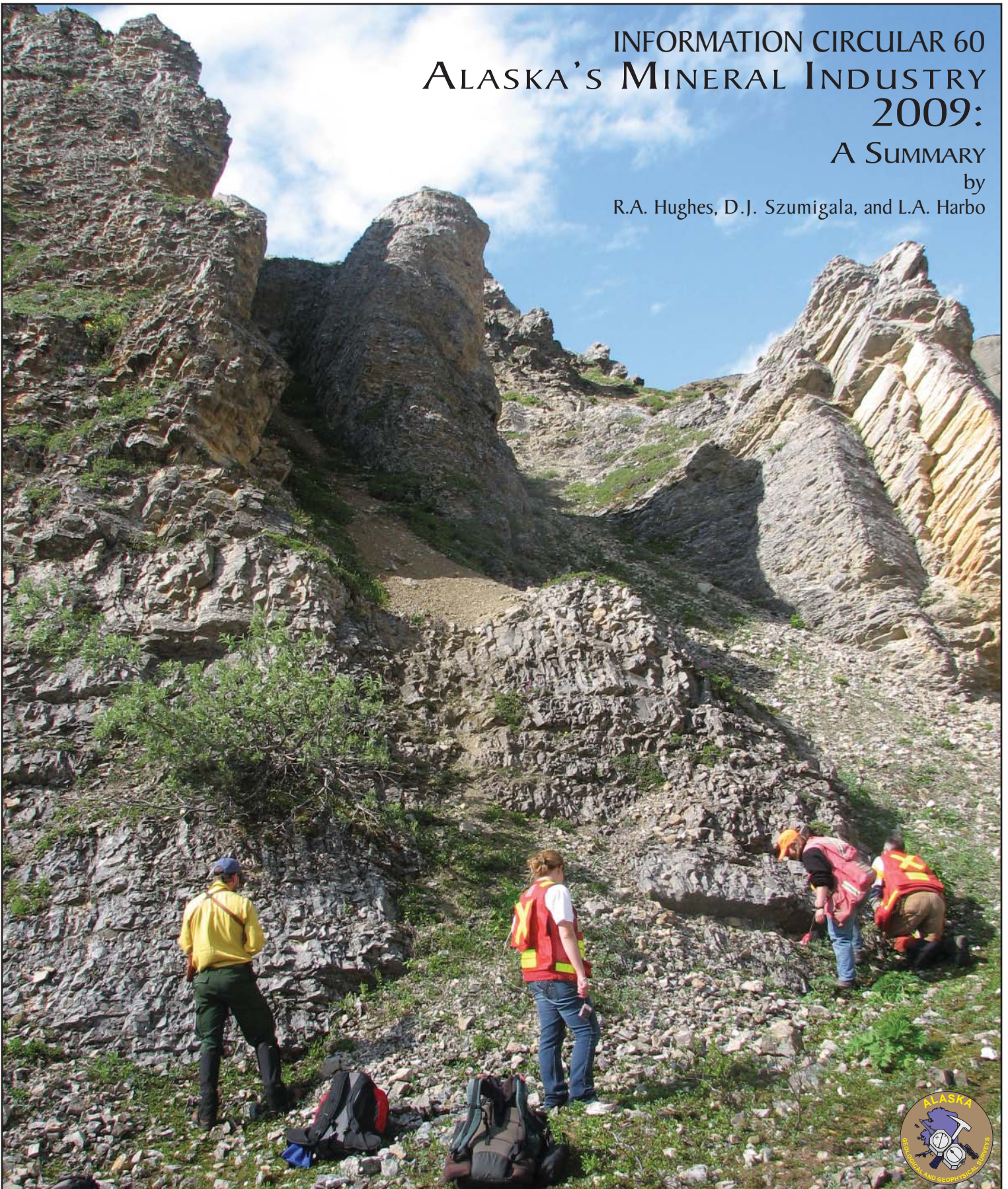


INFORMATION CIRCULAR 60 ALASKA'S MINERAL INDUSTRY 2009:

A SUMMARY

by

R.A. Hughes, D.J. Szumigala, and L.A. Harbo



DGGS geologists inspect the lower limestone member of the early Permian Eagle Creek Formation in Coal Creek, a tributary of the Chisna River in the northern Chistochina mining district. The surrounding area, which includes the historic Slate Creek placer gold district, is undergoing renewed exploration for copper–gold–silver porphyry-style mineralization.

Division of Geological & Geophysical Surveys
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R.A. Hughes¹, D.J. Szumigala², and L.A. Harbo¹

INTRODUCTION

Alaska's mineral industry value declined in 2009 to \$2.912 billion from a value of \$3.171 billion in 2008, a decrease of approximately 8 percent. The year 2009 was the fourteenth consecutive year with a total value exceeding \$1 billion and the fourth consecutive year with production value above \$2 billion. Mineral production volumes remained strong; however, the value of mineral production in 2009 decreased nearly 1 percent, to \$2,412.3 million, from \$2,427.1 million in 2008. Development expenditures in Alaska declined in 2009 to approximately \$330.7 million from \$396.2 million in 2008, an approximately 17 percent decrease, and 2009 was the sixth year of development expenditures above \$200 million. Exploration expenditures were \$169.2 million in 2009, a 51 percent decrease from the \$347.3 million expended in 2008. The year 2009 was the fifth consecutive year with expenditures of more than \$100 million.

Table 1 shows the estimated annual value of the mineral industry in Alaska between 1981 and 2009, as divided between exploration and development investments, and the gross value of the mineral products. This total value, even though it is a combination of expenses and receipts, is an effective way of tracking the annual strength of the mineral industry.

This summary of Alaska's mineral industry activity for 2009 is made possible by information provided through press releases, annual and 10K reports, phone interviews, internet research, and replies to questionnaires mailed by the Alaska Division of Geological & Geophysical Surveys (DGGs). This report is part of a cooperative venture between DGGs and the Division of Mining, Land & Water (DMLW) in the Department of Natural Resources (DNR) and the Office of Economic Development in the Department of Commerce, Community & Economic Development (Commerce). The estimates used in this summary are generally conservative because data have not yet been completely reported. This summary and data contained within it will be superseded by the final report, Alaska's Mineral Industry 2009 (Special Report 64), to be published later in 2010, after further compilation of information, particularly for placer mining and industrial minerals.

Table 1. Total value of the mineral industry in Alaska by year (in millions of dollars).

Year	Exploration (expenditure)	Development (expenditure)	Production (value)	Total (calculated)
1981	\$76.3	\$24.7	\$188.6	\$289.6
1982	45.6	41.6	196.4	283.6
1983	34.1	27.9	212.4	274.4
1984	22.3	53.4	199.4	275.1
1985	9.2	34.1	226.6	269.9
1986	8.9	24.3	198.5	231.7
1987	15.7	100.3	202.4	318.4
1988	45.5	275.0	232.2	552.7
1989	47.8	134.3	277.0	459.1
1990	63.3	14.3	533.0	610.6
1991	39.9	25.6	546.5	612.0
1992	30.2	29.6	560.8	620.6
1993	30.3	27.7	448.7	506.7
1994	31.1	45.0	507.5	583.6
1995	34.3	148.6	537.2	720.1
1996	44.7	394.0	590.4	1,029.1
1997	57.8	168.4	936.2	1,162.4
1998	57.3	55.4	921.2	1,033.9
1999	52.3	33.8	1,032.9	1,119.0
2000	34.9	141.7	1,106.4	1,283.0
2001	23.8	81.2	917.3	1,022.3
2002	26.5	34.0	1,012.8	1,073.3
2003	27.6	39.1	1,000.7	1,067.4
2004	70.8	209.1	1,338.7	1,618.6
2005	103.9	347.9	1,401.6	1,853.4
2006	178.9	495.7	2,858.2	3,532.8
2007	329.1	318.8	3,367.0	4,014.9
2008	347.3	396.2	2,427.1	3,170.6
2009	169.2	330.7	2,412.3	2,912.2
TOTAL	\$2,058.6	\$4,052.4	\$26,390.0	\$32,501.0

Source: Alaska's Mineral Industry reports published annually by DGGs/Commerce.

