Brown AND Caldwell

Meeting Minutes

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Prepared for: Midas Gold Idaho, Inc. (Midas Gold)
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Meeting Title: Enter meeting name here **Time:** 9:00 a.m. MST

Web Conference Link: [HYPERLINK **Ex. 6 Personal Privacy (PP)**
Call-In Phone No.: Ex. 6 Personal Privacy (PP) (Participant Code: Ex. 6 Personal Privacy (PP)

Attendees:

Clayton Nalder, USFS
Aaron Beavers, NOAA
Ally Turner, USFWS
Wes Keller, NPT
Johnna Sandow NOAA
Michael Edmonson, OSC
Lee Jacobson, USFS
Marde Mensinger, OEMR
Jordan Messner, IDFG
Erin Kenison, FWS
Dan Kline, Midas Gold
Paula Leonard, BC
Alix Matos, BC
Linique Kimball, BC
Aylin Lewallen, BC
Rob Richardson, RIO ASE
Mark Miller, BioAnalysts

Discussion:

Stream Diversions, Fish Salvage, and Relocation– Objectives 2-4

Leonard: There will be times when work will be required in or near the streams, so developing an understanding of how avoid and minimize impacts from this work is important - How handle fish salvage, how many fish, where located, where relocate? Mark will provide overview how we've made these calculations and we hope to get input from the group on elements of the Fish Salvage and Relocation Plan get input from the group.

Miller – Reviewed objectives for diversions/salvage and relocation discussion. Different activities will have different impacts. When different life stages are present, what life stages are most sensitive

> **Sandow** Is this temporary? How are you collecting fish? Electrofishing?
>
> **Leonard**: We are considering that. We will present a protocol and ask everyone to provide feedback. Is it better to herd fish out, then exclude or electro fish after to get even more out?

we are aware that some of these activities could harm fish and certain methods are more impactful. We will present our approach shortly to get your feedback.

Sandow. Use the most effective method to capture as many fish as possible.

Miller – Spawning reaches are an area where eggs have been laid and are incubating. Migratory reaches are areas where the fish is moving upstream. Provided an overview of these periods by species the migration/spawning windows and associated instream work windows. If we assume all reaches are spawning, this will be a more conservative approach. Range of abundance and density values at each location and each species.

Leonard – this is a planning tool to allow us to assess how many fish we expect to handle during different activities

Nalder: How are we going to do that? Anywhere above YPP is spawning habitat.

Miller: That is what we are going to need from you.

Nalder: Our experience – 10 feet below is cascading; difficult to spawn out.

Miller: This is the information we need, a more conservative approach. If the approach doesn't fit for the reach, that is the feedback we need.

Nalder: Did we develop a periodicity paper?

Leonard: Yes, it's in the design report as an appendix and being refined in our current analyses

Sandow: Would like to see the methodology for these estimates in the BA, assumptions about data, data manipulations, etc. – in the BA or as an appendix so Services can understand how done.

Sandow: Do you have a plan to use baseline data?

Miller: Yes, estimates might change between high and low.

Nalder: One thing to be careful with is the state data.

Edmonson: Primarily snorkel data?

Leonard: Yes, no matter how hard we try, we will never know the exact amount of fish. Abundance will vary.; Midpoint, have some estimate for ESA purposes.

Jacobson: Why go and do all of this work? If for BA purposes, then useful.

Nalder: To be careful with fish and where we are going to put them.

Leonard: Just a plan estimate.

Nalder: Stantec report will have a good data.

Miller: Once come to year of salvage, we need understand how many fish will be present at the relocation period. Need to know the density and what's the highest density ever seen, and we don't want to exceed that number by a large amount. Reading the IDFG report, detection frequency about 32%. Use that sample bias to account for fish not catching

Miller – provided an example for Blowout Creek for how we are doing the calculations. Is this what folks were looking for or not?

