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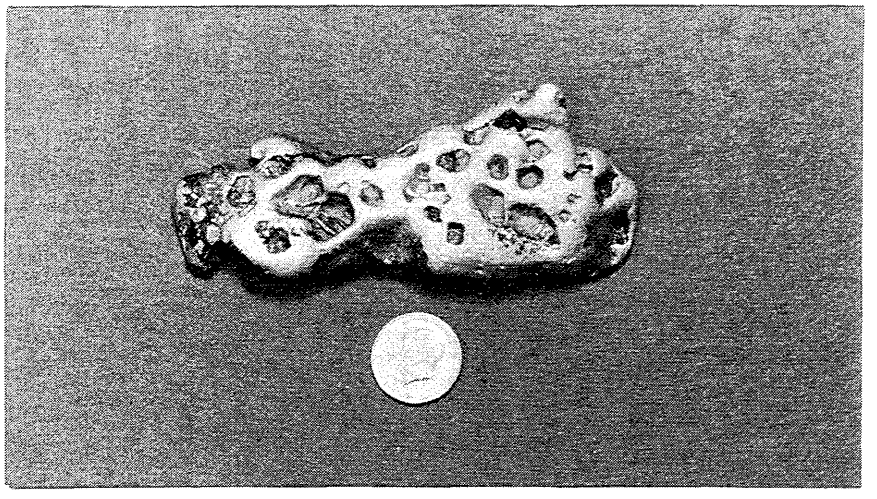
ALASKA MINERAL INDUSTRY 1994: A SUMMARY

by R.C. Swainbank and T.K. Bundtzen



Silverado Mines Inc. recovered this 41.3 ounce (1.28 kilogram) nugget in 1994 from Mary's Bench, Nolan Creek, Koyukuk-Wiseman mining district in northern Alaska. The nugget is unofficially the tenth largest ever found in Alaska. Fifty-cent coin added for scale.

Photo by T.K. Bundtzen.

Production—*Red Dog Mine shipped a record 659,000 tons of zinc, lead, and silver concentrates to overseas and Canadian smelters, a 25 percent increase from 1993 levels.*

Development—*Final permit approvals for Fort Knox gold mine near Fairbanks and Healy Clean Coal Project at Healy. These developments will create about 850 construction jobs in 1995. Development expenditures total $45.2 million, a 66 percent increase from 1993 levels.*

Exploration—*Grassroots exploration projects in western and eastern Interior regions on the increase. Statewide exploration expenditures, $30.78 million, up 7 percent from 1993 levels.*

Employment—*Steady at 3,152 full-time-equivalent jobs.*

New Surveys—*State continued airborne geophysical survey programs in the Fairbanks and Richardson districts.*

Government Actions—*State of Alaska reaches interim resolution of Alaska Mental Health Lands litigation. Four mining companies recognized by the State for outstanding reclamation of previously mined lands.*

INFORMATION CIRCULAR 40
Division of Geological & Geophysical Surveys
March 1995

Alaska Department of
NATURAL
RESOURCES

ALASKA MINERAL INDUSTRY 1994: SUMMARY

by R.C. Swainbank[1] and T.K. Bundtzen[2]

INTRODUCTION

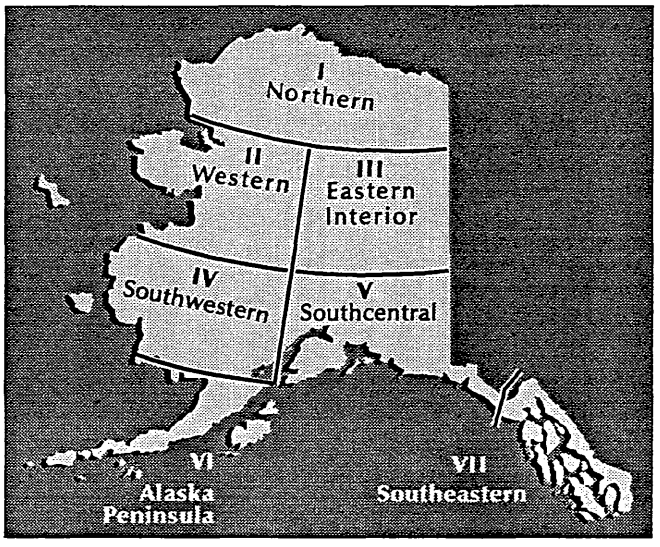
This report summarizes Alaska mineral industry activities during the 1994 calendar year. As in past years, these mineral summaries are a cooperative effort of the Alaska Department of Commerce and Economic Development, (Division of Economic Development), and the Department of Natural Resources (DNR), (Division of Geological & Geophysical Surveys [DGGS] and Division of Mining & Water Management).

The 1994 total value of Alaska's mineral industry, as measured by the sum of the exploration and development expenditures, and the value of production, is estimated as $584,735,269 (table 1). This figure is based on incomplete responses to about 950 DGGS questionnaires mailed to industry, company, and agency representatives. More information is anticipated for the final special report that will be published later this year.

The promising developments of 1994 include (1) the final federal permit approval for the Fort Knox mine near Fairbanks, (2) startup activities at the Healy Clean Coal Project, and (3) improved performance of the state's largest mine at Red Dog in northwest Alaska. The Usibelli-Suneel-KEPCO agreement that exports coal from Healy, Alaska, to South Korea was signed late in the year.

In northwest Alaska the Red Dog mine produced 659,000 short tons (597,840 tonnes) of concentrate, compared with 539,800 tons (489,700 tonnes) the previous year. In northern Alaska several exceptionally large gold nuggets were recovered from Nolan Creek, where Silverado Mines Inc. has been active for several years.

In the Fairbanks district Polar Mining Inc. operated Alaska's second largest gold mine at high output levels established in previous years. However, Cambior Alaska Inc. announced that it will be closing its Valdez Creek placer gold mine in September, 1995.



Regions of mineral activity in Alaska as described in this report.

