

Technology Review

**PEBBLE MINE, ALASKA:
STORIES & PERSPECTIVES**

BY

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INTRODUCTION

The Pebble Mine in Alaska is contentious. It is at the center of an almighty battle between opposing forces in a conflicted state. It may well define the future of mining in North America for the remainder of this century. But the battle has only just begun, and its outcome is impossible to predict.

Information about the mine and opposing views fill the internet. I can add nothing to the plethora of information out there, and I do not try to do so in this review. Rather I simply collate here what I have written as I have observed developments. I will continue to write about this battle, and will add those future writings to this piece as they are posted on other parts of InfoMine.

I make no attempt to be comprehensive, conclusive, or balanced. What follows is pretty much what I wrote when I wrote it; and it represents my opinions at the time. If they change through the progressions of this piece, so be it: that is the way my mind works.

I trust only that you enjoy what I write and are able to get some insight into this epic mining battle. I would appreciate your views and will incorporate them into my future writings on the subject.

THE START

I read with horror (and secret delight) a [report](#) that Robert Dickinson, Chairman of [Northern Dynasty Minerals](#), the company seeking to develop the [Pebble mine](#) in Alaska, predicted that “opponents of North

America's largest copper deposit and largest known gold accumulation will fail miserably in their efforts to stop development of Alaska's Pebble project." We all love a duel, and we all love an epic battle between strong fighters. I love watching [WWE](#), [boxing](#), and [Eugene Onegin](#) (Act 2), and their enduring popularity proves I am not alone in the animal delight that goes with seeing strong men beat up on one another. Seems to me Robert Dickinson has thrown down the gauntlet and set the stage for an epic duel. And we will all watch with bloody interest.

The stage on which the duel will be fought and some of the protagonists are sketched in the remainder of the [news report](#). Here are extracts:

- Northern Dynasty considers Pebble the second-largest deposit of its kind, worth \$200 billion.
- State officials stressed that Pebble's resources have not yet been proven to be economically minable.
- Pebble has generated opposition because of its location near rivers that feed into Bristol Bay's salmon fisheries, one of the world's largest sources of wild salmon.

Dickinson insists that the project will not impact the fisheries of Alaska, saying that Bristol Bay is more than 100 miles from the Pebble project and has a huge watershed made up of seven to eight rivers.

Rep. Bryce Edgmon, D-Dillingham, introduced the Alaska Wild Salmon Act, stipulating that fish would come first, no matter what kind of development activity takes place in the Bristol Bay watershed.

A bill introduced by Alaska Senate Majority Leader Gary Stevens, R-Kodiak would create the Jay Hammond State Game Refuge, which would encompass 5 million to 7 million acres of state land in the Bristol Bay headwaters. If the Stevens' bill wins passage, it would eliminate storage of mine tailings.

The citizens' group [Truth About Pebble](#), which supports the Pebble project, asserts that both pieces of legislation "are intended to stop the Pebble project before it even applies for permits under Alaska law."

Dickinson said the [Renewable Resources Coalition](#) (a group that opposes Pebble) "tried to influence both local and gubernatorial races during last year's election and failed miserably."

You can see most of the submittals to the Alaska Department of Natural Resources on Pebble and other Alaskan mines [at this link](#). On the positive side I recommend taking a look at the record of the [Greens Creek Mine](#). I spent two summers there in the early 1980s looking for sites for the tailings impoundment. We were told that the mine would never fly. But it did; it is a success; and it proves you can mine in Alaska in places where the salmon swim. (I recall with delight how Anita, she with the copper-color hair, would fish for salmon and halibut during the day and cook them fresh in beer batter for our evening meals when we returned from the wet forest and a day's

work.) However, I do not recall bravado statements or vicious politics. We went humbly to the regulators and spoke softly in public meetings. Maybe the world has changed and now it is necessary to fight in the public arena with loud words to open a mine.

