MINING

A SOCIAL LICENSE TO OPERATE

ABSTRACTS

ALASKA MINERS ASSOCIATION
2007 ANNUAL CONVENTION

November 5 - 11, 2007
Sheraton Anchorage Hotel
Anchorage, Alaska

The Alaska Miners Association thanks the following individuals for their efforts in the production of the 2007 convention.

Convention Committee:

Convention Chairman:	**Kevin P. Adler**, On-Line Exploration Services, Inc.
Short Courses:	**Jeanine Schmidt**, U.S. Geological Survey
	Shawn Florio, HDR Alaska
Program:	**Steve Teller**, Tundra Consulting
Arrangements:	**Lynda Mitchell**
	Elaine Nisson, Northern Air Cargo
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Trade Show:	**Sharon Cox**, Alaska Miners Association
History Night:	**Chuck Hawley**, Hawley Resource Group
Abstracts & Programs:	**Holly Morris**, Michael L. Foster & Associates, Inc.
Rock & Mineral Show:	**Cara Wright**, Nanook Resources
	Anita Williams, NANA Major Drilling LLC
Special Projects:	**Dale Carlson**, Construction Machinery Industrial, LLC
	Kim Griffith, Alaska Miners Association
	Steve Borell, Alaska Miners Association

ALASKA MINERS ASSOCIATION
3305 Arctic Boulevard, Suite105
Anchorage, Alaska 99503

Phone: 907 - 563-9229
Fax: 907 - 563-9225

Email : ama@alaskaminers.org
www.alaskaminers.org

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MC: **Mary Nordale**

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Short Courses

Monday and Tuesday, November 5 and 6, 2007, 8:30 a.m. - 5:00 p.m.

APPLICATION OF HEAVY MINERAL METHODS IN STREAM SEDIMENT AND TILL TO EXPLORATION

Course Instructor:
Dr. Harvey Thorleifson, *Director, Minnesota Geological Survey*

This course will review basic principles and recent developments in heavy-mineral-based mineral exploration methods using a combination of presentations and hands-on exercises. It will describe methods useful in gold, precious metal, base metal, platinum-group-element and diamond exploration, as well as principles useful in design of broad regional surveys.

Heavy minerals are those with specific gravities (densities) greater than approximately 3.0. Indicator mineral methods involve tracing material dispersed by mechanical processes (e.g. wind or water erosion, slope failure, ice transport) from an originally concentrated source (orebody). The indicator and its source define a vector of transport, and an understanding of transport and subsequent weathering mechanisms allows tracking back (exploration) from the indicator to its source.

The course will discuss survey design and appropriate sampling methods for alluvial and glacial deposits under northern climate conditions. Sample processing, mineral separation, quality assurance/ quality control measures, mineral identification, and related, useful geochemical analyses and mineral chemistry methods will be described. Methods for upstream and up-ice follow up from initial mineral identification will be discussed as part of an overall exploration strategy.

Gold identification and grain counts are a primary means of exploration for precious metal deposits. Kimberlite indicator minerals (KIM) include chrome-bearing pyropic garnets, chrome-bearing diopsidic pyroxene, olivine, chromite, and magnesian ilmenite. Indicators of Ni-Cu and /or PGE mineralization include enstatite orthopyroxene, chrome-bearing diopside, chrome-bearing andraditic or grossularitic garnet, spinel as well as unstable sulfides and arsenides.

Tuesday, November 6, 2007, 8:30 a.m. - 5:00 p.m.

CURRENT PRACTICE IN ACID ROCK DRAINAGE PREDICTION

Course Instructor:
Stephen Day, P.Geo., *Principal Geochemist, SRK Consulting Ltd.*

Acid rock drainage (ARD) and the associated process of metal leaching (ML) can be important considerations at any construction project where rock is exposed to flowing water and are commonly significant issues when building and remediating mine sites. Historically, acidity was the main concern in mine effluents because it is usually associated with elevated and typically toxic metal concentrations, and results in visual and physical impacts due to fouling of aquatic habitat.

However, in recent years decreasing water quality standards and requirement for non-degradation of water resources has led to a much broader focus on regulated parameters that can leach from mineral wastes under any conditions. These include well known heavy metal contaminants that require acidic conditions to be mobilized from wastes, to elements such as arsenic, molybdenum and selenium which can leach significantly under non-acidic conditions and sulfate which invariably leaches when heavy element sulfide minerals are present. Prediction of these effects has become an essential part of project planning.

This short course will provide an introduction to the methods available to predict the reactivity of rock and the chemistry of drainage in contact with rock, and the use of the results to identify technologies to address ML/ARD. It places considerable emphasis on understanding the processes that result in ML/ARD so that appropriate testing methods are applied and a “cookbook” type of approach to characterization is avoided.

The presentations are designed mainly for engineers and geoscientists working in the mining, transportation and utility industries and there is no requirement for a strong background in mining, geology or chemistry. The seminar is intended to be interactive. Participants are invited to come prepared with any questions or ideas that will help to illustrate the points for the other attendees as the day progresses. Presentation materials will be provided as printouts of slides.

The short course will begin with a brief overview of the settings in which ML/ARD occurs including non-mining environments such as highway construction. The regulatory environment will then be summarized which will include a list of guidance documents. Next, participants will be provided with a refresher on chemistry principals including understanding the difference between pH, acidity and alkalinity, the meaning of “buffer”, processes that affect contaminant mobility and the differences in behavior of different types of contaminants. This will be followed by an introduction to mineralogy and geology, including the main minerals involved in ML/ARD processes and the importance of differences in mineral reactivity. This module will conclude with a hands-on session in which attendees will be able to examine mineral specimens and test their ability to recognize iron pyrite.

Building on these principals, the factors involved in generation of ML/ARD and how these relate to application of remedial technologies will be explained. This will lead directly into a presentation on how

these considerations affect the type of information needed from a prediction program and consequently the design of the program and selection of appropriate test procedures. The principals involved in designing an initial “screening program” will be explained to illustrate the points. The complexities of designing large prediction programs will not be presented due to time limitations.

Chemical test methods will be explained along with the limitations inherent in the procedures. The presentations will focus on “static” methods which attempt to predict potential for ML/ARD since these types of methods are most likely to be encountered by attendees. The more specialized “kinetic” methods, which measure rates of

weathering and leaching will also be described but in less detail. Basic interpretation tools for these methods will be provided.

The short course will finish with a simple fictitious case history for which participants will break into small teams. Each team will be provided with the same background materials on construction of a proposed road through a sensitive watershed with a variety of different rock types. The challenge is to review the information provided and come up with a field and laboratory program that provides feedback to the engineers on the potential issues associated with the proposed alignment. Data will be provided based on requests from the teams. No prizes will be awarded, just bragging rights for which team shows the best understanding of the methods learned through the day.

Session 1 - Tuesday, November 6, 2007, 2:00 p.m. - 4:00 p.m. or
Session 2 - Wednesday, November 7, 2007, 2:00 p.m. - 4:00 p.m. or
Session 3 - Thursday, November 8, 2007, 2:00 p.m. - 4:00 p.m.

PROPERLY FILING MINING LICENSE TAX AND STATE ROYALTY

Course Instructors:
Johanna Bales, *Alaska Department of Revenue*
Rick Fredericksen, *Alaska Department of Natural Resources*

The course is intended primarily for placer operators and small miners as well as their bookkeepers and accountants. Representatives from DOR and DNR will teach the course and be available after each session to answer questions or arrange for private meetings at a later date.
This course will provide a comprehensive guide to completing both the **mining license return** and **production royalty return**. Course topics will include:

When is a permit required from DNR?
When is a mining license required from DOR?
Who must possess a mining license?
What are the penalties for mining without the required permit or license?
Who must file a mining license tax return?
How do I calculate mining net income and mining license tax?
How do I calculate depletion?
What mining expenses are allowed?
Who must file a production royalty return?
How do I calculate the production royalty?
When are the mining license tax and production royalty returns and payment due?
What are the penalties for failing to pay the tax or royalty?
What books and records am I required to maintain?

If you are unable to attend one of the sessions, you may still contact the Department of Revenue, Tax Division at (907) 269-6620 and the Department of Natural Resources, Division of Mining, Land, and Water at (907) 269-8652 regarding filing these returns.

Saturday, November 10, 2007, 8:00 a.m. - 5:00 p.m.

MSHA SURFACE REFRESHER

Course Instructor:
Sam Reves, *Mining and Petroleum Training Service*

This course covers the annual refresher for surface mine operations, including first aid and safety training as required by the Federal Mine Safety and Health Administration. A surface refresher training certificate is issued at the completion of this course.

Student Poster Session

Wednesday, November 7, 2007, 8:00 a.m. - 5:00 p.m.

CALISTA'S GEOLOGIC MAPS: FROM ARCHIVE TO AVAILABLE IN GIS

Halena Cogan

University of Alaska Anchorage, and Calista Corporation

ENVIRONMENTAL GEOCHEMISTRY OF TRACE METALS ASSOCIATED WITH ABANDONED GOLD MINE ON UNGA ISLAND, ALASKA

Amanda Chriest

University of Alaska Anchorage

Technical Sessions

Wednesday, November 7, 2007, 8:00 - 11:00 a.m.

AGENCY GEOLOGIC INVESTIGATIONS

Session Chair:
Jeanine Schmidt, *U.S. Geological Survey*

PRELIMINARY INTERPRETATIONS OF THE 2007 BONNIFIELD GEOPHYSICAL DATA, PART OF DGGS's AIRBORNE GEOPHYSICAL/GEOLOGICAL MINERAL INVENTORY PROGRAM

Laurel E. Burns[1], Rainer J. Newberry[2], Melanie B. Werdon[1], Larry K. Freeman[1], Jen E. Athey[1], and David Szumigala[1]

[1]Alaska Division of Geological & Geophysical Surveys; [2]University of Alaska

The Bonnifield district contains numerous base metal sulfide prospects, plutonic gold prospects, and gold placers. The district extends approximately 40 miles across the north flank of the Alaska Range, and is at the western end of a discontinuous belt of massive sulfide-hosting rocks that extends into Canada. The Alaska Division of Geophysical & Geological Surveys (DGGS) recently acquired and released helicopter-flown, ¼-mile-spaced, magnetic and electromagnetic data (Burns et al., 2007) for 613 sq miles of the northern part of the Bonnifield district (fig. 1). These data were merged with DGGS's 'Liberty Bell' geophysical data (ADGGS *et al*., 2002) located just west of the Bonnifield survey.

Approximately 80,000 oz of placer gold has been mined from the region since 1903, with most being mined from the western part of the district. Major lode prospects include the Liberty Bell gold deposit on the western end and the Dry Creek copper-lead-zinc-silver deposits on the eastern end of the survey area. Gold and base-metal (copper-lead-zinc) anomalies and mineral alteration zones occur throughout the Bonnifield tract.