Sandow: Seems like a reasonable approach. What about where we have no data? Requested the information provided also includes sample size (i.e., # of times surveyed) and date range of the surveys

Miller: Just use Blowout Creek examples. Johnna is right. What is best reference area?

Nalder: In baseline data 2012-2016 stream reach not broken up by SFA reach, fairly simple, limited data in foothill creek. I'll leave it up to you for density and reaches.

Leonard: Use examples, ranges or estimates in the middle.

Miller: Use similar size streams.

Nalder: Or Meadow Creek/East Fork the same way. Are you using all data or last 10 years?

Miller: That's a good question. Will confirm.

Keller: Do you have the capacity and space to put fish in these areas?

Miller: That is a good topic. We are developing this. It is lined out in some areas downstream of the YPP We might have to develop other areas.

Leonard: Next topic is relocation. We have not considered YPP, but maybe up to that point we could use YPP.

Nalder: To reduce adult densities in YPP, maybe develop a year or two before?

Keller: Perhaps a one-year protected area?

Leonard: We've sampled for two years. About 80 bull trout tagged.

Lewallen: We've tagged almost 200 fish to date, more bull trout that cutthroat. Will have to go back and look at the data to get exact numbers

Nalder: Will the take statement be flexible?

Sandow: We need to have a finite number and some flexibility to recognize. Will probably be a conservative estimate

Jacobson: Will the take include handling?

Sandow: Yes, both ways.

Nalder: This is how it was handled in the YPP handling collection.

Miller: A suggestion when we submit this for consensus, write off methods, get input and move forward.

Kline: Make it available to the whole group.

Edmonson: Whose take is this going to be? Create a bucket?

Sandow: The take will be associated with this particular project.

Nalder: Be project specific.

Edmonson: We do both in upper salmon, we have other buckets.

Nalder: Its own bucket. East Fork is different.

Edmonson: Same on the Fish and Wildlife side.

Kline: Does this need to be stated in the BA?

Leonard: it will be in the BO.

Kenison: For Fish and Wildlife, our only bucket is bull trout.

Nalder: The BA will describe handling. NOAA uses information to generate a bucket.

Sandow: The language needs to be more flexible. We need to know who is responsible for what.

Keller: Any densities on other species? Whitefish?

Leonard: IDFG brought it up last time, but we need more input from the state.

Kline: What are we doing with any other non ESA fish? How are we doing that?

Leonard: We want to add this when we capture. Where does the state want us to put them? Whitefish are different, we need to have the right handling.

Miller: Relocate similar habitats.

Keller: It will double and triple densities.

Nalder: In the BA, reference a fish mitigation plan or in the appendix. We can lose track. When it is developed, we need to for FEIS.

Miller: Do you want numbers after it is looked at by other agencies?

Leonard: Yes, put it into the FEIS.

Nalder: Ultimately, it needs to be in FEIS.

Sandow: Our workloads are tough. We cannot commit to anything but will do our best to review.

Kline: Draft numbers? Do we need this in a future meeting discussion?

Nalder: Add salvage and relocation numbers that includes these numbers.

Miller: And add potential areas of relocation.

Turner: Do these calculations include the resident BT population in Meadow Creek or not?

Leonard: yes, it does include that location as well. Interested in feedback how we've done this for BT from USFWS.

Turner: Would like input from the state and tribes on BT relocation (Action Item) Especially when talking relocation. The State and Tribes have more intel of on the ground surveys and population locations

Leonard: When the TSF is constructed, it will isolate upstream movement of BT in tributaries upstream that may not be large enough once isolated. Do these fish need to be salvaged and relocated

Turner: A big factor is predicted temperatures.

Leonard: We can give a best estimate on what could happen.

Nalder: The eDNA data collected in 2018 in Meadow Creek I believe shows no fish presence above that. Worth looking at the data again

Leonard: The results are in the Stantec 2018 report.

Keller: This was evaluated by Stantec.

Nalder: Yes, some streams where you can't snorkel or electro fish and are high and steep.