The web is filled with opinion and counter-opinion on the wisdom of the Pebble Mine. Here is a true test of the philosophies of sustainable development, responsible mining, community relations, the limits of growth, ecological reserves, a better life-style for all, and yes, religious-based arguments about resource development and resource preservation. I cannot find anything intelligent on any of these topics applied to the mine. It's all bold statement and political ducking. I suggest the Pebble Mine is a significant opportunity for the greater mining industry and those philosophers of mining theory (myself included) to come to grips with the clear clash of concepts and cultures that this mine embodies.

My opinion, for what it is worth: before this mine goes ahead, the public at large and those who may be affected by it will have to be convinced of at least the following:

- The need for another copper mine to augment current and projected world needs.
- The need for more gold, here, there, and everywhere.
- The ability to develop the mine in a way that there will be no potential for releases that would impact the waters of Alaska or its salmon.

- Proof that long-term water treatment will not be required once the mine shuts down.
- Financial mechanisms readily available to reclaim the mine so that the area returns to sustainable use in the long-term regardless of profit or the fortunes of nations.
- A demonstration that mining is a better use of the land than hunting, fishing, and tourism.
- Consensus that any decision is a rational socio-economic decision and not the result of bravado and/or politics.

Clearly the process is going to test the efficacy of current environmental impact assessment regulations, the ability of the company to interact with regulators, the justice of the courts, the influence of the internet, and the power of interest groups. And at the end maybe we will have a clearer philosophy of mining and resource development.

ANGLO AMERICAN

In the old days of mining in South Africa, Anglo American was the revered giant. From those mighty lion-statue-defended doors of their downtown Johannesburg offices they ruled the South African mining industry. I vaguely recall they also controlled something like sixty percent or more of all the companies on the local stock exchange. They may still do for all I know. Now they seek to be the same dominating presence from Alaska to Zimbabwe.

My father worked for Union Corporation, now long disappeared into other mining entities. But big as Union Corporation was, we still shivered in awe of Anglo. They were known as the progressive ones. They even asked the government once if they could treat their Black employees nicely. That was courage in those days.

At university a friend took me to his father's office in the Anglo building. His father was a civil engineer with Anglo. That was like approaching the inner sanctum.

As a post-graduate, my master's thesis was supervised by a fellow who became chief civil engineer for Anglo. I have not seen him since, although last year entertained his son and wife in Vancouver. Thus my instinct is that the people who work for Anglo are good people and fine engineers.

In the evenings after five-o'clock tea in the university residence common room, we would head up through



the grand mansions of Parktown and run around the parks and past the house where the Oppenheimers lived. This clearly was power and luxury beyond our first imagination.

By then politics was rough. Some mornings a fellow student would simply not be there: the security police had picked him up over night for protesting apartheid. My girlfriend had a visit from the security police warning her to desist from church work in the local township lest her father, a military man, were to find his career in jeopardy. We secretly circulated and read banned books including *Black Beauty* and *Lady Chatterley's Lover*. And went to banned screenings of movies like *Guess Who Is Coming to Dinner*. None, incidentally, risqué, but considered a threat to white supremacy



nevertheless.

And maybe it was a threat to white supremacy for the government changed, but by then we had left, for that is not a place or a way of life in which to bring up children or even to try to live comfortably with yourself if you are lucky enough to be able to go elsewhere. Only two of my old university friends are still in South Africa. The rest are scattered around Canada, the United States, and Australia.

This personal reverie is prompted by [reports](#) that Anglo American is



dithering about continuing to develop a platinum mine in Zimbabwe.

Mining giant [Anglo American](#) has defended its controversial decision to invest hundreds of millions of pounds in platinum mine in Zimbabwe, after being widely criticized for the plan. After being accused of defying international opinion by making the \$400m (£202m) investment while the crisis in Zimbabwe keeps escalating, Anglo American claimed the mine would actually benefit the country's population in the long term.

For as long as I can remember, Anglo American has mined in repressive places and has tried to use its mining and financial clout to improve the lot of the country's dispossessed. I recall they were always at the forefront in South Africa of bold and brave calls for better treatment of the Blacks, for opening the economy to others, and

to development to benefit the masses—and themselves of



course.

