land to be chosen from specifically withdrawn Federal lands around the State. Twelve regional corporations and over 200 village corporations were established to make the land selections and manage the money received. The act also directed the Secretary of the Interior to withdraw up to 80 million acres of unreserved public land deemed suitable for addition to or creation as units of the national conservation system. This act repealed the Alaska Native Allotment Act of 1906 but did not affect the Alaska Native Townsite Act (1926). It also extinguished all Native reservations created by the Government under the appropriate laws, except for Metlakatla on Annette Island.

**Act of October 18, 1972 (86 Stat. 816)—Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500)**—Established a program to control pollution by limiting the amount of effluent that may be discharged into a body of water. Permits are required for the discharge of water from point sources including mining and milling processes. The related Safe Water Drinking Act of 1974, as amended, also requires permits for injection wells for oil and gas operations, and for special wells for solution mining, in situ gasification, and recovery of geothermal energy.

**Act of December 28, 1973 (87 Stat. 884)—Endangered Species Act of 1973 (Public Law 93-205)**—Established a policy to conserve endangered and threatened species of plants and animals. The act, as amended, provides for determination of such species and designation of their critical habitat, and prohibits any Federal action modifying such a critical habitat, unless exempted by a cabinet-level committee. Affects any mining activity requiring Federal action.

**Act of August 4, 1976 (90 Stat. 1083)—Federal Coal Leasing Amendments Act of 1976 (Public Law 94-377)**—Amended the Mineral Leasing Act of 1920 to change the procedure for leasing coal on Federal land, to provide for fair market value and diligent development on Federal coal leases, to coordinate management of coal and nonmineral resources, and to ensure compatibility of coal mining with land use plans.

**Act of September 28, 1976 (90 Stat. 1342)—Mining in the National Parks Act (Public Law 94-429)**—Closed certain national parks and monuments to mining, imposed a moratorium on mineral exploration and development, and established additional requirements on mining ventures in national parks and monuments where mining is still allowed.

**Act of October 21, 1976 (90 Stat. 2743)—Federal Land Policy and Management Act of 1976 (Public Law**

**94-579**)—The act, also known as the Bureau of Land Management (BLM) Organic Act, established a comprehensive procedure for the inventory, analysis, planning, and management of BLM land. Repealed most previous public land laws, including the Small Tract Act of 1938 and the Native Townsite Act of 1926, set up a comprehensive land planning system, controlled withdrawal procedures more closely (and repealed the implied authority of the President to make withdrawals), required recordation of mining claims with the BLM, and authorized the Secretary of the Interior to establish a regulatory program to “take any action necessary to prevent unnecessary or undue degradation of the lands.”

**Act of October 21, 1976 (90 Stat. 2795)—Resource Conservation and Recovery Act of 1976**—Established a Federal program for management of solid waste, prohibited future open dumping, and defined and regulated hazardous waste closely. The related Comprehensive Environmental Response, Compensation and Liability Act of 1980 (the Superfund Act) provided that Federal or State Governments may bring claim for any damage to natural resources under their trusteeship caused by release of hazardous substances.

**Act of October 22, 1976 (90 Stat. 2949)—National Forest Management Act of 1976**—The act, which supplements and amends the Forest and Rangeland Renewable Resources Planning Act of 1974, provided a comprehensive framework and prime source of direction to the Forest Service through required land and resource management planning to achieve effective use of renewable resources on National Forest System land. Required the Secretary of Agriculture to set up planning regulations; standards and guidelines in the regulations must be incorporated into land and resource management plans.

**Act of August 3, 1977 (91 Stat. 445)—Surface Mining Control and Reclamation Act of 1977 (Public Law 95-87)**—Established the Office of Surface Mining in the Department of the Interior to administer reclamation of all surface-mined coal land. Authorized a fund for abandoned mine reclamation, standards for environmental protection,

requirements for reclamation plans, and designation of areas unsuitable for mining.

