

## Agenda

**Santa Cruz County Advisory Panel Meeting #16  
Wednesday, October 19, 2022  
Wild Horse Inn - 309 W McKeown Ave, Patagonia**

<i>Informal Discussion on Water with Prof. Ty Ferre</i>	<i>11 AM–12 Noon</i>
Greetings – Panel Charter Review	12:00-12:10
Updates on Professor Ferre’s Role	12:10-2:45
Q&A Tool Review	12:45-1:10
Permanent Facilitator Candidate Evaluation	1:10-1:50
Wrap-up and Next Steps Reflection/evaluation sheet	1:50-2:00

### **Attendance**

**Meeting Facilitators (Acorn International):** Dean Slocum, Ranay Guifarro

**South 32 Hermosa Advisory Panel Members Present:** Liz Collier, Gerry Isaac, Ruth Ann LeFebvre, Damian Rawoot, Linda Shore, Guillermo Valencia, Marcelino Varona, John Fanning, Carolyn Shafer, Chris Young

**South32 Hermosa Advisory Panel Members Absent:** Michael Young, Olivia Ainza-Kramer, Fritz Sawyer

**Visitors:** Prof. Ty Ferre, Ben Lomeli

**South32:** Melanie Lawson, Tomas Goode, Victor Cock

## Minutes

### 12:10 Greetings/Charter Review

Dean Slocum called the meeting to order, reviewed the meeting agenda and asked noted that Panel members voted to approve the July and September minutes by email prior to the meeting. Those minutes have been posted on the website.

**Marcelino Varona:** Are we going to get minutes in a packet? We would like packets for the meetings.

**Dean Slocum:** We will provide packets for the next meeting.

**Ruth Ann LeFebvre:** Angie provided packets, including the agenda and information on what we would be discussing at the meeting.

**Marcelino Varona:** That is a concern I have, this transition, we are accustomed to Angie and what she did and the free flow of thought that allowed.

**Dean Slocum:** I appreciate the input; I have a slightly different style but today you have the opportunity to select a facilitator that matches the style the committee wants.

**Dean Slocum:** We are going to look at two sections of the Charter, including new members.

**Marcelino Varona:** I would like to talk about the new members, at the last meeting I asked for Ben Lomeli to be considered a member, but my request that Ben Lomeli should be on this agenda was ignored. Now, I would like to look at the wording of the new member process that is currently in the charter, I think where it says facilitator it should be changed to 'committee'. We should go ahead and play an interictal role in who is part of this committee. I make a motion that we accept Ben Lomeli as a member of this committee and waive any criteria that is in the charter. Is there a second?

**Carolyn Shafer:** I second.

**Marcelino Varona:** Is there any discussion?

**Melanie Lawson:** Can I provide some background on why the charter was written this way? Angie was really big on the public process, whenever there was a call for applications and public posts, she made it so that it was a public process and not hand-picking individuals by the committee. Angie followed this process as was laid out in the charter. If the committee goes another direction, is everyone comfortable deviating from the public process?

**Linda Shore:** Has the public process been started; how long will it take? I agree with Marcelino in that we know that Ben is knowledgeable, I am comfortable circumventing the public process for one position.

**Guillermo Valencia:** I am also comfortable with circumventing the public process for Ben, but I don't want to throw out the process.

**Gerry Isaac:** I am not comfortable circumventing the process, I think we should follow the process and Ben can submit his name along with anybody else that wants to and follow the process.

**Liz Collier:** There is a public process in place, and if we could get it moving tomorrow, we could have our new member in the next meeting. Ben can sit here and enjoy this meeting and put in his application. I would hate to see this very tight committee infostructure torn apart, it gives us creditability.

**Melanie Lawson:** We can have this all done in the background so at the November meeting we have two new committee members.

**Marcelino Varona:** I think all the applicants can come back to us.

**Liz Collier:** We could form a sub-committee that could review the applicants.

**John Fanning:** I just want to reiterate that I believe in a public process, and I think Ben would be great on the committee with his knowledge. I think we can expedite but follow the process.

**Marcelino Varona:** I don't think we need a vote; I think we have a consensus that we will follow the process with a sub-committee and vote over email.

**Dean:** We could get a summary of the new members and the proposed new wording out by tomorrow.

**Linda Shore:** We also need a time frame for the applications.

**Melanie Lawson:** Yes, we can have a two-week timeline.

**John Fanning:** Can we change the wording in the charter like Marcelino said, and remove the facilitator and put committee for the process of adding another Panel member?

**Dean Slocum:** I would like ask that someone on the Panel put the requested change in writing for full Panel consideration.

**Carolyn Shafer:** I need to ask a question, now that we are making things right. There was an email that came out that said an attachment was the amended Charter, and it was amended Feb 2022. I went back to the original, and I admit I didn't scan it word for word, but I didn't see a difference. What was amended?

**Marcelino Varona:** Melanie, I think that it is because we added a process to vote on having a person removed from the committee.

**Melanie Lawson:** Okay, I can check.

**Dean Slocum:** One more thing on the Charter – please remember the Panel has an opportunity to inform the community on what the Panel is doing and bring back information and questions the community has. That is important to South32.

### **12:41 Professor Ty Ferre's Role**

**Dean Slocum:** Professor Ferre is here and can describe the agreement he has arrived at with South 32.

**Professor Ferre:** Yes, so I would describe what I have come up with as a proposal, which I then sent it to Tomas, this is 98% my take on my role with the Panel and South32. I want to make sure it is clear, and something you as the Panel understands.