Is their Zimbabwe venture just a fall back to a deeply ingrained corporate culture? Maybe if South Africa can be made to go better, so too one day can Zimbabwe. If the Afrikaners can eventually be made to toe the line of decency, can we do the same to Mugabe? And in the long run profit from mining?

There is no question that Zimbabwe never has been a land of democracy or decency. Those who built the famous ruins from which the country takes its name, were no doubt brutal overlords who scoured the land for gold to send to the east coast and up the trade routes. Chaka sent the Matabele fleeing into the southern part of the country and set the stage for past and current black-on-black violence. The whites came and fed the original four million to increase the population to forty million. So now from Mugabe and his supporters' perspective if a few of the other tribe die or are killed, who cares. This is just a continuation of the struggle for power and possession at the death of others, not like us, that is Zimbabwe.

The question though is, is Anglo right or wrong in continuing to operate and plan to develop there? No doubt their hope is the passing of the Mugabes and the coming of a semblance of decency in government. Anglo has sweated it out successfully in the past, maybe they can do it again in this dark African place.

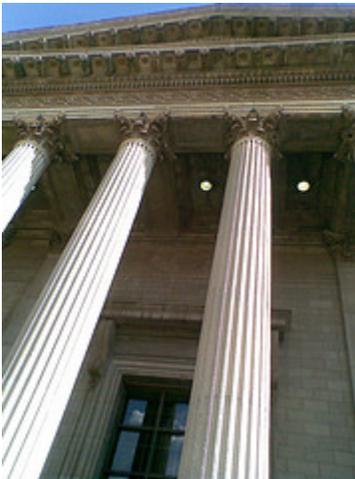
Anglo America under its Canadian leader, Cynthia Carroll, certainly is bold these days—or maybe it has not changed at all?. Consider both this Zimbabwe investment and its massive investment in an entirely different place: the Pebble Mine in Alaska. The investment in Alaska strikes me as a hearkening back to the same corporate culture that persisted through the bad days in South Africa and now the continued push in Zimbabwe. I am surely wrong, but it is tempting to speculate that in the minds of the corporate-culture gurus of Anglo, Alaska is just another dark place of people who have to be persuaded that mining is right for them and for their land if only they will let Anglo do



it.

And for sure, Anglo is committed to doing the mining right—for as I have already said, I believe in the engineering ethics of Anglo's engineers. Only problem is I have studied with them and know we are still learning. As this very piece proves.

I will follow the story of Anglo America in Zimbabwe and Alaska, for in both places they are defying conventional wisdom and prudence. In both places they are seeking to mine as a way to improve with the most noble sentiments. And in both places they are fighting forces stronger than them; but the people they are fighting have less time, less money, and less perspective. In both places we see again the presence of Anglo American at the center of the debates that will shape the world of mining for decades to come.



THE CLEAN WATER ACT

Here is a repeat of a long report from MineWeb. I repeat it here in its entirety because I suspect this story is about events that will play out for a long time to come and which will have a profound impact on mining and society for even longer—regardless of how it turns out.

If you do not like news reports, and you prefer the raw material, go [to this link](#) for the initiative in question. It is all again about Pebble Mine and the future of Anglo American, the future of Alaska's mining industry, and the power of the plebiscite.



Here is the MineWeb story:

The Alaska mining industry has launched a print, television and radio campaign to convince voters to reject the Alaska Clean Water Initiative, a ballot measure - originally aimed at the controversial Pebble gold project - with language so broad mining companies fear it will also impact operations at the Fort Knox and Pogo gold mines.

The first initiative, Clean Water No. 1, prohibits large mines from releasing or discharging toxic chemicals in measureable amounts that could possibly affect human health or welfare, or any stage of the salmon life cycle. The State Supreme Court will decide if the issue will be placed on the November ballot.

The second initiative, known as Clean Water No. 3, is viewed as a companion measure in the event that Clean Water No. 1 doesn't survive the legal challenge, Renewable Natural Resources Coalition attorney Jeff Feldman told an Anchorage television station last month.

