SUBSURFACE RESOURCES AND MATERIALS

1. GOALS

A. Mineral and Energy Supplies. Make metallic and non-metallic minerals, coal, oil and gas, and geothermal resources available to contribute to the energy and mineral supplies and independence of the United States and Alaska.

B. Economic Development. Contribute to Alaska's economy by making subsurface resources available for development, which will provide stable job opportunities, stimulate growth of secondary and other primary industries, and establish a stable source of state revenues.

C. Environmental Quality and Cultural Values. When developing subsurface resources, protect the integrity of the environment and affected cultures to the extent feasible and prudent.

D. State Support for Mining. Aid in the development of infrastructure (ports, roads, railroads, etc.) and continue to provide geologic mapping and technical support to the mining industry.

2. MINERAL, MATERIAL AND COAL DEVELOPMENT GUIDELINES

A. Mineral and Coal Exploration. Recognized exploration methods for locatable minerals will be allowed on all state lands unless specifically closed to prospecting and will be subject to the conditions of a land use permit.

Prospecting for coal may be permitted adjacent to anadromous fish streams (other than those protected in specific corridors); however, if a lease is given, the Department reserves the right to restrict surface entry where it determines the surface values are significant enough to warrant such a restriction. Decisions on surface entry for coal adjacent to streams will be made in consultation with the affected agencies.

B. Open to Mineral Entry. All state lands that are open to mineral entry are multiple use areas where mineral development will be accommodated and encouraged consistent with applicable state law and the policies of this plan.

C. Reclamation of Mined Land. Land use permits and plans of operation for mineral development and gravel extraction will specify measures needed to return the land to a useful state. Determination of the specific measures to be taken and whether or not a performance bond will be required will be done in consultation with the affected agencies. Specific measures may include: storage and reuse of top soil; disposal of overburden; regrading of tailings and revegetation; reestablishment of natural (not necessarily original) contours; reestablishment of natural drainage system; long-term erosion control measures; and, removal of equipment, improvements and other man-made items.

D. Access for Mineral and Coal Development. Existing roads should be used to provide access to mine sites wherever feasible.

Access across tundra, wetlands, and other environmentally sensitive areas will be managed in a manner that minimizes damage. (See also Transportation, this chapter.)

E. Unauthorized Use of State Lands. The Department will place a high priority on taking appropriate action against construction of illegal structures, blocking public access, or other unauthorized use of public lands for private purposes. This will include taking appropriate action against mining claimants who are using their claims for facilities that are not necessary for prospecting, extraction or basic mining activities. In carrying out this policy, emphasis will be placed on unauthorized uses that are obstructing significant settlement, public recreation or other public uses or obstructing public access.

F. Control of Visual Impacts. Guidelines will be developed as necessary through the land use permit or leasing process to minimize the adverse visual impacts of mining especially in settled areas, recreation areas, and in areas viewed from roads. In such areas, guidelines should consider, at a minimum, the following items: control of solid wastes; removal of vegetation; siting of mining structures, tailings and overburden; roads; and rehabilitation of mining sites.

G. Approval of Plans of Operation. DNR may approve plans of operation required for locatable mineral leases if the plans adequately address the guidelines of an area plan and DNR has consulted with and given careful consideration to the recommendations of ADF&G and DEC. Violation of the plan of operations is cause for enforced cessation of operations, if after a reasonable period of time a negotiated solution cannot be reached with the operator, or in the event of repeated violations.

3. GUIDELINES FOR LAND SALES IN AREAS WITH MINERAL, MATERIAL, OR COAL POTENTIAL.

A. Land Sales in Areas with High Mineral or Material Potential. Generally, land sales will not occur in areas of high mineral potential; areas with claims in good standing; or areas containing sand and gravel deposits, rock sources or other similar, high value material resources.