**Dean Slocum:** This will be included with the meeting minutes as an attachment. (**Attachment B**)

**Professor Ferre:** I would encourage you to read it and if you have any questions or comments to email me, and once everyone is comfortable, we can go forward.

**Marcelino Varona:** Are you comfortable with it?

**Professor Ferre:** Yes, I am comfortable with it, I absolutely am.

**Linda Shore:** Does the good neighbor agreement person come with you?

**Professor Ferre:** David, my grad student isn't really in this role, the GNA is just the focus of his masters.

**Damian Rawoot:** Could you expand on the wording "However, Dr. Ferre may be required to become party to a confidentiality agreement and unable to disclose results of select South32 hydrologic analyses to the Panel."

**Professor Ferre:** Yes, I want to get all the access I can to assess the models, and there may be cases where South 32 can't make the data public, but I am saying that I might need the specifics to assess the model, so I am agreeing not to share the data, but I want access so as to best assess the models.

**Carolyn Shafer:** Thank you, that's what I am looking for because I have to trust you.

### **12:55 Q&A Tool Review**

**Dean Slocum:** [*Showed visual of almost-complete Q&A MS Excel Tool/Workbook. See Attachment C for questions.*] Here is what we are working on as a tool for the Q&A's. The questions you asked, and the answers that South 32 answered.

**Melanie Lawson:** We have tried to organize them by answers that we have and others that we will have at a later date.

**Tomas Goode:** Some of these questions were broad, so we have had to make some assumptions. Additionally, for some of the questions, we have provided some links where you can find additional information.

**Linda Shore:** This is a living document that you guys will update as you obtain more information and have answers.

**Melanie Lawson:** Yes, will put this on the website and we can add more questions and answer existing questions as information becomes available. The studies do take time to complete, so we could review them quarterly as an agenda item and see if there is any new information.

**Linda Shore:** We asked the questions, so it is our responsibility to read the answers.

**Tomas Goode:** This is the perfect way to use Dr. Ferre and ask him questions to better understand the answers we have provided. Echoing Melanie, the answers/additions to the Q&A file will not come quickly, studies do take time.

**Gerry Isaac:** Can the file just have a date on it, so it would say revised on X date?

**Melanie Lawson:** Yes, we can have a date on the file.

### **1:15 Permanent Facilitator Candidate Evaluation**

**Marcelino Varona:** Melanie, how are we going to avoid all these bumps of having a new facilitator?

**Melanie Lawson:** Well, that is the next agenda item, discussing the facilitators.

**Marcelino Varona:** Maybe we don't want a new facilitator, maybe we want to keep Dean.

**Dean Slocum:** Well, thank you, but we have talked to some facilitators. Last month, I proposed a step approach that was a bit more systematic, but you all said we trust you, go out and find three facilitators and bring them back for us to review. So, we have done that. We considered a variety of candidates proposed and identified, looked at seven resumes from that list. Three of those floated to the top based on facilitation experience. We interviewed those three, and from that, we noted (PowerPoint Presentation Slide) what they would bring to the table.

*[Showed PowerPoint slide summarizing three finalists, Handed our resumes for Panelist review. See Attachment A.]*

**Ruth Ann LeFebvre:** When you talked to these facilitators, was it over Zoom, or a phone call?

**Dean Slocum:** We talked to them over Zoom.

**Ruth Ann LeFebvre:** When you talked to them, did they know what the committee was, and the time commitment?

**Dean Slocum:** Yes, we shared with them information on the panel, such as the Charter and estimated that it would be a 5-Day a month time commitment.

**Marcelino Varona:** Resumes are great, but I want to know about dynamics. They can look good on paper but not measure up to what was on paper.

**Dean Slocum:** Marcelino has a point, it was good to interview them, and see how they answered our questions and how that would work with the Panel. We can have a Zoom call with the person you choose to see if they would work.

*[Panel breaks out into three groups to decide on a facilitator]*

- 2 Groups selected Catherine Tornbom
- 1 Group selected Ava Butler

2 groups mentioned that they would like Dean's name to stay on the table.

**Dean Slocum:** Okay we need to vote on a few things:

First, who wants to just hire Catherine Tornbom:

- 2 Votes

Who wants Ranay and me to record an interview with Catherine Tornbom for the Panel to review?

- 5 Votes (one vote was changed after some conversation)

Who wants Ranay and me to record an interview with Catherine Tornbom and Ava Butler for the Panel to review?

- 4 Votes

**Dean Slocum:** Ok, Ranay and I will record an interview with Catherine and Ava using identical questions, and the Panel can submit questions to Dean and Ranay. The recordings will then be emailed to the Panel, discussion, and possible selection will occur at the November meeting.

## 1:55 South32 Update

**Melanie Lawson:** South32 submitted for a renewal of its Arizona Pollutant Discharge Elimination (AZPDES) Permit; it is not a permit modification. South 32 is also applying for a Class 1 Air Permit for self-generating power. We are still pursuing line power; this is a backup so that we can produce our own power when needed.