Leonard: They are eventually going to be connected, eDNA could be a good place to start.

Sandow: Concern over liner issues and potential loss of water from the stream. Expect to see this covered in the BA and how risk of these potential issues is assessed.

Nalder: What about using flows from around the TSF where less fish?

Sandow: Look at loss of flows for refilling pit and the effect on fish. Does this refilling occur at same time as the tunnel decommissioning?

Miller: Provided an overview of a relocation plan

Jacobson: I assume these are in non-fish barriers?

Leonard: Yes, assuming there is not enough suitable habitat.

Nalder: Those numbers will be important in measuring this. It will probably be based on individual species, as well. Chinook are easiest species.

Miller: Fry transport them by themselves, Juvenile by salmonid transport and adults, by adults only.

Sandow: Also, not overlapping and avoid life stages of Chinook and steelhead.

Miller: I will put this on the website for comments.

Leonard: Just put in the criteria and we can build it from there.

Sandow: Separate the tunnel work?

Leonard: Yes. we need a separate plan to be included. Most of salvage before we divert into tunnel.

Miller: We might need to prioritize the ESA list and your Work Window towards species.

Jacobson: Are you going to ID multiple sites?

Miller: Yes.

Kline: Any red flags with what we've presented. No comments from the group.

Leonard: We didn't get through the fish salvage slides. Question for the group - is electrofishing not a method to use? Is it a lower priority method to use?

Sandow: My assumption is dewater first. It needs to be the most effective means used.

Kenison: If used, it needs to be incorporated in the BA.

Sandow: Use passive methods first and then use electrofishing if still needed

Modeling Update of Addition of YPP-Like Feature – Objectives 3 and 4

Matos: The purpose of this agenda item is to provide an overview of why considering the YPP-like feature. Asked if any questions?

Nadler: Does the YPP like feature increase temperatures?

Matos: The water temperature is going to be higher entering the feature. Relative to temperatures into feature, the temperature that flows out will be 5-10% warmer.

Matos: the effects of adding the YPP-like feature in the mod-pro. The temperature is less with the feature added for max temp but more for average

Kline: is the 1 degree increase for average temperature a result of the 5-10% increase?

Matos: No, based on modeling results

Edmondson: is the liner factored into the modeling? No hyporheic flow incorporated

Matos: for these preliminary model runs, we didn't change the hydro model balance or other inputs from the previous modeling at this point. The dynamics of the YPP are driven by the river flows given the size of EFSFSR and volume of YPP

Leonard: none of the upstream modeling changed, just added the YPP feature at the same location as the existing YPP was added.

Keller: what is the YPP-like feature in the model?

Leonard: We took what is the YPP and put back in. Replicated same conditions. We are just determining if valuable for water temperature purposes, has some values and just useful modification.

Sandow: did you use USGS temp data?

Matos: these data are collected downstream of the YPP. Figure 31 from the report, daily measurements in the model at the outlet and compared to the downstream USGS data (~2km downstream of existing YPP)

Sandow: where did the 5-10% warmer come from?

Matos: If you look at the daily average temp coming into the YPP and what coming out was 5-10% warmer

Sandow: where do the inflow temp data come from?

Matos: upstream on the EFSFSR, Stibnite gage. Described in the SPLNT report

Nadler: looks like this feature would reduce the max temp to downstream conditions. Does the inflow higher temperatures affect how this YPP feature would function

Matos: looking at additional modifications in the MC part of the system as well to get those temperatures down as well

Miller: where did the numbers come from on BT, CW, SS, etc.?

Matos: they are outlined in the chapter 2 of the SPLNT report

Edmondson: EPA working on a life-stage specific standards but not ready yet

Edmonson: The Federal rule only applies to water bodies listed.

Edmonson: DEQ is, then thru EPA approval. Need to look at Federal bull trout temperature. I think it is10.

Miller: I am looking at baseline temperature. Is that late August?

Matos: Late July, early August, 2-week period, flows lowest and warmest to get daily input over a 4 year period.