**Act of November 9, 1977 (91 Stat. 1290)—Federal Mine Safety and Health Amendments Act of 1977**—Repealed or amended the previous Mine Safety and Health Acts of 1966 and 1969. Created the Mine Safety and Health Administration (MSHA) in the Department of Labor, which is responsible for enforcement of the mine health and safety laws.

**Act of September 18, 1978 (92 Stat. 629)—Outer Continental Shelf Lands Act Amendments of 1978**—Established new policies and procedures for managing the oil and natural gas resources of the Outer Continental Shelf.

**Act of November 8, 1978 (92 Stat. 3021)—Uranium Mill Tailings Radiation Control Act of 1978**—Established a remedial action program for uranium mill tailings at certain inactive sites and a uranium mill tailings license and regulatory program, administered by the Nuclear Regulatory Commission.

**Act of June 28, 1980 (94 Stat. 553)—Deep Seabed Hard Mineral Resources Act**—Established an interim legal regime under which technology can be developed and the exploration and recovery of hard mineral resources of the deep seabed can take place.

**Act of October 21, 1980 (94 Stat. 2305)—National Materials and Minerals Policy, Research and Development Act of 1980 (Public Law 96-479)**—Reaffirmed a national policy to foster promotion of domestic materials, minerals, and the mineral reclamation industry under private enterprise. Among specific points, Federal agencies are encouraged to “facilitate availability and development of domestic resources to meet critical materials needs.”

**Act of December 2, 1980 (94 Stat. 2371)—Alaska National Interest Lands Conservation Act (Public Law 96-487)**—Added 104 million acres to the national conservation system, mostly as national parks and national wildlife refuges, based on the withdrawals authorized in the Alaska Native Claims Settlement Act (1971). A total of 56 million acres were designated as “wilderness.”