The area is largely composed of three relatively flat-lying metamorphic packages, overlain by Tertiary and Quaternary sediments (Wahrhaftig, 1970). Metamorphic units trend east-west and are exposed such that the oldest metamorphic section, referred to by Wahrhaftig as Cambrian or Paleozoic 'Birch Creek schist' [herein called 'older metamorphic rocks'], is exposed on the south, followed northward by the Paleozoic Keevy Peak Formation, which is generally bounded on the north by the Devonian to Mississippian(?) Totatlanika Schist. All three units contain mineral prospects. Several medium-sized Mesozoic (Cretaceous?) and Tertiary plutonic bodies, mapped as granite, granodiorite, and 'andesite' intrude the metamorphic units. Small Tertiary felsite bodies and mafic dikes are locally common.

Several aspects of the geophysical data are consistent with the geologic maps of Wahrhaftig (1970) and Gilbert (1977). The larger Mesozoic (K?) and Tertiary intrusive bodies are uniformly magnetic. Nearby magnetic highs of the same magnitude and similar size in Nenana gravel and alluvium are likely similar, but buried intrusions. Tertiary coal-bearing units are consistently conductive; Nenana gravels are moderately resistive compared to the Tertiary rocks. The older metamorphic unit is typically more magnetic than the Keevy Peak Formation, and most major contacts between them are very near the change in magnetic values.

Many aspects of the geophysical data are inconsistent with existing mapped geology. For example, although 'greenstone' of the Moose Creek Member (Totatlanika Schist) is expected to be magnetic, it corresponds to areas that are not significantly magnetic and are commonly conductive. Several conductive zones occur within the three metamorphic packages, but they are rarely clearly associated with mapped carbonaceous sub-unit boundaries. Additionally, in the southern map area, an east–west-trending series of thin, fairly continuous conductive zones in metamorphic rocks do not correspond to magnetic anomalies or mapped geology. These conductive zones clearly cut across lithologic contacts, and likely represent unmapped faults.

Few faults are currently mapped in the survey area, and as it is located ~15 miles north of the Denali fault, this is highly unlikely. The geophysical data suggest there are two different trends of possible faults along Wood River. Probable dip-slip (left-lateral) fault splays(?) trending from N20E near the south to N40E near the north are suggested by 1) 0.3 miles of offset of several geologic units and coinciding geophysical anomalies; 2) truncation of lithologic units in the Moose Creek Member of the Totatlanika Schist; 3) disruption of some east–west-trending, conductive zones; and 4) offset of the magnetic Coal Creek granite from a similar magnetic anomaly to the northeast. These magnetic anomalies suggest ~2.5 miles of apparent left-lateral, dip-slip motion along a N40E trend. A N45W fault trend is present at the very southern part of the survey area. Here offset of ~5 miles of right-lateral apparent motion is supported by the sharp N45W trend of the magnetic anomaly for the older metamorphic rocks, with a 5 mile break in the magnetic high, and a thin conductive zone coincident for the eastern 3.5 miles with the potential fault.

In order to address geologic-geophysical inconsistencies, DGGS plans to map a portion of the Bonnifield survey area in summer 2008, and has submitted a proposal to request supplemental Federal STATEMAP funding. A geophysical interpretation by Ruth Pritchard of Fugro Airborne Surveys (2007) provides a more detailed discussion of the geophysical anomalies.

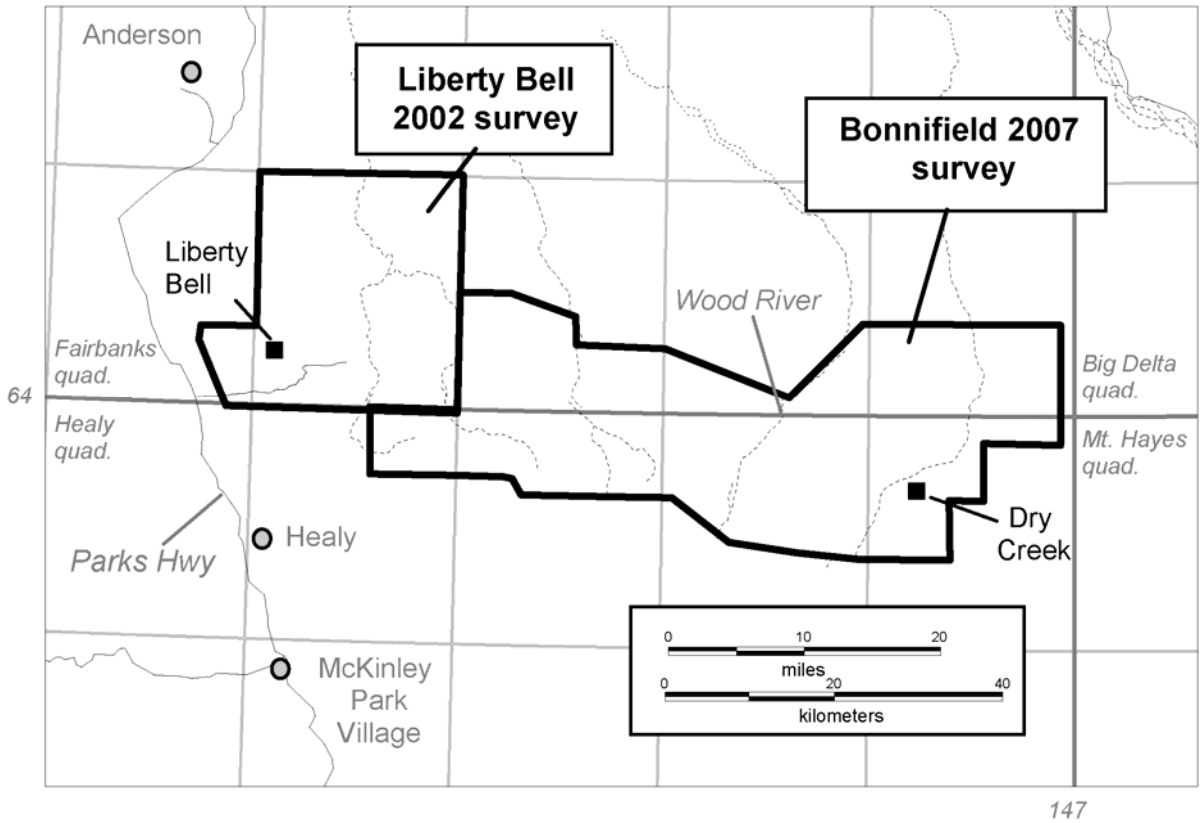

Figure 1: Location of the Liberty Bell and Bonnifield Surveys.

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Gilbert, W.G., 1977, General geology and geochemistry of the Healy D-1 and southern Fairbanks A-1 quadrangles and vicinity, Alaska: Alaska Division of Geological & Geophysical Surveys Alaska Open-File Report 105, 13 p., 2 sheets, scale 1:63,360.

Pritchard, Ruth, 2007, Project Report of the Airborne Geophysical Survey of Parts of the Bonnifield mining district, Interior Alaska: in Secondary release of more Bonnifield mining district geophysical files, L.E. Burns, Fugro Airborne Surveys, and Stevens Management Corp. Alaska Division of Geological & Geophysical Surveys Geophysical Report 2007-2,1 disk.

Wahrhaftig, Clyde, 1970, U.S. Geological Survey Geologic Quadrangle Maps; 1 sheet each, scale 1:63,360. [Geologic map of the Healy D-2 quadrangle, Alaska, GQ-804; Geologic map of the Healy D-3 quadrangle, Alaska, GQ-805; Geologic map of the Healy D-4 quadrangle, Alaska, GQ-806; Geologic map of the Fairbanks A-2 quadrangle, Alaska, GQ-808; Geologic map of the Fairbanks A-3 quadrangle, Alaska, GQ-809; Geologic map of the Fairbanks A-4 Quadrangle, Alaska: GQ-810].

GEOLOGIC MAPPING AND MINERAL INVESTIGATIONS IN THE NORTHERN FAIRBANKS MINING DISTRICT, ALASKA

Jennifer E. Athey[1], Rainer J. Newberry[2], Lawrence K. Freeman[1], Melanie B. Werdon[1], David J. Szumigala[1], and Richard R. Lessard[1]

[1]Alaska Division of Geological & Geophysical Surveys (DGGS)
[2]Dept. of Geology & Geophysics, University of Alaska Fairbanks (UAF)

The State-funded Airborne Geophysical/Geological Mineral Inventory (AGGMI) Program continues to acquire new geophysical and geologic data in Alaska. DGGS's most recent AGGMI efforts to increase the geologic knowledgebase of Alaska include the release of detailed airborne electromagnetic and magnetic geophysical data for the northeast Fairbanks area (Burns et al., 2006). Fieldwork in summer 2007 covered the central portion of the geophysical survey and these data will be released as a 1:50,000-scale geologic map in 2008.

The 2007 field area is 55 direct miles northeast of Fairbanks, straddling the Steese Highway between miles 66 and 85 and covering 188 square miles. The field area is coincident with the northern tip of the Fairbanks mining district, Alaska's largest historic producer at just less than 12.3 million troy ounces of gold (Szumigala and Hughes, 2007). Faith Creek is being actively mined for placer gold, and local creeks are popular with recreational placer miners. This area is on a northeast-oriented trend with plutonic-related gold mineralization in the central Fairbanks mining district and Circle Quadrangle. Placer gold in Faith, McManus, and other creeks is possibly eroded from lode sources associated with altered, variably porphyritic Cretaceous(?) monzogranite, granodiorite, and quartz monzonite bodies (major oxide data; this study). A Tertiary(?) porphyritic granite body also crops out in the northern map area.

Metamorphic rocks in the field area can be differentiated into three coherent packages based on field observations, preliminary lithologic data, and geophysical signature. (1) Occasionally graphitic (generally < 1% carbon), fine-grained quartzite and schist commonly containing quartz and feldspar metaclasts or "grit" (< 70% grit, average 3% grit) generally 2 mm in diameter, but up to 1 cm in diameter. This package is generally conductive and non-magnetic. (2) Calcareous garnet-rich quartzite and schist with arc-related meta-mafic rocks and rare marble. This package is resistive and non-magnetic. (3) Fine-grained quartzite and schist commonly containing quartz and feldspar grit (< 70% grit, average 5% grit) generally 2 mm in diameter, but up to 1 cm in diameter and rare mudstone rip-up clasts. This package is resistive and variably magnetic. Three extension-related metabasalt localities also occur within the map area but are not necessarily related to a specific metamorphic package. All of the units appear to be offset left-laterally (and vertically?) along northeast-trending, high-angle faults.

We are currently assessing possible correlations between the rocks in the field area and regional metamorphic assemblages including the Fairbanks Schist, Chatanika terrane, Cleary sequence, and other nearby packages such as the Wickersham Grit. Preliminary data indicate that the previously mapped Chatanika terrane eclogite-facies schist and quartzite along the Steese Highway (Foster et al., 1983) may instead be amphibolite facies. Further, the abundance of grit-bearing quartzite and schist and arc-related meta-mafic rocks in areas previously mapped as Fairbanks Schist (Foster et al., 1983) does not correlate well with the Fairbanks Schist as described in Newberry et al., 1996. We intend to complete our study of the area, not only with a map and detailed unit descriptions, but also with a more comprehensive understanding of Interior Alaska geology.