Consolidated Nevada Goldfields Corp. announced its intention to begin development of its Nixon Fork mine near McGrath, and ASA Inc. continued drilling on the nearby Vinasale Mountain project. North Pacific Mining Company's Illinois Creek prospect was drilled by USMX in 1994, and mine permitting will begin in 1995.

Table 1. *Total value of the mineral industry in Alaska, 1991–94*

	1991	1992	1993	1994
Exploration	$ 39,908,539	$ 30,200,000	$ 28,244,524	$ 30,782,214
Development	25,574,350	29,590,300	27,258,636	45,195,850
Production	546,468,907	560,826,400	446,216,044	508,757,205
Total	**$611,951,796**	**$620,616,700**	**$501,719,204**	**$584,735,269**

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In southeast Alaska, Echo Bay continued with its exploration and development of the A-J Mine and received Technical Assistance Reports from the federal Environmental Protection Agency for both the A-J and Kensington projects. Exploration and development of Kennecott-Greens Creek mine continued in 1994, and reserves were announced for a new orebody at the mine site.

Less advanced projects were under exploration throughout the state, with major programs reported in the Nome, Ambler, Circle, Fairbanks, Tok, Cantwell, and Haines areas.

The results of the state-sponsored 1993 airborne geophysical programs and complementary geologic mapping programs in the Nome and Circle areas appear to have assisted exploration programs. Airborne geophysical surveys were flown in the Fairbanks and nearby Richardson mining districts in 1994.

The State of Alaska reached an interim resolution of the Alaska Mental Health Lands Trust litigation which previously has negatively affected mine development in interior and southcentral Alaska. The state DNR presented awards to four mining companies for outstanding mine reclamation efforts.

EXPLORATION

Reported exploration expenditures in Alaska were $30.78 million (table 2). As is past years, projects in the western, southeastern, and eastern interior regions dominated the expenditure totals. During 1994, 25,050 state and 12,280 federal (37,300 total) mining claims were active; this compares with 37,625 active federal and state claims in 1993.

Northern Region

An estimated $4.0 million was spent on exploration in the Northern Region in 1994. The NANA Corporation, Cominco Alaska Exploration, Kennecott Exploration, and Teck Corporation were all active in the Ambler copper-zinc belt, and Teck staked 160 new mining claims there. Placer miners carried out minor exploration in the Chandalar Lake area. In conjunction with its placer mining operations Silverado Mines Inc. explored in the Nolan Creek drainage. In October, Silverado announced that gold-antimony mineralization had been found in bedrock within a three-mile-long shear zone. Arctic Slope Consulting Group, working with Hobbs Industries, began underground exploration of its Kuchiak mine.

Western Region

Reported exploration expenditures in the western region in 1994 were about $6.4 million with most of the activity in the Nome and McGrath areas. Cominco Alaska Exploration and Kennecott Exploration Company were both active in the area north of Nome. Kennecott had a major drill program for hardrock gold targets. Cominco staked three new claim groups with a total of 120 claims in the Aurora Creek polymetallic trend. State DGGS geologists released a preliminary geologic map of the Nome district during the year to complement the release of state-sponsored airborne geophysical maps.

In the McGrath area Consolidated Nevada Goldfields Corporation (CNGC) drilled 25,000 feet (7,620 meters) of core and expanded the proven and probable reserves at the Nixon Fork Mine to 122,549 tons (111,176 tonnes) grading 1.33 ounces per ton (45.6 grams per ton gold), with another 39,160 tons (35,525 tonnes) grading 0.96 ounces per ton (32.9 grams per tonne) in the possible category. In addition to the Crystal and Mystery ore zones, CNGC worked on the Recreation–High Grade, J-5A, and Southern Cross zones, all of which are open-ended.

At Vinasale Mountain, south of McGrath, ASA Inc. drilled 17,265 feet (5,262 meters) of core on this igneous-hosted gold deposit where the resource had been estimated at one million ounces (31,100 kilograms). The results of a prefeasibility study are expected in April 1995.

USMX agreed to purchase the rights to the Illinois Creek precious metal deposit near Nulato from North Pacific Mining in 1994, and the agreement was signed in early 1995. The agreement allows NPMC the right to a 25 percent working interest convertible to a 5 percent Net Smelter Return. The 1994 program included 8,108 feet (2,470 meters) of diamond drilling and confirmed the 3.9 million ton (3.53 million tonne) mineable reserve grading 0.088 ounces per ton (3.02 grams per tonne) gold and 1.7 ounces per ton (58.2 grams per tonne) silver.

Eastern Interior Region

As in the past several years, this area was the second most active for exploration with an estimated 8.1 million invested in 1994. The State of Alaska contracted for 742 square miles (1,899 square kilometers) of airborne magnetic and electromagnetic surveys in the Fairbanks and Richardson mining districts, and the results were released in February, 1995.

In the Fairbanks district La Teko Resources Ltd. continued exploration of its True North property with 52,085 feet (15,875 meters) of reverse-circulation drilling and 2,042 feet (622 meters) of diamond-drilling. Proven and probable reserves at True North are estimated to be 442,191 ounces (13,752 kilograms) gold, with an additional 236,473 ounces (7,354 kilograms)

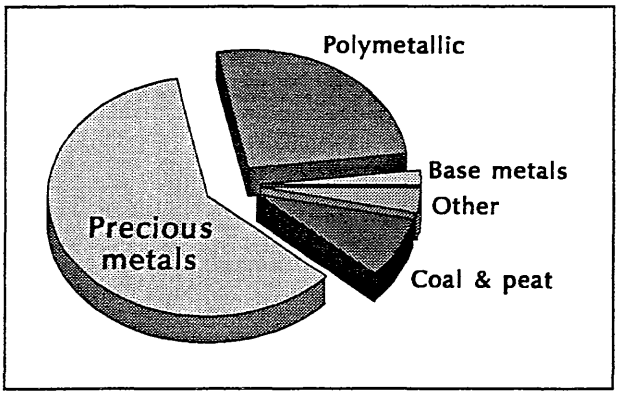
indicated and inferred category of reserves. Average grade of the deposit is 0.065 ounces per ton (2.72 grams per tonne) gold with a 2.24:1 stripping ratio. La Teko is optimistic that 1995 work will expand this reserve base. At its Ryan Lode property La Teko continued with baseline environmental work and geotechnical studies.