B. Land Sales in Areas with High or Moderate Coal Potential. Generally, land sales will not occur in areas of existing coal leases, or areas of high coal potential as defined in 11 AAC 85.010. Land sales should be avoided in areas of moderate coal potential as defined in 11 AAC 85.010 except where land sales are determined to be the highest and best use of the land.

4. GUIDELINES FOR THE APPLICATION OF LOCATABLE MINERAL CLOSURES.

Locatable mineral closures are the most extreme management tool that can be employed by the Department to resolve subsurface and other resource conflicts. Therefore:

A. Before an area can be closed to locatable mineral entry and location, the Commissioner must determine that the tangible and intangible surface values to be protected are significant and that other management options are not adequate to protect the surface resources should subsurface resources be developed (see AS 38.05.185(a));

B. The area to be closed to mineral entry and location will be limited to the minimum necessary to protect the continued productivity and availability of the surface resources being protected;

C. Land scheduled for commercial, industrial, agricultural, or subdivision sale will be closed to mineral entry and location at the end of the first year of the LADS process. (i.e., approximately two years prior to the anticipated sale of the land.)

D. Lands available for homesteading (including agriculture homesteading) will be closed to mineral entry and location at the end of the first year of the LADS process (i.e., approximately two years prior to the anticipated sale of the land). These areas will remain closed until the allowed number of homesteads entries has occurred. At that time those portions of the project area with few or no homesteads will be reopened for mineral entry and location unless it is determined that the settlement pattern that has resulted creates significant irreconcilable land use conflicts.

E. Lands proposed for exchange or trade will be closed to mineral entry and location at the time a preliminary agreement to exchange the land is reached.

F. Lands reserved for transfer to another public agency for development of a public facility or reserved as a future townsite will be closed to mineral entry and location at the time the area is classified "reserved use."

5. GUIDELINES FOR THE APPLICATION OF THE LOCATABLE MINERAL LEASING PROGRAM.

Requiring that locatable mineral developments occur under a lease is a more flexible management tool than mineral closure. Therefore:

A. Mineral leasing is preferred over mineral closure as a management option to resolve conflicts between other significant resources and mining of locatable minerals.

B. Mineral leasing should be used only where the Commissioner determines that the tangible and intangible resource values to be protected are significant and that other management options cannot adequately resolve the potential conflict between those resources and mining (see AS 38.05.185(a)), or where the state does not own the land in full fee estate or has previously disposed of other interests in the land.

C. The area where locatable minerals will be developed under lease will be limited to the minimum necessary to protect the continued productivity and availability of the resources being protected.

D. Concurrent with the designation of an area as being open to locatable mineral entry under lease only due to potential conflicts between other resources and mining, DNR, after consultation with ADF&G and DEC, will identify the other resources needing protection and state the general nature of stipulations to be used in leases to protect those other resources.

6. CATEGORIES OF RESOURCE VALUES THAT MAY BE IN CONFLICT WITH COAL OR MINERAL DEVELOPMENT AND MAY BE CONSIDERED FOR CLOSURE, LOCATABLE MINERAL LEASING, LAND USE STIPULATIONS OR OTHER MANAGEMENT.

In some circumstances the Commissioner may find that the following categories of resource values require either locatable mineral leasing or closure, or a prohibition of coal leasing and prospecting to protect their continued productivity and availability. In other circumstances, care during mineral development is all that may be necessary to protect these resources. It is impossible to predict the degree of conflict that could occur between mining and any other resource value in all circumstances. Therefore, the following categories of resource values will be evaluated to determine if locatable mineral closure, locatable mineral leasing, prohibition of coal leasing or prospecting, or another management option is needed to protect the continued productivity and availability of the resource in conflict.

The decision to apply mineral closures or locatable mineral leasing will be made by the commissioner within the parameters set by the Alaska Statutes. AS 38.05.185(a) requires that the Commissioner make a determination that mining is incompatible with a significant surface use before an area can be closed to mining. The same section of the statutes requires the commissioner to make a determination that there is a potential use conflict before requiring the development of locatable minerals under a lease.

