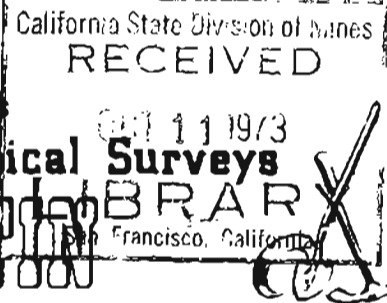




STATE OF ALASKA
Department of Natural Resources

Division of Geological & Geophysical Surveys

MINES BULLETIN



VOL. XXII

October 1973

No. 10

P. O. Box 80007

College, Alaska 99701

Published to Accelerate the Development of the Mining Industry in Alaska

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MINES BUREAU, INDUSTRY TO COOPERATE
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DEPARTMENT OF THE INTERIOR

NEWS RELEASE

(August 30, 1973)

Under a new cooperative agreement, a leading industrial firm will pay the Interior Department's Bureau of Mines for technical advice on the recovery of valuable minerals from municipal wastes.

The firm is Raytheon Service Company of Burlington, Mass., which has a \$3.2 million contract with the city of Lowell, Mass., to design, build and run an incinerator residue recovery plant. The Lowell installation will use a system developed by the Bureau of Mines.

Although the residue from municipal incinerators is commonly buried as landfill, it is actually a "concentrate" of valuable metal and nonmetallic mineral products. Over the past three-and-a-half years, a Bureau pilot plant showed how these values could be recovered for resale and recycling with existing metallurgical techniques.

Under the terms of the cooperative agreement, Raytheon will pay the Bureau \$12,000 and provide people to help keep the pilot plant operating for a year. During this time, the company's engineers will work in the plant with Bureau engineers to test a series of design and operating variables. Tests will also be conducted on actual samples of incinerator residue from the Lowell area, to determine whether their characteristics will require any changes in the flowsheet for the 250-ton-per-day Lowell plant.

The Lowell waste recovery plant is being built under a \$2.4 million grant from the Environmental Protection Agency, plus \$400,000 contributions each from Lowell and the State of Massachusetts. It will be the first in the Nation to use the

2.

Bureau's waste-recovery process, and the only one, anywhere, to treat incinerator residue.

MINING CONGRESS STATES U.S. CAN'T RELY ON IMPORTED RESOURCES
(The Mining Record - August 15, 1973)

WASHINGTON, D.C.-For economic reasons and reasons of national security, the United States can no longer rely so heavily on imported energy resources, the American Mining Congress has warned the Senate Interior Committee.

The warning was made in a statement commenting on S.B. 1283, the National Energy resources to generally meet all of our needs, we do not yet possess the wherewithal to utilize efficiently and economically these resources in an environmentally acceptable manner, the AMC statement said. It added that the crucially needed wherewithal can come from a large-scale research and development effort.

The bill stands out from earlier proposals because of the very large sums of money authorized and the several energy research areas it would involve, the statement said.

It also said the bill wisely emphasizes development of coal, which is the nation's most abundant hydrocarbon resource but which has had only limited research and development of new technology for filling the full range of hydrocarbon uses.

The AMC statement said it is difficult to see how needed industrial participation will be encouraged by a provision of the bill which would provide that any corporation involved in the joint government-industry research fronts shall make available nonexclusive royalty-free rights to the use of any patent obtained in connection with its work.

The AMC expressed concern about considerable federal involvement in the internal decision-making process of private industry and said it strongly opposes entry by the government into substantial competition with private enterprise.

"What the bill should do", the AMC concluded, "is integrate a rather cumbersome and inflexible government structure with the industrial and scientific complex now working in the area. The resulting government involvement must be consistent with and supplement the capabilities of industry within the free-enterprise system."