References

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Foster, H.L., Laird, Jo, Keith, T.E.C., Cushing, G.W., and Menzie, D.W., 1983, Preliminary geologic map of the Circle Quadrangle, Alaska: U.S. Geological Survey Open-File Report 83-170-A, 30 p., 1 sheet, scale 1:250,000.

Newberry, R.J., Bundtzen, T.K., Clautice, K.H., Combellick, R.A., Douglas, Tom, Laird, G.M., Liss, S.A., Pinney, D.S., Reifenstuhl, R.R., and Solie, D.N., 1996, Preliminary geologic map of the Fairbanks mining district, Alaska: Alaska Division of Geological & Geophysical Surveys Public Data File 96-16, 17 p., 2 sheets, scale 1:63,360.

Szumigala, D.J., and Hughes, R.A., 2007, Alaska's Mineral Industry 2006: Alaska Division of Geological & Geophysical Surveys, Special Report 61, 91 p.

NEW GEOLOGIC MAPS FOR ALASKA – A DIGITAL APPROACH

Frederic H. Wilson and Chad P. Hults

USGS Alaska Science Center, Geology Office, 4200 University Drive, Anchorage AK, 99508 (907) 786-7448, fwilson@usgs.gov

In 1997, the USGS began a Nationwide effort to digitally capture the geology of each state, generally using existing printed state maps. The initial goal of the National project was to create uniform digital databases for each state that would allow uniform search criteria and would allow users to create maps or perform analysis that combine multiple states. Included in these databases would be geologic map data, aeromagnetic data, regional stream-sediment geochemical samples, and mineral deposit descriptions. State maps in the conterminous U.S. were generally printed at a scale of roughly 1:500,000, while the existing Alaska state map was printed at a scale of 1:2,500,000. We therefore made a case for a new compilation of Alaskan geology at the 1:500,000 scale. In Alaska we decided to use "tiles" based on 1:250,000-scale quadrangles. These are all structured identically, then

edgematched and geologically correlated to the best of our ability with the data we could obtain. We include published and unpublished sources. Ultimately, we have created databases that contain lithologic and age information as well as abstracted unit descriptions and a source database.

The initial product of this effort, a compilation of a 25 quadrangle block of Interior Alaska was published in 1998 in partnership with the Alaska Department of Natural Resources, Division of Oil and Gas. This map was followed by a map covering the 13 quadrangles of the Alaska Peninsula. Since that time, we have refined and enhanced the database structure, adding extensive new information while maintaining compatibility with and enhancing these previous map products. After a publishing hiatus, we delivered maps for several regions, including: Wrangell-Saint Elias National Park, the Yukon-Koyukuk and Yukon Flats basins, the western Aleutian Islands, the Northern Alaska Peninsula, the lower Yukon River region, and Kodiak Island and vicinity. Other regional maps underway will cover the southern Brooks Range and the Seward Peninsula. Also well along are maps of the Kuskokwim Bay region and Prince William Sound region. We also created a digital version of the previously published Gehrels and Berg (1986) geologic map of southeastern Alaska, backed up by the same attribute databases as the other parts of the state.

This data compilation is also being used as the basis for the U.S. and Alaska contribution to the new 1:5,000,000-scale Circum-Polar Bedrock Geologic Map for the International Polar Year.

We continue to search for and digitally capture the best available and most appropriate-scale mapping. In addition, we continue to enhance the underlying attribute databases by inclusion of lithologic, age, and geologic setting information. Ultimately, we plan to have the entire state available at a nominal 1:250,000/1:500,000 scale in digital form and to produce a new digital and paper state compilation at a smaller scale (1:1,684,000, “Alaska Map B”).

Reference citations and URL’s for published map spatial databases:

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SETTING AND ORIGIN OF BASE-METAL SULFIDE DEPOSITS IN THE NOME GROUP, CENTRAL SEWARD PENINSULA, ALASKA

Till, Alison B., Slack, John F., Ayuso, Robert A., Shanks, Wayne C., III, Dumoulin, Julie A., Amato, Jeffrey M.*, Aleinikoff, John N., and Bleick, Heather A.

*U.S. Geological Survey and *New Mexico State University, Las Cruces*

Most base-metal sulfide deposits on the Seward Peninsula (SP) occur within the regionally extensive metamorphic rocks of the Nome Group. The Nome Group was penetratively deformed and metamorphosed to blueschist and greenschist facies during the Jurassic and Early Cretaceous. Conodont, U-Pb zircon, and detrital zircon data show that protoliths of the Nome Group were predominantly early Paleozoic marine sedimentary rocks and subordinate mafic rocks. Combined lithologic, paleontologic, geochronologic, and geochemical data allow definition of a generalized tectonic setting for the protolith rocks. Pb and Nd isotopic data and the presence of small orthogneiss bodies (669 Ma) indicate that the protoliths were deposited on Proterozoic basement; occurrence of shallow-water Cambrian and Ordovician dolostones is consistent with a continental margin setting. Geochemical characteristics of the mafic rocks (sills, flows) suggest incipient rifting of the margin, probably during the Ordovician. Carbonate and siliciclastic deposition accompanied intrusion and reworking of the mafic rocks; deposition of shallow-water dolostones and carbonate turbidites continued into the Silurian and Devonian. Detrital zircon data indicate that siliciclastic deposition became increasingly dominant in the Devonian.

Three types of base-metal sulfide deposits are hosted in the Nome Group and were affected by the Mesozoic metamorphic events. They include (1) stratiform, deformed, and metamorphosed lenses composed of sphalerite + galena + pyrite ± arsenopyrite ± magnetite ± pyrrhotite ± barite ± carbonates ± fluorite ± quartz ± sulfosalts ± chalcopyrite ± gold in clastic ± carbonate metasedimentary rocks (e.g., Aurora Creek-Christophosen, Wheeler North, Nelson-Mt. Distin, Bluff); (2) discordant to stratabound, deformed and metamorphosed veins of galena + sphalerite + quartz ± fluorite ± sulfosalts ± barite ± gold in clastic ± carbonate metasedimentary rocks (Quarry, Galena); and (3) disseminations of chalcopyrite + pyrite + bornite ± galena ± sulfosalts ± gold in silicified zones within metacarbonate rocks (Copper King, Copper Mountain, Wheeler South). Additional stratabound

mineralization (e.g., Independence and Hannum Creek prospects on eastern and northeastern SP) composed of lenses of galena + sphalerite + pyrite ± arsenopyrite ± chalcopyrite ± sulfosalts ± gold appear to have a carbonate-replacement origin. We focus here on the first two deposit types.

The stratiform, deformed, and metamorphosed sulfide lenses were previously interpreted as epigenetic vein, volcanogenic massive sulfide (VMS), or carbonate-replacement deposits. In contrast, our combined structural, lithologic, isotopic, and petrographic data indicate a sedimentary-exhalative (SEDEX) origin for the stratiform lenses. Barite from these deposits and the deformed Quarry and Galena veins has $\delta^{34}S$ values of 26 to 30 per mil that suggest sulfur derivation from contemporaneous seawater sulfate. Base-metal sulfides in these two deposit types have $\delta^{34}S$ values that range from about 10 to 18 per mil, which are also consistent with a SEDEX origin. The Quarry and Galena veins are clearly pre-metamorphic, and based on mineralogic and sulfur isotope data, appear to represent subsea-floor feeders for the stratiform sulfide lenses. However, lead isotopic compositions of galena from the two deposit types indicate that they had different isotopic sources, hence the Quarry and Galena veins are unlikely to have been feeders for the known stratiform sulfide lenses.

The stratiform lenses at Aurora Creek-Christophosen, Wheeler North, Nelson-Distin, and Bluff appear to be SEDEX-type sulfide deposits that formed during rifting of the continental margin. This rifting event probably occurred in the Middle to Late Devonian, based on the presence of an Early Devonian detrital zircon population in rocks along strike from the Aurora Creek-Christophosen deposit. The deformed vein deposits at Quarry and Galena formed in a seafloor setting, but their age and relationship with the stratiform lenses remain unclear.

BEDROCK GEOLOGIC MAPPING AND MINERAL ASSESSMENT OF THE PROPOSED GAS PIPELINE CORRIDOR FROM DELTA JUNCTION TO DOT LAKE, ALASKA

Melanie B. Werdon[1], Diana N. Solie[1], Rainer J. Newberry[2], Laurel E. Burns[1], Lawrence K. Freeman[1], and Richard R. Lessard[1]

[1]Alaska Division of Geological & Geophysical Surveys (DGGS);
[2]Dept. of Geology & Geophysics, University of Alaska Fairbanks

The purpose of the Alaska Division of Geological & Geophysical Surveys (DGGS) Gas Pipeline Corridor project is to obtain baseline geophysical and geologic information to guide State policy decisions and aid in the design and construction of the proposed gas pipeline; this data will also be useful for future development, such as the proposed Alaska Railroad extension and other public and private development that may occur within this corridor. This abstract summarizes the bedrock mapping and mineral assessment components of the multi-disciplinary Gas Pipeline Corridor project, which also includes surficial geologic mapping, assessments of geologic hazards, and identification of construction material sources. In 2006, as the first phase of this project, DGGS released a State-funded, detailed airborne geophysical survey covering a 16-mile-wide corridor centered on the Alaska Highway, between Delta Junction and the Canadian border (Burns *et al.*, 2006). The geophysical survey consists of magnetic and resistivity data, with the electromagnetic system configured to acquire more information from near-surface materials than typical DGGS geophysical surveys. In 2006 and 2007, DGGS conducted approximately 808 square miles of 1:63,360-scale geologic mapping in a 12-mile-wide corridor between Delta Junction and the eastern border of the Mt. Hayes Quadrangle near Dot Lake.

This region is underlain by Precambrian(?) to Lower Paleozoic, amphibolite-facies, polydeformed, metasedimentary and metaigneous rocks of the Yukon-Tanana Terrane, including paragneiss, quartzite, schist, calc-silicate rock, amphibole-plagioclase gneiss, serpentinite, meta-clinopyroxenite, amphibolite, and orthogneiss. These rocks have been intruded by large, multi-phase, Cretaceous plutonic bodies, which in turn have been cut by felsic

through mafic dikes of Cretaceous to Tertiary(?) age. Feldspar-staining and modal mineral percentage estimates indicate the plutonic rocks are primarily monzogranite and granodiorite, but volumetrically less abundant plutons range from alkali-feldspar granite through diorite. Composite, magnetic plutonic bodies crop out northwest of Lake George; they primarily consist of quartz syenite and syenite, with lesser quartz monzonite, monzonite, and alkali-feldspar syenite. Plutonic and metamorphic rocks in the map area are locally overlain by Tertiary gravel south of the Alaska Highway. Numerous, predominantly northeast-trending high-angle faults cut through rocks in the map area, as well as lesser northwest- and occasional north—south-trending high-angle faults. A distinctive, coarse-grained, megacrystic K-feldspar-porphyritic granitic pluton, of primarily monzogranite composition near Horn Mountain, has been left-laterally offset along a northeast-trending mylonite zone, called the Sand Lake Fault, which forms a prominent linear in both magnetic and resistivity data. Tertiary coal-bearing sedimentary units are in direct contact with this mylonite zone, suggesting later reactivation and up-down motion along this zone.

