

Would a “Prudent Man” invest in one or more Augusta Resource mines in the Coronado?

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The Coronado National Forest has begun developing an Environmental Impact Statement on the Rosemont mine with public hearings that begin March 18. Meanwhile, a bill is moving through Congress to withdraw mineral entry from Coronado land. That legislation could question the economic validity of Rosemont and other Augusta Resource mine holdings in the Santa Rita Mountains.

Augusta Resource Claims go Beyond Proposed Rosemont Mine: On December 5, 2007, Augusta Resource Corporation sent out a press bulletin that, it was “pleased to announce it has started drilling in the Narrangansett Zone near its Rosemont copper-molybdenum-silver orebody...”

The map below, reprinted from an Augusta, February 27, 2008 online presentation shows 4 major mining deposits Augusta is exploring within their claims that could be seen as a “mining district.” The deposits are Peach-Elgin, Broad Top Butte, Copper World and Rosemont.

1. PDF MAP ATTACHED:

Augusta intends to “Identify additional targets in a district-wide search for near-surface and deeper mineralization” says the website

Augusta Vice President Jamie Sturgess was asked whether this statement indicated that the company could establish more than one proposed open-pit mine, under what circumstances this could take place and whether approval of a proposed Mine Plan of Operations (MPO) by the Forest Service could increase this likelihood. On March 11, the Coronado National Forest announced it would be creating an environmental impact statement on the mine, thus opening up a public hearing and comment process.

Sturgess replied, “These questions are pretty well dealt with on the Augusta Resource website on the various sections in the technical and frequently asked questions.”

The website FAQ answer to the question “Will the west side of the property be developed? is that “the current *preliminary* (writer italics) plans indicate that the economic potential is restricted to the Rosemont deposit...”

However, the website further states that Augusta is carrying out “a helicopter-supported aeromagnetic survey covering approximately 21 square miles in a search for indications of buried mineralization”.

Only the proposed Rosemont mine has had the major investment to extensively explore, apply for permits, and develop a proposed MPO for an open pit mine. That plan is currently incomplete according to the Coronado National Forest, due to unanswered water quality and hydrological

concerns, but the public National Environmental Protection Act (NEPA) hearings are beginning March 18.

Presumably, Augusta can't answer questions about future expansion until they first make some money.

Visualizing an Augusta “mining district” The three non-Rosemont mining deposits have all had some level of copper and other metal reserves and have been mined historically to some degree, with the Copper World deposit anecdotally considered rich, with at least two mines operating there from 1899 through the 1940s according to a 1955 USGS bulletin.

These old mines, built around the townsite and smelter at Helvetia, were all considered “mother lodes” with a rich future for copper and other minerals. But the old mines were very small compared to today's open pit operations.

Asarco, Inc, last of the earlier owners of the current Augusta claims, discussed the possibility of open pit mining of any or all of these orebodies in a 1995 technical paper. Among other references, Asarco mentioned mid-50s plans to build an open pit mine around the Peach-Elgin deposit since the composite claims were not dissimilar from Twin Buttes or the Mission Mine across the valley.

If the Rosemont MPO is approved by the Forest Service, could the infrastructure for Rosemont be expanded to mine other deposits in the historical district? What would it look like to residents on the west and east sides of the Santa Ritas if the Peach-Elgin deposit or the Copper World or the Broadtop Butte deposits get mined? Or if Rosemont does expand to their properties to the north and west below the historic small open pit Naragansett mine?

Pits for Peach-Elgin, Broadtop Butte, and probably Copper World, would probably all be visible from the Green Valley-Sahuarita-area as holes in the Santa Rita Mountains, to the right of the current quite-visible limestone mine. A Naragansett extension of a pit would be visible from Highway 83 to the east.

2. PHOTO OPTION: The photographs below show, where some Augusta mining deposits are located in relation to Green Valley-Sahuarita area (attached)

To Fred Tahse, a retired Green Valley mineral exploration geologist, the potential impacts should be very sobering to local residents.

3. PHOTO: Fred Tahse views Augusta mining deposits in the Santa Rita Mountains (attached)

“The Peach-Elgin deposit, if mined, would be an open pit facing the Santa Cruz valley. Broadtop Butte, if mined, would remove part of the ridge. Copper World would leave huge scars and all of them would bring unsustainable truck traffic and dust into the west side of the Santa Ritas.”

“The main reason these deposits weren't mined decades ago is that water wasn't available. What's especially worrisome is that if the Rosemont MPO is approved, these other deposits that

they own or have claims on could be mined by expanding the infrastructure for Rosemont. This isn't a theoretical mining district, it's a real one."

What Augusta Claims have mineral discovery?

Much of Augusta's holdings with mineral deposits are "patented claims"—essentially private land that would presumably require some of their additional "unpatented" Forest Service mining and milling claims to handle operations and wastes should any mines be developed. Patented claims have already been established as "valid"—they have what claim examiners from the Forest Service or Bureau of Land Management (BLM) consider to be an established mineral "discovery".