*Dean Slocum provided a quick overview of agreed next steps and asked for everyone to please fill out the reflection/evaluation sheet- (Below)*

### Reflection/evaluation sheet

*How are you feeling so far? What could improve?*

- *Making Headway*
- *A little bit better-meeting has a better flow of thought*
- *Ok- getting new panelist now on the Panel and choosing a new facilitator and getting them on board*
- *No comment*
- *Good- Dean is helping us moving forward*
- *I am ready to get back to business! I appreciate the effort what was made to search for a facilitator. I would not let Marcelino Varona dictate the conversation.*
- *Still feeling great about the processes. Limit the distractions by certain members... sticking to the script and agenda as much as possible, but always being flexible as per the facilitator's discretion.*
- *I feel like we are treading water a little bit. It would be nice if the next facilitator can move things along quicker*

*What do we need to address next?*

- *Decision on facilitator*
- *Questions in relationship to model*
- *More progress on water, pick back up the transport issues and workforce*
- *No comment*
- *1. Facilitator, 2. Workforce*
- *Workforce, Water Quality after de-watering*
- *Water quality, transportation, workforce development*
- *Efficiency*

*How well have you felt heard so far? (0-5, with 0 not at all and 5 very well)*

0-  
1-  
2-  
3-2  
4-4  
5-2



# Attachment A

Facilitator Resumes





## **Ava S. Butler: Organizational Development Consultant**

### **Professional Background:**

Innovative yet pragmatic professional equipped with 25 years of experience partnering with non-profit and business leaders to design and manage transformation programs that accelerate major organizational change; develop and implement plans that mobilize employees on all levels of the organization to meet ambitious goals; and provide individual coaching to increase leadership performance from CEO to middle management levels.

### **Areas of Expertise:**

#### **Organizational Transformation:**

- Designing and managing transformation programs to accelerate major change, i.e. expansion to new markets and geographies, change in strategic direction, post merger and acquisition integration, process improvement, and streamlining organizational structures
- Identifying, prioritizing and implementing operating model changes to support growth
- Developing and implementing plans that mobilize employees on all levels of the organization to meet ambitious business goals. Agreeing and tracking key performance indicators
- Building multi-cultural and cross-functional teams to achieve sustainable results

#### **Leadership Alignment and Development:**

- Designing and facilitating meetings and off-sites, enabling organizational leaders to establish their vision, mission, goals and priorities
- Developing and aligning new and existing leadership teams to accelerate results
- Defining and implementing governance models within and between companies to achieve desired results
- Aligning business and technology objectives to achieve greater competitive advantage
- Providing individual coaching, increasing performance from CEO to middle management levels

#### **Human Resources:**

- Designing and implementing improved organizational structures, creating a more powerful focus, higher productivity, and stronger alignment between divisions, regions and product lines
- Developing and launching talent management strategies
- Aligning HR policies with business needs, enhancing long term sustainable change

#### **Education:**

M.A. Human Resources Management and Development, New School for Social Research, NY, NY  
Bachelor of Social Work, Arizona State University, Tempe, AZ

#### **Publication:**

Authored *Mission Critical Meetings: 81 Practical Facilitation Techniques*, 2014

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# Catherine Tornbom

## PROFILE

I am an experienced consultant, trainer, presenter, and facilitator. As an entrepreneur I created and sold a business and sold an interest in a consulting firm I co-founded. As a trainer I've created and delivered impactful courses ranging from one-hour to 40 hours. As a presenter I've addressed a wide range of audiences on how to transform conflict and increase productivity. I've facilitated business meetings, conducted focus groups, and strategic planning sessions using collaborative and participatory approaches for nonprofit and community organizations, businesses, government agencies, universities, and school districts.

## CONTACT:

PHONE:  
Cell/Text: 520.289.7117

EMAIL:  
catherine@interfuseassociates.com

## WORK EXPERIENCE

### UNIVERSITY OF ARIZONA

Tucson, AZ

2018 – Current Adjunct Instructor

Instruct graduate students in the School of Government & Public Policy on conflict management in the public sector. During the course students learn and practice mediation, negotiation, and facilitation through an engaging and highly interactive series of simulations.

### INTERFUSE ASSOCIATES

Silicon Valley, CA, and Tucson, AZ

2003 – Current Founder, Owner and CEO

Providing mediation, consulting, facilitation, and training services focused on increasing individuals and the organizations' ability to deal with conflict productively and collaborate effectively.

### CENTER FOR COMMUNITY DIALOGUE & TRAINING

Tucson, AZ

2010 – 2019 Manager

Built the Center from a struggling program with one service to a thriving Center serving 3,000 people per year through mediation, training, and community dialogue events. Managed a staff of 3 and 400 volunteers. Implemented a new business model for the Center. The first year earned \$13,000 above expenses which went to support the housing needs of five families through Our Family Services.

### CENTER FOR STRATEGIC FACILITATION

Mountain View, CA

1998 – 2008 Co-Founder and Senior Partner

The Center provides facilitation, consulting and training services to organizations, teams, and individuals. The Center is committed to the use of participatory methods to harness the collective power within organizations and teams.

### MULTI-ASSOCIATION MANAGEMENT

San Jose, CA

1991-2003 Founder, Owner and CEO

Led a team of professional staff members in providing association management services to non-profit professional organizations and foundations.

## EDUCATION

2012 - Professional School of Psychology, Sacramento, CA  
Master of Arts, Organization Psychology

1973 – George Williams College, Downers Grove, Illinois  
Bachelor of Arts, Social Studies/Urban History

## VOLUNTEER

### BOYS TO MEN TUCSON

Tucson, AZ

2018 – Current Board of Directors, Governance Chair

### ToP NETWORK

Chicago, IL

1998 – Current Catalyst Team, Member



## Tom Baca, Community Relations Director

In his position as Gordley Group Community Relations Director, Tom guides and facilitates interactions between organizations and the public to exchange information, express concerns, increase understanding, define solutions, achieve objectives and ultimately, improve communities. He has planned and facilitated dozens of public events and meetings, experience that benefits Gordley Group's public involvement clients and projects throughout Arizona.