Miller: We already exceeding the spawning period. This is late summer

Matos: late July/early August. Flows the lowest and temps the warmest and mid-point in the day.

Edmonson: So here, we are looking at summer period? I think the spawning dates are fixed.

Nalder: Our data does show to the left of RIB's upstream. You don't see many bull trout. If upstream, the temperatures drastically increase. Fish seem to spawn when it is colder.

Nalder: Look at what is predicted change can do to the species. Look at TSF1. The point is to clearly articulate what the predicted change could do.

Sandow: Yellow Pine Pit, will that have an effect on slopes in the remaining slopes?

Richardson: Yes, it affects stream design and SFA. A new reach would have to be swapped out.

Nalder: Is Midas Gold really looking at how to engineer something?

Kline: No, you would have to have other engineering methods. We would have to dig deeper.

Nalder: If migratory temperatures are too high, you could isolate temperatures from Sugar Creek.

Miller: We are only reflecting a later spawning period.

Nalder: Mid to late July is when we see fish to spawn. We need to look at summer period.

Matos: 3 conditions were set up.

Kline: For the draft EIS/BA we are in motion. This was tabled by this group and was stalled in how we implement this. It would be a major mine plan change. It could be a tool we could use to look into further. Paul, any additions?

Leonard: if we find this could benefit salmonids and Services think it would benefit TE species, then we would like at it as a potential modification would be considered more closely

Kenison: Temperature data is concerning. The potential that the lower temperatures could be advantageous.

Kline: Yes, it could. The location also could. It is at Hangar Flats, YPP-like.

Matos: different features with this lake and temps are greater leaving hangar flats

Leonard: the average temps caused by hangar is 4 degrees greater and YPP-like is 1 degree.

Leonard: greater surface area and residence time in hangar flats compare to YPP

Leonard: would like to hear feedback if additional benefits of adding a new YPP for BT specifically

Leonard: if anything, makes these temperatures cooler is good?

Sandow: Potentially yes. What do we know right now?

Jacobson: The backfill is less than existing conditions, so a lower gradient. We would have to look at the area with the YPP feature. It could be a trade-off. What are you saying?

Leonard: Frame up effects analysis for temperatures. We would need to. (**Action item:** Start framing up temperature impact in context of timeframe and species).

Nalder: How significant are the temperatures with this process?

Leonard: this is a benefit of informal consultation.

Keller: Does this get shared on the SharePoint site?

Kline: Yes.

FMP Protective Measures for Blasting – Objectives 2-4

Leonard: gave an overview of the objectives and where blasting may occur – pits, diversions, tunnel, crossings

Sandow: isn't there a different method than blasting?

Leonard: free rock break up – drill a hole and break rock. Can't use in competent bedrock though which is this case. The overpressure still must be considered as well.

Leonard: showed map. Made a point that these streams within the buffered area are not necessarily where fish will be impacted but just where the mitigation measures will need to be employed.

Leonard: spreadsheet based on the Alaska standard. Showed how this spreadsheet tool works.

Leonard: The Explosives and Blasting plan under the EMMP will be developed and will comply with several other standards beyond just potential fish impacts

Keller: Will monitoring be part of the program?

Leonard: those haven't been developed yet. Will have to talk with the engineers working on this as to when they plan to develop it. Likely measure a few and if line up with the calculations then wouldn't think continuous monitoring be done

Kline: This will be more of a validation that we've calculated the buffer correctly and then keep working. Bring out an expert who does this monitoring and have validated during first blasts.

Edmondson: How were these measured/calculated?

Leonard: not one to answer this but have literature on effects on fish studies. Biggest impact is the air bladder. Peak particle velocity is very susceptible to embryos.

Kline: We have researched and developed tools to mitigate. Suggestions?

Sandow: In proposed action, add steps taking and procedures within a buffer.

Nalder: Add an appendix to document blasting/salvage with all of the details.