Placer Dome U.S. Inc. staked a few dozen claims in the same terrane as the True North property late in the year. Fairbanks Gold Mining Inc. increased its land holdings around the Fort Knox mine and had a small drill program east of the mine site. Avalon Development Co. continued exploration of the area north of the Fort Knox mine.

A number of companies, including Cyprus-Amax, reported exploration for gold in the Circle area. In the nearby Clums Fork, Apollo Resources Inc., on behalf of Verdstone Gold Co., drilled 31 holes to collect 24 tons (21.7 tonnes) of samples in its search for diamonds. DGGS geologists continued mapping and sampling this historic district in 1994 and were aided by the release in April of the 1993 airborne geophysical survey data.

Exploration for granite-hosted gold was reported in the Rampart area by ASA Inc. Noranda-Hemlo continued exploration at the Liberty Bell property near Healy on the north side of the Alaska Range. American Copper and Nickel Co. explored for polymetallic deposits on the north side of the eastern Alaska Range near Tok. WGM Inc. and partner Sumitomo continued exploration for base and precious metals at Stoneboy Creek in the Upper Salcha River area northeast of Delta Junction.

Tri-Valley Corporation collected bulk-samples at the Democrat Mine in the Richardson district near Delta



Breakdown of 1994 Alaskan exploration expenditure by commodity. Expenditures totaled $30.8 million during the year.

Table 2. *Reported exploration expenditures and employment in Alaska by commodity and region, 1994*

	Northern	Western	Eastern interior	South-central	South-western	Alaska Peninsula	South-eastern	Total
				Exploration expenditures				
Base metals	--	--	--	100,000	--	--	500,000	**600,000**
Polymetallic[a]	320,000	1,000,000	2,615,054	340,000	200,000	--	3,610,000	**8,085,054**
Precious metals								
Placer	1,010,000	50,000	318,160	151,000	98,000	--	3,400	**1,630,560**
Lode	150,000	5,400,000	4,371,000	950,000	450,000	--	5,556,600	**16,877,600**
Coal and peat	2,554,000	--	--	--	--	--	--	**2,554,000**
Industrial minerals	--	--	50,000	30,000	--	--	145,000	**225,000**
Other	10,000	--	800,000	--	--	--	--	**810,000**
Total	**4,044,000**	**6,450,000**	**8,154,214**	**1,571,000**	**748,000**	--	**9,815,000**	**30,782,214**
				Exploration employment				
Employment								
Workdays	4,788	8,754	11,478	1,168	1,636	--	17,851	45,675
Workyears[b]	18	34	44	5	6	--	69	176[c]
Number of companies reporting[d]	10	10	30	6	9	--	7	72

-- No expenditures reported
[a]Jade, platinum, gemstones.
[b]Based on 260-day workyear.
[c]Small discrepancy on total due to rounding
[d]Same companies active in more than one area.

Junction. Late in 1994 Tri-Valley announced that metallic-screen/fire assay of core samples yielded significantly higher assays than work completed in 1988. The company plans more work in 1995 aided by the airborne geophysics.

Southcentral Region

About $1.6 million was spent on mineral exploration in the southcentral region in 1994 with most of the activity taking place in the Alaska Range. A Noranda-Hemlo team leased the Zackley property from Pacific Northwest Resources Company and conducted a small drilling program. Addwest Minerals Inc. drilled 3,200 feet (975 meters) of core and 5,000 feet (1,524 meters) of reverse-circulation drilling at the Golden Zone Mine near Cantwell in the Upper Chulitna mining district.

In the southern part of the Alaska Range near Iliamna Volcano, Westmin Resources Ltd. continued mapping and sampling at the Johnson River property, which is owned by North Pacific Mining Co., a subsidiary of Cook Inlet Region Inc. The 1994 work will lead to a prefeasibility study for the project. North Pacific also sampled the Red Mountain pluton near Seldovia to test olivine quality for industrial uses.

Southwestern Region

Exploration expenditures in the southwestern region during 1994 totaled about $748,000, or about the same as in 1993.

Calista Native Corporation (Calista), drilled and sampled at Stuyahok, near Holy Cross on the lower Yukon River. Calista also worked with Starcore Resources Ltd. to evaluate platinum potential in the Goodnews Bay district. This project, which entailed 23,000 feet (7,010 meters) of diamond drilling in 1994, is designed to find the hardrock source of the abundant placer platinum that was previously mined in stream gravels derived from the Goodnews Bay ultramafic complex.

Misco-Walsh Mining Co. continued to expose mineralization at its Golden Horn prospect near Flat. Lyman Resources of Alaska prospected Queen Gulch near Donlin. Cominco Alaska Exploration had a small program near the Pebble Copper porphyry deposit at Lake Illiamna.

Southeastern Region

About $9.8 million was spent on exploration programs in southeast Alaska in 1994, making this area again the most active region in the state. American Copper and Nickel conducted regional exploration as well as working on its Hetta Inlet property on Prince of Wales Island. Kennecott Exploration was active throughout the region and drilled 4,000 feet (1,219 meters) of diamond core in a property near Haines.

Kennecott also had a major underground drilling program at the Greens Creek Mine, where the new southwest orebody reserves are reported to be 2 million tons (1.81 million tonnes) with grades of 13.5 percent zinc, 5.5 percent lead, 0.27 ounces per ton (9.25 grams per tonne) gold, and 33 ounces per ton (1,131 grams per tonne) silver. About 11 million tons (9.97 million tonnes) of the original orebody remains, with metal content of ore similar to that was previously mined from 1989 to 1993. The total current, in-place resource is estimated to be 18 million tons (16.3 million tonnes) of zinc-silver-lead-gold mineralization.

Work at the Kensington mine, a joint venture between Echo Bay Alaska and Coeur Alaska, was focused on permitting. At the nearby Jualin Mine the joint-venture conducted an engineering review.