APPENDIX F.—STATE MINERAL CLOSING ORDERS, BY QUADRANGLE<sup>1</sup>

Closing order No.	Location		Other affected quadrangles	Closing order No.	Location		Other affected quadrangles
	Township	Range			Township	Range	
<b>ANCHORAGE QUADRANGLE (85)<sup>2</sup></b>				<b>ILIAMNA QUADRANGLE (103)<sup>2</sup></b>			
4	T12N	R3W	None.	190	T2S	R32W	Many.
10	T13N	R3W	Do.	393	T2S	R29W	Do.
16	T19N	R3W	Talkeetna.		T3S	R26W	None.
17	T19N	R3W	Do.		T3S	R29-30W	Do.
69	T20N	R1E	None.		T3S	R32-39W	Do.
93	T20N	R8E	Do.		T4S	R25-27W	Do.
97	T20N	R6E	Do.		T4S	R29-30W	Do.
160	T20N	R3W	Do.		T4S	R33-39W	Do.
190	T14-15N	R1-2W	Do.		T5S	R27-28W	Do.
	T16N	R2E	Do.		T5S	R33-36W	Do.
192	T13N	R4W	Tyonek.		T5S	R38W	Do.
239	T12-13N	R3-4W	Many.		T6S	R31W	Do.
	T13-18N	R1-4W	None.		T6S	R34-38W	Do.
	T17N	R1E	Do.		T7S	R29-31W	Do.
250	T18-19N	R2-4W	Tyonek.		T7S	R38W	Do.
284	T18N	R3W	Tyonek, Talkeetna.		T8S	R30-31W	Do.
310	T20N	R7-8E	None.		T8S	R33W	Do.
318	T20N	R3W	Do.		T9S	R33-36W	Do.
328	T18N	R4W	Tyonek.		T10S	R31-32W	Do.
330	T19N	R4W	Do.		T10S	R35-39W	Do.
331	T18N	R4W	None.	<b>KENAI QUADRANGLE (94)<sup>2</sup></b>			
332	T14N	R4W	Tyonek.	2	T5N	R11-12W	None.
333	T18N	R3W	None.	190	T6N	R12W	Many.
343	T20N	R4W	Tyonek.	193	T4N	R18W	None.
349	T19N	R4E	None.	239	T1-3,	R11-13W	Many.
412	T20-21N	R4W	Tyonek.		5N	R11-13W	Do.
418	T20N	R8E	None.		T1S	R13-14W	None.
420	T16N	R3W	Do.	299	T8-10N	R14-15W	Do.
<b>BERING GLACIER QUADRANGLE (97)<sup>3</sup></b>				350	T6N	R17-18W	Do.
239	T21S	R17E	Many.	381	T3N	R11W	Seldovia.
<b>BLYING SOUND QUADRANGLE (105)<sup>2</sup></b>				386	T7N	R11W	None.
287	T2-3S	R1E	Seward.	<b>LAKE CLARK QUADRANGLE (93)<sup>2</sup></b>			
337	T2-3S	R1-5E	None.	190	T1N	R29W	Iliamna.
<b>CORDOVA QUADRANGLE (96)<sup>3</sup></b>				393	T1N	R32W	Many.
190	T14S	R4E	None.		T2N	R37-39W	None.
	T12S	R8W	Do.		T3N	R35,37W	Do.
240	T15S	R3W	Do.		T3N	39W	Do.
298	T15S	R3W	Do.		T4N	R33-39W	Do.
407	T15S	R3W	Do.		T5N	R30-33W	Do.
<b>GULKANA QUADRANGLE (77)<sup>3</sup></b>					T5N	R35-37W	Do.
13	T3N	R1W	None.		T6N	R30-35W	Do.
22	T3N	R1W	Do.		T6N	39W	Do.
51	T3-4N	R1-2	Valdez.		T7N	R33-34W	Do.
52	T10-11N	R1W	None.		T7N	9W	Do.
95	T9N	R2W	Do.		T8N	R32-33W	Do.
154	T5N	R6W	Do.		T9N	R30-32W	Do.
190	T9N	R4E	Do.	<b>LIME HILLS QUADRANGLE (83)<sup>2</sup></b>			
	T6-7N	R4W	Do.	168	T21N-	R27-30W	McGrath.
	T3N	R7-8W	Do.		22N	R27-30W	Do.
	T4N	R2W	Do.	334	T21N	R22W	None.
239	T3-4N	R1-2W	Many.	<b>MCCARTHY QUADRANGLE (87)<sup>3</sup></b>			
	T6N	R1E	None.	159	T5-6S	R13-15E	None.
283	T6-7N	R6W	Do.	190	T7S	R16E	Many.
285	T4N	R9W	Do.		T2S	R18E	None.
295	T7N	R7-8W	Do.		T1S	R15-16E	Do.
307	T7N	R5W	Do.		T1S	19E	Do.
308	T5N	R7W	Do.	194	T5-6S	R12E	Do.
324	T4N	R7W	Do.	239	T5S	R12E-14	
338	T5N	R7-8W	Do.		E		Many.
352	T5N	R5W	Valdez.	<b>MOUNT HAYES QUADRANGLE (68)<sup>4</sup></b>			
	T3N	R4W	None.	23	T21S	R12E	None.
387	T6N	R7W	Do.	24	T20S	R12E	Do.
408	T4N	R2W	Do.	25	T20S	R11E	Do.
416	T3N	R5W	Do.	26	T15S	R10E	Do.
<b>HEALY QUADRANGLE (67)<sup>4</sup></b>				27	T13S	R10E	Do.
65	T12-13S	R8-11W	None.	42	T19S	R11E	Do.
14	T11S	R8W	Do.	43	T15S	R10E	Big Delta.
146	T20S	R10W	Do.	52	T19-21S	R11-12E	Gulkana.
239	T19S	R8-9W	Many.	53	T12-16S	R10E	Big Delta.
280	T14S	R7W	None.	119	T14S	R10E	None.
286	T21-22S	R11W	Talkeetna Mountains.	190	T11S	R11E	Do.
340	T20S	R9W	None.	210 <sup>3</sup>	T22N	R6E	Do.
376	T14S	R7W	Do.	271	T10-12S	R13-16E	Do.
377	T14S	R6-7W	Do.	303	T20S	R11E	Do.
395	T12S	R7W	Fairbanks, Big Delta, Mount Hayes, Circle, Livengood.	306	T20-21S	R12E	Do.
			Fairbanks.	383A	T14S	R16E	Big Delta, Fairbanks, Livengood, Tanacross.
426	T11S	R8W	Fairbanks.	395	T11S	R12E	Fairbanks, Big Delta, Healy, Circle, Livengood.