¹Alaska Office of Economic Development, 211 Cushman St., Fairbanks, Alaska 99701

²Alaska Division of Geological & Geophysical Surveys, 3354 College Rd., Fairbanks, Alaska 99709-3707

Employment

Table 2 lists estimated employment in Alaska's minerals industry for the past eight years. Total minerals industry employment in 2009 is estimated to be 2,794 full-time-equivalent jobs, a decrease of 598 jobs (or about 18 percent) from the estimated 2008 total of 3,392 full-time-equivalent jobs. Preliminary 2009 full-time direct employment is estimated at 2,209 production jobs and 361 development jobs. Due to reporting shortfalls, the estimates of coal and peat, rock, and sand and gravel production jobs are low, and these numbers may increase somewhat with additional data. There is also a shortage in lode gold development employment reporting at this time, and the number is expected to increase with additional data.

Table 2. Estimated Alaska mine employment, 2002–2009^a.

SECTOR	2002	2003	2004	2005	2006	2007	2008	2009
Gold/silver mining								
Placer	148	82	64	86	242	208	282	227
Lode	413	325	433	411	704	808	739	882
Polymetallic mining	262	295	265	250	245	276	317	321
Base metals mining	580	388	508	449	457	457	475	413
Recreational mining	180	175	175	175	45	54	30	22
Sand and gravel	702	349	567	400	337	284	277	196
Rock	177	35	475	148	104	124	93	31
Coal ^c	100	65	90	95	95	102	110	117
Peat ^{b,c}	21	20	4	6	11	11	7	
Tin, jade, soapstone, ceramics, platinum	20	20	--	--	--	--	--	
Mineral development	135	64	283	498	848	735	516	361
Mineral exploration	86	88	184	303	435	499	546	224
TOTAL	2,824	1,906	3,048	2,821	3,523	3,558	3,392	2,794

^aReported man-days are calculated on a 260-day work year to obtain average annual employment unless actual average annual employment numbers are provided.

^bThis figure does not include all of the man-days associated with peat operations; most of those man-days are included in sand and gravel numbers.

^cCoal and peat employment numbers are combined in 2009.

-- = Not reported.

EXPLORATION

Mineral exploration expenditures in Alaska during 2009 were at least \$169 million, a sharp drop from the record value of \$347.3 million set in 2008. Twenty-three projects reported exploration expenditures of \$1 million or more and 28 additional projects expended \$100,000 or more. Most exploration funds were from Canadian sources. Exploration projects spanned the state. Advanced exploration projects include the 35.9-million-ounce Donlin Creek intrusion-hosted gold project, the 72-billion-pound 94-million-ounce Pebble copper–gold–molybdenum porphyry project, and the Niblack volcanogenic massive sulfide project. The Livengood project near Fairbanks announced a 12-million-ounce gold resource. Other more advanced projects with defined mineral resources include the Whistler, Ambler, Lucky Shot, Lik, and LWM properties.

Preliminary analysis of 2009 mineral exploration expenditures indicates that 44 percent of funds were spent exploring for porphyry copper–gold–molybdenum deposits, 36 percent were spent exploring for intrusion-related gold deposits, 9 percent for various types of massive sulfide deposits, 4 percent for gold vein deposits, and the remainder for a wide variety of deposit types. These percentages are not significantly different than the 2008 values. Almost \$99 million of the 2009 exploration expenditures were made in southwestern Alaska and nearly \$33 million were spent in the Eastern Interior region.

Northern Region

Zazu Metals Corp. reported completion of a Canadian National Instrument (NI) 43-101 resource estimate for the Lik zinc–lead–silver massive sulfide project. The resource estimate includes more than 3.3 billion pounds of zinc, more than 1 billion pounds of lead, and more than 31 million ounces of silver in the indicated category for the Lik South deposit.

It also tallied nearly 1.3 billion pounds of zinc, almost 500 million pounds of lead, and nearly 10 million ounces of silver in the inferred resource category for the Lik North and Lik South deposits. The Alaska Industrial Development and Export Authority (AIDEA) approved a cost reimbursement agreement with Zazu and initiated due diligence on the proposed expansion of the De Long Mountain Transportation System to the Lik deposit. AIDEA may finance building the spur road to the Lik deposit and finance additional storage and handling facilities at the Chukchi Sea port.

NovaGold Resources Inc. agreed to purchase the Ambler property, which hosts the high-grade copper–zinc–gold–silver Arctic volcanogenic massive sulfide deposit. Work on the property in 2009 consisted primarily of community engagement.

Silverado Gold Mines Ltd. completed an NI 43-101 compliant report on the Workman’s bench section of the Nolan gold–antimony lode property. The report states a probable reserve of 42,412 tons grading 28 percent antimony and 0.408 ounces of gold per ton as determined from drilling conducted through 2008. Silverado drilled 20 diamond-core drill holes totaling 4,992 feet under Workman’s and Pringle benches in the Solomon Shear Zone. The drill program focused on increasing the size of the antimony–gold A Zone beyond the 2008 resource and reserve blocks. Immediately adjacent to the probable reserve is an indicated resource of 12,039 tons grading 20.02 percent antimony and 0.236 ounces of gold per ton, which was added as a result of the 2009 drilling.

Goldrich Mining Co. completed a successful placer gold test mining operation on Little Squaw Creek. Minimal lode exploration was conducted on the Little Squaw property.

Western Region

Fire River Gold Corp. finalized acquisition of a 100 percent interest in the Nixon Fork gold–copper mine from Pacific North West Capital Corp. Fire River began a \$1.25 million evaluation of the project to confirm previous geologic work through drilling and examination of previous drill core, confirm the gold grade of the tailings pond, and conduct metallurgical testing. The evaluation program continued into 2010.

Next Gen Metals Inc. entered into an agreement with Anglo Alaska Gold Corp., a privately owned Alaska corporation, to acquire a 100 percent interest in the Silver Chalice epithermal gold–silver project near Kaltag. Preliminary geochemical sampling was conducted in late 2009.

TintinaGold Resources Inc. drilled 12 holes totaling 8,356 feet at the Colorado Creek gold property. The best results in this latest drilling encountered 323 feet grading 0.017 ounces of gold per ton (hole DDH 12); 79 feet grading 0.034 ounces of gold per ton and 7.5 feet grading 0.222 ounces of gold per ton within 364 feet grading 0.019 ounces of gold per ton (hole DDH 14); and 147 feet grading 0.029 ounces of gold per ton within 421 feet grading 0.017 ounces of gold per ton (hole DDH 15). Reconnaissance soil sampling extended the gold-in-soil anomaly to a length of 5 miles with a width of up to 1.5 miles and portions of the anomaly remain open.

TintinaGold Resources conducted orientation-induced polarization (IP)-resistivity and gravity surveys over the three highest priority airborne geophysical anomalies on its Kugruk property. These anomalies include a 1.8-mile-long, very-high-magnetic zone at Billiken; a 1.8-mile-long, low-resistivity zone on the south flank of the Kugruk pluton; and a 3-mile-long, low-resistivity zone with coincident copper-in-soil anomaly in the Knowles Creek area in the south part of the claim block.

TintinaGold also worked on its Omilak property, with soil sampling across mineralized trends and rock sampling across the claim block.

Millrock Resources Inc. optioned the Albion property in the Council mining district on the Seward Peninsula. The claims are immediately adjacent to Millrock’s land optioned from the Bering Straits Native Corp. Millrock entered into an exploration agreement with Kinross Gold Corp. for these properties. Millrock also began a joint venture agreement with Valdez Gold Inc. for the Bluff project east of Nome.

Hinterland Metals Inc. claimstaked the Windy Fork property covering two documented rare earth element showings, the Windy Fork placer, and the Eudialyte lode prospects.

Eastern Interior Region

International Tower Hill Mines Ltd. continued an aggressive exploration drill program on the Livengood project, with 207 holes totaling 211,000 feet completed in 2009. Drilling continued to expand the eastern half of the Money Knob gold deposit, which includes the Sunshine, Northeast, Core (Money Knob), and Southwest zones. In addition, significant new mineralization was discovered in the Northwest Zone (drillholes MK-RC-0279 with 49 feet averaging 0.108 ounces of gold per ton and MK-RC-0281 with 75.5 feet averaging 0.026 ounces of gold per ton). In the new Sunshine and Northeast zones, mineralization begins at surface and extends to over 558-foot depth. Environmental baseline sampling program, wetlands mapping, and other related long-term mine permitting projects were also ongoing.

ing. The latest resource estimate (October 2009), at a 0.015 ounce of gold per ton cutoff, has an indicated resource of 327.1 million tons at an average grade of 0.025 ounces of gold per ton (8.09 million ounces) and an inferred resource of 70.8 million tons at an average grade of 0.025 ounces of gold per ton (4.4 million ounces). These resources make the Money Knob deposit one of the largest new gold discoveries in North America. The Core and Sunshine zones account for most of the higher-grade resource. Preliminary metallurgical and economic analysis study results are quite favorable, including a heap leach analysis yielding a life-of-project annual gold production of 459,000 recovered ounces of gold for 12.6 years, at a 0.78:1 strip ratio.