The site of the bulk of the exploratory work in southeast Alaska in 1994 was Echo Bay's A-J Mine Project, where a large underground drill program was designed to confirm or expand ore reserves throughout the deposit. Sealaska Native Corporation had a large reconnaissance program in addition to drilling the Dolomi gold deposit and a limestone deposit.

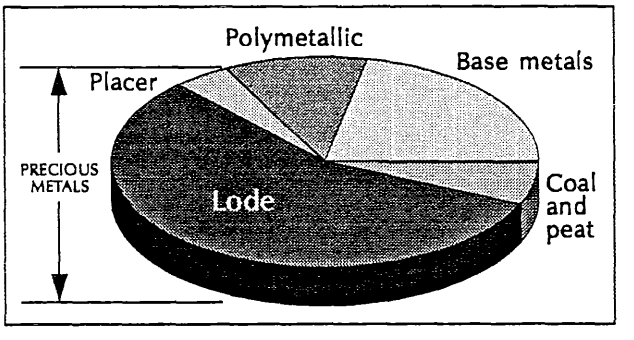
DEVELOPMENT

Reported development expenditures increased from $27.3 million in 1993 to $45.2 million in 1994, an increase of 66 percent (tables 1 and 3). Much of this total was spent in the southeastern region, as major developments continue at the A-J and Greens Creek mines.

Northern Region

Arctic Slope Consulting Group, a subsidiary of the Arctic Slope Regional Corporation, and operator Hobbs Industries continued to evaluate underground coal resources in the Deadfall Syncline area.

At the Red Dog Mine a major upgrade of the mill facility that was started in 1993 was completed in 1994.



Breakdown of 1994 Alaskan development expenditures by commodity. Expenditures totaled $45.2 million during the year.

This upgrade resulted in a cleaner zinc concentrate being produced for export markets.

Many of the placer mines report some stripping. Near Wiseman, Silverado Mines put in a decline to access placer gravels in Nolan Creek.

Western Region

Alaska Gold Co. continued stripping overburden in preparation for the conversion of its placer ground from a dredge operation to a conventional open-pit operation.

Consolidated Nevada Goldfields Co. drove two 10-by-11-feet (3-by-3.3-meter) declines to access the Crystal and Mystery orebodies at the Nixon Fork gold-copper skarn. The company hopes to achieve a production rate of 60,000 ounces (1,866 kilograms) gold per year beginning in late 1995.

USMX Inc. began a mine feasibility study for the Illinois Creek gold-polymetallic deposit. If the ongoing feasibility study is positive, USMX has suggested a future production rate of 50,000 ounces (1,555 kilograms) gold per year.

Eastern Interior Region

The Healy Clean Coal Project received approval of all permits in mid-1994, and construction is expected to begin in 1995. The new 50 megawatt plant, which will be adjacent to the existing 25 megawatt mine-mouth power plant, will use coal of lower quality than the existing plant, but is designed to produce fewer oxides of sulfur and nitrogen.

In a related development, the State appropriated funds to upgrade the electrical tie line from the Healy plant 100 miles (160 kilometers) north to Fairbanks, to allow for more efficient distribution of power. GVEA, the local electrical cooperative with headquarters in Fairbanks, received the first shipment of power poles for the power line to the Fort Knox mine, 15 miles (24 kilometers) northeast of the city.

At Fort Knox the last of the federal permits was received in June, and ground clearing for the mine, causeway, mill, reservoir, and tailings impoundment was complete by the end of the year.

Several placer mines and rock quarries reported some development such as stripping of overburden or bulk-sampling in preparation for production in 1995. One of these was an underground placer mine in the Fairbanks mining district.

Southcentral Region

The only development reported for the southcentral region was by several placer mines stripping overburden, constructing roads, or moving a plant for 1995 production.

Table 3. *Reported mineral development expenditures and employment in Alaska, 1994*

	Northern	Western	Eastern interior	South-central	South-western	Alaska Peninsula	South-eastern	**Total**
				Development expenditures				
Base metals	10,000,000	--	--	--	--	--	--	**10,000,000**
Polymetallic	--	--	--	--	--	--	5,000,000	**5,000,000**
Precious metals								
Placer	1,000,000	--	690,850	170,000	35,000	--	--	**1,895,850**
Lode	--	3,500,000	5,750,000	--	--	--	16,500,000	**25,750,000**
Coal and peat	1,600,000	--	120,000	825,000	--	--	--	**2,545,000**
Industrial minerals	--	--	5,000	--	--	--	--	**5,000**
Other	--	--	--	--	--	--	--	**--**
Total	**12,600,000**	**3,500,000**	**6,565,850**	**995,000**	**35,000**	**--**	**21,500,000**	**45,195,850**
				Development employment				
Employment								
Workdays	6,500	2,160	5,264	1,160	50	--	12,920	28,054
Workyears[a]	25	8	20	4	0	--	50	108
Number of companies reporting[b]	2	1	14	4	2	--	2	25

-- Not reported.
[a]Based on 260-day workyear.
[b]Same companies were active in several area.

Southeastern Region

Greens Creek Mining Company and partner Hecla Mining Company reported substantial development drifting activities at the now-inactive Greens Creek polymetallic mine near Juneau. Feasibility studies for reopening the operation commenced during the year.