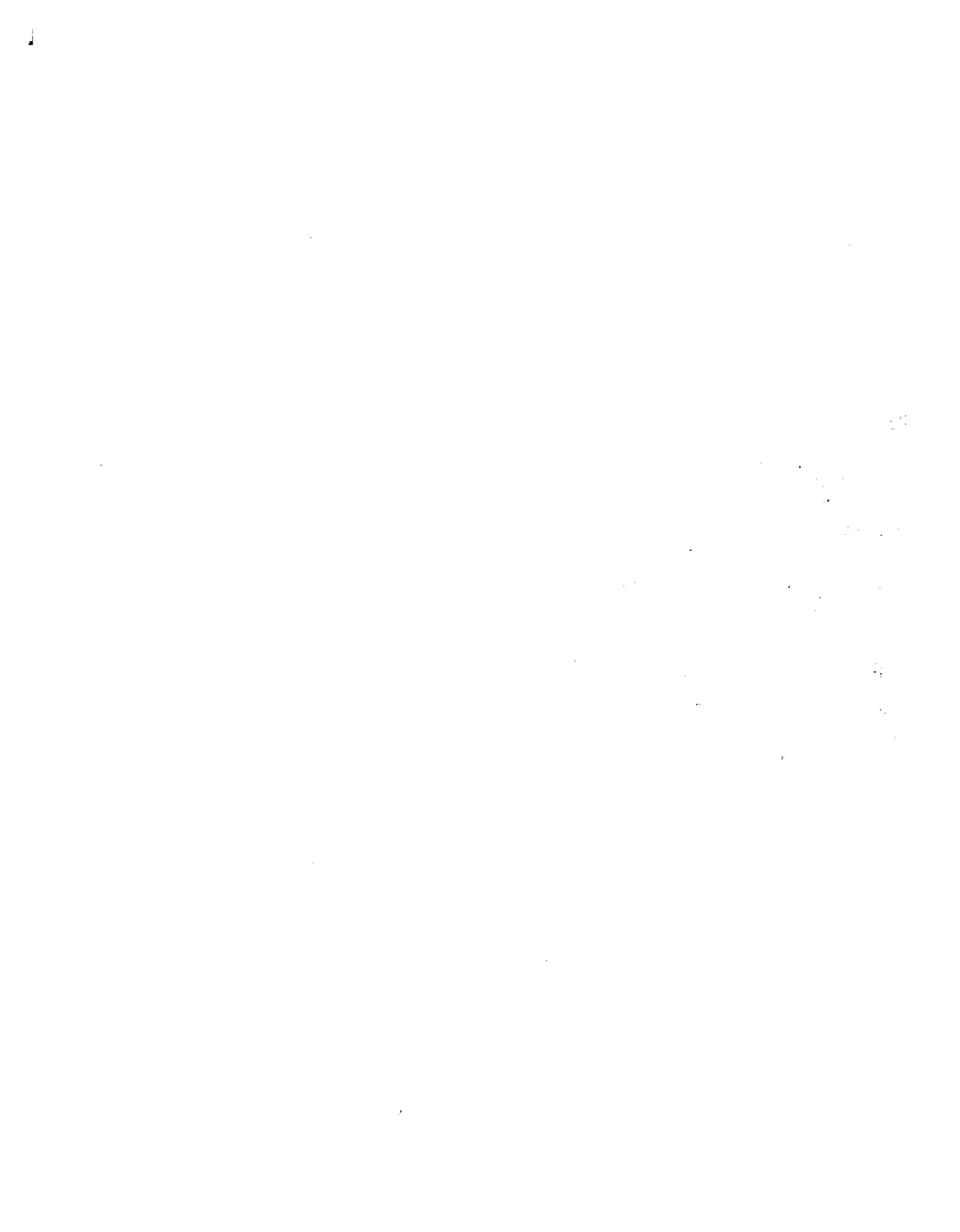
See footnotes at end of table.