For the mineral assessment part of this project, we sampled and assayed rocks that have the potential to contain metals of economic interest. These include rocks within fault zones that are cut by chlorite-filled shear veins. In one area southwest of Dot Lake, plutonic rocks are sheared, quartz-veined, sericite-altered, and contain disseminated pyrite. An outcrop north of the Tanana River is cut by an intermediate(?)-composition, fine-grained dike that is spatially associated with quartz + iron oxide + chlorite veins with K-feldspar(?) alteration envelopes within their metamorphic host rocks. Release of the geochemical data is planned for soon after the assays return from the lab, and publication of geologic maps for the Delta Junction to Dot Lake segment of this project is planned for fall 2008. In summer 2008, DGGS plans to continue mapping along the proposed Gas Pipeline Corridor in the segment between Dot Lake and Tok.

References Cited

Burns, L.E., Fugro Airborne Surveys, and Stevens Exploration Management Corp., 2006, Line, grid, and vector data, and plot files for the airborne geophysical survey of the Alaska Highway corridor, east-central Alaska: Alaska Division of Geological & Geophysical Surveys Geophysical Report 2006-6, 1 disk.

Wednesday, November 7, 2007, 12:00 - 1:30 p.m.

LUNCHEON

Speaker: ***Dr. Syun-Ichi Akasofu****, Founding Director*
International Arctic Research Center University of Alaska Fairbanks

GLOBAL WARMING ISSUES FROM THE ARCTIC POINT OF VIEW

The earth experienced the Little Ice Age (LIA), which began about 1400, after the medieval warming period. It is shown that a significant part of the so-called “global warming”, which is in progress at present, is the recovering (namely, warming) from the LIA. It is important to identify natural changes and subtract them from the present warming trend to determine accurately the contribution of human activities to it.

Wednesday, November 7, 2007, 2:00 - 5:00 p.m.

EXPLORATION PROJECT HIGHLIGHTS

Session Chair: ***Curt Freeman****, Avalon Development Corporation*

IN THE HOLE

Curt Freeman

Avalon Development Corporation

SUN IS STILL SUNNY AFTER 25 YEARS

William T. Ellis

Alaska Earth Sciences

History

Modern exploration in the Ambler district began with Rinhart Berg's discovery of Bornite in the late 1950's which was further explored by Bear Creek in the 1960's. The Arctic volcanogenic massive sulfide was discovered by them in 1968 as was mineralization at Picnic Creek just north of the Sun deposit. Chuck Hawley got Sunshine Mining to explore in the Ambler district in 1973 and discovered the Smucker and several other VMS occurrences. I was on Sunshine's exploration team along with Carl Hale and Dick Walters in 1974 when on June 7th. the Sun Deposit was discovered. By 1974 the Ambler district had become the hot exploration area in Alaska with several major mining companies joining in, creating a claim staking rush along with some claim conflicts. By 1975 there were thousands of claims staked and dozens of VMS occurrences had been discovered.

Sunshine mapped, sampled conducted an IP survey and drilled 10 holes in 1974 Which established a strike of ~1 km of the Main Sun deposit. Sunshine also discovered gossan another 1 km to the Southwest and Bear Creek had found mineralization in Picnic Creek over a kilometer to the North. The Sun prospect with a potential strike of over 3 kilometers proved to be a tempting target for a major mining company and Anaconda optioned the property from Sunshine that fall.

Anaconda, Noranda, and Kennecott subsequently drilled an additional 37 holes through 1983 at Sun. Cominco consolidated the property into one ownership in 1985 & 86 and drilled two more holes one of which Madelyn Millholland collared 1 mile west (1.6 km) of Sun SW which also hit three mineralized zones. Cominco sold the Sun property to NorthStar in 1992 which went out of business shortly thereafter and the property was sold in an estate sale. Andover Ventures purchased the property in 2006 and contracted Alaska Earth Sciences to begin exploration in 2007.

Highlights of 2007

Winter mobilization of Fuel and the amazing Cat Skidster with attachments for installation of a new 20-man camp including a 26'/40' core/storage structure and construction of 1500 foot airstrip. Geochemical sampling along the

strike of the mineralization at Sun extended the prospective horizon beyond the 1985 COMINCO hole, and diamond drilling confirmed the presence multiple zones of thick, high-grade, VMS mineralization at Sun. The drilling commenced in late July 2007 utilizing two Boart-Longyear LF 70s to drill a total of 4,496 meters (14,750 feet) of NQ2 core in 20 holes.

Nineteen of the twenty holes encountered mineralized zones ranging from an estimated 1.20 to over 30 meters (over 100') thick, pending geochemical analyses, according to the geologic logs of the core. One hole crossed a fault where the mineralization apparently had been "faulted out." Seven of the holes encountered two mineralized horizons and two more encountered three mineralized zones. The thirty total horizons encountered averaged over 6.5 meters (21 feet) in thickness of massive and semi-massive mineralization. In the southern 500m portion of the main Sun Deposit a fold thickned High-Grade zone occurs which will significantly increase the tonnage potential and grade. A 300m step out to the north of the previously recognized Main Sun deposit intersected a new lower mineral zone named after the Noranda Hot claims. Two holes into this zone intersected 10m to 22m zones of copper rich massive to semi-massive sulfide.

Highlights include Sun 07-10 with an upper 10.94-meter (35.8-foot) intercept of 2.34% copper, 0.77% lead, 5.98% zinc, 68.1 gm/T silver and 0.266 gm/T gold and a lower 5.08-meter (16.7-foot) intercept of 4.34% copper, 0.58% lead, 2.76% zinc, 99.1 gm/T silver and 0.199 gm/T gold.

Copper, lead, zinc, silver and gold analyses for the mineralized intercepts received from the lab to date are included in the table below:

Hole No.	from (m)	to (m)	thickness (m)	Cu (%)	Pb (%)	Zn (%)	Ag (gm/T)	Au (gm/T)
Sun 07-01	**84.50**	**88.55**	**4.05**	**0.70**	**2.60**	**6.00**	**133.0**	**0.273**
Sun 07-02	**136.70**	**139.70**	**3.00**	**7.40**	**2.50**	**7.40**	**182.9**	**0.241**
Sun 07-03	**140.00**	**145.00**	**5.00**	**0.30**	**0.03**	**5.00**	**265.0**	**0.462**
Sun 07-04	**171.00**	**173.74**	**2.74**	**0.14**	**0.27**	**1.02**	**6.2**	**0.059**
Sun 07-05	**165.00**	**167.00**	**2.00**	**0.93**	**0.49**	**1.08**	**29.5**	**0.124**
Sun 07-06	**93.35**	**96.35**	**3.00**	**0.15**	**3.59**	**5.92**	**148.0**	**0.217**
Sun 07-07	**FAULTED**	**HOLE**	**ASSAYS**	**BELOW**				
Sun 07-07	**89.20**	**89.45**	**0.25**	**0.37**	**1.24**	**2.91**	**75.0**	**0.174**
Sun 07-09	**106.30**	**111.40**	**5.10**	**3.10**	**0.68**	**3.85**	**206.9**	**0.929**
Sun 07-10	**83.80**	**94.74**	**10.94**	**2.34**	**0.77**	**5.98**	**68.1**	**0.266**
and	**128.57**	**133.65**	**5.08**	**4.34**	**0.58**	**2.76**	**99.1**	**0.199**
Sun 07-11	**108.80**	**110.80**	**2.00**	**1.17**	**0.04**	**0.22**	**4.9**	**0.251**
and	**168.70**	**173.40**	**4.70**	**0.66**	**1.87**	**8.85**	**64.4**	**0.163**

The 2007 drill program tested approximately 1,400 meters along strike and approximately 250 meters in width of the Main Sun Deposit. The 2007 program includes a 300 meter extension of the main Sun deposit to the north towards the Picnic Creek area.

"After being part of the Sun deposit discovery team in the mid 70's it is very exciting to be managing this project. I am eager to get back to it in the spring of 2008!"

Andover's website is located at www.andoverventures.com.

EXPLORATION SUMMARY OF THE WHISTLER PROJECT

John Lamborn

Geoinformatics Exploration

GEOLOGY AND MINERALIZATION OF THE LIBERTY BELL PROJECT, TINTINA GOLD BELT, ALASKA: AN EXPLORATION UPDATE

Joanna L. Lipske, John T. Galey, Jr., Mark A. Petersen, Joel W. Rotert

Metallica Resources, Inc.

The Liberty Bell project is located 70 air miles southwest of Fairbanks, situated 9 miles east of Ferry in the Tintina Gold Belt, Bonnifield Mining District, Alaska. The property is held 100% by Metallica Resources, Inc. (Metallica) and includes a known gold resource at the historic Liberty Bell mine as well as other untested prospects in the greater project area. Historic data compilation, prospect mapping, and rock chip sampling conducted by Metallica in 2007 have significantly improved our understanding of the geology and mineral potential for the Liberty Bell area.

In the early 1930's, the Liberty Bell mine produced 8,400 ounces of gold from approximately 17,550 tons of ore from a small underground operation on upper Eva Creek. Since 1973, various companies have explored the property with mixed but nevertheless encouraging results. Combined efforts have resulted in the delineation of a gold resource of ~150,000 ounces of gold averaging 0.08 to 0.10 opt in the Liberty Bell mine area. This resource remains open at depth. Regional airborne geophysical surveys conducted by the Alaska Department of Geological and Geophysical Surveys (ADGGS) in 1971 and 2002 indicate a large arcuate-shaped semi-coincident aeromagnetic high / resistivity low that underlies much of the southern part of the project area. This geophysical anomaly has been interpreted to correspond to a largely buried intrusive system that may be the source to gold mineralization in the area.

In the Liberty Bell project area, a complex of reduced Cretaceous-aged granites and granodiorites intrudes Devonian-aged greenschist facies metamorphic rocks belonging to the California Creek member of the Totatlanika schist. All units are overlain by thick accumulations of Tertiary and Quaternary gravels (Warhaftig, 1970, Athey et al., 2006). The granitoid complex appears to have been emplaced along a major inferred ENE-trending right-lateral shear zone that extends from the confluence of Little Moose and Moose Creeks on the west side of the property to the junction of Eva Creek and California Creek on the east; a distance of over 11 kilometers. Deformed rocks at Liberty Bell show both brittle and ductile deformation characteristics that range from cataclastic to ultramylonitic. The earliest deformation features comprise tight NNW- to NNE-trending sheath folds and subsequent broad symmetrical E-W-trending folds. Ductile features are cut and/or offset by later EW-trending and lesser NNW- or NNE-trending brittle faults and fractures.