A. Retained lands with significant commercial, industrial, or public use values

- Lands with significant coal, oil and gas, timber or other commercial potential.
- Lands recognized as future transportation corridors where access for pipelines, road, railroads, or other surface transportation infrastructure could be blocked or impeded by mining claims. (After the alignment is established, areas will be reopened if they are surplus land.)
- Lands and waters that provide unique or unusual opportunities for the human use and enjoyment of fish or wildlife, including fishing, hunting, trapping, photography, and viewing.
- Lands and waters that provide significant recreation opportunities, such as clearwater rivers that are now or are expected to be important for recreation, key public access sites, and recreation facilities.
- Lands and waters that are the watershed of a community water supply.
- Sand and gravel pits, stone quarries or other significant known material sites that might be lost to public use if mineral claims were staked.

B. Retained Lands with Significant Fish or Wildlife Resources

- Lands and waters that support protected species of plants, fish or wildlife (e.g., bald and golden eagles), threatened species (e.g., tundra and trumpeter swans or peregrine falcons), or endangered species (e.g., short-tailed albatrosses and eskimo curlews).
- Lands and waters that support production or maintenance of fish or wildlife species which have significant economic, recreational, scientific, educational or cultural values or which have been given special protection through state or federal legislation or international treaty.
- State game refuges, critical habitat areas and sanctuaries. In decision memorandum #44 signed by the Commissioner in January of 1984 the Department did set the statewide policy that in legislatively established Critical Habitat Areas and Wildlife Refuges mining will occur under lease. Also, individual legislatively designated areas may be recommended for mineral closure, but such a closure would be decided on a case-by-case basis using the criteria found in AS 38.05.185(a).
- Other lands and waters not included above that are known to support unique or unusually large assemblages of fish or wildlife.

7. MATERIALS GUIDELINES

A. Preferred Material Sites. When responding to a request for a material sale or identifying a source for materials, the highest priority should be given to using existing upland material sources. Using materials from wetlands, lakes and the active* or inactive** floodplain of rivers or streams should be avoided unless no feasible alternative exists. Sales or permits for gravel extraction will not be permitted in fish spawning beds.

* **Active floodplain** – the portion of the floodplain that is flooded frequently; it contains flowing channels, high-water channels, and adjacent bars, usually containing little or no vegetation.

** **Inactive floodplain** – the portion of the floodplain that is flooded infrequently; it may contain high-water and abandoned channels and is usually lightly to heavily vegetated.

B. Material Extraction from Sensitive Areas. Material extraction from wetlands, lakes, or stream corridors (including the active and inactive floodplain) should occur only after design consultation with ADF&G, DOT/PF, DPOR, DGGS and ADEC.

If the only feasible and prudent source of gravel is an active or inactive flood plain of a stream or river, the following guidelines* will be used, in addition to the design consultation required above, to minimize negative impacts of material extraction on other resources and uses.

1. Stream types should be selected for material extraction based on the following order of preference (most to least preferable): braided, split, meandering, sinuous, and straight. This order of preference reflects the availability of gravel from exposed bars: the largest volumes are available from braided systems and the least from straight systems. An additional factor is the decreasing floodplain width of the stream types identified above. Wider floodplains allow extraction further from the river channel itself, reducing environmental impacts.

2. Generally the largest river feasible should be selected for a gravel operation in a given area. Larger rivers have higher volumes of gravel and wider floodplain. The proportionally smaller disturbance in large river systems will reduce the overall effect of gravel removal.

3. Mining gravel from active channels should be avoided to reduce detrimental effects on water quality, aquatic habitat, and biota. However, if hydraulic changes can be minimized, in-channel sites will replenish more rapidly than other areas and effects on the terrestrial biota and scenic quality of the floodplain will be avoided or greatly minimized.