Edmondson: Has then been documented yet?

Leonard: We will have to write up the protocol

Miller: If fall within this buffer, no effect?

Sandow: Neglible

Nadler: This should be in the FMP

Leonard: This is already in the FMP. This is just additional detail that we will use to augment the FMP.

SandowIf BA says certain measures will be done and then the contractor doesn't get that information and/or implement the plan.

Leonard: Why this is in the EMMP and will just be part of the protocol. Will be in the instructions and how to implement.

Sandow: There is a disconnect in the BA and the information that the contractor gets. In the fish mitigation plan, I could see this information getting lost.

Leonard: There is a protocol. If it changes, a fish biologist is included.

Kline: I have seen that. The modeling plan is the implementation. This is the plan to resolve the concern.

Debrief on Potential Fish Barriers September 4-5, 2019 Site Visit – Objectives 2 and 3

Miller: Purpose is to debrief the group on the tour focus areas and what was discussed. Locations and tour objectives.

Miller: Upper EFSFSR – Natural barriers are dynamic and current conditions to not limit adult migrations. A few changes to the Barrier memo are needed after the tour of this section of the EFSFSR

Keller: These passage barriers are together, say a piece of wood fell? One actions, the goal is only to get the Chinook spawning. If not, does it make sense? Did some of this get lost? Steelhead? No bull trout/Chinook, questionable.

> **Miller:** Labeling this partial. Some falls within 2 feet. 2 feet is minimum to be considered a passage barrier. These are natural conditions. I would like to update this in a technical memo. These conditions could change year to year, because they are natural and not part of functional rating.

Keller to Nalder: How will they be evaluating this?

> **Nalder**: Human induced. They are natural, there may or may not be barriers only if modeled below the barrier.
>
> **Keller**: The consensus is not human induced and aren't barriers.
>
> **Sandow**: Yes, I would agree with this. NOAA is not supportive of removing wood. There is a 6-foot log jam in the EFSFSR, but the fish are still working through it as documented by upstream redds.
>
> **Kenison**: I agree with Johnna and Mark that these are natural, partial barriers.

Richardson: We have not developed a design for the enhancement reaches yet but identified the potential.

> **Kline**: Yes, Midas Gold would like to improve these reaches. It's an opportune time to improve habitat
>
> **Richardson**: Any changes wouldn't change evaluation within the EIS
>
> **Nalder**: I'd like to see where these enhancements are going to be?
>
> **Jacobson**: What makes an enhancement?
>
> **Richardson**: 3-5 logs, some boulders and substrate, likely not a lot of logs moving; minimally invasive.
>
> **Richardson**: Based on existing habitat and existing channel alignment (big pools and long bed). We are always looking for feedback on proposed enhancements.
>
> **Kline**: Yes, we are looking for places for mitigation credit.
>
> **Richardson**: Design plan process and restoration reach; enhancement reach has room for improvement.

Sandow: Back to the EFSFSR above Meadow Creek – has Midas considered decommissioning the old diversion channel/side casted material? Is there any potential for restoration credit?

> **Kline**: Two things. 1. Geometry – Is there room by pulling the slope up? 2. What is the impact to do that?
>
> **Richardson**: It is relatively a steep slope. The benefit would be limited. Good thought.

Sandow: There is a need for liner redundancy. Redundancies should be relative to the risk of the loss of water and the ability to adaptively manage this type of effect.

Richardson: Yes, good point. Risk needs to be managed appropriately.

Miller: Peak shaving; we need to evaluate in the BA.

Sandow: Because Peak shaving is being proposed, removal of all water above 5 cfs needs to be evaluated in the BA.

Nalder: What does it do below 5 cfs?

Leonard: I have more information. A basic plan diversion structure, bypass and allow diversion over 5 cfs. The structure is designed. We have results for the BA and provide information of bypass flow.

Kline: Topic for agencies to provide?

Leonard: Yes, a future topic incorporated into the structure.