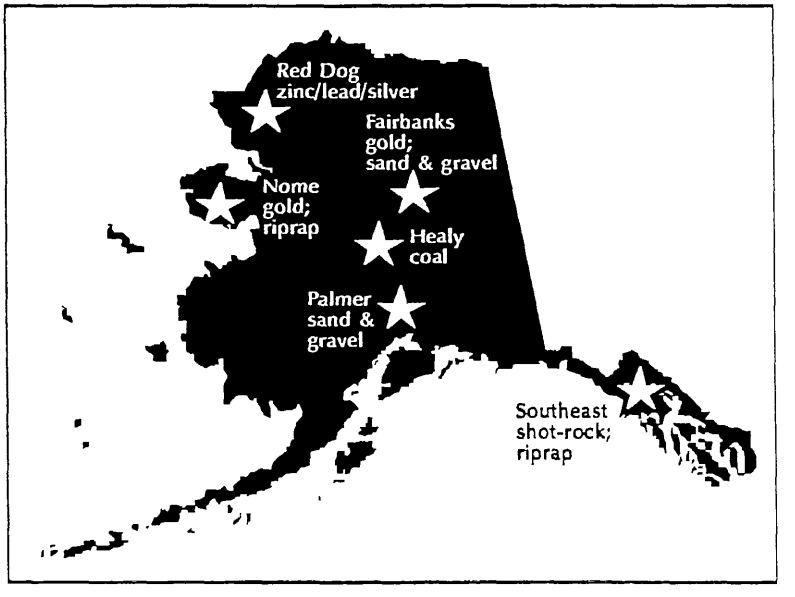
MINERAL PRODUCTION

The value of 1994 Alaska mineral production is estimated at $508.8 million, an increase of $62.6 million or 14 percent above 1993 levels (table 4). Almost all the increase took place in metals, while industrial and energy mineral values remained at about the same levels during both 1993 and 1994. Metals also continued to dominate Alaska mineral production and account for 79 percent of total 1994 mineral values. Zinc, all from the Red Dog mine, accounted for 58 percent of all Alaska mineral product value during the 1994 calendar year. Average prices increased 8 percent for gold, 21 percent for silver, and 80 percent for lead. The average zinc price was 45 cents per pound during both 1993 and 1994, but increased in the last quarter of 1994 to 52 cents per pound.

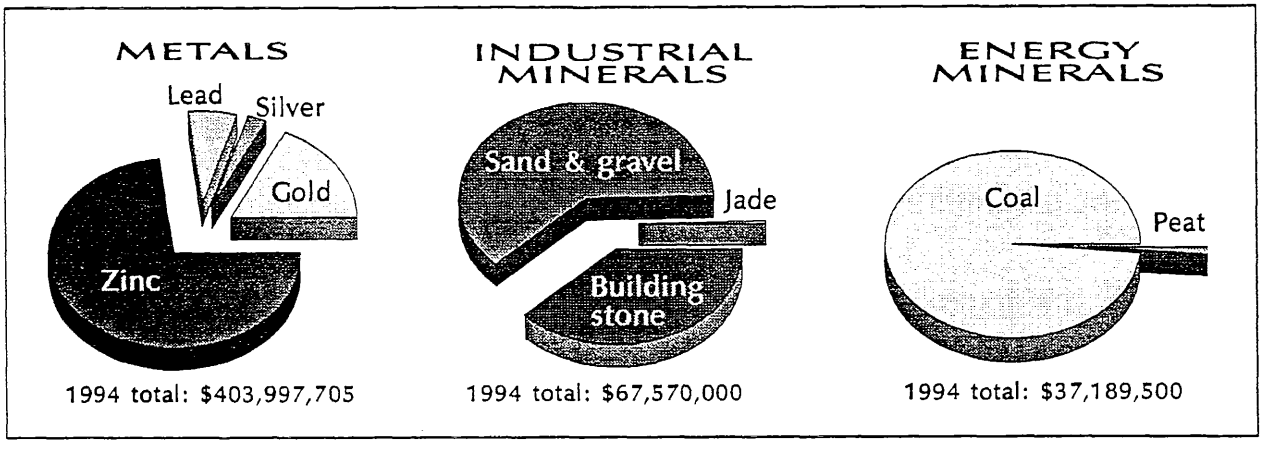
Metals

Cominco Alaska mined and milled 2,339,500 tons (2,122,395 tonnes) of zinc-lead-silver ore from the Red Dog deposit in northwestern Alaska. The company shipped a record 659,000 tons (597,840 tonnes) of zinc, lead, and bulk concentrates from Kivalina, north of Kotzebue, to overseas and Canadian smelters. Red Dog is owned by NANA Corporation and operated by Cominco-Alaska Inc. Concentrate production increased 25 percent from 1993 to 1994 primarily because of the increased capacity of grinding circuits in the mill. Red Dog, continues to be the largest zinc mine in North America, and accounted for an estimated 7 percent of the world's mine-produced zinc during 1994. The company provided 393 full-time jobs throughout the year, half the employees were residents of the NANA Corporation region, and most of the remaining employees reside in other parts of Alaska.

Although the Greens Creek polymetallic mine on Admiralty Island closed in April, 1993, the owner, Kennecott Greens Creek Mining Company, and the



Selected significant mine production sites in Alaska, 1994.



Breakdown of the value of mineral production by principal commodity groups. Total value of 1994 Alaskan mineral production is estimated at $508.8 million.

U.S. Forest Service (USFS), which manages the land underlying part of the mineral deposit, announced an agreement in which Kennecott would pay $1 million and up to 3 percent royalty to the USFS when the mine resumes operations. In return USFS would open an additional 7,500 acres (3,036 hectares) of highly mineralized ground near the mine to mineral development. This agreement could pave the way for a reopening of this important former producer of silver.

Cambior Alaska again operated Alaska's largest gold mine at its Valdez Creek placer property, about 55 miles (89 kilometers) east of Cantwell. During the year Cambior provided 151 full-time jobs, processed 1.26 million cubic yards (0.96 million cubic meters) of pay, and produced 47,600 ounces (1,480 kilograms) of refined gold. This level of production makes it one of the largest placer gold mines in the world. In July, Cambior announced that the Valdez Creek property, which is in its eleventh year of operation, was entering its final productive stages and scheduled for permanent closure on September 30, 1995. Available reserves have apparently been exhausted and exploration has

Table 4. *Estimated mineral production in Alaska, 1992–94*[a]