During his 20+ year professional career, Tom has worked with a wide range of business and government leadership to meet their communications, public relations and marketing needs. This includes work within Hispanic communities, Native American tribes, and nonprofit organizations. He has worked on marketing and public relations teams creating strategic plans and executing tactics in English and Spanish, with care for respect of culture in messaging. Tom is certified in public involvement outreach planning by the International Association for Public Participation (IAP2).

### **Electric Vehicle Infrastructure Deployment Plan | Arizona Department of Transportation**

Tom provided review, editing and recommendations on the development of the Public Involvement Plan covering statewide outreach. He is also leading the planning and staging of public meetings across Southern Arizona to gather public input on the deployment of electric vehicle charging stations along alternative fuel corridors across Arizona.

### **Brawley Wash Watershed Plan | Pima County Regional Flood Control District**

Tom manages public involvement information, which follows Natural Resources Conservation Services requirements for public involvement. These updates have included website updates and stakeholder and public outreach. Through similar efforts earlier in the project, a large amount of specific public input was received and evaluated by the project team in developing plan alternatives.

### **Farm Wastewater Treatment Management Plan | Premium Standard Farms, Inc.**

Prior to joining Gordley, Tom assisted in planning and hosting a public hearing regarding wastewater treatment and discharge of the company's many pig farms across several north-central Missouri counties. Following a contentious hearing, Tom was instrumental in planning and executing a multi-year public engagement program. He planned and facilitated public meetings, community advisory groups and community outreach through printed newsletters and personal contact. Community advisory groups allowed vocal opponents to share their views and concerns with company representatives on an ongoing basis and discuss proposed operational solutions. Through public input, the company identified acceptable wastewater land application protocols and committed to developing new waste treatment options, including a pellet fertilizer-generating plant based on the City of Milwaukee's "Milorganite" operations. Many of the group's members became supportive of the company because of its focus on sustainable and environmentally conscious operations and going beyond the economic opportunities provided to local communities hit by population out-migration.



# Attachment B

PowerPoint Presentation



# *Santa Cruz County Advisory Panel Meeting*

**Patagonia, Arizona**

**October 2022**

**Acorn International, LLC**



# Agenda

<b>Informal Discussion on Water with Ty Ferre</b>	11:00 – 12:00
<i>This is an informal opportunity to discuss water with Ty and is completely optional as we understand some people have more interest in water topics than others, or perhaps more hectic schedules.</i>	
<b>Greetings – Panel Charter Review</b>	12:00-12:10
<b>Updates on Dr. Ferre’s Role</b>	12:10 - 12:45
<b>Q&amp;A Tool Review</b>	12:45 -1:00
<b>Permanent Facilitator Candidate Evaluation</b>	1:00 - 1:45
<b>Wrap-up and Next Steps</b>	1:45 - 2:00



# Panel Charter

## ***New Member***

In the event that new members are required, the process for new members shall be as follows:

- Invitations to be provided to all Santa Cruz County residents by South 32
- Applicants are to complete the SCC Advisory Panel on the S32 Hermosa Project Expression of Interest form
- Completed applications are to be returned to the facilitator
- Shortlisted applicants will be interviewed by the facilitator according to selection criteria indicated in the expression of interest form
- Final decision of successful applicants made
- Applicants to be advised in writing by the facilitator whether their application was/was not successful
- Successful applicants to be invited to join the Advisory Panel.



# Panel Charter

The key **roles** of panelists are to:

- 1) Facilitate communication between the community and South32
- 2) Discuss and explore community impacts related to the Hermosa operation
- 3) Enable issues or questions to be raised and addressed that are relevant to the local community as it relates to impacts of the operation
- 4) Share the findings and discussions from the panel with the community, including groups where panelists have strong connections and networks
- 5) Guide, change and improve the way that South 32 engages with the community (Santa Cruz County), including recommending ideas to ensure those impacted have the opportunity to benefit from the project
- 6) Provide advice and recommendations on aspects of the project that reflect values held by the community (Santa Cruz County)

Key **responsibilities** are to:

- 1) Attend all scheduled meetings (or provide an excused absence prior to the meeting if unable to attend)
- 2) Be willing to contribute constructively in all aspects, from planning, meeting participation and evaluations





# Dr. Ferre's Role

Dr. Ferre is acting in the capacity of hydrologic intermediary to improve communication regarding hydrologic processes and impacts related to the South32's Hermosa Project. He serves a dual role: soliciting water-related concerns from the Santa Cruz County Advisory Panel (Panel) on the South32 Hermosa Project and relating them to questions that can be addressed by applying hydrologic science. Dr. Ferre also provides guidance to South32 and the Panel regarding potential limitations in hydrologic models that are constructed for environmental impact assessments and to communicate their level of effectiveness in addressing community concerns.