Both the metamorphic country rocks and the granitoid intrusive rocks are variably affected by hydrothermal alteration throughout the >16 square mile project area. Alteration assemblages include: a) potassic: intense biotitization and sulfidation (pyrrhotite, pyrite, chalcopyrite), b) calc-silicate hornfels: garnet ± actinolite ± sulfides (pyrrhotite, pyrite, chalcopyrite), c) endoskarn: tremolite ± clinozoisite d) silicification as massive granular quartz replacement, and e) phyllic: quartz-sericite-sulfide (pyrite ± arsenopyrite). Pyrrhotite-bearing potassic and calc-silicate alteration are widespread and pervasive, especially along the southern half of the property where the arcuate aeromagnetic anomaly is centered.

Gold is associated with replacement-style mineralization and en echelon/sheeted or stockwork veins within and peripheral to granitoid intrusions. At the Liberty Bell mine, gold occurs with disseminated to massive arsenopyrite, bismuthenite, and kobellite and variable pyrite, chalcopyrite, marcasite, and ullmannite. Mineralization is primarily hosted in a calc-silicate hornfels unit, locally referred to as the Eva Creek Phyllite, and to a lesser extent within foliated granodiorite that underlies the calc-silicate hornfels and which remains open at depth. Vein-controlled mineralization is primarily restricted to granitoid host rocks and occurs in several styles that include quartz-, tourmaline-, pyrite-, and/or arsenopyrite-bearing assemblages. The diverse styles and widespread abundance of gold mineralization and related hydrothermal alteration within what appears to be the top of a much larger intrusive system suggest the Liberty Bell project offers excellent potential for the discovery of a major new gold mine along Alaska's Tintina Gold Belt.

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Yesilyurt, S., 1993, Geology of the Liberty Bell mine Area, Alaska: unpub. M.S. thesis, Oregon State University, 70 p.

INTERNATIONAL TOWER HILL MINES LTD. 2007 EXPLORATION HIGHLIGHTS

Russell Myers, Jeff Pontius and Chris Puchner

TalonGold Alaska Inc.; ithmines.com

Summary

In 2007 International Tower Hill Mines, through its subsidiary TalonGold Alaska Inc. and with the assistance of Northern Associates Inc., continued to drill the Terra and Livengood Projects. The company also made exciting advances on its Chisna (Chistochina area), BMP and South Estelle (SW Alaska Range), and West Tanana projects.

Terra

The Terra Project targets bonanza-grade deep intermediate sulphidation epithermal veins developed in an around 70Ma dioritic intrusions. 11 holes were drilled on the Ben Zone in 2007. Each of them encountered the targeted structure, confirming continuity of the vein and gold grade over a strike of 350m and 300m down dip. The mineralization remains open to the north and at depth. An additional three holes were drilled on the Ice Vein 3 kilometres to the south. The vein was intersected in two holes confirming greater than 100 meters of down dip continuity. The third hole hit high-grade stockwork mineralization in diorite before terminating. Drilling in 2008 will continue to focus on delineating gold mineralization north of the Ben Zone.

Livengood

Mineralization at Livengood consists of disseminated and veinlet mineralization hosted primarily in Devonian sedimentary and volcanic rocks. The mineralization appears to be closely linked to the emplacement of 90Ma intrusive rocks. The system has potential for a large, near surface, low-grade bulk-mineable deposit. 14 holes were completed in 2007 for a total of 4380 meters. 13 of the holes encountered the target Devonian volcanic unit and all

holes encountered significant zones of mineralization. Highlights include the intersection of high-grade sediment-hosted mineralization that resembles Nevada-style bed replacement and the recognition that the pervasively mineralized volcanic sequence can reach thicknesses in excess of 200 meters. Drilling and surface work have now established the presence of the volcanic rocks over an area of at least 1600x400m. A major resource definition program planned for 2008.

Chisna

Surface exploration defined a Cu-Au porphyry system. Mapping delineated significant areas of sodic-calcic and potassic alteration. Soil geochemistry delineated an area of 2km2 with greater than 100ppb gold in soils. Gold mineralization is hosted by narrow high-grade structures and lower-grade sheeted and stockwork veining. Copper mineralization occurs in intrusive breccia in the sodic-calcic alteration and as hairline fractures and A-veins in the potassic zone. An initial drilling program is planned for 2008.

BMP

The BMP project targets copper-silver mineralization hosted in Paleozoic sedimentary rocks in the Farewell district. Much of this mineralization may be related to Cretaceous intrusive rocks in the region; however, shale-hosted copper-silver mineralization might also occur. A very unusual style of skarn mineralization was discovered at the 6120 Prospect where the average grade of 22 outcrop samples collected is 2.1% Copper, 3.1g/t Gold, 30g/t Silver, 0.14% Nickel and 0.06% Cobalt. This area is slated for drilling in 2008.

South Estelle

Surface sampling and mapping confirmed an overall geologic setting (host rocks, grade and structural orientation) similar to the Terra Project, however, the veins appear to be higher temperature.

West Tanana

Drilling discovered moderate grade quartz-arsenopyrite veins and vein breccias beneath a one square kilometer area of anomalous gold in soils. Gold appears to occur in multiple structural settings.

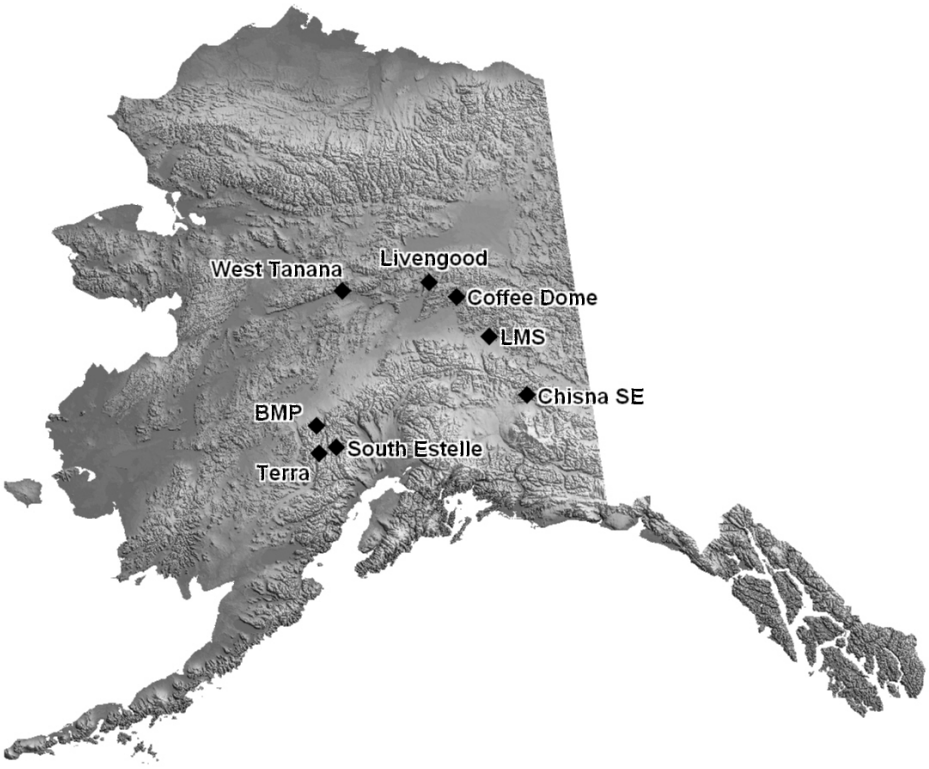

Figure 1: Location of International Tower Hill Mines Ltd. projects in Alaska.

LITTLE SQUAW LODE AND PLACER PROJECT, CHANDALAR DISTRICT, ALASKA

Rodney Blakestad

Little Squaw Gold Mining Company

The Chandalar Mining District is located 200 miles north of Fairbanks, situated on the south flank of the east-central Brooks Range. Placer gold was first reported for the District in 1904. Intermittent mining and prospecting for placer and hardrock gold has been carried out since then, but no modern, systematic exploration of the District has been attempted.

Little Squaw Gold Mining Company (NASDAQ OTC-BB: LITS) commenced claim acquisitions at Chandalar about 50 years ago, and until recently has survived on its royalty income from gold mining. The Company was reorganized in 2003; it now controls approximately 23 square miles of mining claims in the district, including 21 patented federal lode claims and a mill site, and has commenced systematic exploration of the District.

In 2004, Little Squaw Gold commissioned a study of the district mineralization by Pacific Rim Geological Consultants, Inc. Pacific Rim classified the vein systems as low-sulfide, mesothermal, orogenic deposits with large gold resource potential. Their conclusion regarding the placer deposits compares favorably with large glaciofluvial placer deposits elsewhere in Alaska and the Russian Far East. Scoping studies for exploration of the placer and lode deposits and claim consolidation of the District occurred in 2005. In 2006, the Company commenced 7,763 feet (2,366 m) reconnaissance drilling of the lode prospects with 39 RC drill holes, and trench sampling of the placer.

During the 2007 field season, the company drilled 15,550 feet (4,740 m) in 111 reverse-circulation placer drill holes, distributed on 11 drill lines spaced 500 feet apart. Drilling has identified at least 7.5 million cubic yards (cyd) of mineralized material in the Little Squaw Creek drainage. Lateral limits and overall grade of the gold-bearing gravels containing the potentially economic "Pay Horizon" have not been fully delineated and other drainage systems remain to be tested. Additionally, soil and rock geochemical sampling, ground magnetic surveys, geological mapping, and extensive excavator trenching of numerous hardrock targets were accomplished. Results of these activities are described.

2007 MILLROCK ALASKA EXPLORATION SUMMARY

Phil St. George

Millrock Resources Inc.

2007 EXPLORATION AT THE GOLDEN SUMMIT PROJECT, FAIRBANKS DISTRICT, ALASKA

Kristina Walcott

Freegold Ventures Ltd.

BOKAN MOUNTAIN U-REE PROPERTY, SE ALASKA

Harmen Keyser, John McKenney, Alan Morris, and Roger Hulstein

Ucore Uranium Inc.

The Bokan Mountain uranium-rare earth element property is located on southern Prince of Wales Island, 60 km southwest of Ketchikan, Alaska. It is being explored by Landmark Alaska Limited Partnership, a subsidiary of Ucore Uranium Inc.

Uranium mineralization was discovered at Bokan Mountain in 1955. Between 1957 and 1971, mining at the Ross Adams zone yielded 1.3 million pounds of U3O8 at an average grade of 0.76%. Production was from a small open pit and two underground haulage levels, with all of the ore being direct shipped by barge to mills in Washington and Utah. The Ross Adams deposit is the only uranium producer in Alaska.

Bokan Mountain represents an unusual style of uranium mineralization hosted within, or proximal to, a circular Jurassic A-Type peralkaline intrusive complex known as the Bokan Intrusive Complex. The high-level intrusion contains multiple concentrically zoned phases of sodic granites, porphyries, and pegmatites. Aegerine and riebeckite are the dominant ferromagnesian minerals.

