

Agenda

Hermosa Advisory Panel Meeting #8 Wednesday, November 17, 12p-2p

Patagonia Public Library, 46 Duquesne Ave (inside Cady Hall)

- 12:00 Working Lunch
- Review Agenda and Acceptance/Amendments to Meeting Minutes:
September and October
- 12:10 Scope of Work with Dr. Robin Breault: South 32 Technical Assistance
budget for workforce development assessment
- 12:20 Panelists: Report Updates
- Patagonia Area Resource Alliance
 - The Nature Conservancy
- 12:30 Dr. Ty Ferre, Distinguished Professor, Hydrology and Atmospheric
Sciences, University of Arizona
- Assessing water models: impacts of dewatering in Patagonia
 - Student progress: Fundamentals of Subsurface Hydrology class
- 1:30 South 32 Social Impact and Opportunity Assessment - Update and Next
Steps
- 1:40 Check in With Panelists – Future Commitment and Issues to Address Next
Year
- 1:55 Wrap Up and Looking Ahead: January 19 meeting

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The meeting of the Hermosa Advisory Panel was called to order at 12:00 pm on November 17, 2021 at Cady Hall, 46 Duquesne Ave by Angie Donelson.

Attendance

- Meeting Facilitators: Angie Donelson, Robin Breault
- South32 Hermosa Advisory Panel Members: Adelmo Sandoval, Carolyn Shafer, Damian Rawoot, Linda Shore, Liz Collier, Marcelino Varona, Maritza Cervantes, Michael Young, Olivia Ainsa-Kramer, Ruth Ann LeFebvre
- South32 Hermosa Advisory Panel Members Absent: Mark Beres, Gerry Isaac
- South32: Melanie Lawson
- Consultant: Hydrogeologist Ty Ferre
- Scribe: Lizbeth Perez

12:03 Working Lunch; Review Agenda

- Angie identified main meeting goals as:
 - Bringing in Dr. Ty Ferre to outline the process for the panel to make recommendations to South32
 - Having the opportunity to review and provide direction to Dr. Robin Breault's scope of work on workforce development assessment of gaps and opportunities
 - Having an end of year check in with panelists to see how they are feeling about commitment/goals ahead in 2022

Acceptance/Amendments to Meeting Minutes: September and October

- September and October minutes approved

12:10 Scope of Work with Dr. Robin Breault: South32 Technical Assistance budget

- Dr. Breault presented a scope of work for a workforce development assessment (see Appendix A). She will put a one-page document together for the panel by mid-February that aligns job clusters from South32 and the skills needed in industries throughout the county.
- The South32 prefeasibility study will also be important to informing this work, especially time frames and opportunities to train workers across sectors.

Ruth Ann LeFebvre

- You talked about housing previously; how will we be housing all these people coming in?

Angie Donelson

- I've submitted a technical assistance request through a national organization to bring in a consultant that will do a housing assessment. This is a joint effort between South32 and the county. We should hear if that's approved in early 2022.

12:13 Panelists: Report Updates

- Patagonia Area Resource Alliance
 - Carolyn Shafer handed out a monthly update (see Appendix B). She urged the panel to be asking questions about the mine's use of the region's water supply. She stated she expected PARA's questions about the nature of the mine – whether it is proposed to be open pit or underground – will be revealed with the forthcoming prefeasibility study.
 - In her role speaking as a member of the Patagonia Flood and Flow Committee, she said a subcommittee has been created to explore “best practices” for a construction of a detention basin. The county had an RFP out for this purpose, but it was pulled back to address the Patagonia Flood and Flow Committee concerns. An RFP is expected to be re-released in January.
- The Nature Conservancy (TNC)
 - Damian Rawoot explained TNC recently hired a scientist to develop a more comprehensive water monitoring protocol. They would also like to add water quality testing.
 - They plan to have continued dialogue with PARA and other stakeholders to share data and avoid duplicative efforts.
 - TNC is exploring potential flood mitigation ideas with the Patagonia Flood and Flow Committee, as they own a parcel adjacent to the site and expect more water flow through Harshaw Creek as a result of the mine dewatering phase. He will have an update in January.
 - TNC's graduate intern Taylor McCoy is coordinating student progress with Dr. Ty Ferre's undergraduate “Fundamentals of Subsurface Hydrology” class. That project, made available through the University of Arizona's “experiential learning accelerator,” will help the panel answer 12 core questions important to understanding hydrological concepts. Some of the panelists have volunteered to feedback on the student work in December, and it will be made available to the larger panel and community in early 2022.