Karl Hannesman, a Pogo mine manager and president of the Council of Alaska Producers, asserts that the initiative is so broad and so badly written that it will affect both current and future major meta mines on state, federal, university, borough and native lands. He contends the ballot measure will effectively prohibit the operation of any major metals mine, even if it complies with all current state and federal environmental regulations.

As an example, the initiative would prohibit the operation of any major metal mine exceeding 640 acres if it generates any waste rock or tailings, according to Hannesman. However, backers of the initiative say it has a grandfather clause that will exempt mines that have all their permits.

Art Hackney of the environmental NGO, the Renewable Resources Coalition, told the Fairbanks Daily News-Miner that proponents have no desire to shut down existing mines. "That would only be the case if they are looking for permits, looking for expansion, if they were going to be putting at risk significant salmon spawning streams or streams used by human for drinking water. Most of these mines don't fall into that classification.

Steve Borell, Executive Director of the Alaska Miners Association, has advised that the ballot measure "undermines a fair and open environmental review and permitting process. ...Each project should be judge on its own merits. But the anti-mining initiative would arbitrarily prohibit mining projects statewide and shut down mines without any environmental review process-and without any scientific evaluation of whether a mining project actually would harm the environment."

The trade group, Alaskans Against Mining Shutdown, has retained public relations and government affairs consultants to help battle the initiatives. Two native corporations, the Alaska Federation of Natives and the Association of ANCSA Regional Corporation Presidents, have

sued the State of Alaska to prevent Clean Water No. 1 from appearing on the election ballot, claiming the Clean Water Initiative would prevent native corporations from developing their mineral resources.

THE TAILINGS IMPOUNDMENT

From the April 2007 issue of Mining Engineering, here is a summary of the description of the proposed [Pebble Mine](#)'s proposed tailings impoundment. Recall that Pebble Mine is a large copper-moly-gold deposit in Alaska that [Northern Dynasty Minerals](#) is seeking to develop. The project has been controversial, so here is a description of one of the parts thereof that will remain at the site long after mining is done.

The design objectives are:

- Render the potentially reactive material inert and protect water quality in the impoundment.
- Safely impound water, minimize the quantity of water used, and protect downstream water quality.
- Minimize water seepage from the impoundment and capture seepage that does occur.
- Meet or exceed the seismic design parameters set by the State of Alaska.

To render potentially reactive material inert, the material will be placed under water and entombed in non-reactive tailings. The five to ten percent of tailings that contain a high percent of sulfides will be separately discharged so that they are below the pond. Potentially reactive waste rock will be co-disposed in the tailings impoundment.

To control seepage, a trench will be excavated through alluvium to bedrock. A grout curtain is proposed into the bedrock. During the

initial phases of embankment construction, a high density polyethylene geomembrane (HDPE) will be placed on the face of the embankment. Thereafter when the embankment construction converts to centerline construction, a compacted glacial till core will be placed. Drains will collect embankment seepage and direct it to sumps.

I would like to see a cross section through this proposed embankment: I cannot understand how you can use HDPE in a long-term structure subject to time and earthquakes. Why not use clay all the way?

Earthquake stability will be achieved by design for what sounds like the probable maximum earthquake that would result in a "maximum possible megathrust earthquake with a value of 0.3g." I apologize to my earthquake-specialist friends if they quake at this seismic description. So do I.

The article gives no information about the post-closure geomorphic performance of the impoundment during the period of maintenance and thereafter.

A GOOD EIS

Here is a book I have not yet read: [Quantifying Environmental Impact Assessment Using Fuzzy Logic](#) by Richard B. Shepard. I write about this book below as the author is a frequent commenter on my [blog](#) and has posed the following interesting comment.

I've heard mining industry environmental staff, executives, and regulators complain about the time involved, the costs, and the uncertainties of outcomes of the environmental impact assessment process. The three most common reasons EIAs are appealed or challenged in court are 1) the decision was arbitrary and capricious, 2) not all alternatives were equally considered (a violation of CEO guidelines), and 3) opinions expressed during scoping were ignored without reason.