Beyond the proposed Rosemont mine, it is difficult to know what the size of any other open pit or shaft accessed mining sites could be and what land would be required to mine and process.

All land in the Coronado in Santa Cruz and Pima County would be barred from mineral entry under the proposed "Southern Arizona Public Lands Protection Act of 2007" introduced in November by Rep Raul Grijalva and cosponsored by Rep Gabrielle Giffords.

However: if that Act becomes law, it would not prevent mining on existing "valid" unpatented claims at the time of passage.

What are valid claims? Is Rosemont valid and what factors could call its validity into question? Could these other deposits that Augusta touts as important reserves become new mines even if surrounding land is withdrawn from mineral entry?

The answers, according to both BLM and Forest Service validity examiners and reviewers, are unclear. Validation is subjective, dependent on the quality of the information on discoveries that exists on the date of any proposed mineral withdrawal.

The validity examination question could look at similar issues that were raised by Tahse in letters to the *Green Valley News*.

A valid mining deposit belongs to a "Prudent Man":

A mining claim is valid--based on the wording of the 1894 'prudent man' court case--when there is "in place minerals of sufficient quality and quantity that a person of reasonable prudence would be justified in the necessary labor and expense to mine," says Ralph Costa, Phoenix-based BLM claim examiner and reviewer.

In 1872 valid discoveries meant largely surface outcroppings which have long since been mined. Or perhaps it meant a prudent guy with a backpack and a mining pan and a pick.

But what does this mean in 2008 or 2010 when Augusta proposes to remove and process hundreds of feet of rock before hitting the 126 million tons of proven sulfide reserves that lie in the Rosemont pit? Additionally: are Augusta's "probable" reserves "valid" enough for the mine to be profitable?

These are difficult questions to tackle, and Costa as well as Forest Service regional geologist Michael Linden, one of two forest service validation examiners in the southwest, are reluctant to speak specifically about Augusta claims that they could have to validate if the Grijalva-Giffords legislation passes. Costa points out that “this is a highly subjective task. Whatever information on discovery that is available on the date of a mineral withdrawal constitutes the basis for validation.”

Costa adds thoughtfully, “Let us say there is a mining claimant trying to put in a mine, drilling, raising millions, getting permits for a mine; can you see how hard it might be for a government mining engineer like myself to say ‘this isn’t prudent?’”

Linden says that patenting has taken place on much of Augusta’s land—both the Rosemont and other deposits-- therefore some discovery has already been demonstrated. “There’s a lot of information”, he adds. However, the company’s general public estimates of the value of reserves at present, are not all that would be needed to prove claim validity.

The 1872 Mining Law is explicit that a mineral discovery must be “within the limits of the claim located.” BLM and the Forest Service frequently treat validation of claims for large potential minesites as being aggregate claims that can be evaluated as a large body.

Colorado environmental lawyer Roger Flynn says that the law was based on a practicality, “.in 1872 if you claimed an entire mountain to make your claim valid, you’d be shot. So each individual claim has to stand or fall on its own.”

The Forest Service would not normally be doing withdrawal, says Linden, unless, “we are looking at Congressional or other withdrawal to mineral entry-- or if we feel that we need to demand validation because there is a threat to our management, an outright scam for example.”

It is up to a claimant to decide whether they want to be prolific in providing data, or simply tell the reviewing agency that they want a hearing before a judge. “Technically, a claim validity examination is usually seen as a hostile act by a claimant. The government is making a case as to why the validity must be proven,” says Acosta.

A hearing, say Acosta and Linden, is public, and the public is welcome to provide relevant information on claim validity to the Federal agencies. Since ordinary citizens are not parties in the case, they are not permitted to testify at a claim validity hearing, as in the current Forest Service Rosemont NEPA-EIS hearing process..

“Congress can also clarify whatever they consider relevant to a piece of legislation,” says Acosta. “They can tell agencies to consider a validity examination even after a MPO has been approved by the Forest Service, they can define the period of time that we have to consider validity. It’s their law.”

Augusta has opposed the Grijalva-Giffords legislation but has had no comment on their claim validity.

In addition to the question of the validity of the discovery, the Forest Service and the BLM, both operating under validation rules established by the Secretary of the Interior, will need to determine which unpatented claims that Augusta has are mining claims that are valid and which are “mill claims.”

Mill claims can be utilized for milling or other processing purposes including dumping of mine wastes such as tailings or “overburden” waste rock with minimal value and they are not exploiting valid mining claims that have economically valuable minerals.

Linden points out, “Generally, mill sites are on unmineralized land. Before you actually operate the mine you need to be careful how you stake claims.”

Is Rosemont a “Prudent” Investment?