12:30

Dr. Ty Ferre, Distinguished Professor, Hydrology and Atmospheric Sciences, University of Arizona

- **Assessing water models: impacts of dewatering in Patagonia**
- **Student progress: Fundamentals of Subsurface Hydrology class**

- Angie: Asked Melanie to provide context for Ty's presentation.
- Melanie: In May, South32 asked the panel for recommendations on alternative uses for dewatering other than discharge. However, the panel's feedback was they lacked sufficient information to make recommendations. Ty's support as a "hydrological intermediary" scaffolds the panel's understanding and assists the panel in making potential recommendations. With Ty's support, the panel will work through a process that includes the following steps:
 - A firm, Truescapes, will model water discharge into Harshaw Creek. With Dr. Ferre's support, the panel will define their desired outcomes.
 - A second firm, Unearthed, will propose scientifically validated crowdsourced solutions for alternative uses of the discharged water. With Dr. Ferre's support, the panel explore options to review proposed solutions.
 - In a third step, panel recommendations will go to South32 for recommended development options for alternative uses of dewatering other than discharge.
- As the panel makes recommendations, there will be some constraints: South32 is proposing to operate on private property. The discharge location will span Forest Service land which requires permitting; this will affect timing and project costs.
- Angie: as the panel explores choices, South32 will define how much influence it has in decision making so the panel can decide whether to vote on any set of issues.

Ruth Ann LeFebvre: When do you expect results of the Unearthed challenge?

Melanie Lawson: This is contingent upon the prefeasibility report; it will likely be early next year. We anticipate having recommendations to our consultant, Newfields, by April.

Angie: Ty's role here is: What is the process to make recommendations for dewatering? For us to gain further understanding about these impacts, today he will be sharing modeling about water impacts in Patagonia and how students in his undergraduate hydrology will help us gain deeper understanding of these principles.

Ty Ferre:

- The panel needs baseline knowledge to ask the right questions about the options with which they are presented (see Appendix C for Dr. Ferre's presentation).

- Modeling is the only tool that allows us to take what we know and project what the impacts might be. Those projections allow us to make decisions.
- Clear Creek Associates findings on flood risk on Harshaw Creek include a use of a good and valid model (see Appendix C). Model showed very little impact with addition of mine discharge into Harshaw Creek.
- PARA model findings also are meant to give preliminary insights. This model included variables shown in Appendix C. It also is a very valid model that shows an increase in stream flow at Harshaw Creek.
- They are different models with similar inputs but answering different questions. The Clear Creek model considers worst-case flooding in the past 50 years, while the PARA model considers stream flow change on a regular basis.
- The panel should ask questions and then ask for models answer them.

Ruth Ann LeFebvre: Were they asked different questions, is that why PARA and Clear Creek came up with different models?

Ty Ferre: I think they were asked questions that were too vague.

Carolyn Shafer:

- Clear Creek's report was a response to the Town of Patagonia's concerns about flooding during this 4-year dewatering program. PARA's looked at additional concerns with a proposed 50 year mine.
- The prior owner of the Hermosa project had some water discharge data on Harshaw Creek, but South32 is not sharing that data. It's difficult for the hydrologists to consider historical data without it.

Ty Ferre: Part of the problem is lack of data. There is no standard USGS gauge within the basin. I'd have to look back and see where they got this data. I don't think it's from S32.