Fairbanks Gold Mining Inc., a subsidiary of Kinross Gold Corp., continued ore-body delineation with a 107,066-foot, 135-hole drilling program at Fort Knox Mine. Reverse-circulation drilling totaled 61,860 feet in 82 holes and core drilling totaled 45,206 feet in 53 holes.

Fairbanks Gold also added to an existing soil sample grid, drilled 33 reverse-circulation and six core holes totaling 15,295 feet and completed a 2.2-line-mile ground magnetometer survey concentrating on the Sourdough Ridge portion of the Gil project via a new 3,000 foot access road. Drill results included 105 feet grading 0.14 ounces of gold per ton in hole GVR-09-540 and 75 feet grading 0.09 ounces of gold per ton in hole GVR-09-534.

Sumitomo Metal Mining Pogo LLC continued exploration drilling at the Pogo Mine property.

In late 2009, Grayd Resource Corp. staked 238 additional claims to cover prospective geology around the original 23 claims it owns in the Delta mining district.

Caribou Copper Resources Ltd. acquired all of the issued and outstanding shares of 1618254 Ontario Ltd. and 1618254 Ontario Ltd. completed two drillholes totaling 2,038 feet on the Caribou Dome copper property. Four distinct intervals of chalcopyrite–pyrite mineralization were encountered in one hole with visible pyrite over much of the hole below 339 feet.

Contango Oil & Gas Co. collected a total of 1,076 rock, soil, pan concentrate, and stream silt samples on lands near Tetlin. Of this total, 567 rock and soil samples were taken over a 40-acre area of exploration interest, with 348 samples showing measurable amounts of gold and 30 samples with gold values of 0.015 ounces of gold per ton or higher.

Millrock Resources Inc. optioned the Uncle Sam property from Kiska Metals Corp.

Triton Gold Ltd. and joint-venture partner Tushtena Resources Inc. completed a short geological and geochemical mapping program and staked an additional 24 mining claims on the Tushtena property.

International Tower Hill Mines Ltd. completed a five-core-hole, 4,449-foot drilling campaign at the Coffee Dome project, testing the UAF and Zesiger areas. Results from the UAF area returned multiple thick zones of low-grade gold, highlighted by 56 feet grading 0.009 ounces of gold per ton and 72 feet grading 0.006 ounces of gold per ton in hole CD-09-03.

Ashburton Ventures Inc. drill tested the Two Bit granitic pluton and surrounding metasediments at the Bullion Hills property in the Circle mining district. Eight holes totaling 1,444 feet were drilled to a maximum depth of 300 feet. The best drill interval averaged 0.064 ounces of gold per ton over 4 feet.

The Alaska Division of Geological & Geophysical Surveys conducted geologic mapping along the Alaska Highway from Tetlin Junction to the Yukon–Alaska border and contracted helicopter-borne geophysical surveys for the Melozitna–Tanana area of central Alaska.

Southcentral Region

Full Metal Minerals Ltd. completed a 26-hole, 7,874-foot core drilling program at the Lucky Shot property. Environmental baseline and engineering studies were also completed. On November 9, 2009, Full Metal announced an option agreement whereby Harmony Gold Corp. can earn a 60 percent interest in the Lucky Shot property by paying \$2 million cash, issuing 4 million shares, and incurring \$8 million in exploration expenditures, upon acceptance of the Toronto Stock Exchange (TSX) Venture Exchange.

Rimfire Minerals Corp. and Geoinformatics Exploration Inc. merged in 2009 to form Kiska Metals Corp. Kiska conducted wide-spaced surface reconnaissance work at the Whistler project. Prospecting and mapping outlined several new areas of gold mineralization, including the Old Man Breccia target, where a continuous 33-foot channel sample returned 0.208 ounces of gold per ton. A total of five drillholes were also completed in 2009. Two holes at the Island Mountain prospect encountered copper and gold mineralization in actinolite–magnetite-altered hydrothermal breccia with pyrrhotite–pyrite–chalcopyrite. The three remaining holes were at the Lightning, Digger, and Raintree West targets. Kiska also conducted a large 3D and 2D IP survey of up to 211 line miles on the Whistler property.

In collaboration with its project partner, Itochu Corp., Pure Nickel Inc. completed 13,779 feet of drilling on the Man nickel–platinum–group–element exploration project. Seven drill holes were completed, with three holes in the Alpha Complex and four holes in the Beta Complex; three holes were abandoned early. Targets were generated from

preliminary analysis of a 8,766-line-foot airborne time-domain electromagnetic (ZTEM) survey covering the Alpha and Beta complexes. A thicker-than-expected ultramafic sequence was intersected in hole PNI-09-25, which was drilled to 3,497 feet. Hole PNI-09-24 intersected 674 feet grading 0.189 percent nickel.

Millrock Resources Inc. prospected and sampled on the Estelle property, resulting in the discovery of porphyry-style gold mineralization in bedrock at both the Shoeshine and Oxide Ridge occurrences.

International Tower Hill Mines Ltd. entered into a joint-venture agreement dated November 2, 2009, with Ocean Park Ventures Corp. on the Chisna copper-gold project in the Chistochina mining district. Among other stipulations, Ocean Park agreed to spend \$4.4 million on exploration in the first year of the agreement and \$17.5 million over 5 years.

The Alaska Division of Geological & Geophysical Surveys conducted geologic mapping in the Slate Creek area of the Chistochina mining district.

Southwestern Region

The Donlin Creek LLC expended approximately \$25.3 million on the Donlin Creek project for prefeasibility and other studies. Work focused on geotechnical drilling for the location of mine facilities, environmental baseline data collection, community advisory meetings, and various optimization studies. The Donlin Creek property contains one of the largest gold deposits in the world, with 29.3 million ounces of gold in proven and probable reserves and a further 6 million ounces of gold in measured and indicated resources, at an approximate grade of 0.069 ounces of gold per ton. Based on the 2009 feasibility study, construction of the Donlin Creek Mine would cost \$4.48 billion, and during the first five full years of production, the mine is expected to produce an average of 1.6 million ounces of gold annually with an average total cash cost of \$394 per ounce. These projected costs place mining at Donlin Creek in the lower quartile for global industry total cash costs.

The Pebble copper-gold-molybdenum project remained the largest exploration project in Alaska, with an announced 2009 budget of \$70 million. The budget, approximately 50 percent of the project's 2008 budget, included \$20 million for drilling, \$14 million for environmental studies, and \$36 million for engineering, cultural, community outreach, and other prefeasibility studies. Approximately \$452 million has been spent on exploration at the Pebble project by Northern Dynasty Minerals Ltd., Anglo American Exploration (USA) Inc., and Pebble Limited Partnership from 2000 through 2009. A global resource for the Pebble West and Pebble East deposits was announced, with a measured and indicated resource of 5.617 billion tons grading 0.43 percent copper, 0.010 ounces of gold per ton, and 256 parts per million molybdenum, and an inferred resource of 4.374 billion tons grading 0.27 percent copper, 0.008 ounces of gold per ton, and 220 parts per million molybdenum. The total global resource contains approximately 72 billion pounds of copper, 91 million ounces of gold, and 4.8 billion pounds of molybdenum. The 2009 exploration and resource drilling program included condemnation drilling in the area of site facilities for completion of prefeasibility mine planning and exploration drilling outside of the main Pebble resource area. Drilling was completed in two phases that took place during May-June and August-October. Approximately 34,940 feet of drilling was completed in 36 holes. Engineering, metallurgy, infrastructure, environmental, cultural, and socioeconomic studies continued through the year. An active program of stakeholder outreach also continued.