Dr. Ferre, as a hydrologic intermediary, is not an advocate for any parties. Rather, he serves to improve communication and the application of hydrologic science to risk assessment. To accomplish this, he will work with both South32 and the Panel directly. However, Dr. Ferre may be required to become party to a confidentiality agreement and unable to disclose results of select South32 hydrologic analyses to the Panel. When South32's regional numerical groundwater flow model is complete and available, he will review the model and produce a report that details how hydrologic features related to citizens' concerns are represented in the model construction and simulations. As part of the report, he will provide suggestions regarding future model adjustments and additional evaluations/simulations to be considered and applied at South32 discretion, given constraints of schedule and time requirements. *he* will be available to the Panel for advice and explanation of water-related concepts throughout the project.



# Q&A Tool



## CATEGORY

  
01  
 QUALITY  
MONITORING

  
02  
 GROUND  
WATER

  
03  
 SURFACE  
WATER

  
04  
 CLIMATE

  
 SEARCH  
KEYWORD

Question/Concern	Groundwater	Wildlife impact	Agriculture impact	Time horizon	Surface water	S32 accountability	In relation to what South32 dewatering related activity (specifically, if possible)?	If relevant, what would recommend to be an appropriate mitigation strategy? (leave blank if no answer)	Answers	Sources
Species loss due to changes in water shed		x					Pumping and dumping water into Sonoita and Harshaw Creeks	Nature Conservancy monitoring and reporting consistently over the life of the mine.		
What is the regional footprint of impacts due to dewatering?	x	x	x		x	x	Are any dewatering or contamination impacts expected to affect the San Rafael Valley (east side of Patagonia Mountains Divide)?			
Long-term changes in the geomorphology, hydrology, rheology, recharge, and ecosystem conditions in areas affected by dewatering and mining	x			x			Do we expect water that is pumped into Harshaw drainage to return to deep mountain block aquifers? Over what time frame?			
How much discharge will be used in mining operations?	x				x		Extraction and processing of minerals on-site	Recycle discharge multiple times for reuse in processing.		
What do we know about the water being brought to the surface?	x					x	How old is the water (not Tritium, radiocarbon) being pumped up?			
Monitoring-groundwater and surface water where does it go?	x					x				
Long-term changes in the geomorphology, hydrology, rheology, recharge, and ecosystem conditions in areas affected by dewatering and mining	x			x	x	x	will returning cement-mixed tailings back into the mountain system change the porosity, permeability, and groundwater path/flow rate in the mountains			
Long-term changes in the geomorphology, hydrology, rheology, recharge, and ecosystem conditions in areas affected by dewatering and mining	x			x	x		What is the projected change in hydraulic head along the groundwater divide? How is this expected to impact direction of flow and magnitude of flow?			
Long-term changes in the geomorphology, hydrology, rheology, recharge, and ecosystem conditions in areas affected by dewatering and mining	x	x		x		x	How does the dewater process impact the rheology of the bedrock?			
Long-term changes in the geomorphology, hydrology, rheology, recharge, and ecosystem conditions in areas affected by dewatering and mining	x			x	x	x	How might future movement along existing Quaternary faults impact			



# Facilitator Selection Process

	Tom Baca	Ava Butler	Catherine Tornbom
<b>Location</b>	Tucson	Tucson	Tucson
<b>Yrs Relevant Exp</b>	20+	25	32
<b>Current Position</b>	Consultant - Consulting Company	Consultant - Independent	Adjunct Professor, Consultant

Resume handouts



# Next Steps

- Roadmap Update, including modeling/monitoring, good neighbor agreement. Transportation, workforce development, other
- Q&A Tool Updates
- Project Updates
- Updates on Nature Conservancy, Flood & Flow Committee and PARA
- **Facilitator Selection: evaluation/selection, decision, on-boarding**
- New member nomination and evaluation





**Thank you !**

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[rguifarro@acornintl.com](mailto:rguifarro@acornintl.com)