Marcelino Varona: Given the data, can we draw an accurate inference to come to a decision?

Ty Ferre

- Excellent question, will come up in 2nd half of presentation
- Calibration is taking acceptable numbers for parameters and putting them into a model to make sure it performs well. If what we were looking at what the model was calibrated on, we can trust it.
- If we had a question other than what the model was calibrated on, model may not be correct; model needs to be calibrated differently.
- Panel should identify things important to them first.
- Student progress: Fundamentals of Subsurface Hydrology class: Students have been charged with making videos that are 5 minutes or or less. Will be looking for critical feedback from panelists on video; language used, video format, etc.

Angie Donelson

- One question the panel has asked before for the student project consideration is how water quality is impacted. I see one question about it – is that the only one?

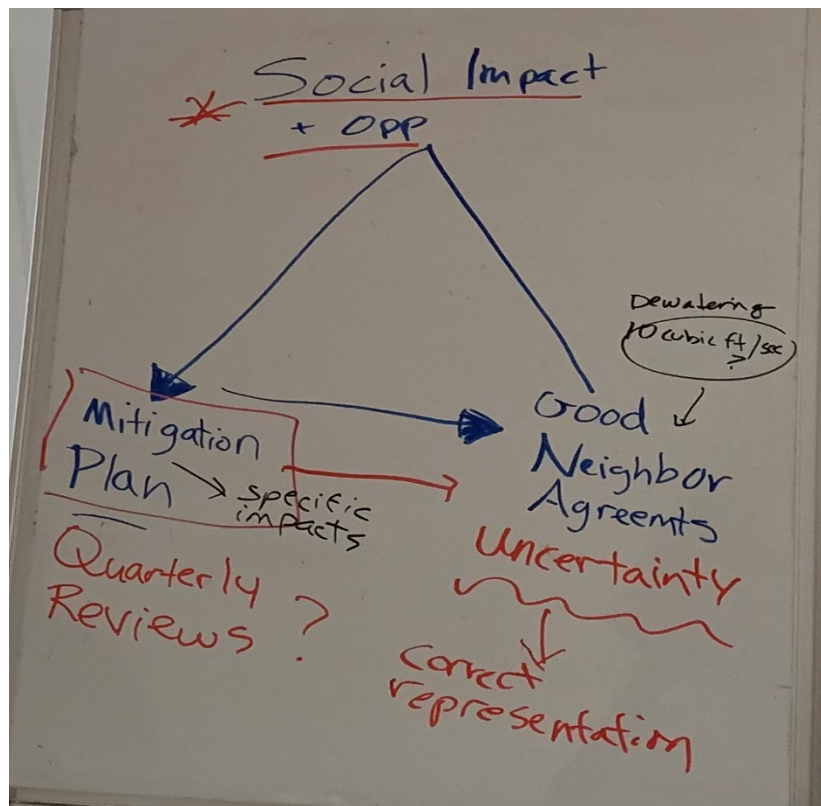
Ty Ferre

- Yes. Some chemicals – such as arsenic – already exist naturally. I don't know if it would be that different than the water that's entering. It would be wise to do a chemical analysis of the water that is in the creek now, so you have a baseline with which to compare changes.

1:40 South32 Social Impact and Opportunity Assessment - Update and Next Steps

Melanie and Angie:

- Next year, we have a framework for the panel that includes three points, as the panel works through implications of the prefeasibility study. Angie put this up on a whiteboard (see below).



In the coming year, this will include working with three sets of studies and strategies. The first will include a Social Impact and Opportunity Assessment. South32 will contract with a consultant for this assessment by early spring of 2022. It will incorporate outcomes of the prefeasibility study and analyze community impacts (both positive and negative) and propose mitigation actions as well as potential development opportunities. At the same

time, the panel will explore use of Good Neighbor Agreements as a tool for holding South32 to the panel's and community's desired goals. These two tools, the Social Impact and Opportunity Assessment and Good Neighbor Agreements, can be jointly used to inform a mitigation strategy for concerns. The panel the panel can use the mitigation strategy as an active plan and assess on a quarterly or as-needed basis.