In August, Full Metal Minerals entered into mining exploration license letter agreements with Calista Corp. to acquire 100 percent of the mineral rights to the Russian and Horn Mountain gold-silver properties. A 4,291-foot, 13-hole diamond drilling program was completed on the Russian Mountain property at the Owhat, Louise, and Headwall prospects. Best drill results were at the Owhat prospect, including drill hole RM-01, which intersected 0.251 ounces of gold per ton, 5.414 ounces of silver per ton and 6.03 percent copper over 3.3 feet true width; and drill hole RM-09, including 0.251 ounces of gold per ton, 19.836 ounces of silver per ton and 10.35 percent copper over 1.7 feet true width. Full Metal and Kinross notified Calista that they intended to drop the Russian and Horn Mountain property agreements.

Southeastern Region

Coeur Alaska Inc. continued exploration drilling at the Kensington Mine project. A new vein named the Kimberly Vein was discovered as part of a 14-hole, 4,086-foot drilling program.

Hecla Mining Co. completed approximately 39,000 feet of underground in-fill and exploration drilling at Greens Creek Mine. The drilling tested the peripheries of known zones including the 5250, Deep 200 South and the NWW-South zones in the mine, resulting in a replacement of tons mined during 2009. Hecla continues to be encouraged with the NE contact, a relatively new target area that is located adjacent to mine infrastructure. Five exploration holes, including three from surface, were drilled through the targeted contact horizon and encountered disseminated and stringer mineralization in highly altered rocks with local intervals of low-grade silver mineralization. The last drill hole in the

program intersected massive and semi-massive pyrite mineralization over a 20-foot interval. These results suggest proximity to a new massive sulfide body.

Constantine Metal Resources Ltd. focused on a 10-hole, 15,233-foot drill program at the Palmer project. The drilling expanded South Wall Zone mineralization by 260 feet along strike, 295 feet vertically down-dip, and 130 feet up-dip, for a total horizontal strike length of 1,250 feet and a total vertical extent of 1,350 feet. The continued expansion of the area of South Wall and RW mineralization, in conjunction with downhole geophysical results, identified specific target areas for future drilling with potential to significantly expand the sulfide zones. Down-hole 3D Time Domain Electromagnetic (TDEM) surveys were completed on eight of ten holes drilled during the 2009 program. Preliminary, metallurgical-focused mineralogical work and metallurgical benchmarking was completed on six core samples of South Wall Zones I and II mineralization. Constantine announced an inferred resource of 5.24 million tons grading 1.84 percent copper, 4.57 percent zinc, 0.008 ounces of gold per ton, and 0.849 ounces of silver per ton.

Ucore Uranium Inc., through subsidiary Rare Earth One, completed 27 core holes totaling 9,317 feet at Bokan–Dotson Ridge near Ketchikan. The drilling focused primarily on the road-accessible Dotson Trend, with additional drilling at the Geoduck, Cheri, and Sunday Lake areas. Rare-earth-element mineralization was encountered in 22 holes and the mineralization has an unusually high ratio of heavy rare-earth elements, constituting approximately one-half of the total rare-earth-element content.

CBR Gold Corp. announced an updated NI 43-101 compliant resource for the Niblack precious-metals-rich volcanic massive sulfide deposit, using a \$50 net smelter return cutoff. The indicated resource contains 2.87 million tons grading 1.18 percent copper, 2.19 percent zinc, 0.068 ounces of gold per ton, and 0.968 ounces of silver per ton. The inferred resource is 1.87 million tons grading 1.55 percent copper, 3.17 percent zinc, 0.061 ounces of gold per ton, and 0.950 ounces of silver per ton.

Heatherdale Resources Ltd., a privately-owned subsidiary of Hunter Dickinson, agreed to spend \$15 million over the next three years for a 51 percent stake in the Niblack project. CBR Gold Corp. and joint-venture partner Heatherdale began a 25,000-foot underground drilling program in October on the Niblack project. Thick intersections of high-grade, copper–gold–zinc–silver massive sulfide mineralization were announced for the initial holes. Hole 31 returned the longest announced interval of 143.7 feet grading 0.088 ounces of gold per ton, 2.22 ounces of silver per ton, 2.25 percent copper, and 5.52 percent zinc.

Copper Ridge Explorations Inc. signed an option agreement with Quaterra Resources Inc. to earn up to a 65 percent interest, in stages, in the Duke Island copper–nickel–platinum–palladium property.

Mosam Capital Corp., in joint venture with Full Metals, funded an IP geophysical survey program at Kasaan, consisting of 6.2 line miles covering the historical Mount Andrew Mine.

Geohedral LLC staked 521 federal mining claims in the Tanis Mesa area of the Yakutat forelands, adding to the 2,400 federal claims staked last year on black sand beach deposits. Sixty-two shallow holes were dug or drilled for sampling and 353 samples were collected to be assayed for gold, silver, platinum, and palladium.

Bravo Venture Group Inc. planned a 3,280-foot, 2- or 3-drillhole program at the Woewodski Island precious-metal-rich, volcanogenic massive sulfide project. The program was designed to test the center of the east–west-trending axis of the modeled East Lake “paleo-graben.” Bravo relinquished its right to the property in August.

DEVELOPMENT

Development expenditures in 2009 are preliminarily estimated to be \$330.7 million, approximately 17 percent less than the 2008 value of \$396.2 million. Significant expenditures were noted at Red Dog Mine, Fort Knox Mine, Pogo Mine, Rock Creek Mine, Greens Creek Mine, and the Kensington project. Total employment dedicated to development amounted to 361 full-time-equivalent jobs for the year.

Northern Region

RED DOG MINE

Major capital projects at Red Dog in 2009 included \$15 million for tailings dams and \$14 million on other sustaining capital projects. Additional drilling and capital expenditure decisions are pending completion of reservoir calculations by a third-party engineering firm. The results of this analysis are anticipated to be available in the second quarter of 2010.

Teck Alaska Inc. and NANA Regional Corp. Inc. are proposing to continue mining operations through 2031 by extending mining activity into the Aqqaluk deposit, adjacent to the Main deposit. The Aqqaluk deposit contains 51.6 million tons of reserves, with 16.7 percent zinc and 4.4 percent lead, and represents an estimated 20 years of

additional mining for the region and NANA. To meet the requirements of the National Environmental Policy Act, a Supplemental Environmental Impact Statement (SEIS) was completed to evaluate the environmental effects associated with development of the Aqqaluk deposit and new circumstances or information relevant to environmental concerns that have arisen since the 1984 EIS. On December 5, 2008, the U.S. Environmental Protection Agency (EPA) announced the availability of the draft SEIS and the start of a 60-day public comment period.

On December 15, 2009, the State of Alaska issued a certification of Red Dog's National Pollutant Discharge Elimination System Permit (NPDES Permit), the mine's water discharge permit. The NPDES Permit is issued by the EPA and certified by the State under Section 401 of the U.S. Clean Water Act. Other State and local permits required for the development of Aqqaluk were received in December 2009. The appeal period for those permits has expired. Teck stated that a wetlands permit from the Army Corps of Engineers was the only outstanding agency authorization, and that the permit was undergoing final agency review.

On January 8, 2010, the EPA approved the Aqqaluk SEIS and simultaneously issued a new NPDES Permit. On January 15, 2010, local tribal and environmental groups filed an appeal of the certification, asserting that certain provisions do not comply with the Clean Water Act. If successful, the appeal could result in revisions to the NPDES Permit. According to Teck, the certification will remain in effect pending resolution of the appeal and will not affect the development of the Aqqaluk deposit. On February 16, 2010, the same groups that appealed the 401 Certification filed a petition for review of the NPDES Permit.

On February 26, 2010, the EPA notified Teck that, as a result of the appeal, the conditions of the new permit governing effluent limitations for lead, selenium, zinc, cyanide, and total dissolved solids (TDS) are stayed pending a resolution of the appeal by the Environmental Appeal Board.

Teck says that the existing NPDES permit contains an effluent limitation for TDS that the mine cannot meet and that the company will be discussing that issue with the EPA and will await the issuance of a wetlands permit before proceeding with a decision on the development of Aqqaluk.

Teck plans to start pre-stripping of the Aqqaluk deposit in 2010 on receipt of the SEIS and the new NPDES and other required permits. The Aqqaluk deposit is expected to be the main ore supply for the mine for the next 20 years, from 2011 onward, according to Teck.

Western Region

ROCK CREEK MINE

NovaGold's Nome properties include Rock Creek, Big Hurrah, and a significant holding of placer and gravel deposits. The most advanced property is the Rock Creek gold mine, which is nearly completely constructed and is designed to produce approximately 100,000 ounces of gold annually, based on the existing 0.5 million ounces of probable gold reserves, 1.9 million ounces of measured and indicated resources, and 0.3 million ounces of inferred gold resources at the three properties.