A total of 39 uranium-bearing (+/-REE, Th, Nb, Ta, Zr, Be) prospects have been identified at Bokan Mountain. Ore minerals within veinlets, disseminations, and irregular masses were derived from primary magmatic fluids combined with circulating hydrothermal fluids. Of several types of U-Th-REE mineralization, the most important are (1) irregular structurally-controlled pipes, (2) shear zone-related pods or lenses (“veins”) and (3) pegmatitic or felsic dikes. The primary uranium minerals are uraninite and uranothorite, with rare coffinite, gummite, sklowdowskite, and novacekite. In addition to uranium, important concentrations of thorium, niobium, tantalum, beryllium, zirconium and rare earth elements (both light and heavy REE) are present. Niobium and tantalum are present chiefly in euxenite and columbite while REE are contained in thalenite, bastnaesite, xenotime and monazite. Intense wall-rock replacement/alteration by albite, chlorite, calcite, fluorite, and hematite accompanied the ore-forming processes and mineralization.

Precision Geosurveys Inc. flying an airborne geophysical survey at Landmark Alaska's Bokan Mountain U-REE Property on Prince of Wales Island

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2007 EXPLORATION SUMMARY AT THE GOLD HILL MOLYBDENUM PROJECT, VALDEZ CREEK DISTRICT, ALASKA

Clancy Wendt

Max Resources

Thursday, November 8, 2007, 8:00 - 11:00 a.m.

AMA SESSION – ISSUES AFFECTING ALASKA MINERS

Session Chair: ***David Stone****, President, Alaska Miners Association*

YUKON MINING AND EXPLORATION OVERVIEW – 2007

Mike Burke

Yukon Geological Survey

The Yukon Mineral Industry is booming. Mining has returned to the Yukon with the Minto Cu-Au-Ag Mine of Sherwood Copper Corporation reaching commercial production on October 1. Placer Mining continues to be a steady producer of gold in the Territory with production in 2007 predicted to increase slightly over 2006 production of 58,294 crude ounces of gold. Mine development including road construction and site development has begun at the Wolverine Zn-Pb-Cu-Ag-Au deposit of Yukon Zinc Corporation. Final development of the Wolverine deposit will begin with the closing of additional project financing. Exploration expenditures are estimated at Can$140 million with 150 exploration projects including 25 projects spending over Can$1.0 million, 90 projects with expenditures greater than Can$100,000 and 66 projects with drilling programs.

The Carmacks Copper Project of Western Copper Corporation completed a positive feasibility study in the spring of 2007 and has initiated the permitting process. Exploration on the project was directed at further defining and expanding the known Measured and indicated oxide resource of 9.983 Mt of 1.16% Cu, in addition to testing newly discovered areas of mineralization on the property. Other projects which continued mineral exploration and other studies in support of ongoing feasibility studies include Sherwood Copper at the newly discovered Area 2 deposit at the Minto mine (Measured and indicated 7.6 Mt grading 1.26% Cu, 0.48 g/t Au), Tagish Lake Gold at the Skukum Creek Au-Ag deposit (Measured and indicated 800,000 tonnes of 6.78 g/t gold and 248 g/t silver), North American Tungsten at the MacTung deposit (Indicated and inferred 44.3 Mt grading 0.85% WO3), and Yukon-Nevada Gold's Ketza River gold deposit (Measured 1,410,000 tonnes @ 3.54 g/t Au, Indicated 7,130,000 tonnes @ 2.60 g/t Au, Inferred 14,580,000 tonnes @ 2.25 g/t Au).

Exploration has been extremely successful in expanding known deposits such as the Area 2 deposit discovered at the Minto Mine in 2006 in addition to the discovery of new areas containing ore grade intersections such as Area 118 (10.7m grading 1.78% Cu, 0.77 g/t Au) and the Airstrip (3.1m grading 5.75% Cu, 1.77 g/t Au). At the Selwyn Project of Selwyn Resources the company conducted a massive Can$25 million exploration program aimed at further defining and expanding the giant zinc-lead deposit (Indicated 86.6 Mt grading 4.93% Zn, 1.73% Pb, Inferred 215.4 Mt grading 4.71% Zn, 1.48% Pb). The highest grade intersection ever drilled at Selwyn occurred this year in the Don Valley area where DON-074 intersected 4.30 m grading 35.97% Zn, 16.01% Pb.

A wide range of commodities were explored for including copper, zinc/lead, gold, silver, tungsten, molybdenum, nickel and uranium. New discoveries have been made this year in Yukon. Hopefully the assay labs will be caught up with the huge amount of drill core produced by Yukon exploration companies in time for the Alaska Miners Conference and announcements of these discoveries will be public.

THE ENDANGERED SPECIES ACT IN ALASKA-2007

Matthew A. Cronin, Ph.D.

University of Alaska Fairbanks
School of Natural Resources and Agricultural Sciences, Palmer Research Center

The Endangered Species Act (ESA) is one of the most powerful laws in history. Restrictions can be imposed on public and private land where a species listed under the ESA occurs. The negative impacts of the ESA on local economies and U.S. industries and agriculture are well known.

There are many science and management problems with the ESA. For example, scientifically vague groups that are not species (subspecies and populations) can be listed under the ESA making it almost limitless in its application. It is not commonly recognized that these high profile ESA-listed species are only subspecies or populations, and the entire species is not endangered: Northern Spotted Owl and salmon stocks in the Pacific Northwest, Grizzly bear, wolf, and lynx in the lower 48 states, Preble's meadow jumping mouse in Colorado and Wyoming.

Alaska has not experienced the severe level of ESA regulation that the other western states have, but the ESA is expanding in Alaska. The groups under ESA consideration in Alaska are listed below. The pending ESA listing of polar bears is particularly important. First, it is proposing to declare a species as threatened with extinction that currently is not. It is basing the threat on predicted future conditions with loss of summer sea ice habitat due to global warming. This seems unprecedented and could open the ESA to any species that can be subjected to global warming models that predict habitat change. The cause of global warming is thought to be greenhouse gas emissions, so presumably any activity causing emissions anywhere in the U.S. could be subject to ESA regulation. In addition, activity in polar bear habitat in the U.S. (northern Alaska) will be subject to ESA regulation and environmental lawsuits. This could significantly impact oil, gas, and mineral exploration and development in northern Alaska.

The expansion of the ESA increases the role of the federal government and gives environmental groups a powerful tool to stop resource development in Alaska. A return to use of sound science to allow multiple-use of resources in Alaska and other states is needed.

ESA in Alaska

Already Listed

Steller sea lion east stock (population, southeast Alaska north to Yakutat)
Steller sea lion western stock (population, Yakutat-westward)
Sea otter southwest Alaska stock (population, Kodiak to Attu)
Bowhead whale, Finback whale, Humpback whale (species, northern and western Alaska)
Steller's eider (species, northern and western Alaska)
Spectacled Eider (species, northern and western Alaska)
Short tailed albatross (offshore Alaska)
Eskimo curlew (northwest Alaska)
Aleutian shield fern (Aleutian Islands)

Proposed or Pending Listing

Polar bears (species, northern and western Alaska)
Beluga whale (population, Cook Inlet)
Alexander Archipelago wolf (subspecies, southeast Alaska)
Queen Charlotte Goshawk (subspecies, southeast Alaska)
Kittlitz murrelet (southcentral Alaska)
Yellow billed loon (species, North Slope)
Herring, Lynn Canal (population, southeast Alaska)

LARGE MINE PERMITTING IN ALASKA

Tom Crafford

Alaska Department of Natural Resources

The permitting of large mining projects in Alaska involves the complex interplay of numerous state and federal agencies and authorizations that are different for each project. The different roles and responsibilities of the agencies and their sometimes overlapping authorities present challenges to the applicants, public, and regulators. To efficiently manage and conduct the permitting process, the State of Alaska has established a Large Mine Permitting Team (LMPT) consisting of trained and experienced professionals from those state agencies with mine permitting responsibilities. The LMPT's efforts are coordinated by Mining Coordinators within the Alaska Department of Natural Resources (DNR) Office of Project Management and Permitting (OPMP). DNR's coordination of the mine permitting process - which often involves 50 or more permits, approvals and authorizations - stems from its statutorily designated role as the lead state agency for permitting of resource development projects.

For mining projects that involve major federal permits (generally, a Clean Water Act Section 402 wastewater discharge permit from the Environmental Protection Administration (EPA) and a Section 404 wetlands permit from the Army Corps of Engineers (ACOE)) or impacts to federal lands, the permitting timetable is largely controlled by the National Environmental Policy Act (NEPA) process which requires the preparation of either an Environmental Assessment (EA) or, more likely, an Environmental Impact Statement (EIS). While the timetable is highly variable, an EIS often takes about 3 years, in addition to environmental baseline studies. The LMPT strives to integrate and coordinate State permitting requirements with the NEPA process in order to eliminate duplication, consolidate public notice and comment, and present the proposed project as a logical "whole" that can be better understood and evaluated by all parties.

Major State permits typically include a Waste Management Plan (Alaska Dept. of Environmental Conservation (DEC), an Air Quality Permit (DEC), a Section 401 Certification of the federal National Pollution Discharge Elimination System (NPDES) permit (DEC), a Plan of Operations Approval (DNR), a Reclamation and Closure Plan Approval (DNR & DEC), a Fish Passage Permit (DNR Office of Habitat Management and Permitting (OHMP)), and a Dam Safety Permit (DNR). To ensure that necessary environmental obligations can be met if the company is unable to perform them, financial assurance is required for the Waste Management Permit, the Dam Safety Permit, and the Reclamation and Closure Plan. Mine projects are subject to environmental audits every 5 years that evaluate the performance of the operation and update the permit requirements and the financial assurances.

THE ANTI-MINING BALLOT INITIATIVES

Karl Hanneman

TeckCominco

Potential Changes to the Mining Law of 1872

Laura Skaer, Executive Director

Northwest Mining Association

With the introduction of HR 2262, Chairman Rahall has reopened the debate over whether the 1872 Mining Law should be reformed or updated. The Chairman's mark, if enacted into law, likely would end exploration and mining on federal public lands, cause the premature closing of existing mines, export tens of thousands of high paying jobs to other countries and increase America's reliance on foreign sources of minerals. The legislation was marked up in the full Natural Resources Committee on October 23 and is expected to be on the House floor before November 16. Meanwhile, the Senate has held one hearing and is looking to possibly write its own bill. Industry has indicated an interest in working to produce legislation that provides certainty for investment, security of tenure, a fair return to the public and money for historic AML reclamation. This talk will review the key provisions of HR 2262 as voted out of committee, discuss industry's position on various elements of mining law reform and look at what we might expect to happen in 2008.

Thursday, November 8, 2007, 12:00 - 1:30 p.m.

LUNCHEON

Speaker: ***Douglas Silver****, CEO and Chairman,* International Royalty Corporation

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Thursday, November 8, 2007, 2:00 - 5:00 p.m.