   Before gravel is extracted from the active floodplain or channel of a stream or river DGGS should be consulted to ensure that the planned operation does not exceed the annual rate of gravel deposition and cause upstream erosion. It is particularly important for DGGS to establish the rate of deposition in rivers or streams when large quantities of gravel will be taken from the active floodplain or channel over long periods of time.

4. Whenever possible, avoid vegetated habitats.

5. When scraping gravel in active or inactive floodplains, maintain buffers that will contain active channels to their original locations and configurations.

6. When small quantities of gravel are required (approximately 50,000 m3), select sites that have only unvegetated gravel deposits.

7. When large quantities of gravel are required (approximately in excess of 50,000 m3), select large rivers containing sufficient gravel in unvegetated areas, or select terrace locations on the inactive side of the floodplain and mine by pit excavation.

8. If pit excavating is used, design a configuration with high shore line and water depth diversity and provide islands.

9. If mining in vegetated areas, save all overburden and vegetative slash and debris to use during site rehabilitation to facilitate vegetative recovery. This material should be piled or broadcast in a manner so it will not be washed downstream.

C. Maintaining Other Uses And Resources When Siting and Operating Material sites. Before allowing the extraction of materials, the manager will ensure that the requirements of the permit or lease give adequate protection to other important resources and uses including, but not limited to: existing water rights; water resource quantity and quality; navigation; fish and wildlife habitat and harvest; commercial forest resources; recreation resources and opportunities; historic and archaeological resources; adjacent land uses; and access to public or private lands. The disposal of materials should be consistent with the applicable management intent statement and management guidelines of the plan.

The manager should also determine if other existing material sites can be vacated and rehabilitated as a result of opening a new material site.

D. Screening and Rehabilitation: Material sites should be screened from roads, residential areas, recreational areas and other areas of significant human use. Sufficient land should be allocated to the material site to allow for such screening. Where appropriate, rehabilitation of material sites will be required. For additional guidelines affecting material extraction see policies under the section of subsurface resources.

8. OIL AND GAS GUIDELINES

Oil and gas guidelines are not addressed here. Oil and

* These guidelines are adopted from: "Gravel Removal Studies in Arctic and Subarctic Floodplains in Alaska," U.S.F.W.S., Biological Services Program, June 1980. More detailed guidelines are continued in the "Guidelines Manual" that accompanies that report.

gas guidelines specific to a particular management unit are found in Chapter 3. The Department's statewide policies for oil and gas are found in the Five Year Oil and Gas Leasing program and the Statewide Natural Resources Plan. Specific stipulations for oil and gas exploration, development and production activities will be developed and applied on a case-by-case basis for each oil and gas lease sale using the lease sale process.

9. OTHER GUIDELINES AFFECTING SUBSURFACE RESOURCES AND MATERIALS.

A number of other guidelines may affect subsurface resources and materials. For details of these guidelines, see the following sections of this chapter:

Fish and Wildlife Habitat
Settlement
Transportation
Public Access
Stream Corridors
Trail Management
Wetlands Management
Resource Management and Borough Land Bank

10. RESOURCE ALLOCATION SUMMARY

Economic deposits of mineral resources are rare occurences in nature and occupy a very small fraction of the land. These deposits can be developed only where and when they are found. As mineral deposits often have little or no surface exposure, they can not be readily inventoried as are surface resources, but must be actively sought and discovered. For this reason, the most practical way to encourage subsurface resource development is to maintain the maximum amount of land open to mineral location or leasehold location.

The large majority (approximately 95%) of state- and borough-owned subsurface lands in the Susitna Basin are currently open to exploration and development of locatable minerals and to coal leasing and prospecting and will remain open under this land use plan. However, this plan does close certain limited areas to these activities. The areas closed are judged by department geologists generally to have low or very low mineral values. Oil and gas leasing is not prohibited anywhere by the Susitna Area Plan.