Construction at Rock Creek began in the summer of 2006, and Rock Creek Mine received regulatory authorizations and began the commissioning process in September 2008. Production at Rock Creek began on September 19, 2008, with the 7,100-ton-per-day mill being fed at 25 percent capacity. The mill operated until October 9, when the ball mill resistor packs burned out, shutting the mill down. The mill was recommissioned on November 12 and operated until November 24, at which time operations were suspended. A total of 100,000 tons of ore were milled in 2008.

The Rock Creek mine is currently on care and maintenance status. Rock Creek has stated that it anticipates staffing at approximately 14 employees during the temporary closure. NovaGold states that it is completing a detailed review process to evaluate start-up requirements for the Rock Creek project, but does not currently plan to initiate start-up activities in 2010. NovaGold is also considering selling the mine.

According to NovaGold, 2009 expenditures at the Rock Creek project totaled approximately \$24.3 million.

NovaGold reported that in 2009 the company focused on improving the project's water management structures and action plan to ensure the project remains in compliance with all environmental regulations during the spring thaw and runoff period, with the objective that the project have no reportable environmental incidents in 2010.

Probable reserves at Rock Creek and satellite Big Hurrah are 8.6 million tons at a grade of 0.0379 ounces of gold per ton and 1.32 million tons at 0.140 ounces of gold per ton, respectively.

NIXON FORK MINE

The Nixon Fork gold-copper mine is approximately 35 miles northeast of McGrath; it was owned by Mystery Creek Resources, Inc., a wholly owned subsidiary of St. Andrew Goldfields Ltd. The mine was closed in October 2007 pending additional exploration drilling and efforts to sell the operation. On December 18, 2008, Pacific North West

Capital Corp. announced the signing of a letter of agreement in which it had acquired an option, exercisable until February 15, 2009, to purchase a 100 percent interest in Mystery Creek Resources, Inc. Mystery Creek Resources' assets included the Nixon Fork gold mine. A total of \$500,000 was paid to complete this transaction. On August 13, 2009, Fire River Gold Corp. announced that it was exercising its option to purchase 100 percent interest in Mystery Creek Resources, Inc. from Pacific North West Capital Corp. Fire River Gold Corp. agreed to pay a total of \$500,000, a total of \$2.5 million in Fire River shares at a deemed price of \$0.45 per share, and 1 million share purchase warrants at an exercise price of \$0.50 for a period of 24 months from the date of issue. Fire River also agreed to refund all expenses incurred by Pacific North West Capital Corp. from May 1, 2009 until the finalization of the transaction, which will not exceed \$1,250,000.

Facilities at the Nixon Fork Mine include a 200-ton-per-day flotation plant with a gravity gold separation circuit, a sulfide flotation circuit, and a newly constructed carbon-in-leach (CIL) gold-leaching circuit. The mine also boasts a fleet of mining vehicles, a power plant, maintenance facilities, an 85-person camp, office facilities, and five aircraft landing strips. Mining and processing operations at Nixon Fork are fully permitted and bonded. Mine stockpiles amount to 2,315 tons of ore, and approximately 127,868 tons of mineralized tailings.

In 2009, Fire River Gold began an evaluation of the project to confirm the status of the geological work, confirm the gold grade from the tailings ponds, and further metallurgical assessment through test work. The evaluation program is continuing into 2010. The company expects to have a new resource estimate for the property by the fall of 2010 and a determination of whether or not to resume underground mining by the end of 2010.

Eastern Interior Region

FORT KNOX MINE

Fort Knox Mine is approximately 25 miles northeast of Fairbanks and is owned and operated by Fairbanks Gold Mining Inc., a wholly owned subsidiary of Kinross Gold Corp. Fort Knox Mine includes the main Fort Knox open-pit gold mine, the mill and tailings storage facility, and the Walter Creek heap leach facility. The True North open-pit mine is currently being reclaimed.

Activities at Fort Knox in 2009 included construction of the in-heap storage pond, carbon-in-column (CIC) building, and barren and pregnant solution lines for the Walter Creek Valley Fill Heap Leach; initiation of Phase 7 Dewatering; major upgrades to the mill gravity circuit and semi-autogenous grinding (SAG) drive; construction of a pumping system for discharge of tailings from the mill; initiation of construction on the Assembly Line Preventative Maintenance (ALPM) shop to support maintenance of the haul trucks; relocation and upgrade of the explosives magazine; initiation of tailings dam raise studies and geotechnical investigations in preparation for permitting the planned dam raise; and commencement of final reclamation of True North.

Major activities planned for 2010 include completing stage 1 construction and initiating stage 2 construction of the Walter Creek Valley Fill Heap Leach; obtaining permits for construction of the tailings storage facility (TSF) dam raise from the Alaska Department of Natural Resources (DNR) and the U.S. Army Corps of Engineers (COE); excavating and reconstructing the top 22 feet of the TSF dam raise, reversing the core and preparing for additional raises in 2011 and 2013; acquiring 32 acres from the National Oceanic and Atmospheric Agency withdrawal for placement of waste rock; upgrading the Phase 6 dewatering system with a new lift station; completing the revision and update of the Fort Knox reclamation and closure plan and obtaining approvals of the plan from DNR, Alaska Department of Environmental Conservation (DEC), and COE; completing the revision and update of the True North reclamation and closure plan and obtaining approvals of the plan from DNR; and completing all major earthwork activities, removal of buildings, and initial revegetation activities at True North.

Capital expenditures at Fort Knox Mine were approximately \$133.1 million in 2009 compared to \$126.6 million in 2008.

POGO MINE

Pogo Mine began operations in 2006 with a ten-year mine life and was declared to have reached commercial production in April 2007. Underground development was required to open up the additional ore headings needed to reach the full production rate of 2,500 tons per day, which was reached in 2009 with an average production rate of 2,550 tons per day. Mining in 2009 was budgeted for 900,000 tons of ore and 13,500 feet of lateral development.

Capital expenditures at the project during 2009 included 16,771 feet of lateral drilling, exceeding the projected 13,500 lateral feet. A new 78-person camp was constructed in the lower camp area, and was fully commissioned in December 2009. A grout curtain extension was installed at the recycle tailings pond during the summer of 2009 to intercept potential seepage pathways within the south abutment bedrock that trend parallel and perpendicular to the

Liese Creek Fault System. Thirty-one holes were drilled for a total of approximately 2,545 feet; 25,250 gallons of grout, including 113,000 lbs of cement, were used in the curtain extension. The Liese Creek diversion ditch received approximately 800 feet of shotcrete lining to decrease possible seepage. Development expenditures for 2009 are estimated to be \$70 million.

Development activity will remain high during 2010. Ramp development will continue over the next two years. Mining in 2010 is budgeted for 920,415 tons of ore and 21,000 feet of lateral development. The mining contractor will remain on site throughout 2010 with 50 employees housed in the new lower camp. Mining of additional gravel from the airstrip borrow pit will be completed on an as-needed basis to complete underground road maintenance. Additional material from Material Site 18 will be used to conduct road repairs on the remainder of the access road from Mile 0 to Mile 28. Additional planned development expenditures in 2010 include the following: the Liese Creek diversion ditch will receive further concrete lining in the summer of 2010 to help decrease possible seepage; Pogo will purchase and install a new 2,000 kW generator for backup power generation during power outages; and Pogo will design and install secondary containment around a number of structures at the mine that contain low-level cyanide contacted solutions.

Southcentral Region

CHUITNA COAL PROJECT

PacRim Coal LP continued environmental, permitting, and engineering work on the Chuitna Coal project west of Anchorage on the north side of Cook Inlet. The project is being designed to include a coal export terminal at Ladd Landing, connected to the mine with a 12-mile-long covered conveyor. Mine production capacity is designed to handle 3 to 12 million tons per year. Proven reserves are reported to be 771 million tons.

Southeastern Region

GREENS CREEK MINE

Greens Creek Mine, an underground silver, zinc, lead, and gold mine on Admiralty Island near Juneau, produces approximately 2,100 tons of ore per day. The primary mining methods are cut-and-fill and longhole stoping. The ore is processed on site at a mill, which produces lead, zinc, and bulk concentrates, as well as doré containing silver and gold. The doré is sold to a precious metal refiner, and the three concentrate products are sold to a number of major smelters worldwide. Concentrates are shipped from a marine terminal about 9 miles from the mine site.