SILVER SHORTAGE
(The Mining Record - August 15, 1973)

An immense shortage of silver is developing all over the world, according to the latest E. George Schaefer letter. Silver users are dipping into their inventories as more silver is being used than is being mined. Schaefer can't see why the U. S. government put a ceiling price of \$2.716 an ounce on silver because there is no restriction on selling silver to foreigners, who will pay higher prices while U. S. silver users suffer. He notes that Handy & Harman, the world's largest silver dealer, says that Phase IV leaves it unable to sell any silver to U. S. silver users, and concludes:

"The chickens are coming home to roost. For so many years, both the Silver Users Association and the government have said there is plenty of silver. Therefore, the price declined and the silver mining industry has not been able to expand, as needed, for our growing economy. The price of silver has been entirely too low to encourage expansion and exploration of the mines. Now, suddenly, a silver shortage and explosion in price. As I see it, there is plenty of silver to be mined at a much higher price for silver. The same applies to gold. But the government does not want to relax the rules, so shortages and more inflation are most likely to develop in the future.

OCEAN MINERAL PLAN DEVELOPED
(The Mining Record - August 15, 1973)

WASHINGTON - Billionaire Howard Hughes has invested \$250 million in a system to extract minerals from the ocean floor, The Washington Post said.

The newspaper reported that a ship owned by Hughes has left Philadelphia to begin work on scooping up the ocean's huge mineral deposits.

A company spokesman said the system will suck up 5,000 tons of minerals a day, and is more sophisticated than the vacuum or bucket methods others are considering, according to the Post.

The paper said the ship Glomar Explorer was built by Sun Ship Co., behind guarded barricades in Philadelphia.

According to the article Hughes' undersea equipment will circle the ocean bottom like a giant phonograph needle at depths of at least 16,000 feet. The story said small rocks rich in manganese, nickel and copper will be processed underwater and the minerals will then be forced up a pipe by compressed air.

PROPER SAMPLING
THE SMALL MINER

(The Mining Record - July 18, 1973)

(Editor's Note: The following is a series of guest articles submitted to the Mining Record by Arden L. Larson, geologist.)

Perhaps the greatest place for error in mining is in sampling and interpretation of the results. The small miner must be particularly careful to sample properly and use the results in a discretionary manner.

I believe that there are two basic types of sampling. The first type could be called geological sampling, the second we shall call ore evaluation. Confusion of these two types, particularly using geological sampling for ore evaluation has caused much grief in the mining industry, particularly among the small miners and especially in my own experience.

Geological sampling is done by all of us, it is simply picking up a piece of rock and having it assayed to see what it is. The greatest problem with this type of sampling is that it really isn't worth much as far as mining is concerned. Let me give you an example. Last summer I was examining a gold property. I dug around on a muck pile within the mine and found some pieces of very heavy sulfides. I had them assayed and received a result of 5.4 ounces of gold per ton. Of course I was very excited, but now I have a problem. First, the samples were not in place, that is they were loose pieces so I don't know where they came from. Secondly, they don't look like anything else in the mine so they could have been planted there. Third, the winze that they may have come out of is caved in so I can't crawl down it and take a look.

You may ask why even take a sample like this? I certainly can't state that the ore contains this much gold. I didn't sample the ore, I sampled a piece of loose material in the mine. Many prospectors that I have met would say that the ore contains 5.4 ounces of gold. This is a grave mistake. You are telling someone that one sample represents all of the ore. In the first place you don't know if there is any ore. In the second place you didn't sample the ore but assumed that the piece came from the ore. Well then, if you can't use this result for ore evaluation, why even take it? The one thing that I did learn from this assay was that there might be gold in the mine and that it might be rich ore. Thus I am justified in spending more time and money in studying the property in a little more detail.

This then is the real value of geological sampling. It tells you that a metal is present and that it might be ore grade. Then you can afford to put a little more effort into examining the area because your chances of finding an ore body are improved.

Sampling for ore evaluation is much different than just picking up a rock. It is also more expensive and thus should be carefully supervised or done yourself so that you have confidence in the results. An example of what can happen occurred several years ago. A major mining company was drilling a property for copper. They kept receiving very encouraging results so they kept putting in more money to drill more holes. Someone in the company became quite interested in the results and began to investigate. Much to his horror he found out that the drillers were doing the sampling of the core. Having no instructions, they were picking out the pretty pieces of chalcopyrite for the sample. When the sampling was done properly, the grade of copper in the samples was cut drastically and the project was abandoned.