ALASKA EXPLORATION PROJECTS

Session Chair: ***Gregory Beischer,*** *Millrock Resources Inc.*

GOING UNDERGROUND AT THE NIBLACK COPPER-ZINC-GOLD-SILVER VOLCANOGENIC MASSIVE SULPHIDE PROJECT, SE ALASKA

Darwin Green

Niblack Mining Corporation

The Niblack Project is located on Prince of Wales Island, southeast Alaska and is favorably situated with year round tidewater access. The property was mined at the turn of the century, and subsequently explored by several companies between the 1970's and 1990's. The project has advanced with each successive phase of exploration, and is host to six known massive sulfide occurrences.

Following a comprehensive permit review process, Niblack Mining Corp. commenced an underground exploration program in September 2007. The underground program, designed to access the deeper extents of the mineralization at Lookout Mountain, will include 6000 feet of development and an initial 20,000 ft of drilling. Underground drilling will focus on expanding the Lookout Zone at depth, as well as testing prospective Lookout stratigraphy on the north limb of a property scale syncline presently inaccessible to drilling from surface.

Mineralization at Niblack is hosted by a thick sequence of rhyolite (referred to as "Lookout Rhyolite") that exhibits widespread hydrothermal alteration. The rhyolite unit yields a zircon U-Pb age of 595 Ma (late pre-Cambrian or earliest Cambrian). Distribution of major massive sulfide occurrences – the historic Niblack mine, Dama zone, Lindsy zone, Trio-Broadgauge zone, Mammoth zone and Lookout zone – is controlled by property scale fold repetition of the Lookout Rhyolite. At the Lookout zone, there is a minimum of three massive sulfide horizons, vertically stacked within a 300 to 500 foot thick section of Lookout Rhyolite. In places, stacked massive sulfide lenses are connected by stringer and disseminated mineralization yielding wide zones of continuous mineralization (e.g. 225.3 feet grading 2.39 g/t gold, 47 g/t silver, 1.67% copper and 4.05% zinc in LO-159). Individual sulfide lenses are typically long linear bodies, and have been traced down plunge for a distance of 1600 feet. The Lookout zone sits on the overturned limb of a large southwest plunging syncline and is modified by parasitic folds that account for variations in the thickness and location of drilled intercepts. Resolution of this structural environment shows mineralization to be more coherent and continuous than previously assumed and that there is excellent potential to significantly expand the existing resource. Of particular interest are high-grade intercepts at depth (e.g. 3.26 g/t gold, 98 g/t silver, 4.52% copper and 16.38% zinc over 14.8 feet in LO-124, one of the deepest intersections drilled to date), which are open down plunge.

Results of recent drilling highlight the gold-rich, high-grade character of mineralization at Niblack. Significant intersections include 27.2 feet grading 16.3 g/t gold, 151 g/t silver, 1.07% copper, and 16.26% zinc in hole LO-168, 16.3 feet grading 9.94 g/t gold, 139 g/t silver, 4.87% copper, and 15.42% zinc in hole LO-189, and 22.2 feet grading 39.27 g/t gold and 284 g/t silver in hole LO-176 (oxide zone).

A new zone discovered in 2006/2007, referred to as the South Lookout Zone (SLZ), highlights the potential for additional discoveries at Niblack. Significant intersections at the SLZ include LO-195, grading 2.24 g/t gold, 53 g/t silver, 6.16% copper, and 8.19% zinc over 21.3 feet, within a wider zone grading 1.37 g/t gold, 34 g/t silver, 3.56% copper, and 3.16% zinc over 61.3 feet. And LO-181 grading 4.68 g/t gold, 126 g/t silver, 5.83% copper, and 6.23% zinc over 49 feet.

PEBBLE PROJECT UPDATE

Stephen Hodgson

Pebble Limited Partnership

GEOLOGY AND GOLD MINERALIZATION AT THE TERRA PROSPECT, SW ALASKA RANGE

Chris Puchner and Russell Myers

TalonGold Alaska Inc

On the Terra property, located nearly 200km west-northwest of Anchorage in the southwestern Alaska Range, high grade (to greater than 200 ppm) gold-mineralized veins crosscut diorite and, to a lesser extent, sedimentary rocks of the Kahiltna flysch terrane, and are locally cut by mafic dikes. The preferred host, perhaps due to a more competent nature, is diorite. A good 40Ar/39Ar interpreted age of 68.0 ± 0.2 ma on biotite from one of these mafic dikes (unpublished data, Layer and Drake, 2005) places a minimum limit on the age of the mineralization and of the host diorite, suggesting that both are linked to the Hartman intrusive suite of Reed and Lanphere (1973).

At least five distinct generations of veining, typically occupying the same structures, are recognized at Terra. Paragenetically early veins, characterized by alternating deposition of light and dark quartz giving them a banded to mottled appearance, are responsible for essentially all of the significant gold mineralization. Trace to 5% arsenopyrite, pyrite, and silver-lead-antimony-copper sulfosalts occur within the banded/mottled veins and in generally narrow (<1m) selvages around them. Sericite-carbonate alteration commonly envelopes mineralized structures, but is absent around rare examples of banded/mottled veins occurring alone, suggesting this alteration is not directly linked to the gold mineralization. Based on vein textures and mineralogy the system can been characterized as a deep intermediate sulfidation epithermal system.

Banded/mottled veins at Terra exhibit two dominant vein orientations: NNW striking with dips ranging from 75 degrees to the northeast through vertical to 60 degrees to the SW and a set with an overall ENE strike and dips generally to the ESE. The NNW-striking orientation is clearly dominant among the thicker (>0.4m veins).

At least five areas of signifcant veining occur along a 5 kilometer-long north-south corridor in, and parallel to, thick (100-800m) diorite dikes. Thus far only one area, Ben's Vein, has been the target of focused drilling. Nineteen drill holes, spaced 50-100m apart indicate vein continuity over an area measuring in excess of 300m by 350m, and indicate continuity of the gold mineralization within the vein at grade thickness products greater than 15 gram-meters over an area larger than 250m by 300m.

Reference Cited

Reed, B.L., Lanphere, M.A., 1973, Alaska-Aleutian batholith-Geochronology, chemistry, and relation to circum-Pacific plutonism: Geological Society of America Bulletin, v. 84, p. 2583-2610

STATUS UPDATE CHUITNA COAL PROJECT

Robert Stiles

DRven Corporation

The Beluga Coal Field of Southcentral Alaska has long been known encompass extensive resources of ultra low sulfur subbituminous coal.

Coal leases in the area were acquired as early as the late 1960's. The 4 blocks of coal leases are held by two entities: Beluga Coal Company (3 non-contiguous lease blocks) and PacRim Coal, LP. (a block of 5 contiguous leases).

Exploration and pre construction development efforts date back to the 1970's. In 1990 a Final EIS was published, NPDES permits issued and an ASCMCRA permit approved for development of the Chuitna Coal Mine. Environmental interests challenged approval of the ASCMCRA. The challenge was ultimately resolved in the Alaska Supreme Court, wherein, approval for the Chuitna Coal Mine ASCMCRA permit was upheld, however the court directed that all ancillary developments (roads, terminal, etc.) be permitted under ASCMCRA. At about the same time as the Supreme Court resolution was rendered the Mental Health Trust Litigation was initiated and international coal market prices began to decline. This combination of factors placed severe limitations on the potential effectiveness of any coal marketing efforts. While the Mental Health Trust Litigation was resolved in the mid 1990's, international coal market prices remained depressed until early 2004.

In May 2005, PacRim Coal, LP initiated Phase 0 of a development program with a goal of having all requisite governmental permits, approvals and authorizations in place at the earliest achievable date.

This presentation is an update on the status of the Phase 0 development program.

DONLIN PROJECT UPDATE

James Fueg

Barrick Gold Corporation

Thursday, November 8, 2007, 7:00 - 9:00 p.m.

HISTORY NIGHT

"The Quicksilver Miners"

MC: ***Mary Nordale***

INDUCTIONS INTO THE ALASKA HALL OF FAME: BOB LYMAN, RUSS SCHAEFFER, AND WALLACE CADY

Tom Bundtzen and Charles Hawley

Alaska Mining Hall of Fame

Friday, November 9, 2007, 8:00 - 11:00 a.m.

A SOCIAL LICENSE TO OPERATE

Session Chair: ***Patty Bielawski,*** *Jade North*

OPENING REMARKS

Patty Bielawski

Jade North

ALASKA - WHAT IS DIFFERENT HERE?

John Shively

Holland America (Former Commissioner of Alaska Department of Natural Resources, and formerly with NANA)

Alaska - What is different here? Mr. Shively will present a brief history of how the major land ownership patterns have evolved since statehood and what it might mean to do business with each of the three major land owners in Alaska – the federal government, the state government, and the Native Corporations. He will discuss this issue in the context of the remoteness of much of the state and the issues relating to access across the various land ownership patterns.

He will also discuss the social issues which any developer will face, particularly in the rural areas of the state. Some of these issues include subsistence hunting and fishing, use of local labor and contractors, the relationship with local governments and Tribal governments, and the use of traditional knowledge. The presentation will be designed to help participants, particularly those who might be new to Alaska, to understand some of the unique aspects of completing a successful development project in the state. He will stress the importance of garnering local support for projects as being just as important as assuring the correct engineering for the development. The talk is also designed to set the stage for the remainder of the presentation in the session.

KNOWING WHERE YOU ARE

Ed Fogels

Alaska Department of Natural Resources, Office of Project Management and Permitting

A thorough awareness of "where you are" is critical for anyone starting an exploration program. This awareness is more than simply knowing who owns the land. The explorer must also understand who uses the land, when and how they use it, and how their exploration activities may impact other users.

The explorer must first understand the land ownership of the region they will be working in—not just the land they will be exploring, but also the neighboring lands, and any lands used for access. The Alaska Department of Natural Resources and the US Bureau of Land Management can not only provide accurate land status information, but they will be a valuable source of information to start learning about who uses the land. Next, it is critical to understand the Native interests in your area. The regional Native Corporations and their non-profit arms are a good way to begin gathering this information.

Once the explorer has the big picture of what the land ownership and the resource values are in their area, they must narrow their focus on specific uses. Who are the subsistence users of the area, and what are the subsistence resources that they use? Who are the other public users of the area? Are there commercial recreation, hunting, fishing users of the area? And just remember, no matter how thoroughly you do your homework, there will always be one other interest you missed. So always be on the lookout for this interest as you conduct your program, and be prepared to outreach quickly.

THE PERSPECTIVE OF A HUNTING GUIDE

Bobby Fithian

Big Game Guide and Executive Director, Alaska Professional Hunters Association, and hardrock miner

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AN ALASKA NATIVE PERSPECTIVE

Fred Smith

NANA Development

Premises: That we are an environment, rich in resource potential;

That we have a continuing history where resources have and continue to be mined;

That most large mine developments today are dependent on outside technical, financial, and production equipment;

That we continue to operate within an increasingly complex stakeholder group;

That one of those groups is the Alaska native community.