On April 16, 2008, Hecla, through a joint venture arrangement with its subsidiaries, Hecla Alaska LLC, Hecla Greens Creek Mining Co., and Hecla Juneau Mining Co., obtained a 100 percent interest in the Greens Creek Mine. During 2009, \$17.5 million was capitalized for underground development and purchases of new mobile equipment at the Greens Creek Mine and for other non-cash additions. Development in 2009 at Greens Creek Mine exceeded that in the previous year. Most of the development expenditures were for drilling and preliminary production. Hecla completed approximately 39,000 feet of underground in-fill and exploration drilling at Greens Creek Mine in 2009. Manpower allocated to development at Greens Creek amounted to approximately 85 full-time-equivalent persons for the year. Published reserves at Greens Creek are shown in table 3.

Greens Creek Mine has historically been powered completely by on-site diesel generators. However, an agreement was reached during 2005 to purchase excess hydroelectric power from the local power company. Installation of the necessary infrastructure was completed in 2006, and use of hydroelectric power began during the third quarter of 2006. The combination of available hydroelectric power and lower diesel fuel prices helped decrease costs at Greens Creek in 2009.

Table 3. Estimated Greens Creek Mine ore reserves and resources (as of December 31, 2009). Source: Hecla Q4 2009 Earnings Release Final, page 5.

Reserve/Resource	Tons	Grade			
		Silver, oz/ton	Gold, oz/ton	Lead, percent	Zinc, percent
Probable Reserves	8,314,700	12.1	0.102	3.6	10.3
Mineralized Material	789,800	4.1	0.063	2.0	4.6
Other Resources 2009	2,412,000	11.5	0.092	2.7	6.8

KENSINGTON MINE

The Kensington Gold project is owned and operated by Coeur Alaska, Inc. (Coeur), a wholly owned subsidiary of Coeur d'Alene Mines, Inc. The project is located on the western and southern flanks of Lions Head Mountain; between Berners Bay and Lynn Canal; and in the drainages of Johnson, Sherman, and Slate Creeks.

All major underground development activities and surface facilities at Kensington were complete by 2009 with the exception of the tailings facility. Construction of the tailings facility was delayed due to an injunction granted by the Ninth Circuit Court of Appeals on August 2006, which led to the suspension of construction activities associated with the Slate Lake Tailings Facility. On June, 27, 2008, the U.S. Supreme Court granted the State of Alaska and the Company's petitions for a writ of certiorari to review the Ninth Circuit Court of Appeals decision relating to the Kensington 404 tailings permit. Oral arguments were presented to the U.S. Supreme Court on January 12, 2009. Site care and maintenance were conducted at the site from January to June 2009, awaiting a decision from the Supreme Court regarding the Ninth Circuit ruling.

The Supreme Court issued a ruling favorable to Coeur Alaska on June 22, 2009, reversing the judgment of the Ninth Circuit Court, resulting in the Ninth Circuit Court dissolving its injunction in July 2009. The Army Corp of Engineers issued a permit modification and lifted the suspension of the original permit on August 14, 2009. Construction activities at the Tailings Treatment Facility (TTF) subsequently resumed, primarily focused on the dam embankment and tailings treatment facility. Construction activities are scheduled to be completed in the second half of 2010 with operations beginning in the third or fourth quarter of 2010.

Additional construction activities included the installation of a new kitchen, dining, and recreational facility, partial installation of a new 120-man dorm facility, site grading for an expansion of the Comet water treatment plant, and preparatory work for the installation of an assay lab. Activities also continued on commissioning the mill and crusher facilities. The water treatment plant and associated ponds and infrastructure received upgrades and were operated and maintained through the year in accordance with the NPDES Permit.

Underground exploration, definition, and geotechnical drilling were completed in 2009. A total of 10,426 feet of drilling was conducted in 2009 with 4,086 feet as part of the exploration program, 5,520 feet as part of the definition drilling program, and 820 feet as part of a geotechnical assessment.

Road improvements were an ongoing priority at Kensington in 2009. Road surfacing and interim reclamation seeding were major improvements to the road projects. Maintenance of storm water best management practices along the Jualin and Kensington access corridors was also a major ongoing priority for 2009.

No gold production occurred during calendar year 2009. Proven and probable reserves at Kensington as of December 31, 2009, were 5,500,000 short tons with a grade of 0.27 ounces of gold per ton, containing 1,478,000 ounces of gold. Measured and indicated resources were 2,724,000 short tons with a grade of 0.18 ounces of gold per ton, containing 494,000 ounces of gold.

Coeur plans a production rate of 120,000 ounces of gold per year at a cash cost of \$475 per ounce. Production is planned to begin during the third quarter of 2010; 40,000 ounces of gold are expected to be produced that year.

The milling plant will process approximately 1,100 tons of ore per day, involving primary crushing, semi-autogenous grinding (SAG), mill grinding, gravity, and flotation concentration. About 40 percent of the tailings will be returned to the mine for backfill, and the remaining tailings will be sent to the selected tailings disposal facility as required by the court resolution. Concentrates will be packaged and shipped off site for final gold recovery. When operational, the mine is expected to provide approximately 225 direct jobs.

In 2010, construction is planned to expand the existing Comet water treatment system. Tailings facility construction is planned to be completed in the second half of 2010.

Coeur estimates an additional \$81.7 million in capital expenditures will be necessary to complete construction and mine-related activities at Kensington.

PRODUCTION

A preliminary estimate of mineral production value in Alaska during 2009 is \$2,412 million. The estimate represents a decrease in value of approximately \$15 million, or a 1 percent decrease compared to 2008 production values of \$2,427 million. Reporting shortfalls are noted in the placer, peat, and industrial minerals sectors. When final totals are determined, the numbers are expected to increase. Metals (gold, silver, copper, lead, and zinc) account for \$2,310 million; coal and peat for \$68.79 million; and industrial minerals for \$33.11 million. Table 4 shows the estimated mineral production for 2007 through 2009. Preliminary estimates of 2009 placer production are 55,000 ounces, compared to a final 2008 placer production estimate of 56,759 ounces. The 2009 placer production estimate may increase somewhat with additional data.

Table 4. Estimated mineral production in Alaska, 2007–2009^a.

Metals	Production Quantities			Estimated Values ^b		
	2007	2008	2009	2007	2008	2009
Gold (ounces) ^c	726,933	800,752	775,407	511,089,447	698,223,883	753,966,996
Silver (ounces)	20,203,985	14,643,735	15,614,400	270,402,055	219,496,408	229,114,776
Copper (tons)	43.8 ^d	--	--	283,542		
Lead (tons)	167,181	153,705	167,150	389,532,215	287,428,350	259,698,747
Zinc (tons)	696,115	626,135	712,300	2,048,451,644	1,055,220,098	1,067,627,495
Subtotal				\$3,219,758,903	\$2,260,368,739	\$2,310,408,014
Industrial Minerals						
Sand & gravel (million tons)	14.2	12.5	3.7	76,119,390	72,438,792	24,170,790
Rock (million tons)	2.2	2.5	0.5	25,509,775	39,324,787	8,941,053
Subtotal				\$101,629,165	\$111,763,579	\$33,111,843
Coal (tons) ^e	1,357,000	1,538,000	1,861,714	44,555,140	53,830,000	68,794,670
Peat (cubic yards) ^e	68,367	83,789	237,560	1,085,500	1,159,502	
Subtotal				\$45,640,640	\$54,989,502	\$68,794,670
TOTAL				\$3,367,028,708	\$2,427,121,820	\$2,412,314,527

^aProduction data from DGGs questionnaire, phone interviews with mine and quarry operators, DOT&PF, and municipalities, regional corporations, and federal land management agencies.

^bValues for selected metal production were based on average prices for each year (unless other values were provided by the operator); for 2009--gold \$972.35/oz, silver \$14.67/oz, lead \$0.78/lb, zinc \$0.75/lb.

^c2009 lode production was 720,407 ounces; placer production was 55,000 ounces.

^dNixon Fork was the only copper producer in 2007, but did not produce during 2008 or 2009.

^eCoal and peat production value is combined in 2009.