# Attachment C

Question and Answer Excel Sheet

Question	Who Asked	Context of question? (optional - open ended)	South32 Response
What contaminants come in recharge water?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.32	<p>Groundwater contains naturally dissolved constituents with some exceeding surface and groundwater standards. All water discharged to Harshaw Creek will be treated by WTP2 prior to discharge to reduce constituents below the applicable Surface Water Quality Standards which are enforced through the Arizona Pollutant Discharge Elimination System (AZPDES) permit and Aquifer Quality Standards enforced through the Aquifer Protection Permit (APP). Available here: <a href="https://www.south32.net/hermosa/documents">https://www.south32.net/hermosa/documents</a></p> <p>Groundwater contains naturally dissolved constituents with some exceeding surface and groundwater standards. All water discharged to Harshaw Creek will be treated by WTP2 prior to discharge to reduce constituents below the applicable Surface Water Quality Standards which are enforced through the Arizona Pollutant Discharge Elimination System (AZPDES) permit and Aquifer Quality Standards enforced through the Aquifer Protection Permit (APP). The APP is available on the Hermosa documents page: <a href="https://www.south32.net/docs/default-source/hermosa-documents/enviro-studies-data/2021-app-final-permit.pdf?sfvrsn=66cc2ee_4">https://www.south32.net/docs/default-source/hermosa-documents/enviro-studies-data/2021-app-final-permit.pdf?sfvrsn=66cc2ee_4</a> and the AZPDES is available here: <a href="https://www.south32.net/docs/default-source/hermosa-documents/enviro-studies-data/signed-hermosa-project-azpdes-modification.pdf?sfvrsn=14e3dbe5_2">https://www.south32.net/docs/default-source/hermosa-documents/enviro-studies-data/signed-hermosa-project-azpdes-modification.pdf?sfvrsn=14e3dbe5_2</a></p>
What level are the contaminants in recharge water?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.33	<p>These permits provide a list of potential constituents and associated discharge limits for each constituent.</p> <p>Groundwater contains naturally dissolved constituents with some exceeding surface and groundwater standards. All water discharged to Harshaw Creek will be treated by WTP2 prior to discharge to reduce constituents below the applicable Surface Water Quality Standards which are enforced through the Arizona Pollutant Discharge Elimination System (AZPDES) permit and Aquifer Quality Standards enforced through the Aquifer Protection Permit (APP).</p>
How will dewatering impact the quality of water for residents of Patagonia?		Water/Environment Issues Raised By Panelists to Date	<p>Many of the wells in the Patagonia area do not currently meet water quality standards. Consequently, the discharged water from the dewatering program may provide improved water quality in many areas.</p> <p>Groundwater contains naturally dissolved constituents with some exceeding surface and groundwater standards. All water discharged to Harshaw Creek will be treated by WTP2 prior to discharge to reduce constituents below the applicable Surface Water Quality Standards which are enforced through the Arizona Pollutant Discharge Elimination System (AZPDES) permit and Aquifer Quality Standards enforced through the Aquifer Protection Permit (APP).</p>
Will treated mine discharge decrease water quality downstream? Potential threats to downstream wells/human health? Potential impacts to surface waters/Threatened and Endangered species/human health? Consideration for known downstream contaminants?	Carolyn Shafer	INFORMATION for the Santa Cruz County Advisory Panel on Hermosa Project	<p>Many of the wells in the Patagonia area do not currently meet water quality standards. Consequently, the discharged water from the dewatering program may provide improved water quality in many areas.</p> <p>Based on studies of T&amp;E species in the area as well as the discharge water quality from WTP2, no negative impacts to downstream users (including humans and wildlife) are anticipated.</p>
How will discharge water quality vary?	Carolyn Shafer	INFORMATION for the Santa Cruz County Advisory Panel on Hermosa Project	<p>Groundwater contains naturally dissolved constituents with some exceeding surface and groundwater standards. All water discharged to Harshaw Creek will be treated by WTP2 prior to discharge to reduce constituents below the applicable Surface Water Quality Standards which are enforced through the Arizona Pollutant Discharge Elimination System (AZPDES) permit and Aquifer Quality Standards enforced through the Aquifer Protection Permit (APP).</p> <p>Quality of discharge water must consistently meet AZPDES and APP permit limits.</p>
How land will respond to water "plans" of the mine		Data party question	<p><a href="#">To be answered at a later date.</a></p>
What method of dewatering is South 32 going to use?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.24	<p>Groundwater will be managed using surface wells with some shift to underground wells and sumps during future stages of development. Water is pumped from below ground surface to WTP2 for treatment and later discharged to Harshaw Creek.</p>
How (or do) mining operations impact water availability around the area?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.25	<p>There are impacts anticipated to groundwater levels in close proximity to Hermosa after dewatering begins. Per South32 standards, dewatering will not inhibit a current groundwater user's ability to obtain water. In the event that a groundwater user is unable to maintain water availability as result of South32's dewatering activities, South32 will work with the groundwater user to obtain and maintain water for their use. We have a well monitoring program in place to gather baseline information, both quality and water level, so we can monitor potential changes once pumping begins.</p>

How far from mining operations is groundwater volume affected?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.26	To be answered at a later date. This question also needs to be narrowed by time and geographical constraints
What are the water plans of the mine – near term to long term for dewatering and water consumption? If drought persists for 20 years, will the amount of groundwater at the mine site go down if mining operations happen? If so, by how much? Are there long-term consequences to endangered species due to discharge? If so, what wildlife species would be affected?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.28	To be answered at a later date.
		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.29	To be answered at a later date. This question also needs to be narrowed by time and geographical constraints
How will South 32 use of water affect ground water?		Water/Environment Issues Raised By Panelists to Date	Based on studies of T&E species in the area as well as the discharge water quality from WTP2, no negative impacts to wildlife are anticipated.
How will dewatering impact residents? How will it impact ground water and surface water?		Water/Environment Issues Raised By Panelists to Date	To be answered at a later date. This question also needs to be narrowed by time, quality, and geographical constraints
Can you explain the cone of depression created through dewatering?	Melanie Lawson		In a stable groundwater environment, recharge equals discharge. Dewatering will remove water from storage near Project Area. Pumping water will induce a cone of depression in the water table. Cone would be created by to make a safe environment for exploration, development and mining. Need to increase recharge to balance increased discharge (possibly in other areas). There is a video on the hermosa website that explains this concept and provides visuals.
Are they going to discharge water (from dewatering) right off the mine property?	Fritz Sawyer		Yes the discharge will occur on private land near WTP2. The exact location, known as Outfall 2, is listed in the AZPDES and APP permits A third-party evaluation of the discharges by Clear Creek Associates (co-commissioned by South32 and the Town of Patagonia and conducted during the first half of 2021), confirmed that the discharges would have minimal impacts to flood flows in the town during simulated 2-year, 10-year, and 50-year 24-hour storm events, amounting to less than one inch for all storm events.
Flooding - how far will it reach? - Amount of flood water		Data party question	A copy of the study is available on the Hermosa Project and Town of Patagonia websites A third-party evaluation of the discharges by Clear Creek Associates (co-commissioned by South32 and the Town of Patagonia and conducted during the first half of 2021), confirmed that the discharges would have minimal impacts to flood flows in the town during simulated 2-year, 10-year, and 50-year 24-hour storm events, amounting to less than one inch for all storm events.
How does flood risk from the mine's dewatering activities impact the local community?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.35	A copy of the study is available on the Hermosa Project and Town of Patagonia websites  To be answered at a later date. This question also needs to be narrowed by time, quality, and geographical constraints
Will springs dry up?	Carolyn Shafer	INFORMATION for the Santa Cruz County Advisory Panel on Hermosa Project	A seeps and springs catalog is available on the Hermosa documents website. The catalog summarizes field based observations and water quality information at approximately 80 different locations.  A third-party evaluation of the discharges by Clear Creek Associates (co-commissioned by South32 and the Town of Patagonia and conducted during the first half of 2021), confirmed that the discharges would have minimal impacts to flood flows in the town during simulated 2-year, 10-year, and 50-year 24-hour storm events, amounting to less than one inch for all storm events.  To be answered at a later date. This question also needs to be narrowed by context of flood type, return interval, and distinctions between flood vs. flow conditions as well as the dewatering time frame (pre-mine or during mine operations)
Would discharge stop during a flood?			
When we decide the problems, what solutions are there?		Process Used to Clarify Water Concerns and Consider Options for Alternative Uses Other Than Discharge	To be answered at a later date by Dr. Ferre.
What three questions should we be asking about a model?	Mark Beres		In short, you should be asking three questions: 1) What is driving the model – what question are you answering? 2) What did you do to explore your uncertainty? 3) What about that uncertainty is important? Modelers rarely provide home much uncertainty is embedded within their models.