	Quantity			Estimated values[b]		
Metals	1992	1993	1994	1992	1993	1994
Gold (ounces)	262,530	191,265	186,500	$ 88,463,000	$ 68,640,800	$ 71,989,000
(kilograms)	8,163	5,948	5,737			
Silver (ounces)	9,115,755	5,658,958	1,968,000	34,913,341	24,333,519	10,391,040
(kilograms)	283,500	175,994	61,205			
Platinum (ounces)	W	3	5	W	1,235	2,065
(grams)	W	95	158			
Lead (tons)	68,664	38,221	36,447	31,585,440	13,759,560	25,512,900
(tonnes)	62,278	34,667	33,065			
Zinc (tons)	274,507	268,769	329,003	301,957,700	236,516,720	296,102,700
(tonnes)	248,978	243,774	298,472			
Tin (pounds)	1,500	21,000	W	5,910	50,610	W
(kilograms)	680	9,526	W			
Subtotal				**$456,925,391**	**$343,302,444**	**$403,997,705**
Industrial minerals						
Jade and soapstone (tons)	1.5	2.6	2.3	$ 30,000	$ 20,000	$ 20,000
(tonnes)	1.4	2.4	2.1			
Sand and gravel (million tons)	14.6	13.2	13.9	42,200,000	40,636,815	41,950,000
(million tonnes)	13.2	11.9	12.6			
Building stone (million tons)	2.9	3.6	3.4	22,971,000	26,205,784	25,600,000
(million tonnes)	2.6	3.3	3.1			
Subtotal				**$ 65,201,000**	**$66,862,599**	**$67,570,000**
Energy minerals						
Coal (tons)	1,531,800	1,586,795	1,510,000	$ 38,300,000	$ 38,103,600	$ 36,750,000
(tonnes)	1,389,340	1,439,223	1,369,872			
Peat (cubic yards)	70,000	72,000	87,900	400,000	445,000	439,500
(cubic meters)	53,552	55,051	67,208			
Subtotal				**$ 38,700,000**	**$ 38,548,600**	**$ 37,189,500**
TOTAL				**$560,826,391**	**$448,713,643**	**$508,757,205**

[a]Production data from DGGS questionnaires, USBM file data (for 1991), phone interviews with mine operators and land owners, Alaska Department of Transportation and Public Facilities, and other sources.

[b]Values for selected metal production based on average prices for each year; for 1994—gold ($386/ounce); silver ($5.41/ounce); zinc ($0.45/lb); lead ($0.35/lb); platinum ($413/ounce). All other values provided by mine operators.

W=Withheld.

been discontinued. During 1994 the company began reclamation preparatory to closure.

Polar Mining Inc. operated two large placer gold mines in the Fairbanks district and was Alaska's second largest producer of gold in 1994. Fifty-four employees mined and processed 3.34 million cubic yards (2.55 million cubic meters) of auriferous pay gravels. Sized aggregate from the Lower Goldstream operation was produced and sold to many Fairbanks contractors as a significant byproduct of the mine.

Alaska gold production continues to be influenced by the fortunes of a few large operations. Approximately 185 placer mines accounted for about 186,500 ounces (5,737 kilograms) of gold output, a decline of about 2.5 percent from 1993 levels and a decline of 29 percent from 1992 levels. However, because of higher gold prices, Alaska gold production value increased from $68.6 million in 1993 to $72.0 million in 1994, an increase of 4 percent. Declining reserves and grades at several large placer mines, coupled with the loss of hardrock gold output from the Greens Creek mine, are the chief reasons for the current declines in gold production. For the first time in 15 years all Alaska gold production was derived exclusively from placer mines. However, several new hardrock gold projects including Nixon Fork, Illinois Creek and Fort Knox are under development, which should result in increased hardrock gold production in the near future.

The ten largest gold mines, not necessarily in the following order, are Cambior Alaska in the Valdez Creek district, Polar Mining Inc. in the Fairbanks district, Alaska Gold Company in the Nome district, Silverado Mines Inc. in the Wiseman district, Alaska Placer Development in the Livengood district, Sphinx Mining near Ruby, Cooks Mining in the Fairbanks district, Nyac Mining in the Nyac district, Taiga Mining in the Hogatza district, and Little Eldorado Group in the Fairbanks district. These companies produced 108,535 ounces (3,375 kilograms) gold or 58 percent of the total 186,500 ounces (5,737 kilograms) gold produced statewide.

Notable underground placer gold mine operations during 1994 include Silverado Mines Inc. Nolan Creek operation in the Wiseman area and that of the Little Eldorado Group in the Fairbanks district. Both operations featured underground placer technologies that have not been seen in Alaska for many years. Silverado recovered a 41.3 ounce (1.28 kilogram) gold nugget, unofficially the tenth largest placer gold nugget recovered in Alaska mining history.

Many placer mines—both large and small—benefited from higher gold prices during the year. However, based on the DGGS questionnaire and DNR Alaska Placer Mining Application (APMA) submittals, the overall number of mechanized placer mines decreased from 196 in 1993 to 185 in 1994, which is about 5 percent; the numbers of mechanized mines in key interior districts like Circle continue to slowly decrease because of lack of or exhaustion of reserves. Placer mines employed about 1,150 people or 36 percent of the total 3,152 statewide mining jobs (table 5). Despite the slow decline, placer mining still continues to be a small-business oriented industry that provides important jobs in remote, rural Alaska.

Coal and Peat

Usibelli Coal mine Inc. again produced steam coal for both Interior electric power generation and export to the Korean Electric Power Company (KEPCO) power plant at Honam, South Korea. About half of the 1.51 million tons (1.37 million tonnes) coal was used in Alaska, while the remainder was shipped by Alaska Railroad Corporation unit trains to the Port of Seward for export. Contract negotiations with KEPCO were concluded on December 28, 1994, when an export contract agreement was finally signed by Usibelli, KEPCO, and Suneel Shipping Company, and for the first time in years, without a significant price reduction. At this writing (February 24, 1995), international prices for steam coal are on the rise; this reversal in coal prices is welcomed by those in the Alaska mining industry who are interested in exporting coal.

On the domestic front, the City of Fairbanks and Usibelli agreed to renegotiate a 10-year coal contract that supplies about 120,000 tons (109,000 tonnes) of coal annually to the Municipal Utilities System (MUS) power plant in downtown Fairbanks. The longer term renegotiated contract should save MUS about $1 million in freight rates annually.

Approximately 2,000 tons (1,814 tonnes) of coal were mined and stockpiled by Arctic Slope Regional Corporation for home heating uses in North Slope villages. Six companies mined 87,900 cubic yards (67,210 cubic meters) of peat and top soil for horticultural applications mainly in the Fairbanks and Anchorage areas.