The small miner really has a problem in sampling for ore evaluation. It is hard work, costly, and time consuming. He must take enough samples that really represent the average ore to be sure that when he has mined the ore that the grade was really there and that he made money. Basically the objective in this sampling is to take carefully controlled samples that could be duplicated and that will show the true character of the ore.

The other day I sampled a barite vein. (Incidentally, this vein could be traced by the prairie dog holes along it!) This vein was actually mined for barite so it was quite well exposed. I could have taken several chip samples or channel samples across the width of the vein. However, my interest was to determine the average grade and milling characteristics of the ore. So I took a barrel full of material remaining after the early miners had hand sorted the high grade barite pieces out of the vein matter. Thus, I intentionally got a sample that is most probably lower grade than the vein average. However, it is very representative of the vein because all of the matter removed was sorted at this one spot. This is a conservative method of sampling but we small miners can't afford to make mistakes.

The problems involved in sampling are really numerous. If you are taking a channel sample, it is very easy to take too much of the soft material and not enough of the hard material. The same holds true for chip sampling, the taking of a number of chips across a sample width. You may have such erratic results that you have no confidence in them. I suppose that you can never take too many samples or, to put it another way, enough samples.

On the other hand, I know of one company with a large low grade silver deposit. They have drilled it several times on different spacings of drill holes, each time closer together. They even mined four thousand tons of material to obtain a bulk sample. Each time they sample the property and place the results into a computer, the computer tells them that the samples are too erratic and to collect more. Yet, the average value of the data has not changed from one set of drilling to the other. On the one hand you feel foolish to keep drilling and coming up with the same answer, but then on the other hand a five million dollar mine and mill outlay deserves plenty of assurance that the ore is really there.

So, how can the small miner really be sure that he has an ore body? The first thing he can do is to take a great number of small chips all over his ore. These can all be combined and then sent in as one assay. Thus, you have an average of all of these chips. If this average really represents the ore, you should be able to duplicate your results by repeating the process. If your results are quite close, then for the cost of two assays you have effectively sampled your ore. If the results are widely different, it will be necessary to take a larger number of samples until your results are reproducible.

I am in process of sampling a mine dump for possible processing for silver through my mill. The procedure that I am following is this. First, we lay out a grid with a fifty foot tape. At each intersection we take a five gallon pail full of material with a shovel, no selecting allowed. Then, I will combine all of these pails into a mill test. I will sample the mill material which will give me an average value for the surface of the dump. If the dump were not so small, I would use an auger to take each sample. Thus I would have a sample all of the way through the dump, not just on the surface.

Now, there is a gray area between geological sampling and ore evaluation. I made a serious mistake in using results of twenty geological samples and old reports for ore evaluation. I built a mill on this data only to find out later through a detailed auger drilling program that my ore grade is only half of what I thought it was. Don't make that mistake, it's too hard to live with.

Of course it is up to each individual to collect his own samples. Don't take someone else's data as valid until you have checked some of his samples by taking your own in the same place. It isn't that a person is dishonest, there are just too many places for error in sampling. Errors also occur in assaying, don't do your own work if you want someone to believe your results. Let an independent assayer do the work as he has nothing to gain but his profit on the work. There are many good assayers around; personally I use Skyline Labs of Wheatridge, Colorado. I know the people there and have complete confidence in their work. They have developed new techniques for platinum and gold and are generally priced right for the small miner.

In summary, distinguish between the types of sampling you are doing, do it carefully, do it so it can be duplicated, take large samples, use a reliable assayer, and above all use the results of the sampling in the proper manner.

MINING CLAIMS

Number of Claims	Creek or area	Quadrangle	Date Posted
47	Kogoluktuk River	Ambler River	June, July 1973
101	Kalurivik Creek	Ambler River	Aug. 1973
2	Craigie Creek	Anchorage	June 1973
4	Squaw Creek	Anchorage	June 1973
4	Little Susitna	Anchorage	Feb. 1973
9	Separation Creek	Anchorage	Apr., June 1973
21	Grasshopper Valley	Anchorage	May 1973
12	Macklin Creek	Bendeleben	June 1973
36	Gold Run Creek	Candle	June 1973
3	Reds Lake	Chandalar	June 1973
1	N. Fork Chandalar	Chandalar	June 1973
5	Big Lake	Chandalar	March 1973
20	Little Squaw, Tobin	Chandalar	July 1973
2	Ptarmigan Gulch	Circle	July 1973
3	Mastadon Creek	Circle	May 1973
25	Preacher Creek	Circle	July 1973
6	Golddust Creek	Circle	Feb., June 1973
5	Chena River	Circle	Feb., June 1973