Since these assessments are inherently subjective, these reasons are extremely difficult to defend. About four years ago I realized that I could do something about this by applying the relatively esoteric mathematics of fuzzy set theory to quantify subjectivity in EIAs. The mathematics is commonplace in control systems (driverless trains, aircraft autopilots, elevators, a ton of household appliances, autofocus cameras, etc.) and profitably used by a number of large businesses and manufacturers.

I've been talking with executives and environmental staff in the mining industry about application of the fuzzy logic approach for a long while. I get some interest, but not one person has called or sent an e-mail asking for more information or an explanation of how it might help him. Since this approach specifically addresses the problems they've said they want to see resolved, I don't understand the lack of interest. Perhaps it's fear of change. Perhaps it's not their money or job that's at risk. When I can sit down with people, face to face, and discuss their concerns and how we address them, the response is quite positive.

For three years I've been in periodic contact with the Northern Dynasty folks about the Pebble project. No particular interest on their part, despite the rising opposition they face there. Last week, I sent an e-mail to Cynthia Carroll of Anglo American which she passed on to the Sr VPs for their Base Metals Group and External Affairs. This morning, the latter sent back a reply that said "we don't want to accelerate our permitting, but want to let people participate and make the process transparent." Well, that's exactly what the brochure and my e-mail message stressed, so the response is puzzling, to write the least.

My primary experience with EIS (Environmental Impact Statement) is preparing the engineering sections of EIS for uranium mill tailing remediation. We did things the simplest way: get out and talk to the folk involved, set out the simplest alternatives, and describe them in the easiest possible prose. We succeeded every time.

I wrote two EIS's using decisions theory to justify the conclusion. The regulators rejected them saying they could not understand the process.

My boss makes lots of consulting money selling his [Multiple Accounts Analysis](#) approach to comparing alternatives. It's a pretty basic spreadsheet approach; but the users love it for they can easily understand it. You use the computer only to add things up. Not to generate random numbers of functions.

I suspect that people, in general, do not like to admit that processes are random or fuzzy, or uncontrolled. It's a fact; but they don't like it. So they won't do it.

People like certainty. Witness the great religions: All very simple and sure in their dogma. No probability there.

Why would any mining company admit to uncertainty or probability of fuzziness in their logic? That would be akin to suicide in the market place of true believers for and against mining who seek religious certainty, not truth.

The Pebble Mine is a perfect example. Either you are for it or against it. Either you believe it is the way to bring the benefits of Anglo American's Witwatersrand experience to Alaska, or you believe you want to keep the State in its current state. Why delve into the probability curve of extreme earthquakes bringing down the tailings dam. Why fret about the beta distribution curve of geomorphic change breaching acid generating material encapsulations? It is simple: either mine or do not mine; either fish or do not fish; either develop or remain wild. The only thing that is fuzzy is the relative power of the opposing players. And the skill with which they will make their moves.

The decision to advance the Pebble Mine is not economic, or financial, or even political. It is simply another clash of cultures, belief systems, secular religions if you like. The players no more need the truth, determinate or fuzzy, than the players in any other great clash of civilizations or religions. You may read the book on fuzzy logic if you can afford it, but you do not need it to set your compass in the clash of ideas that surround mines.

PERMITTING

What is involved in permitting a mine? The answer varies depending on the type and location of your mine. The process may often be shrouded in mystery behind the marble columns of regulatory agencies whose power comes from obscurity.

But none of this is true in the case of Alaska. The regulators there are to be congratulated for making the process clear—if not necessarily simple. A great PowerPoint presentation on the permitting process for a mine in Alaska is [at this link](#).

At [this link](#) is a conventional listing of permits to be obtained from the Alaska Department of Natural Resources (DNR) to open a mine in Alaska. It is all summarized in this [statement](#):

Large mines typically require dozens of permits from state, federal, and local government agencies. Depending on the size and nature of the mine, the permitting process may be extremely complex. For this reason, the Department of Natural Resources coordinates the process with an interagency team of experts in mine design and closure. The team reviews applications for the construction and operation of the mine by meeting state water quality standards, environmental monitoring requirements, and site closure. In order to address these issues, the team must understand the chemistry of the mine's ore, waste rock, and tailings. The process provides a model for efficient permitting and environmental protection.