Industrial Minerals

Industrial mineral production totaled $67.6 million, a slight increase from the 1993 value estimate of $66.9 million. Commercial construction projects in the Anchorage, Fairbanks, and Juneau urban areas kept the sand and gravel and stone industries at stable levels. Sitnasuak Corporation and Bering Straits Native Corporation continued to quarry riprap at their Cape Nome quarry near Nome. Both the Department of Transportation and Public Facilities and Alyeska Pipeline Service Company mined and quarried significant amounts of

Table 5. *Alaska mine employment, 1990–94*[a]

	1990	1991	1992	1993	1994
Gold/silver/mining					
Placer	1,151	1,240	1,251	1,205	1,150
Lode	N/A	N/A	N/A	N/A	--
Polymetallic	265[b]	235[b]	240[b]	26	--
Base metals	350	331	349	376	393
Recreational	315	320	325	270	280
Sand & gravel	645	685	640	580	640
Building stone	160	165	145	205	210
Coal	115	115	115	109	115
Peat	N/A	45	40	49	55
Tin, jade, soap-stone, ceramics, platinum	40	25	20	20	25
Mineral development	95	133	164	132	108
Mineral exploration	374	268	137	164	176
TOTAL	**3,510**	**3,562**	**3,426**	**3,136**	**3,152**

[a]Calculated on a 260-day work year.
[b]Revised estimate based on new company data.
N/A–Not available.

stone and aggregate for maintenance of state roads and the Trans Alaska Pipeline.

Calista Corporation reported one of its best years ever for sand and gravel extraction; high production levels are being fueled by municipal airport and road construction throughout the region.

Sealaska Corporation sold large quantities of shot rock for use in construction projects throughout southeastern Alaska.

DRILLING

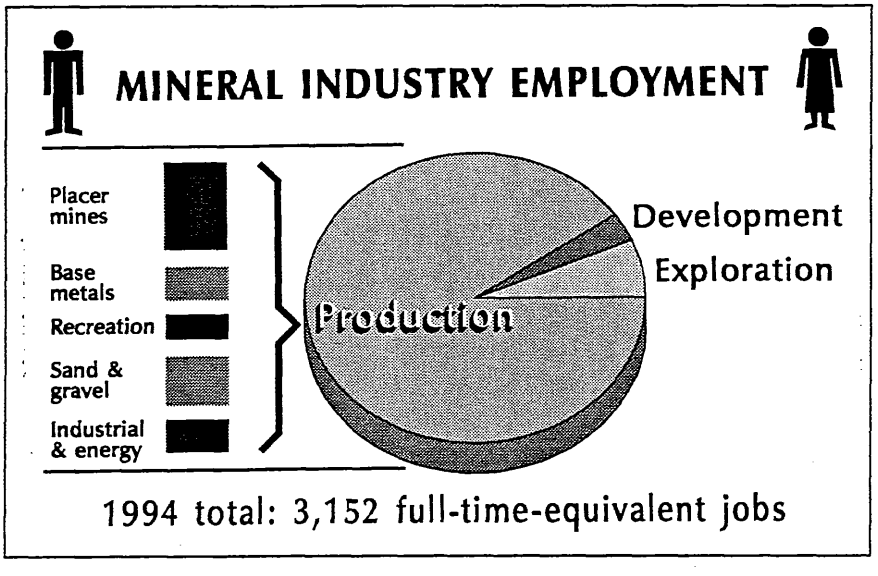
Companies reported 467,878 feet (141,781 meters) of drilling in 1994, a 68 percent increase over the previous year. This reported activity does not include any rotary blasthole drilling, and for the second consecutive year, no thawfield drilling.

Tables 6 and 7 show details of the drilling compared with prior years and the distribution of drilling around the state.

Core drilling, 347,018 feet (105,770 meters), was triple the 91,692 feet (27,948 meters) of hard-rock reverse circulation drilling reported. One third of the core-drilling, 116,803 feet (35,600 meters), was in underground programs.

GOVERNMENT ACTIONS

The Alaska Mental Health Lands litigation, which has halted lease and purchase transfers of millions of



Mineral industry employment breakdown that compares production and preproduction activities. All totals are based on a 260 day work year.

acres of highly mineralized Alaska State Lands, may have finally reached a resolution in 1994. In 1978, public pressure to make State land available for use and development prompted the Alaska Legislature to abolish the one-million-acre (450,000 hectare) Alaska Mental Health Lands Trust (MHLT), which was a component of the 1956 Alaska Mental Health Enabling Act. The MHLT was subsequently incorporated into the 1959 Alaska Statehood Compact. After 1978, the Department of Natural Resources (DNR) sold, leased, or classified as special use areas more than half of the original MHLT lands. In 1984 an Alaska Superior Court decision (Weiss v. State of Alaska) ruled that the Mental Health Lands Trust (MHLT) was illegally dissolved by the Alaska Legislature. This decision was upheld by the State Supreme Court in 1985. The courts ordered the State to reconstitute the MHLT as nearly as possible to the original form and reimburse the MHLT for lands sold or leased. Both compensations were to be offset by mental health expenditures made by the State of Alaska since 1978.

Notable mineral projects potentially affected by the litigation included the Wishbone Hill (Idemitsu), Beluga (DRven Corporation) and Healy (Usibelli) coal deposits, and the Fort Knox gold mine (Fairbanks Gold Mining Inc.).