Subsurface resource designations such as "minerals," "coal," or "oil and gas" generally are not applied as primary or secondary surface land use designations. This is because the problems in locating and measuring subsurface resources make it difficult and potentially misleading to apply primary and secondary designations in the same way these can be applied to surface resources like timber. In order to make clear the department's policy regarding subsurface resource development, the plan provides a statement for each management unit that the area is open or closed to location and available or unavailable for leasing. In management units that are open and available, mineral development will be encouraged and accommodated consistent with state law, areawide land management policies of chapter 2, and the statements of management intent and management guidelines in the affected unit. Where a management unit is open to mineral location and it has a primary surface designation such as fish and wildlife, this surface designation will not be construed to prevent mineral development.

A primary surface designation for minerals, coal, and oil and gas is made in certain cases where there is currently intensive subsurface resource exploration and/or development of statewide significance or likely to be such activity in the next several years. In these areas, as in areas that are open and available, subsurface development will be encouraged and accommodated. Other primary surface values will be protected, however, in so far as possible through the application of existing state laws and procedures, the policies in the plan, and the provisions of such instruments as SEEA lease stipulations and approved plans of operation.

The following sections describe areas that are open and closed to mineral entry and available and unavailable for coal prospecting and leasing.

A. Lands Open to Mineral Location. Approximately 95% of the roughly 10 million acres of state and borough lands in the Susitna Basin are open to mineral location. Under this plan, all lands within the Nelchina, Willow Creek, Yentna, Valdez and the Chulitna mining districts — locations where the majority of the region's mining has occurred and is expected to occur in the future — will remain open to mineral entry and location. In addition, the large majority of mineral terranes rated as having the best mineral potential in the region also remain open.

B. Lands Available for Locatable Mineral Development Under Lease. Approximately 55,000 acres (<.5% of the state and borough land in the planning area) will be open to locatable mineral entry only under a lease as a result of this plan. Areas restricted to leasehold location are the lands surrounding nine Dall Sheep mineral licks located in the Talkeetna and Chugach Mountains.

As a result of decision memorandum #44 signed by the Commissioner in January '84, lands within three existing game refuges — Susitna Flats, Palmer Hay Flats, and Goose Bay State Game Refuges—are currently only open to locatable mineral entry under a lease.

C. Lands Closed to Mineral Entry and Location. Approximately 5% of the roughly 10 million acres of public land within the Susitna Basin will be closed to new mineral entry and location. Virtually all of this acreage lies within areas of low or very low mineral potential (see below).

It is important to note that mineral closures and other policies resulting from this plan do not alter or replace existing regulations, nor do they affect any existing mineral closures in the area. The areas closed to mining described below are closed only to **new** exploration or development activities; any existing leases, prospecting permits, or claims will not be affected. (Mineral closing orders will be prepared for those areas in compliance with AS 38.05.185.)

The following categories of lands will be closed to mineral entry in the Susitna Basin.