MINING CLAIMS

Number of Claims	Creek or area	Quadrangle	Date Posted
1	Miller Fork	Circle	April 1973
2	Mastodon Fork	Circle	April 1973
3	Deadwood Creek	Circle	May 1973
9	Greenhorn Creek	Circle	May 1973
1	Boulder Creek	Circle	May 1973
4	Mammoth Creek	Circle	June 1973
2	Switch Creek	Circle	June 1973
24	Copper Lake	Dixon Entrance	March 1973
2	Little Daykoo	Dixon Entrance	Feb 1973
16	Atwater Creek	Eagle	June 1973
12	South Fork	Eagle	June 1973
9	Canyon Creek	Eagle	June 1973
4	Younger Creek	Eagle	July 1973
2	Roker Creek	Eagle	June 1973
1	Fortymile River	Eagle	May 1973
6	American Creek	Eagle	May 1973
1	Gay Gulch	Fairbanks	July 1973
4	Gold Run	Fairbanks	June 1973
4	Daniels & Buzzard	Fairbanks	June 1973
8	Ester Dome	Fairbanks	March, Apr 1973
1	Gilmore Trail	Fairbanks	June 1973
7	Eva Creek drainage	Fairbanks	Feb., March 1973
3	Ester & Ready Bullion	Fairbanks	April 1973
1	Goldstream	Fairbanks	May 1973
17	Valdez Creek	Healy	June 1973
9	Copeland Creek	Healy	May 1973
5	Valdez Creek bench	Healy	May 1973
10	Canyon Creek	Healy	May 1973
200	Shotgun Creek	Healy	June 1973
22	McCallie Creek	Healy	May 1973
3	Blank Inlet	Ketchikan	June 1973
1	Nelson Cove	Ketchikan	April 1973
6	Walker Cove	Ketchikan	May 1973
4	Trail Creek	McCarthy	March 1973
49	W. Fork Chistochina	Mt. Hayes	June 1973
50	Chistochina River	Mt. Hayes	May 1973
71	Chisna River	Mt. Hayes	July, Aug 1973
5	Kaiyuh Mountains	Nulato	July 1973
2	Boob Creek	Ophir	March 1973
5	Anvil Creek	Ophir	March 1973
4	Steamer Bay	Petersburg	June 1973
12	Kauk River	Selawik	June 1973

Number of Claims	Creek or area	Quadrangle	Date Posted
2	Resurrection Creek	Seward	April 1973
4	Canyon Creek	Seward	June 1973
16	Port Wells	Seward	Jan 1973
2	Colorado Creek	Seward	May 1973
34	Takanis Creek	Sitka	June 1973
42	Klag Bay	Sitka	July 1973
4	Spruce Creek	Sumdum	May 1973
26	Bunco Creek	Talkeetna	May 1973
4	Dollar Creek	Talkeetna	July 1973
48	Dutch Creek	Talkeetna	April, May 1973
7	Nugget Creek	Talkeetna	March, April 1973
3	First Creek	Talkeetna	June 1973
2	Cache Creek	Talkeetna	July 1973
20	Tokichitna Glacier	Talkeetna	May 1973
2	Cheechako Creek	Talkeetna	June 1973
27	Peters Creek	Talkeetna	June 1973
12	Salt Creek	Tanana	July 1973
1	Moose Marry Creek	Tanana	April 1973
2	Slate Creek	Tanana	May 1973
3	Minook Creek	Tanana	May 1973
13	Eureka Creek & tributaries	Tanana	May 1973
6	Minook Creek	Tanana	May 1973