Do not forget that you will need many more permits from federal agencies.

Of course everybody is excited about the large mine projects potentially upcoming in Alaska. [Pebble](#) is but one example of a

[controversial project](#)—and the reason for the PowerPoint presentation referenced above.

But if you just want to open a small gold mine, things might be a bit easier—see [this link](#) where the permits required to undertake small gold mining in Alaska are listed and explained.

The real issue regarding mine permitting in Alaska comes down to the question: is permitting an objective process? We will simply have to wait to see.

COMPARISONS TO KEMESS

One thought on the Pebble Mine before the [people of Alaska to vote](#) on 26 August on the mine's future.

Earlier this year British Columbia [rejected a new mine](#) they decided was not worth having. Perhaps Alaskans should consider the reasons why BC rejected the Kemess North Mine.

Some will tell you that BC rejected the mine because it would have affected a lake which native peoples consider sacred. The 246-page report leading to rejection of the mine examines the issue of [the](#)

[sacred lake](#), but I contend the report rejects the mine for a far more



cogent reason.

Quite simply, the mine would have been in operation for ten years, and thereafter—in perpetuity—would have involved treatment of acid mine drainage. The report concludes that the cost [of perpetual water treatment simply did no justify the income](#) derived from ten years of mining.

Now at Pebble I have seen nothing about how long the mine would operate. I have seen nothing about how long after cessation of mining water treatment would be required. Let us assume the mine has an effective life of fifty years. I bet my bottom dollar it will be necessary [to treat seepage from the closed mine site for ever](#).



So in this case we have a time ratio of fifty years

So in this case we have a time ratio of fifty years to infinity as compared to ten years to infinity at Kemess. Does this “bigger” ratio make for a sensible project? I leave that to Alaskans to decide.

Of course if Alaskans can get a sufficient guarantee from Anglo American to fund perpetual mine seepage, they might consider letting them mine. I can conceive of no way to get a perpetual bond from a company. Inevitably the state and its taxpayers will have to pay. I suppose if Anglo hands over all the Anglo diamond mines to the State of Alaska, the taxpayer could be off the hook—diamonds will, I am sure, be forever popular.

Thus my advice (tongue in cheek to those who e-mail me accusing me of taking sides):

- Get possession of all Anglo's diamond mine interests.
- Let 'em mine Pebble.
- Then in fifty-one years time use the money from the diamond mines to fund perpetual mine seepage water treatment.

That way you can keep the fishing jobs for ever. You can have the mining jobs for fifty years. And from year fifty-one onwards you have both fishing and water treatment jobs. And you can give your ladies

blood-free diamonds.



COMPARISON TO FARO MINE

The Faro Mine is arguably the [most polluted closed mine](#) in Canada. From what I can work out, they did just about everything wrong, and there is really no way to fix it. The official web site won't tell you that; it is a master piece of propaganda that makes the mine sound like a make-work opportunity for locals. And for those taking the water quality samples it is.

But, in fact most of the money spent on the mine each year probably flows back to [Vancouver](#), Toronto, and other Canadian capitals. For that is where they deliberate and decide on possible solutions. And as there are no final perpetual solutions in the offering, there is a lot of



lucrative deliberation yet to undertake.

Back to the locals and their work opportunities: in a [news report](#), we learn that [Denison Environmental Services](#), a division of [Denison Mines Inc](#) has been awarded a three-year contract for care and maintenance of the [Faro Mine Complex in the Yukon](#). For the locals there is this solace at the tail end to the report:

Denison Mines noted that the contract also includes provisions for training and employment opportunities for affected Yukon First Nations and Yukoners.

The contract is worth about \$7.2 million annually. For that sum, Denison will do at least the following:

The three-year, \$7.2 million per annum contract will provide care and maintenance services at the Faro Mine Complex. This will include the ongoing collection and treatment of contaminated water, management of uncontaminated runoff, inspection and maintenance of dams and diversion channels, water quality monitoring, general maintenance, and site security.