Rosemont mine opponent Fred Tahse was a young exploration geologist in the mid-50s when he discovered outcroppings that became a part of the Asarco Mission mine complex. He believes that investors, the public, and any claim validity examiners should question whether or not Rosemont is a “prudent” investment economically—water and environmental issues aside.

Tahse concedes that it would require an independent economic mining expert with no ties to Rosemont to evaluate whether his concerns are correct and that “there simply is not enough data revealed publicly for me to see the evidence that they have enough copper in one area to mine economically.”

Like the Federal claim examiners, Tahse agrees that deciding whether mining will be profitable is a very subjective decision.

Tahse bases his skepticism on Rosemont’s profitability on Augusta website information on how much copper is accessible, feasibility of processing and overall costs of mining.

These are issues that Augusta has been emphatic on promoting as solid but they also questions that Augusta’s Sturgess cautions, “I can’t comment on economics due to strict company guidelines that in turn are based on peer review securities documents that are on the website. Obviously I feel positive, personally, about the economics of the mine.”

In a January letter to the Green Valley News, Tahse said, “Augusta’s website states that they have about 617 million tons of reserves, but only 134 million tons--22 percent-- are proven. The rest—78 percent—are only estimated.”

The website states that 126 million tons of those proven reserves are sulfide reserves and that there are close to 10 million tons of “oxide” copper included in the upper layers that cap the proven sulfide deposit. These areas above these proven sulfide reserves would be mined by an electrolytic leach process called solvent extraction-electrowinning (sx-ew).

An additional 466 million tons of sulfide and oxide ore is listed by Augusta as “probable”.

From Tahse’s perspective, “That 126 million tons of sulfide ore is on average 800 feet down, so you’d have to have rich enough oxide copper--possibly mixed with sulfide copper-- to pay for

that huge investment of reaching it. I just don't see how a bank would invest in 78% probable reserves when we don't know much about the significance of other Augusta and past owner's drilling data. Can Augusta profitably mine 'probable' copper before they hit their proven copper in the middle of the pit?"

BLM's Ralph Costa cautions that, generically speaking, the interpretation of drilling data and the spacing is critical to interpreting validity of claims. He says, "let's say that I have 4 drill holes on a mining claim and you have 4 on a group of mining claims. If my drill holes are 100 feet apart and show something similar in each hole, and yours are 800 feet apart--well there's a lot of different mineralization that can happen in 800 feet."

Tahse adds, "I'm also skeptical that Augusta can economically use sx-ew to process levels of copper listed in their public studies only as 'indicated reserves' with .10% oxide and .20% sulfide in order to pay to reach the main sulfide orebody.."

Sturgess says, "There are feasibility and resource reports on the website explaining the justification for these cutoffs; one economic and one geologic report. The .10% oxide represents a point where copper is commercial and not barren. You have 2 commercial pounds of copper per ton of rock randomly but normally distributed in any given block of rock at that point. When the price is higher, the cutoff point is lower and the reverse is true."

Whatever the theoretical point of profitability for Rosemont, Freeport McMoran (FMI) has more total sx-ew copper facilities than any other mining company. According to the FMI website, in 2007 most mines with similar processes to the one proposed for Rosemont to leach crushed copper processed ore with much higher concentrations of copper.

Safford and Morenci were in the .40-.56% range for sulfide copper processed by sx-ew.

According to Pay Dirt Magazine Editor Gary Dillard, in South America, the FMI El Abra mine, leaches oxide copper ore by sx-ew that is capping a deeper sulfide ore body, much like Rosemont. FMI reports that they are processing .53% copper at El Abra, and the South American Cerro Verde mine did the same in the past, again with richer copper deposits (currently .46%).

Finally, Tahse believes that the company may be underestimating overall costs of mining on their website and suggests that those who want to research comparative mining costs look at an industry site called the "World Mine Cost Data Exchange"

However, he adds, "I do not want to get into some kind of contest over costs, I just believe that those who think this is a good and prudent investment should closely compare their economic data on Rosemont with similar mines."

Economics, Environment, Perception

Mining investments are based on a belief that money will be made somewhere along the line. With limited information available, Augusta paints a rosy picture, Fred Tahse and other critics have questioned their accessibility to profitable deposits.

Augusta has no obligation to release information beyond what it chooses to. Ralph Costa's observation concerning what is valid is telling: who would the Forest Service or BLM be to tell those who have put up \$37.5 million in financing that they could be wrong?

Nor would the Federal government even consider validity examinations of Augusta claims as a possibility unless the Grijalva-Giffords mining withdrawal bill passes Congress and either is signed by the President, or is veto-proof.

If that bill passes, the validity examination of Rosemont that could be mined will take on great significance. Not only for the proposed Rosemont mine but for other potential mines in the Santa Ritas owned by Augusta as well as other mining properties on the Coronado in Santa Cruz and Pima County.