



Milind Diwan &lt;milind.diwan@gmail.com&gt;

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## Gina's presentation

4 messages

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**Kevin Lesko <KTLesko@lbl.gov>****Wed, Feb 20, 2008 at 1:32 AM**

To: Gina Rameika &lt;rameika@fnal.gov&gt;, Young-Kee Kim &lt;ykkim@fnal.gov&gt;, "Bonnie Fleming T." &lt;bonnie.fleming@yale.edu&gt;, Diwan Milind &lt;diwan@bnl.gov&gt;

Cc: Lesko Kevin &lt;KTLesko@lbl.gov&gt;, Kotcher Jonathan &lt;jkotcher@nsf.gov&gt;

Hi Gina,

sorry i could not hook up today, my Japanese delegation duties pulled me away this morning.

In reviewing your slides I have I have a concern about your slide 18 - where I think you are suggesting that the Minos cavity excavation costs are the appropriate estimate for all sites? Is that correct? That you will apply the MINOS cost estimates to all sites? Your slides indicate a range due to site specific risks, but hoisting capacity, local disposal, intermediate support and mitigation, as well as ground support really dictate the costs and the spread. If you go back to the Bahcall committee report from 2001 you will find estimates for "just rock excavation" which is what you seem to say costs Fermi Lab \$800/m<sup>3</sup> of

San Jacinto - \$73/m<sup>3</sup>  
Soudan - refused to quoted  
Homestake - \$140/m<sup>3</sup>  
CUNL - \$25/m<sup>3</sup>

Are you really suggesting that you will apply Fermilab's unfortunate experience with SOUDAN to all other sites? Compare an iron mine to hard rock?

In any event, I think you need to be very specific on this slide and not inadvertently suggest that your SOUDAN experiences should be applied to other locations without attempting to really formulate a thorough cost estimate at other sites. I am pretty sure that Chris would not want to be quoted for stating that a site under the San Andreas fault would only impact the costs by 25%.

If you want a "rule of thumb", then I would claim the operating costs for the past 20 years of a mine are a much better indicator.

I think the best thing (only thing) you can do is to indicate that in SOUDAN a cavity for 100kT would cost \$60M. Please do not attempt to extrapolate to other sites.

cheers,  
Kevin

Kevin T. Lesko  
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**Regina Rameika <rameika@sbcglobal.net>**

**Wed, Feb 20, 2008 at 8:46 AM**

To: Kevin Lesko <KTLesko@lbl.gov>

Cc: Young-Kee Kim <ykkim@fnal.gov>, "Bonnie Fleming T." <bonnie.fleming@yale.edu>, Diwan Milind <diwan@bnl.gov>, Kotcher Jonathan <jkotcher@nsf.gov>

I'm working on this slide for presentation purposes.

But the fact is that I FIRST went to Chris and asked for the cost of "taking out rock". He gave me the numbers of \$500-1000/m<sup>3</sup>. I THEN went back to the SOUDAN project, calculated the volume of rock, escalated the cost and came out with \$780/m<sup>3</sup>. I don't think our experience at SOUDAN was unfortunate, it is reality.

I think I have access to the original number from Soudan for "taking out rock"; if I recall it is actually a low number as you quote. The devil is in the multipliers going from a simple model of paying the crews of laborers to the full blown project.

I believe this is a serious matter because it can make or break the feasibility of building megaton scale detectors deep underground. I would like nothing more than the costs be as low as you quote. I think this discussion just fully supports the need to spend the time and money to do a serious engineering study and cost estimate. (I have talked to Mark Lametti and understand the level of detail that he has put in at this time, and I remain convinced that much more effort is needed on the costing.)

I'm also concerned that the past 20 years of mining experience do not directly translate into today's culture of safety and no risk projects. Perhaps Homstake has an excellent safety record, but many mining operations have made the news recently and I believe that we will be required to apply very stringent safety standards to any activity that we pursue.

See you tomorrow.

Gina

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**Mary Bishai <mbishai@bnl.gov>**

**Wed, Feb 20, 2008 at 10:57 AM**

To: Kevin Lesko <KTLesko@lbl.gov>

Cc: Milind Diwan <diwan@bnl.gov>

Thanks Kevin.

I hope you can work this out with the FNAL guys.

One thing it might help to know is how much of the cost of the MINOS cavern was "capital investment cost" (my Havaad MBA sister told me this is the right term) which doesn't scale with volume and how much the operational costs of excavation were at Soudan. I am guessing the latter would be much cheaper at Homestake given the limitations of Soudan.

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On Tue, 19 Feb 2008, Kevin Lesko wrote:

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> Begin forwarded message:  
>  
> > From: Kevin Lesko <[KTLesko@lbl.gov](mailto:KTLesko@lbl.gov)>  
> > Date: February 19, 2008 10:32:33 PM PST  
> > To: Gina Rameika <[rameika@fnal.gov](mailto:rameika@fnal.gov)>, Young-Kee Kim  
> > <[ykkim@fnal.gov](mailto:ykkim@fnal.gov)>, "Bonnie Fleming T." <[bonnie.fleming@yale.edu](mailto:bonnie.fleming@yale.edu)>,  
> > Diwan Milind <[diwan@bnl.gov](mailto:diwan@bnl.gov)>  
> > Cc: Lesko Kevin <[KTLesko@lbl.gov](mailto:KTLesko@lbl.gov)>, Kotcher Jonathan <[jkotcher@nsf.gov](mailto:jkotcher@nsf.gov)>  
> > Subject: Gina's presentation

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**Milind Diwan** <[diwan@bnl.gov](mailto:diwan@bnl.gov)>

**Wed, Feb 20, 2008 at 11:07 AM**

Reply-To: [diwan@bnl.gov](mailto:diwan@bnl.gov)

To: Regina Rameika <[rameika@sbcglobal.net](mailto:rameika@sbcglobal.net)>

Cc: Kevin Lesko <[KTLesko@lbl.gov](mailto:KTLesko@lbl.gov)>, Young-Kee Kim <[ykkim@fnal.gov](mailto:ykkim@fnal.gov)>, "Bonnie Fleming T." <[bonnie.fleming@yale.edu](mailto:bonnie.fleming@yale.edu)>, Kotcher Jonathan <[jkotcher@nsf.gov](mailto:jkotcher@nsf.gov)>

All:

We have a weekly schedule for the excavation.  
Have you examined this schedule and can you point out what is missing ?

A previous version was reviewed by RESPEC and found to be within the normal range. In fact they suggested it could be lowered.

I have the Diablo canyon estimates with the kind of detail that you like. It is also similar in number.

The cost that you suggest, 780/m<sup>3</sup> is a factor of 4 above the costs that we have.  
No item that is missing could account for this excalation.

Criticism is fine; we have made an honest effort in making an estimate, and please criticize it on specifics: tell us what is specifically missing. We want you to.

regards,  
Milind

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regards,  
Milind Diwan, Ph.D.