- Melanie Lawson: Part of this too is doing some research to make sure the right party is on the other side of agreement. Stakeholder impacts are completely different in certain areas, so we need to ensure the correct entities are represented.
- Ruth Ann LeFebvre: Is a good neighbor agreement a legal document?
- Damian Rawoot: I think they are, but they're evolving. Good neighbor agreements are tools used elsewhere to varying degrees of success. They should be used for utility and stability in interactions with South32. From the community side, they provide a framework for engagement and provide the broader public with information. We can design them with flexibility to make sense for our situation.
- Ty Ferre: They provide a way of addressing uncertainty in outcomes.

1:55 Check in With Panelists – Future Commitment and Issues to Address Next Year

- Melanie Lawson left the room, so the panel could discuss issues **without** the mine present. However, the panelists felt she should be there for all future discussions. Panelists reaffirmed this process has not been a marketing exercise, as they originally were concerned might be the case, so they are comfortable addressing all concerns directly with her.
- Angie: How are you as panelists feeling about your commitment?
 - o All panelists present agreed to continue. They would like to continue to explore dewatering, water quality issues, and modeling. They need a prefeasibility plan soon to be able to make informed recommendations.
 - o Marcelino Varona: We need to continue to explore the dewatering issue. It is a big issue for Patagonia. We need to know how much water South32 will put into the creek, the water quality, and how it's going to affect us.
 - o Damian Rawoot: Commended the group. Though the process is slow, that has been the case because of a lot of technical information. We should not underestimate the lack of the prefeasibility plan; without it, everything is still hypothetical.
 - o Ruth Ann LeFebvre: the minutes have been helpful -- tells us what we did and ties things together. Really likes triangle and proposed direction moving forward.
 - o Liz Collier: We need to consider how South32 will fund the impacts it creates. How will the community be compensated when the mine eventually leaves?

- Linda Shore: Pat Risner said this is factored into prefeasibility study. He specifically commented that South32 is already planning for the end.
 - Ruth Ann LeFebvre: He wasn't talking about money, he was talking about actions for closure
 - Linda Shore: They're thinking about it anyway
 - Carolyn Shafer: You're saying a closure plan, Liz is talking about what if the closure plan doesn't go as planned and we're left here with a mess?
 - Liz Collier: We want money in the bank.
 - Angie: Good neighbor agreements can have an important role in addressing your concerns.
- Angie: What else would you like to see addressed next year?
 - Linda Shore: Hopefully what will come out of Robin's workforce development work is more detailed job job descriptions so everyone will know skills that are needed.
 - Liz Collier: With dewatering thing, one concern is environmental impact on species, plants, and birds. The biodiversity is what makes this place amazing.
 - Damian Rawoot: My hope is that the mitigation plan addresses the broad scale impacts of this disturbance.
 - Angie Donelson: Anything you all want to see on my report that I give to the mine in December on our work over the past 8 months? We can't make specific recommendations yet until we have specific plans from South32. The Social Impact and Opportunities Assessment will go in the report for what's on the horizon.
 - Carolyn Shafer: A good neighbor agreement is important, it's a major step forward for South32. The Town of Patagonia raised this question. Hearing Melanie talk about willingness to engage in that conversation is a major step.
 - Marcelino Varona: Wants to make sure we get point, counterpoint version of issues.
 - Ty Ferre: Off topic, but on the tour my understanding is there no stipulation in the approval for the amount of water South32 can pump. The design of 10 cu ft per second is based on models. If they start pumping and they find out its not responding the way they had, my understanding is they have a right to change how much water they pump.
 - Carolyn Shafer: Permit application South32 filled has an "up to" maximum amount. But you are correct, that amount is an average, it can go much higher.

2:20

Next meeting: January 19