We need to discuss where the water truly feeds into Patagonia -- what impact does Mt Wrightston to Sonoita have as to the watershed in Patagonia?		Asked in survey	To be answered at a later date by Dr. Ferre.
How much groundwater exists at the mine's property?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.23	To be answered at a later date. This question also needs to be narrowed by time, quality, and geographical constraints
Ground water and Surface water: where does it go? How do we find out more about quality?		Data party question	The water discharged from WTP2 will meet groundwater and surface water quality standards as required in the Aquifer Protection Permit (APP) and the Arizona Pollutant Discharge Elimination System (AZPDES) permit. The required water quality parameters are listed in those permits. This water will recharge along Harshaw Creek and ultimately replenish the aquifer beneath the Patagonia Mts. and add water to the aquifer beneath and around the Town of Patagonia.  South32 provides water quality information from monitoring locations onsite and near the Town of Patagonia on the Hermosa Project Website. There are other sources of publically available information such as flow monitoring conducted by USFS that can be accessed.
How much of the groundwater will South 32's mining operations be removing?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.30	At this time, the anticipated pumping rate is a maximum of 4,500 gallons per minute (10 cubic feet per second) for the duration of exploration activities.
What impact could contaminants have impacts on wildlife and fauna?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.34	The water quality standards established through the AZPDES and APP permits are protective of human health and the environment Yes, groundwater levels and water quality sampling are performed on a quarterly basis at well locations within the Patagonia Mts and within the Town of Patagonia. Water quality is provided to the public for MW-9 in the Town, as well as flow measurements and water quality summaries for over 80 seep and spring sites within the Patagonia Mts. These documents are available for the public on the Hermosa Documents page.
Can we do monitoring with dewatering?		Process Used to Clarify Water Concerns and Consider Options for Alternative Uses Other Than Discharge	There is an opportunity for further collaboration with the Panel on water quality monitoring
Change in groundwater level in shallowest aquifers? Change in spring and stream flows?			Groundwater levels and water quality sampling are performed on a quarterly basis at well locations within the Patagonia Mts and within the Town of Patagonia. Water quality is provided to the public for MW-9 in the Town, as well as flow measurements and water quality summaries for over 80 seep and spring sites within the Patagonia Mts.
How much of Harshaw Creek discharge (from mine and natural) will be captured by mine pumping?	Carolyn Shafer	INFORMATION for the Santa Cruz County Advisory Panel on Hermosa Project	To be answered at a later date. This question also needs to be narrowed by time, quality, and geographical constraints
How will dewatering putting and/or Harshaw Creek discharge affect Sonoita Creek?	Carolyn Shafer	INFORMATION for the Santa Cruz County Advisory Panel on Hermosa Project	To be answered at a later date. A point of ongoing litigation.
Will mine discharge to Harshaw Creek exacerbate downstream flooding or damage infrastructure (e.g., basements, shallow wells septic system, etc.) What happens when high discharge in Harshaw Creek stops?	Carolyn Shafer	INFORMATION for the Santa Cruz County Advisory Panel on Hermosa Project	A third-party evaluation of the discharges by Clear Creek Associates (co-commissioned by South32 and the Town of Patagonia and conducted during the first half of 2021), confirmed that the discharges would have minimal impacts to flood flows in the town during simulated 2-year, 10-year, and 50-year 24-hour storm events, amounting to less than one inch for all storm events.  Studies conducted by South32 and the Town of Patagonia indicate that discharge to Harshaw Creek does not create flooding problems or problems for existing infrastructure. This was evaluated for several flood sizes and flood return intervals. This information is available from the Town of Patagonia and the full report is available on the Hermosa Documents page. The results are also explained in a video also available on our website. When discharge is discontinued into Harshaw Creek, the groundwater levels in the Patagonia area will slowly subside as water continues to discharge into Sonoita Creek
How does flow that's going on right now in Harshaw combined with the dewatering of the mine and the rain, impact the potential of flooding?	Marcelino Varona		A third-party evaluation of the discharges by Clear Creek Associates (co-commissioned by South32 and the Town of Patagonia and conducted during the first half of 2021), confirmed that the discharges would have minimal impacts to flood flows in the town during simulated 2-year, 10-year, and 50-year 24-hour storm events, amounting to less than one inch for all storm events.  A copy of the study is available on the Hermosa Project and Town of Patagonia websites