Table 6. *Drilling footage reported in Alaska, 1986–94*[a]

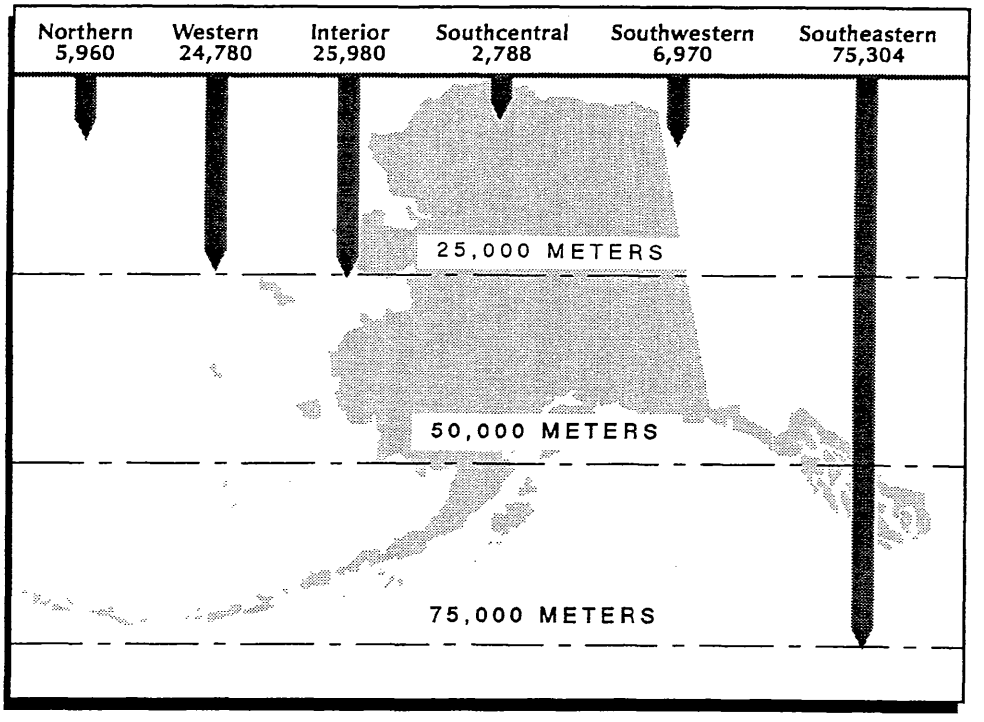
	1986	1987	1988	1989	1990	1991	1992	1993	1994
Placer exploration	32,400	50,250	152,000	97,250	78,930	51,247	6,740	25,216	21,000
Placer thawfield	34,000	227,000	130,000	300,000	210,000	105,000	130,000	65,000	--
Placer subtotal	**259,400**	**180,250**	**452,000**	**307,250**	**183,930**	**181,247**	**71,740**	**25,216**	**21,000**
Coal subtotal	**28,800**	**19,900**	**26,150**	**38,670**	**18,195**	**16,894**	**12,875**	--	**8,168**
Hardrock (core)	--	95,600	223,630	242,440	648,600	205,805	211,812	124,325	347,018
Hardrock (rotary)	--	19,500	130,220	89,790	112,355	110,850	148,022	127,990	91,692
Hardrock subtotal	**50,200**	**115,100**	**353,850**	**332,230**	**760,955**	**316,655**	**359,834**	**252,315**	**438,710**
TOTAL (feet)	338,400	315,250	832,000	678,170	963,080	514,796	444,449	277,531	467,878
TOTAL (meters)	103,144	96,088	253,593	206,700	293,547	156,910	135,502	84,591	141,781

[a]Does not include 561,000 feet of rotary blast-hole drilling in 1994.
-- Not specifically reported.

Table 7. *Drilling footage by region in Alaska, 1994*

Type of drilling	Northern	Western	Eastern interior	South-central	South-western	Alaska Peninsula	South-eastern	TOTAL
Placer exploration	13,000	--	8,000	--	--	--	--	21,000
Placer thawfield	--	--	--	--	--	--	--	--
Placer subtotal	**13,000**	--	**8,000**	--	--	--	--	**21,000**
Coal subtotal	**6,668**	--	**1,500**	--	--	--	--	**8,168**
Hardrock core	--	61,773	9,542	4,200	23,000	--	248,503	**347,018**
Hardrock rotary	--	20,000	66,692	5,000	--	--	--	**91,692**
Hardrock subtotal	--	**81,773**	**73,234**	**9,200**	**23,000**	--	**248,503**	**438,710**
TOTAL (feet)	**19,668**	**81,773**	**85,734**	**9,200**	**23,000**	--	**248,503**	**467,878**
TOTAL (meters)	**5,960**	**24,780**	**25,980**	**2,788**	**6,970**	--	**75,304**	**141,781**

-- Not reported.
Note: 116,803 feet of core-drilling was underground



Drill totals (in meters) by region in Alaska, 1994.

During 1994, DNR combined the expertise of the Division of Mining and Water Management (DMWM), the Division of Lands (DOL), and the Division of Geological & Geophysical Surveys (DGGS) to help resolve the issue. In order to replace lands of equal value that were removed from the Trust, DGGS systematically evaluated replacement land tracts. To do the evaluations DGGS used modern probabilistic mineral endowment methodology that estimates the value of in-place metallic resources. The proposed replacement tracts included about 202,000 acres (81,820 hectares) of land in the Haines-Skagway, Salcha-Chena, and Ophir areas of southeastern, interior, and western Alaska respectively. DMWM successfully argued in court for modifications to mineral valuation assumptions used in the evaluation process. DMWM picked the final replacement tract areas offered in the settlement package. DOL served as project manager for the entire operation and guided the evaluation process toward completion.

In November, 1994, the Superior Court in Fairbanks approved an interim settlement that awarded $200 million for surface estate values and provided for a 960,000 acre (388,610 hectare) reconstitution of the original MHLT. A director-level position was created in DNR that will guide development opportunities and generate revenues for the newly reconstituted Mental Health Lands Trust.

The Division of Mining and Water Management (DMWM) presented the first annual Reclamation of the Year Award to John E. McClain of The Mining Company for outstanding reclamation work on Ester Creek near Fairbanks. The State awarded certificates of recognition for excellent mined-land reclamation to Fairbanks district miners Jack and Greg Neubauer of Cassiterite Placers Inc. for their work on Fox Creek and Alf Hopen for his work on Little Eldorado Creek. Circle district miner John Brown received a certificate of recognition for his reclamation work on the North Fork of Harrison Creek. The State will annually recognize responsible miners for exemplary work in returning mined ground to a useful condition as required by State law.