1. Lands identified for settlement, agriculture, commercial, or industrial use. The plan designates approximately 700,000 gross acres for settlement of which approximately 110,000 will be sold over a twenty year time period. The actual areas that will ultimately be closed as a result of these land sales will be approximately 350,000 acres. (As was described earlier in this chapter these areas will not be closed to mineral entry until a disposal project has gone through the first year of the department's detailed disposal design process.) This figure is greater than the amount of acres to be **sold** because certain public lands directly associated with sales areas (e.g., roads, trails, woodlots, greenbelts) are also closed to mineral entry. The figure is lower than the total number of acres designated for settlement because after some of these areas are offered for sale large portions of the unsold areas will be reopened to mineral entry.
2. Boatable clearwater rivers recommended for legislative designation due to their existing public recreational use, anadromous fish habitat, and their uniqueness among rivers in the study area. Specific rivers which will be closed are: the Talachulitna River, Alexander River, the Kroto-Moose (Deshka) system, Lake Creek, and the Talkeetna River. On several of these streams selected tributaries also will be closed, however, not those tributaries judged to have high mineral potential.
3. Non-floatable, heavily used, clearwater anadromous fish streams and selected tributaries. Only the lower reaches of these streams, in areas that do not have concentrations of existing claims, will be closed. The only streams in this category are Montana Creek, Sheep Creek, and Goose Creek.
4. Certain areas proposed for legislative or administrative designation primarily due to their value for public recreation. The legislation that created Nancy Lakes State Park (within the Willow sub-basin) and Denali State Park has already prohibited mineral entry in these areas. The only new such areas recommended closed by the Susitna Plan are the Jim-Swan Lakes area, the proposed expansion of Long Lake Recreation area and the Susitna Lake-Tyone Lake area. The Jim-Swan and Susitna-Tyone areas receive heavy hunting and fishing use; the Long Lake area is a popular hiking and skiing areas. These three areas are thought to have generally low mineral values.
5. Other smaller areas closed to new mineral entry and location are described below.
   - Small (less than 640 acres) recreation sites
   - Transportation rights-of-way
   - A 25,000 acre parcel at the junction of the Yentna and Susitna Rivers with exceptional recreation and habitat values; this area also has a concentration of trumpeter swan nesting sites and will be recommended for legislative designation.

D. Lands Available for Coal Leasing and Prospecting. Over 1.3 million acres of land in the Susitna Basin show high and/or moderate coal potential. An additional 2.4 million acres are estimated to have low or unknown coal potential. Over 95% of the study area's high and moderate coal potential areas will remain available for coal leasing. Approximately 50-60% of the low or unknown coal potential areas will remain available for coal prospecting and leasing.

E. Lands Not Available for Coal Leasing or Prospecting. The 5% of the area with high or moderate coal potential unavailable for coal leasing occurs in two areas: in a portion of the Matanuska field where limited land sales will occur in moderate potential coal areas; and on some lands in the Sunflower Basin subregion which will be unavailable due to the Lake Creek corridor .

The lands with low or unknown coal potential that will not be available for coal prospecting and leasing are lands where surface resources were deemed of

higher value. Lands in this category are generally the same lands closed to mineral location. These areas are described below.

1. Lands identified for settlement, agriculture, commercial or industrial use and lands designated resource management which contain large blocks of agricultural soils. This category constitutes the majority (approximately 50-60%) of the lands unavailable to coal prospecting or leasing.

2. Clearwater rivers recommended for legislative designation due to their existing public recreation use, anadromous fish habitat, and their uniqueness among rivers in the study area. Specific rivers which will be closed are: the Talachulitna River, Alexander Creek, the Kroto-Moose (Deshka) system, Lake Creek, and the Talkeetna River. Other rivers will generally remain available on a case-by-case basis.

3. Existing legislatively designated areas and certain areas proposed for designation due to their public recreation fish and wildlife values. These include the following:

   Palmer Hay Flats
   Susitna Game Refuge (closed prior to plan)
   Goose Bay (closed prior to plan)
   Denali State Park (closed prior to plan)
   Jim-Swan Lakes (12,480 acres)
   Long Lake Recreation Area Expansion (1,200 acres)
   Lake Susitna-Tyone Lake (137,600 acres)
   Yentna-Lower Susitna Rivers (25,000 acres)

4. Transportation rights-of-way.

F. Lands Available for Oil and Gas Leasing. Oil and gas leasing is not prohibited anywhere by the Susitna area plan. However, in order to protect recreation, fish and wildlife and other public values, oil and gas exploration and development activities will be sited and/or timed to mitigate impacts on the fish and wildlife habitat and public use values of the five streams proposed for legislative designation. Specific mitigation measures necessary to protect the values for which these river corridors were designated will be developed as part of the lease sale process. Mitigation measures will be developed on a case by case basis considering timing, topography, vegetation and other factors affecting the impact of oil and gas exploration and development activities on fish and wildlife, habitat and public use values.