Impact of monsoons?		Process Used to Clarify Water Concerns and Consider Options for Alternative Uses Other Than Discharge	A third-party evaluation of the discharges by Clear Creek Associates (co-commissioned by South32 and the Town of Patagonia and conducted during the first half of 2021), confirmed that the discharges would have minimal impacts to flood flows in the town during simulated 2-year, 10-year, and 50-year 24-hour storm events, amounting to less than one inch for all storm events.  A copy of the study is available on the Hermosa Project and Town of Patagonia websites
What can we expect regarding real world impacts to Harshaw Creek as dewatering commences?		Process Used to Clarify Water Concerns and Consider Options for Alternative Uses Other Than Discharge	The water discharged from WTP2 will meet groundwater and surface water quality standards as required in the Aquifer Protection Permit (APP) and the Arizona Pollutant Discharge Elimination System (AZPDES) permit. The required water quality parameters are listed in those permits. This water will recharge along Harshaw Creek and ultimately replenish the aquifer beneath the Patagonia Mts. and add water to the aquifer beneath and around the Town of Patagonia. Flows will be observed in Harshaw Creek on a relatively continuous basis during dewatering.  <a href="#">To be answered at a later date. This question also needs to be narrowed by time, quality, and geographical constraints</a>
After dewatering, will the aquifer recover?	Ruth Ann LeFebvre	Shared while panelists introduced themselves	Yes
How much groundwater will naturally restore, or will it?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.22	Groundwater conditions will recover after dewatering is completed.
Will the groundwater recharge after dewatering stops?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.27	Groundwater conditions will recover after dewatering is completed. This is a result of recharge continuing from precipitation events as well as water moving into the cone of depression from it's sides.
With recharge, will water need to be piped back to the original site of discharge?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.31 Process Used to Clarify Water Concerns and Consider Options for Alternative Uses Other Than Discharge	<a href="#">This question needs additional detail in order to provide a response.</a>
What did other mines do successfully?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.31 Process Used to Clarify Water Concerns and Consider Options for Alternative Uses Other Than Discharge	<a href="#">This question needs additional detail in order to provide a response.</a>
Explain why mountains are fractured and how it complicates systems?	Marcelino Varona	Asked Tomas after Carolyn's comment that Patagonia mountains are classified as highly fractured	Patagonia mountains have various rock types, including large volcanic rock layers. The different rock layers have been fractured and broken to different degrees based on age and location. Some of the youngest volcanic rocks are less broken are not very permeable; it is difficult for water to go through.
When you measure conductivity of an area, how long is that model good for?	Ruth Ann LeFebvre		Once measured, parameter is set as geologic features; these do not change quickly. However, other parameters like temperature can change conductivity
How is the process of modeling keeping up with impacts of climate change?	Carolyn Shafer		When we build models, we determine what parameters to include. Climate change influences the parameters, which you can measure to input them into and run model
What local studies have been done on how water has been flowing and the state of our watershed?	Micheal Young		USGS has done studies, don't know if it relates to exactly what you're looking for. Happy to present what we have done, our research on local hydrogeologic conditions.
If no mining occurs, how will groundwater volume change, or will it?		SCC Advisory Panel on the South 32 Hermosa Project Questions Raised on 6.16.21	<a href="#">This question needs additional detail in order to provide a response.</a>
In this region, are we facing water scarcity that will grow? Are we in a drought? Is water security something we need to be particularly concerned about?	Mark Beres		Generally, in this area, rain will come in fewer, heavier storms. This may affect the watershed's ability to recharge. I would be concerned, but I wouldn't get ahead of myself.  There are impacts anticipated to groundwater levels in close proximity to Hermosa after dewatering begins. We have a well monitoring program to gather baseline information and monitor potential changes. Per South32 standards, dewatering will not inhibit a current groundwater user's ability to obtain water. In the event that a groundwater user is unable to maintain water availability as result of South32's dewatering activities, South32 will work with the groundwater user to obtain safe consistent access
Will water be available for the area, and potable?	Mark Beres	Asking about takeaway from video of hydrologists reviewing S32 dewatering program/PARA's concerns	
What will happen after 50-year mine life?	Carolyn Shafer	Shared while panelists introduced themselves	<a href="#">To be answered at a later date. This question also needs to be narrowed by quality and geographical constraints</a>

At the end of the mine's life, is there going to be any water left to support the community?

Liz Collier

Yes, there will be water to support the community. It depends on what the town's going to do

Recharge!! How does it get paid for? How does it happen?  
What is actually happening at the mine this is a highly fractured area and how will that impact outcomes for the community?

Data party question

At this time, recharge of the Hermosa discharge water will only be occurring along the natural channel of Harshaw Creek. Additional recharge methods or locations can be evaluated over time along with their costs and logistics.

Data party question

To be answered at a later date. This question also needs to be narrowed by time, quality, and geographical constraints

Questions can be answered now by S32

Questions can be answered by Dr. Ty Ferre

Questions answered in the future with more info/studies