The Alaska native community has come a long way in a relatively short period of time. We're not far removed from the time my parents and grandparents relied on the fish, game and natural resources to sustain their livelihoods. That was our economy. Our value systems, customs, and thought processes continue to be influenced by that economy.

Today, the Alaska native community sees, experiences, and lives in an environment that has been built on a blend of the western cash economy and the natural resources our grandparents depended on. We maintain strong ties to our native cultures and exercise the values important to sustaining our cultural identities as Inupiaq, Yupik or Athabaskan people.

We, like all of you, having a growing dependence on a cash economy. The infrastructure that improves the, health and safety, raises the quality of life, and provides educational opportunity in Alaska native communities comes with an operating cost. Rural Alaskans need job and economic opportunities. Our leadership at NANA in the late 70's and early 80's recognized that local private sector job opportunities could be realized with Red Dog development. Job opportunities, was one of the primary drivers of Red Dog development.

The topic, "A social license to operate," is fitting given the world wide demand of energy and mineral resources and the extent of exploration activity in Alaska right now. I can't educate you in the next 15 minutes about all you need to know and understand regarding the Alaska native perspective on resource development. It's too complex. If there is one thing I hope you can take away from my discussion, it would be a commitment on your part to take the time to meet and begin to understand the Alaska native people in your area of operation. Without that, you're probably not going to get the permits you need to move from exploration to development.

The Alaska native environment is a complex environment. I'm a tribal member of the Noorvik Native Community, I'm a shareholder of NANA Regional Corporation, I'm a city and borough resident formed under state charter and I'm a ward of Bureau of Indian Affairs stemming from the federal-tribal trust relationship. 60% of Alaska is federal lands, 30% is State lands and 10% is Alaska native lands. That's a complex operating environment.

But that's not the confusing part. For those of you that have come to know and understand us, you can appreciate Alaska natives have genuine respect for, dependence on and continued commitment to protecting our land and

marine environments. Those are values that dictate our thought process. By protecting our language, culture, and access to resources, we protect our identity as Alaska native people. And like you, we have a growing need for economic opportunities and resources to sustain our families and communities. Developing Red Dog was not an easy decision for our shareholders, but it was the right decision. While the prospect has to be economic first, we also have provisions that address training and job opportunities for NANA shareholders and protecting subsistence resources in the area.

MINING AND WATER: STRATEGIC ISSUES AND APPROACHES

Jon Isaacs

URS Corporation

Mining is a fundamental part of the economy and way of life in Alaska. However, the economic, social, and political environment in which mining takes place is rapidly changing, providing opportunities and challenges. Success stories are not being publicized, and there is a perception of mining's legacy of contamination, tailings piles, and a damaged landscape equating to the status quo. Impacts on subsistence, commercial fishing and recreation are an increasing concern, as are cumulative impacts. Regulatory agencies must be mindful of potential litigation when reviewing and approving permits for new mines. Political and legislative initiatives are increasing, and must be strategically addressed. Most of these considerations focus on water.

Water is critical to the success and acceptance of mining operations. Industry needs it for processing ore, tailings disposal, potable water for mine operations, and in some cases, transport of concentrate slurry. Availability and quality of water is also crucial to commercial fishing, subsistence, recreation, and community water supply. As a result, water is a primary concern with regard to new mining proposals, in part due to the history of some early mining activities. This presentation focuses on understanding the issues and stakeholders associated with mining and water, and approaches to cooperatively resolve these issues.

Major issues associated with any mining project include: the quantity of water required for mining and associated activities (surface and subsurface); water availability and season(s) of use; existing water uses; water quality; the availability of water to maintain fish and wildlife habitat (in-stream flow reservation) and provide for human use; and the processes for authorizing water appropriation/water rights.

Water use and discharge is governed by numerous federal, state, and municipal regulations. These include the federal Clean Water Act, several Alaska State Statutes, and local land management regulations. In addition, several pieces of legislation have been introduced in the Alaska legislature associated with mining and water issues, focused on the Pebble Project. Recent litigation such as the 9th Circuit Court of Appeals decision on the Kensington Mine has also raised regulatory questions related to water use and discharge.

There are many stakeholders in the use of water for mining activities. In addition to the mining industry and its contractors, major stakeholders include state, federal, and municipal government; Alaska Natives, including ANCSA corporations and tribal governments; the Alaska commercial fishing industry; tourism operations and recreational users; and non-governmental organizations.

Current mining projects within and outside Alaska have employed a number of best management practices to address the use of water, maintain water quality and ensure in-stream flow for other users. Existing Alaska mines such as Red Dog, Greens Creek, Fort Knox, and Pogo have utilized technologies such as seepage collection dams, water division systems, drystack tailings disposal, geomembrane lined heap leach cells, underground tailings disposal, water treatment and recycling, sentinel wells, and predictive ARD modeling to protect waters of the State. Outside examples from Canada, the lower 48, and South America will also be discussed.

Future mining projects must pursue new technology and work proactively with stakeholders to address the issues associated with mining and water use. Key parameters that require attention include balancing water rights with maintaining in-stream flow for other users; tailings disposal; zero discharge as a goal; and maintaining or improving water quality downstream of mining operations. These challenges can become more acute as the market values for target minerals increase, economically encouraging more complete extraction technologies such as cyanide heap leaching.

ANGLO AMERICAN'S SOCIO ECONOMIC ASSESSMENT TOOLBOX (SEAT)

Jonathan Samuel

Anglo American

Anglo American plc's Socio-Economic Assessment Toolbox (SEAT) forms the centrepiece of Anglo's management of social and community issues at existing operations.

SEAT was launched in 2003 and has subsequently been implemented at more than 55 operations (including forest plantations, paper mills, a sugar estate, smelters, mines, quarries and steelworks) in 16 countries worldwide. To date Anglo American has trained more than 350 personnel in the process, and 24 October 2007 made SEAT publicly available via its website http://www.angloamerican.co.uk/cr/socialresponsibilty/seat/).

SEAT is a seven step process undertaken at all significant Anglo operations every three years. SEAT assessments include steps for: profiling and engaging with host communities; assessing both operational impacts and broader local development needs; formulating and implementing management and monitoring plans; and preparing a short public report on the results of the assessment. The implementation of SEAT at Anglo operations has led to support for a range of social management initiatives, including education, training, community health, infrastructure and local enterprise development projects. SEAT has also improved management of social issues such as housing, transport, HIV/AIDS and recruitment.

During this presentation Jon will give an overview of the SEAT process, and draw attention to key lesson learned by Anglo operations around the world from the first 50 or so implementations.

Friday, November 9, 2007, 12:00 - 1:30 p.m.

LUNCHEON

Speaker: ***Mr. Tom Irwin,*** *Commissioner,* Alaska Department of Natural Resources

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Friday, November 9, 2007, 2:00 - 5:00 p.m.

DEVELOPMENT AND MINE OPERATIONS

Session Chair: ***Clayton Walker,*** *Kennecott Greens Creek*

KENSINGTON GOLD MINE CONSTRUCTION AND ECONOMIC IMPACT UPDATE

Tom Henderson

Coeur Alaska, Inc.

The Kensington Gold Mine is located halfway between Juneau and Skagway Alaska. The mine and mill are essentially complete and have a 10-year mine life. Once in operation, Kensington will provide 200 direct jobs with a $14-million annual payroll and $2-million in annual City and Borough of Juneau tax revenues.

The history of Kensington is long and significant. Although Kensington is currently involved in an injunction regarding handling of treated tailings, the complex is ready to move into the production phase. Coeur has filed a Petition for Rehearing with the 9th Circuit Court and is currently waiting on the decision.

This discussion will present the current project site, a glimpse of previous mining at Kensington, and an overview of the economic benefits an additional operating mine can provide for both Southeast Alaska and Alaskans in general.

APPLYING NEW TECHNOLOGY AT THE GREENS CREEK MINE

Michael Satre, Mine Technical Superintendent

Kennecott Greens Creek Mining Co.

The Greens Creek Mine lies 18 miles south of Juneau, Alaska, near the northern tip of Admiralty Island and within the Admiralty Island National Monument. The mine is operated by a joint venture between Kennecott Minerals (70.27 %) based in Salt Lake City, Utah and Hecla Mining (29.73%) based in Coeur d'Alene, Idaho. Kennecott Minerals is a member of the Rio Tinto Group, one of the worlds leading mining and exploration companies, and as Rio Tinto looks to expand their involvement in underground operations worldwide, the Greens Creek Mine has become a center for underground technological innovation and skill development within the company. The ongoing implementation of new mine planning software systems coupled with significant current and future investments in mine infrastructure and equipment have resulted in significant challenges to the operational and technical staffs within the Mine Department. The procedures developed and the lessons learned while addressing

these issues will be passed on to the rest of the Rio Tinto Group in order to efficiently develop and operate underground mines in the future.

RED DOG MINE AQQALUK EXTENSION PROJECT – ITS SCOPE AND BENEFITS

Rose Barr[1] and Jim Kulas[2]

[1]NANA Development Corporation, [2]Teck Cominco Alaska Incorporated

Red Dog is the worlds largest zinc mine, both in terms of reserves and annual zinc production. The mine is located in northwest Alaska, approximately 100 miles north of the Kotzebue and 50 miles inland from the Chukchi Sea. Red Dog is operated by Teck Cominco Alaska Incorporated (TCAK) under a 1982 Operating Agreement with the NANA Regional Corporation (NANA). NANA is the landowner and TCAK is the operator.

Red Dog is in the process of permitting for the development of the Aqqaluk Deposit. Aqqaluk is situated immediately north of the Main Deposit, production from it will extend the mine life past 2010. A Supplemental Environmental Impact Statement is being developed by EPA.

Red Dog not only benefits its immediate region, its revenue is distributed statewide through several mechanisms and its sizeable volume of zinc concentrate provides stability to the world markets. NANA's revenue is shared under a provision in the Alaska Native Claims Settlement Act and roughly 65% is distributed to other Alaskan Native corporations. Red Dog is also the sole taxpayer for the Northwest Arctic Borough.

ROCK CREEK AND BIG HURRAH

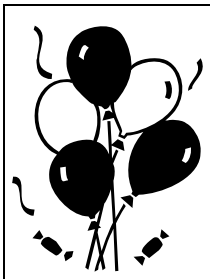
Doug Nicholson

NovaGold Resources, Inc.

FORT KNOX

Larry Radford

Fairbanks Gold



Friday, November 9 - 6:30 p.m.

Miners Banquet

Wednesday, November 7 – 8:00 am to 5:00 pm
Thursday, November 8 – 8:00 am to 5:00 pm
Friday, November 9 – 8:00 am to 2:00 pm

2007 TRADE SHOW

Sheraton Hotel

FREE AND OPEN TO THE PUBLIC

Friday, November 9 – 5:00 pm to 9:00 pm
Saturday, November 10 – 10:00 am to 5:00 pm
Sunday, November 11 – 10:00 am to 5:00 pm

ROCK AND MINERAL SHOW

Sheraton Hotel

FREE AND OPEN TO THE PUBLIC