STATE MINERAL CLOSING ORDERS BY QUADRANGLE—Continued

Closing order No.	Location		Other affected quadrangles	Closing order No.	Location		Other affected quadrangles
	Township	Range			Township	Range	
SELDOVIA QUADRANGLE (104) <sup>2</sup>				TALKEETNA MOUNTAINS QUADRANGLE—Continued			
7	T8S	R14W	None.	242	T23N	R4W	None.
126	T3-4S	R10W	Do.	286 <sup>4</sup>	T22S	R11W	Healy.
170	T3S	R11W	Do.	311	T31N	R2W	None.
238	T3-4S	R10-11W	Do.	313	T30N	R3W	Do.
239	T2-6S	R12-15W	Many.	314	T30N	R3-4W	Do.
	T8-9S	R12-15W	None.	315	T29N	R4W	Talkeetna.
325	T9S	R9W	Do.	336	T26N	R1E	None.
381	T4,8S	R11W	Kenai.	388	T27N	R4W	Talkeetna.
	T4,8S	13-14W	Do.	TYONEK QUADRANGLE (84) <sup>2</sup>			
406	T5S	R10-11W	None.	1	T19N	R4W	None.
410	T4S	R11W	Do.	68	T11-16N	R10-15W	Do.
SEWARD QUADRANGLE (95) <sup>2</sup>				87	T21-22N	R9-10W	Do.
3	T10S	R2E	None.	88	T20-21N	R9-10W	Do.
14	T10N	R2E	Do.	89	T19N	R7W	Talkeetna Mts.
62	T10N	R2E	Do.	90	T20-21N	R6-7W	None.
190	T1N	R1W	Do.	92	T16N	R7W	Do.
	T9N	R3E	Do.	94	T17-18N	R4W	Anchorage.
	T10N	R2W	Do.	102	T21N	R13W	None.
	T5N	R1W	Do.	103	T20N	R12W	Do.
	T3N	R10E	Do.	133	T21N	R11-13W	Do.
	T1S	R9E	Do.	137	T18-19N	R7-8W	Do.
239	T1,12N	R1,2W	Many.	138	T18-19N	R7-8W	Do.
287	T2-3S	R1E	Blying Sound.	143	T15N	R4W	Do.
TALKEETNA QUADRANGLE (75) <sup>2</sup>				147	T16N	R11W	Do.
11	T26N	R4W	None.	148	T17N	R13W	Do.
16	T26N	R6W	Anchorage.	150	T19-20N	R8W	Do.
17	T26N	R6W	Do.	151	T22N	R13W	Talkeetna.
66	T29N	R7-8W	None.	152	T22-23N	R11-12W	Do.
98	T25-27N	R8W	Do.	153	T21-24N	R8-9W	None.
99	T26-27N	R6-8W	Do.	155	T22N	R5-6W	Talkeetna.
100	T26-27N	R6-7W	Do.	156	T21-23N	R13-14W	Do.
101	T24-26N	R6W	Do.	161	T18N	R13W	None.
104	T23-24N	R11-13W	Do.	162	T18-20N	R8-10W	Do.
122	T23-24N	R13-14W	Do.	165	T20-21N	R14W	Do.
123	T24N	R13-14W	Do.	169	T21-22N	R9-11W	Do.
124	T22-24N	R8W	Do.	172	T18N	R4W	Anchorage.
127	T24-26N	R4-5W	Talkeetna Mountains.	195	T17N	R4W	Do.
128	T27-28N	R3-4W	Do.	197	T17N	R5W	None.
130	T28N	R5W	None.	239	T22N	R4W	Many.