METAL MARKET

<u>Metals</u>	<u>September 21, 1973</u>	<u>Month Ago</u>	<u>Year Ago</u>
Antimony ore, stu equivalent, European ore	\$15.1-16.1	\$13.40-14.40	\$8.64-10.00
Barite (drilling mud grade per ton)	\$14-18	\$18.00	\$18-22
Beryllium Powder, 98%, per lb.	\$53-56	\$53-56	\$54-66
Chrome ore per long ton	\$24-27	\$24-27	\$25-27
Copper per lb.	60¢	60¢	52.9¢
Gold per oz.	\$103.33	\$104.19	\$43.60
Lead per lb.	16.5¢	16.5¢	14.1¢
Mercury per 76# flask	\$270-290	\$271.00	\$280-285
Molybdenum conc. per lb.	\$1.72	\$1.72	\$1.72
Nickel per lb. (cathode)	\$1.53	\$1.53	\$1.33
Platinum per oz.	\$150-155	\$163.91	\$120-125
Silver, New York, per oz.	269.2¢	263.48¢	160.2¢
Tin per lb., New York	240.9¢	241.15¢	165.4¢
Titanium ore per ton (Ilmenite)	\$32.00	\$32.00	\$30-35
Tungsten per unit	\$55.00	\$55.00	\$55.00
Zinc per lb.	20.307¢	20.31¢	17.01¢

Federal
Bureau of Land Management

BLM WARNS PROSPECTORS
(Daily News-Miner, September 25, 1973)

The Bureau of Land Management (BLM) has warned prospectors in Alaska that many recent mining claims for locatable minerals on federal lands are invalid and illegal.

"It is illegal to stake mining claims on federal lands in Alaska that have been specifically closed to mineral entry," said BLM State Director Curtis V. McVee. "Claims staked since these closures were imposed are not valid, and holders of these claims are subject to legal action." In addition, he said claims staked on withdrawn lands are of no value to the prospector who staked them, as the claim holder is not entitled to any rights to explore or to extract the minerals.

McVee said that most of the lands withdrawn by the Alaska Native Claims Settlement Act are not open for the staking of mining claims. He said this includes "lands withdrawn around native villages, lands set aside for village deficiency areas or regional deficiency areas, Indian reserves, utility corridors, and lands withdrawn under Section 17 (d) 2 for study as possible additions to the national park, forest, wildlife refuge, or wild and scenic river systems."

"It is the prospector's responsibility to check land office records to determine where mining claims can be legally staked," said McVee. "Otherwise, he might stake a claim on someone else's patented mining claim, homestead, or on federal land closed to prospecting or mineral entry--as hundreds of prospectors have done in 1973."

McVee said that much other federal land is also closed to mining claims, including most wildlife refuges, Katmai National Monument, the Kenai Moose Range, and most military withdrawals.

"The only lands managed by BLM on which mining claim location or homesteading is legal are some 11 million acres of unreserved public domain lands," McVee said. "Location of mining claims for metaliferous minerals is also allowed on some 40 million acres of land withdrawn under Section 17(d)1 of the Native Claims Act."

Prospectors should also check with the State of Alaska concerning open areas, he said, since the State of Alaska has made provisions for mining claim location on some of its land.

"If anyone wants to stake a mining claim, build a cabin, start a farm, or do almost anything else on federal lands--the first thing to do is check the land status in the BLM Land Office and find out the legal requirements," said McVee. "Many people have not done this checking, and as a result they have opened themselves to prosecution for trespassing on federal lands. In addition to losing any investment or improvements they made on the land, they risk fines and court action."

MAPS HELP LAND PLANNING
(Daily News-Miner, September 25, 1973)

ANCHORAGE--A series of 800 reproducible map overlays providing general information on natural resources and land status within the State of Alaska has been added to the collection of the Bureau of Land Management's (BLM) Alaska Resources Library.

The land-use planning overlays are designed for use with the U.S. Geological Survey (U.S.G.S.) base map which divides the state into 41 geographic areas. When used with the base map they provide supplementary information on 21 types of resource and ownership patterns. The overlays have been prepared on a scale of one-quarter inch to one mile and can be used over any Alaska map of the same scale.

Designed by the Resource Planning Team of the Joint Federal-State Land Use Planning Commission, the overlays make it possible for land planners to visualize resource patterns as they complement or conflict with one another. They will be used extensively by the commission and by native regional corporations involved in land selection under the Alaska Native Land Claims Settlement Act.