Northern Region

RED DOG MINE

Red Dog Mine is in northwestern Alaska, approximately 100 miles north of Kotzebue and 50 miles inland from the Chukchi Sea, at the southern foothills of the Brooks Range. Red Dog is one of the world's largest zinc mines, both in terms of reserves and annual zinc production, producing lead and zinc concentrates that are trucked to a port on the coast for shipping during the summer. Red Dog dominates Alaska's mineral production value, accounting for approximately 54 percent of the total value of Alaska's mineral production in 2009. The mine is 100 percent owned and operated by Teck Resources Ltd. under an agreement with NANA Regional Corp., a Native Alaskan development corporation.

The Red Dog deposit comprises a number of lead–zinc massive sulfide deposits hosted in Mississippian- to Pennsylvanian-age sedimentary rocks. The ore bodies are lens shaped and occur within structurally controlled (thrust fault) plates. The sulfide mineralization consists of semi-massive to massive sphalerite, pyrite, marcasite, galena, and barite. The mining method employed is conventional drill and blast open-pit mining. The main pit has an expected life of 4 years at current rates of production. Total proven and probable reserve estimates, including the Aqqaluk deposit, as of December 31, 2009 are shown in table 5.

Table 5. Red Dog Reserves as of December 31, 2009. (Teck Cominco, Teck Resources Limited – 2009 Annual Information Form, March 15, 2010).

Commodity	Proven Reserves		Probable Reserves		Total	
	Tons	Grade %	Tons	Grade %	Tons	Grade %
Zinc	5,401,000	20.0	58,092,000	15.9	63,493,000	16.2
Lead	5,401,000	5.0	58,092,000	4.2	63,493,000	4.2

The mineral processing facilities at Red Dog employ conventional grinding and sulfide flotation methods to produce zinc and lead concentrates. The shipping season at Red Dog is restricted to approximately 100 days per year because of sea ice conditions, and Red Dog's sales are seasonal with the majority of sales in the last five months of each year. Concentrate is stockpiled at the port facility and is typically shipped between July and October.

Red Dog's 2009 shipping season began on June 30 and was completed on October 18. The mine shipped 1,124,000 short tons of zinc concentrate and 243,000 short tons of lead concentrate during the 2009 shipping season. This compares with shipments of 1,014,000 short tons of zinc and 272,000 short tons of lead concentrate for the 2008 shipping season.

Red Dog set a new annual record for contained metal production in 2009 as a result of a number of site-driven performance improvements initiatives. Tons milled in the fourth quarter of 2009 increased by 20 percent compared with those milled in the fourth quarter of 2008 because mill throughput in 2008 was negatively affected by a series of equipment failures. Ore grades were also higher in the fourth quarter of 2009.

The project milled 3,729,000 short tons of ore in 2009 with a zinc grade of 20.9 percent and a lead grade of 5.9 percent compared with 3,362,000 short tons milled in 2008 with a zinc grade of 20.1 percent and a lead grade of 6.0 percent.

The mine produced 642,100 short tons of zinc in concentrate and 145,000 short tons of lead in concentrate in 2009. In addition, the mine was credited with production of 8,114,400 ounces of silver in 2009. In 2008, the mine produced 567,911 tons of zinc in concentrate, and 135,144 tons of lead in concentrate, and was credited with an estimated 7,498,024 ounces of silver.

Teck expects 2010 production to be approximately 606,000 short tons of zinc in concentrate and 105,000 short tons of lead contained in concentrate. Production in 2010 is forecast to be lower than in 2009 due to the lower ore grades expected in the bottom of the main pit.

In accordance with the operating agreement governing Red Dog Mine, the royalty to NANA Regional Corporation Inc., Teck's Alaska Native Regional Corporation partner, is at 25 percent of net proceeds of production. The NANA royalty charge in 2009 was \$128 million compared with \$92 million in 2008. The net proceeds royalty will increase by 5 percent every fifth year to a maximum of 50 percent. The increase to 30 percent of net proceeds of production will occur in 2012. NANA shares approximately 62 percent of the royalty with other Alaska Native Regional Corporations pursuant to section 7(i) of the Alaskan Native Claims Settlement Act.

Red Dog's operating profit before depreciation and amortization was \$414 million in 2009 compared with \$225 million in 2008. According to Teck, the higher 2009 operating profit was mainly due to higher metal prices, lower fuel costs, and higher production levels achieved as a result of a number of site-wide performance improvement initiatives.

Eastern Interior Region

FORT KNOX MINE

Fort Knox Mine, operated by Fairbanks Gold Mining Co. (FGMI), a wholly owned subsidiary of Kinross Gold Corp., produced 263,260 gold equivalent ounces in 2009, a 20 percent decrease from the 329,105 ounces produced in 2008.

Mining activity at Fort Knox produced 27.59 million tons in 2009 compared with 46.32 million tons in 2008. Mill throughput in 2009 was 17,884,000 tons compared to 2008 mill throughput of 15,110,000 tons, with an average 82.9 percent recovery in 2009 compared with 81.8 percent in 2008. According to Kinross, gold production in 2009 was lower than 2008 primarily due to lower grades, which more than offset the higher tons processed and the slightly higher recovery.

Geotechnical issues at the East Wall caused fewer tons of ore to be mined in 2009 compared with 2008. The mine plan was modified to improve stability in the pit wall. Production focused on higher grades (although a harder-to-grind portion of the ore body) and was supplemented by lower-grade stockpile ores. The amount of ore processed was higher primarily due to tons of material being placed in the heap leach. The grade mined was lower in 2009 because of three factors: (1) the processing of lower-grade stockpile ore, (2) the mine plan called for mining an area of the pit with a lower grade than the area mined in 2008, and (3) the inclusion of 3.7 million tons added to the heap leach.

Approximately 3.75 million tons of ore had been stacked at the new Fort Knox heap leach as of the end of the fourth quarter 2009; according to Kinross, the leaching was progressing well.

Metal sales were lower in 2009 than in 2008, largely due to fewer ounces sold. Lower sales volumes resulted in a \$67.7 million decrease in metal sales in 2009 compared with 2008, while higher gold prices offset the impact by \$38.4 million. Cost of sales was lower primarily because fewer gold equivalent ounces were sold.

As of December 2009, FGMI reached 2.82 million man hours and three years without a lost time incident. Fort Knox employees worked approximately 1,041,376 man hours in 2009. The milling and mining operations at Fort Knox

continue to operate 24 hours a day, 365 days a year. As of the end of 2009, FGMI employed 467 full-time-equivalent personnel. In 2009, Fort Knox and the Alaska Department of Fish and Game were recipients of the Alaska Conservation Alliance and the Resource Development Council's Second Annual Tileston Award for their work in restoring fish habitat and Arctic grayling to Fish Creek.

Total proven and probable reserve estimates for Fort Knox Mine, as of December 31, 2009, are shown in table 6.

Table 6. Fort Knox reserves as of December 31, 2009.

Tons	Proven Grade	Ounces	Probable Tons	Total Grade	Ounces	Tons	Grade	Ounces
166,202,000	0.0113	1,879,000	112,622,000	0.0161	1,813,000	278,824,000	0.0132	3,692,000

POGO MINE

Pogo Mine, an underground gold mine about 90 miles southeast of Fairbanks and 38 miles northeast of Delta Junction, produced 389,808 ounces of gold in 2009 compared with 347,219 ounces in 2008, a 12 percent increase. The mine was previously a joint venture between Sumitomo Metal Mining Co. Ltd. (51 percent), Sumitomo Corp. (9 percent), and Teck Resources Ltd. (40 percent) and was operated by Teck Pogo Inc. On July 7, Teck Resources Ltd. announced the \$245 million sale of its 40 percent ownership to affiliates of Sumitomo Metal Mining Co. Ltd. and Sumitomo Corp. Sumitomo Metal Mining Pogo LLC (SMM Pogo) operates the mine on behalf of owners Sumitomo Metal Mining Co. Ltd. (85 percent) and Sumitomo Corp. (15 percent).

In 2009, 944,823 tons of material were mined. According to SMM Pogo, the milling focus in 2009 was continuous improvement and optimization of the milling process. The mill processed 2,550 tons per day in 2009 for a total of 930,836 tons for the year. The budgeted production was 900,527 tons. Gold produced was 389,808 ounces versus the 357,894 ounces budgeted. On October 7, 2009, Sumitomo Metal Mining Pogo LLC announced that Pogo had reached its one-millionth-gold-ounce-poured milestone on October 6, 2009.