144	T28N	R6W	Do.	243	T19N	R5-6W	None.
145	T27N	R7W	Do.	244	T17N	R4-5W	Do.
149	T22N	R12W	Do.	247	T18N	R4W	Anchorage.
151	T22N	R13W	Tyonek.	250	T19N	R4W	Do.
152	T22N	R11W	Do.	251	T17-18N	R7W	None.
	T22-23N	R12W	None.	284	T16N	R4W	Anchorage.
153	T21-24N	R8-10W	Tyonek.		T19,22N	R4-5W	None.
155	T22N	R5-6W	Do.		T24,26N	R4-5W	Do.
157	T26-27N	R7W	None.	288	T11-13N	R12-13W	None.
171	T26-27N	R3-4W	Talkeetna Mountains.	326	T14N	R4W	Do.
186	T26N	R6W	None.	327	T20N	R5W	Do.
190	T26N	R5W	Do.	328	T18N	R4W	Anchorage.
199	T24N	R8W	Do.	329	T19N	R4W	None.
239	T26N	R4-5W	Many.	330	T19N	R4W	Anchorage.
	T23-24N	R4W	Do.	332	T14N	R4W	Do.
241	T28N	R5W	None.	341	T21N	R6W	None.
245	T25N	R6W	Do.	343	T20N	R4W	Anchorage.
246	T25N	R5W	Do.	412	T20N	R4W	Do.
248	T24N	R6-7W	Do.	417	T14N	R12W	None.
282	T22-23N	R7W	Do.	423	T16-18N	R3,5-7W	Do.
284	T24N	R5W	Do.	VALDEZ QUADRANGLE (86) <sup>3</sup>			
	T26N	R5-6W	Do.	18	T9S	R6-7W	None.
315	T29N	R4W	Talkeetna Mountains.	19	T9S	R5W	Do.
316	T27N	R6W	None.	20	T9S	R3-4W	Do.
317	T24N	R7W	Do.	21	T2N	R1W	Do.
351	T25N	R5W	Do.	44	T9S	R6-7W	Do.
383	T26N	R5W	Do.	49	T9S	R7W	Do.
388	T27N	R4W	Talkeetna Mountains.	50	T5-9S	R1-6W,2E	Do.
413	T23	R7W	None.	51	T4S,	R1E	Do.
415	T26N	R6W	Do.		1-2N	R1E	Do.
TALKEETNA MOUNTAINS QUADRANGLE (76) <sup>2</sup>				61	T9S	R4W	Do.
89	T33N	R2W	Tyonek.	129	T9S	R5W	Do.
91	T31-32N	R2W	None.	190	T2S	R1,4E	Do.
96	T26N	R3,4W	Do.	198	T2N	R8-9W	Do.
	T27N	R3W	Do.	239	T1-2N	R1E	Many.
127	T24-26N	R4W	Talkeetna.		T2N	R1W	None.
128	T27-28N	R3-4W	Do.		T4S	R7E	Do.
132	T25-26N	R3W	None.	253	T2S	R2E	Do.
171	T26-27N	R3-4W	Talkeetna.	352	T2,3,5N	R4-5W	Gulkana.
239	T22-24N	R4W	Many.	409	T2N	R4W	None.
	T26N	R4W	None.	411	T10S	R8W	Do.
				422	T9S	R3W	Do.

<sup>1</sup>No closing orders in the following quadrangles: Icy Bay, Middleton Island, and Nabesna.  
<sup>2</sup>Seward meridian.

<sup>3</sup>Copper River meridian.  
<sup>4</sup>Fairbanks meridian.



1000

1000

1000

1000