Funny thing about the many reports on the web about the Faro Mine is how even the politicians make it seem like this is a [good thing](#). And it is if you are committed to cleaning up mining sites with public money as a way to make work for otherwise unemployed locals.

I acknowledge there are vast differences between the Yukon and Alaska, between the scallywags who mined Faro and those seeking to mine Pebble, between how they will mine at Pebble and how they mined at Faro, between then and now. But the funny thing is that once again we have a mine that made the city folk rich, and then they left, and now the community is paying to be employed cleaning up the result. And the locals are being told how lucky they are to have jobs.

Somehow I cannot but think that \$7.2 million a year on education would achieve more in the long run than keeping pollution in check. Course at Faro they do not have the option; they have to maintain the site, for the results of neglect would be far worse than an uneducated populace.



At Pebble they have the option. They still have plenty of time to decide not to mine. They have plenty of time to decide that they want jobs now and in perpetuity. Now and for 50 to 100 years they will have jobs mining. And then forever and ever, they will have jobs maintaining the waste disposal facilities.

It is really quiet simple: if Alaska wants to decide what the Pebble Mine offers them—or at least what it offers future generations of Alaskans—take a look at Faro. Maybe your grandkids would prefer water quality sampling as a way of life to fishing.

SIN OF OUR FATHERS

Do the sins of the father accrue to the son? Does the new Anglo American's Cynthia Carroll bear responsibility for pollution in Africa,

Nevada, and Ireland caused by the old Anglo American? Do ten swallows make a summer? Does one fuck-up preclude you developing the Pebble Mine in Alaska?

Valid questions that come to mind as I read the report ***Anglo American's Track Record: Rhetoric or Reality?*** Here is a summary that came with the e-mail announcing publication of this provocative report:

A new investigation into Anglo American's environmental and social record released today describes toxic mine waste spills, air and water pollution, workplace fatalities and uprooted communities at mines owned by the London-based corporation and its subsidiaries. As a result, Alaska community leaders are raising new questions about what may be in store for Bristol Bay's wild salmon and local communities if the Pebble mine, in which Anglo American holds a 50 percent share, is developed.

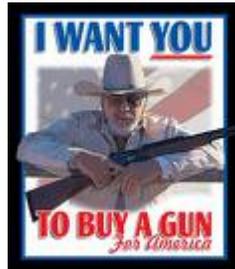
"The report shows that regardless of where Anglo American operates, what rules it plays under, and who is at its helm, there have been problems, including worker fatalities, polluted water, fish kills, and uprooted communities, said Bobby Andrew, a board member of Nunamta Aulukestai, a group of eight Native Bristol Bay corporations and villages. "We can't afford to risk our wild salmon on the slim promise that Anglo American might do things differently in Alaska."

In a press release issued last August, Anglo American said it was “committed to the highest international standards for community relations, environmental protection, and health and safety.” Yet the report, “Anglo American: Rhetoric or Reality?” by veteran corporate researcher and former journalist Phil Mattera, documents major spills, water and air pollution, damaged fish habitat, and local conflicts at Anglo American mines that run counter to its claims of corporate responsibility.

“We wanted to get the whole story, not just what Anglo American wants us to know,” said Andrew, whose group commissioned the report along with Renewable Resources Coalition to gain new information about the mining corporation, one of the top five in the world with \$30 billion in revenues last year.

I can vouchsafe for the pollution in South Africa: I grew up and played around those dumps and ponds and lived downwind of a paper mill. The dust from the slimes dams lay thick on our school desks when we came in from the playground. As a professional engineer I dealt with massive slope failures on the platinum mines and the massive stupidity that caused the failures and exacerbated their impact. This report only begins to sketch the story of Anglo American and the pollution from its mines.

But in those days every mine, everywhere was doing the same. We



rode bikes without helmets and drove cars without safety belts. The kids slept un-harnessed on the back seat of the car. We went into the sun without hats or sun-screen. We smoked, we drank, and we exceeded the speed limit. We had the essentials in the car though: a gun under the seat, just in case.