Employment at year end was 299 full-time-equivalent employees with an additional 101 contract employees in housekeeping and underground development. Mining in 2010 is budgeted for 920,414 tons of ore and 21,000 feet of lateral development.

Pogo was one of three mines that supplied a total of 4.52 pounds of gold for the gold medals being presented at the 2010 Winter Olympics in Vancouver. The others were the Hemlo mine in Ontario and the Trail smelter in British Columbia.

USIBELLI COAL MINE

Usibelli Coal Mine Inc. continued production of subbituminous coal from its Two Bull Ridge site near Healy with an output of 1,861,714 tons of coal in 2009, compared to 1,538,000 tons of coal in 2008, a 21 percent increase.

Of the 1,861,714 tons of coal produced at Usibelli in 2009, 975,578 tons were consumed in Alaska; the balance was shipped to non-Alaska locations. Six power plants in interior Alaska utilize approximately 900,000 tons annually.

Permitted reserves at Usibelli total 30.6 million tons.

According to Usibelli's website, the mine "currently has a work force of about 95 full-time-equivalent employees and operates year-round."

Southwestern Region

PLATINUM CREEK MINE

On July 24, 2009, Victory West Moly Ltd. executed an agreement with XS Platinum Ltd. to acquire all of XSP's shares. According to a July 28, 2009, press release, XSP has "near-term platinum and gold production in Alaska, and plans to be producing and selling platinum and gold by calendar year end." The article highlighted the following items: XSP owns the Platinum Creek Mine in southwestern Alaska, XSP bulk-sampling/test production was planned for August–October 2009, and XSP full-scale production is planned for 2010.

The article states that the Platinum Creek Mine is located near the town of Platinum in southwestern Alaska and consists of 195 placer and hard-rock mining claims that cover more than 3,000 acres running in a north–south direction down the Salmon River valley. The property has an alluvial mining history dating back to the 1920s, with more than 500,000 ounces of platinum produced. XSP believes that only a fraction of platinum-group metals and gold available

were recovered by previous mining methods and plans to optimize recoveries using alternate, but conventional, modern-day mining and recovery methods.

The 2009 test production of gold and platinum was planned to utilize a small area of the existing tailings stockpile.

Southeastern Region

GREENS CREEK MINE

Greens Creek Mine is the fifth largest silver mine in the world. Hecla Mining Co. owned 29.7 percent interest in Greens Creek through April 16, 2008, and 100 percent interest thereafter. Greens Creek Mine is a polymetallic, volcanogenic massive sulfide deposit; it produces a silver-gold doré and sulfide concentrates containing zinc and lead.

Production at Greens Creek Mine was higher in 2009 than in 2008, primarily due to increased mill throughput. Average prices for silver, lead, and zinc were lower in 2009 compared with 2008, while gold prices were higher. Metal prices improved throughout the year and were strongest in the fourth quarter of 2009.

Mill throughput at Greens Creek in 2009 averaged 2,167 tons per day in 2009, 8 percent more than in 2008. According to Hecla, the mine produced 7.5 million ounces of silver in 2009, at an average total cash cost per ounce of \$0.35, compared to a pro-forma production of 7.1 million ounces of silver at an average total cash cost per ounce of \$3.29 in 2008. This compares to silver production of 7.1 million ounces in 2009. Hecla attributes the decrease in cash costs in 2009 compared with 2008 to the result of increased mill throughput, increased availability and use of hydroelectric power, and lower prices for some consumable products, primarily diesel fuel.

In 2009, the mine also produced 67,278 ounces of gold, 70,379 tons of zinc, and 22,253 tons of lead. This compares to 2008 production of 67,269 ounces of gold, 58,224 tons of zinc, and 18,562 tons of lead.

Greens Creek manpower numbers for 2009 were 321 persons in production and 85 in development, for a total of 406.

Placer Gold Production

Reported statewide placer gold production to date is incomplete; the final production total is expected to be at least 55,000 ounces, compared with 56,759 ounces of placer gold produced in Alaska in 2008. In preliminary estimates, the Eastern Interior continued to be the highest producing region, with the Western region ranking second, followed by the Southwestern region. The Eastern Interior region produced an estimated 24,368 ounces of placer gold in 2008; preliminary numbers indicate that production may be somewhat less in 2009 than it was in 2008.

Preliminary estimates show 141 placer mines operated in Alaska in 2009 compared to 195 in 2008. The 2009 number may increase somewhat with additional data.

Preliminary estimates of total employment in the placer industry in 2009 amount to 249, including recreational-sized operations, compared with approximately 312 full-time equivalent employees in 2008. The 2009 employment numbers may also increase somewhat with additional data.

Recreational Mining

Recreational mining continues to attract attention as the price of gold appreciates. Production allocated to recreational mining was 286 ounces for 2009 compared to 368 ounces for 2008. Employment allocated to this sector was 22 full-time-equivalent employees in 2009 compared to 30 in 2008. These numbers may change somewhat with additional data.

Rock, Sand, and Gravel

The nonmetallic (rock, sand, gravel, and peat) sector suffered what appears to be a loss of production during the year, but it is likely primarily due to reporting shortfalls. The value of the sector for 2009 is currently estimated to be \$36.7 million compared to a value of \$112.9 million in 2008. Employment in 2009 is preliminarily estimated to be 234, compared with a final estimate of 377 in 2008.

Preliminary 2009 sand and gravel production amounts to 3.7 million tons of sand and gravel produced by approximately 196 full-time-equivalent employees compared with final 2008 sand and gravel production estimate of 12.46 million tons produced by 277 employees. Preliminary 2009 rock production reports are 547,204 tons produced by 31 employees compared to final 2009 rock production reports of 2.47 million tons produced by 93 employees. Reporting shortfalls for both sand and gravel production and for rock production are noted.

In 2009, preliminary peat production estimates are approximately 237,560 cubic yards for the year, produced by 7 employees, compared with 2008 production of 83,789 cubic yards produced by 7 employees. There are reporting shortfalls in this category.

There are obvious reporting shortfalls in these sectors, and continued efforts to obtain reports should increase the 2009 numbers to some extent.

GOVERNMENT ACTIONS

On August 25, 2009, Alaska Industrial Development and Export Authority (AIDEA) announced that the AIDEA Board had approved the execution of a new Asset Purchase and Sale Agreement that would continue the sale and transfer of the Healy Clean Coal Project (HCCP) to Tri-Valley Electric Cooperative (Tri-VEC), a wholly-owned subsidiary of Golden Valley Electric Association. The new agreement terminated the February 13, 2009 Asset Purchase and Sale Agreement (which included Homer Electric Association's participation) upon execution of the new agreement.

In November 2009, State of Alaska Department of Natural Resources presented its 2009 Annual Reclamation Awards for exceptional mine reclamation to Sheldon Maier, who operates a placer mine on Montana Creek in the Fortymile District; to Eric Pyne, who operates a placer mine on California Creek in the Koyukuk District; and to Usibelli Coal Mine, Inc., for its work in Gold Run Pass and the Hoseanna Creek valley in the Healy area.

On December 9, 2009, Zazu Metals Corp. announced that the AIDEA had approved a cost reimbursement agreement with Zazu that would enable AIDEA to initiate due diligence on the proposed expansion of the De Long Mountain Transportation System. This proposed expansion would facilitate both the development of the Lik zinc-lead-silver deposit and handle future concentrate production from the deposit. Under the terms of the agreement, Zazu will reimburse AIDEA for AIDEA's cost of conducting certain prefeasibility activities as part of its evaluation of its possible role in the financing of a spur road connecting the Lik deposit to the DMTS and the financing of additional storage and handling facilities at the port.

On December 15, 2009, the State of Alaska issued a certification of Red Dog's National Pollutant Discharge Elimination System Permit ("NPDES Permit"), the mine's water discharge permit. The NPDES Permit is issued by the U.S. Environmental Protection Agency (EPA) and certified by the State under Section 401 of the U.S. Clean Water Act. Other State and local permits required for the development of Aqqaluk were received in December 2009.



Alaska Department of

NATURAL RESOURCES

DEPARTMENT OF NATURAL RESOURCES

Division of Geological & Geophysical Surveys

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DEPARTMENT OF COMMERCE, COMMUNITY & ECONOMIC DEVELOPMENT

Office of Economic Development

<http://www.commerce.state.ak.us/oed/minerals/mining.htm>