Those slimes dams helped my father and his mates recover from five years of war, including [El Alamein](#). That pollution put me through university, enabled me to escape poverty, and come to Vancouver to write this blog. (*More pollution?*) Now that pollution is being cleaned up, employing many. Development is a non-zero sum game. Mining is non-zero sum game: it all depends on how you seize the opportunity.

Thus, in my opinion, this report simply begs the question. That question is: now, today, and tomorrow can any company develop a massive mine like the Pebble Mine in such a way that there is no pollution, no impact, and no long-lasting need for perpetual cleanup and care. In my 'umble opinion, nobody can provide an answer based on precedent. Not even from South America where they build 'em big.

I have designed and built my share of tailings impoundments. Some of them can be seen from space, including the one that replaced the failed Impala Platinum slimes dam. I find it easily with GoogleEarth, for it is still operating. It is a great structure, ingenious in its layout, organized for extra stability, and destined to last forever. But recall that at the end of the day I am only human, a consultant at best, and paid to represent my client's interests in a professional way.

I spent two summers on Admiralty Island looking for and characterizing the [Greens Creek](#) tailings impoundment site. The idea of dried tailings was somebody else's. That facility is still there, being used, and will be there until the next glacier or earthquake takes it away.

I work with a fellow who is far smarter than me. He is a peer reviewer on many a large slimes dam; some bigger than Pebble will ever be. But at the end of the day he too is only human.



If you want to get the feel for the average person who designs and builds mine slimes dams come in October to Vail for the conference [Tailings and Mine Waste '08](#) and you will see we are all too human.

That is my point: humans can promise, but we cannot guarantee delivery. We can sin, and reform, and promise to be good ever after, but we cannot guarantee delivery.

So to question Anglo American's past sins or to doubt its current protestations of goodness, is totally irrelevant. To expect mere humans to make promises they can guarantee is folly. Hard as it is for a nation that does not believe in science or evolution, hard science is all that Alaska has to judge this new mine. To judge promises about new impoundments and waste rock dumps that will not to fail in the long-term. To judge human opinion that they will not generate acid drainage requiring perpetual care.

I cannot advise the State on how to proceed. They have their share of current problems from indicted senators to revelations that the whole state subsists as a socialist setup paid for by the rest of the nation. Maybe like Montana, Alaska should honestly decide to become a vast park where only the rich live happily and the poor

subsist like medieval serfs. After all they voted Republican and as the



latest Economist reminds us:

Between 2002 and 2006 the incomes of 99% rose by an average of 1% per year in real terms, while those of the top 1%v rose by 11% a

year; three-quarters of the economic gains during Bush's presidency went to that top 1%.

(Funny how we all believe when voting that we belong in that 1%. Even though facts tell us otherwise. Well, maybe I am in the upper 5% or 10%. We have done well too!)

If they want to be true Republicans and like what has happened and want it to continue, then they should reject the mine, reject development, reject reformed sinners, and get on with unscientific idealism. Montana is still a great place to be with money derived from elsewhere. And I am told it is wise to have gun in the car with you to fend off the poor.

Anglo must now respond. Here are their options as I see it:

1. **Deny:** The report tells of times past, of a company that is not the company it is today.
2. **Refute:** Those were aberrations in standard practice, long since rectified.
3. **Over-rule:** Point to the many good things they have done—and there are many.
4. **Say sorry:** Like so many born-again sinners, politicians, and governments, say sorry and move on to glory.
5. **Emphasize the new:** They now have enlightened Canadian partners & leaders and intelligent Alaskan regulators who will keep them on the shining path.
6. **Do a South African:** Co-opt the Alaskan native companies; make them shareholders; and soon we will see casinos ringing the slime dams.
7. **Sell to India:** An Indian/British magnate will fire back with an alternative religion and all will quake at the coming.
8. **Sell to China:** They will deal with Tibet et al. How about the next winter Olympics in Juneau—the road to Whistler is

impassable after a rock slide. And the Chinese will ban all blogs like this one. So no more insight, comment, or delay.