Leonard: What is the structure and what is the age of years? Bypass is not designed yet. Conceptual flow is 5 cfs. Added notes from diversion/bypass for Hangar Flats Pit concept design. There are two ways to do this.

Nalder: Exclusion screen? What size of fish?

Leonard: All sizes. We need some sort of fish protection device.

Nalder: Average height?

Leonard: Over 5 cfs? Develop best ones for applications.

Nalder: Where on the East Fork, because it is 5 cfs, does it include upstream?

Leonard: Questions in comments from AECOM and USFS, CFS and would fish be able to bypass? The answer is yes.

Nalder: Temperature solution? Can you take water off upstream of pit? DRFS can't be taken?

Kline: Explore volumes. The objective is to fill the pit as fast as we can and not share anymore. One consideration is take both.

Richardson: Good point. We won't need fish there anyways. Appendix C, gauge above SODA, has 1 ½ year 83 cfs and up to a couple hundred.

Leonard: We will have to look into this.

Leonard: Provided the calculations for various climate scenarios and range of years that can fill up. When done mining, refilling could be done in a year.

Kline: Questions?

Nalder: What do these include?

Kline: RIB's are down gradient.

Sandow: Filling up Pit Lake and Aquifer being filled? Pumping continued?

Kline: Take place of?

Sandow: YPP Pit mined out, so pumping water from down below?

Richardson: After that YPP Pt backfilled?

Kline: Ran at reduced rates.

Leonard: What we are stating is 1 ½ years to fill.

Kline: The field meeting notes are uploaded to the SharePoint site on this.

Richardson: Draft notes on why we proposed reaches in some, but not all areas. We ID'ed one as a plain bed. (Note to Johnna: We accidentally counted the #78 twice in 78 A and B, it's been noted and accounted for).

Kline: I uploaded notes and photos and Rob updated notes on the SharePoint site.

Stream Design Performance Criteria – Objectives 3 and 4

Leonard: Intent: To Further Discuss Performance Criteria for Monitoring Restoration Success. What benefits and detail are needed for the BA?

Sandow: I thought you would give more details and provide it.

Leonard: I took the details, samples, etc. in CMP. How much is needed in the BA?

Sandow to Beavers: Aaron, comments?

Beavers: No

Richardson: What do we need? More details after CMP plan?

Sandow: Do you have pools and dimensions?

Richardson: Yes, all depth design materials included. Step 1. Design Implementation

Sandow: Substrate?

Richardson Yes. Step 2. Performance Standards

Sandow: Density to survival?

Richardson: Yes, but some anticipated mortality.

Richardson: Not all parts of this stream design are in: Physical channel conditions and aquatic habitat.

Sandow: We need more detail; thresholds, performance and criteria.

Richardson: It depends.

Sandow: A technical team would help make decisions.

Richardson: My preference would be to have a technical evaluation team.

Kline: Rob, How does the USACE weigh in?

Richardson: They haven't

Leonard: They need to be involved. It is important for an adaptive management component. We need to put a team together to look into this. The USACE will look at this every year.

Jacobson: Percentages are riparian vegetation?

Richardson: Reaches change radically. I can't compare it to what it was before. Bank stability is a good one.

Jacobson: So, just ID it on what you want it to be?

Richardson: Yes, the preference is to have flexibility in performance criteria.

Sandow: We need a combination of both. We need some certainty, quantification and thresholds. The USACE needs to be involved and we need to form a committee.

Miller: WCI?

Richardson: The WCI is limited. The reference reaches would be your controls.

Kline: Action Item identified to develop a sub-committee to discuss further

Kline to Sandow: Do you need to see a structure of that or evaluate a structure?

Sandow: I need to evaluate the structure, thresholds and mitigation being planned and performance details helpful.

Leonard: Suggest a narrative be written on each one.

Miller: Measures?

Sandow: Risk of failure is a good one.

Richardson: Stage restoration intent is to undersize some of the streams. The reach by reach has different expectations. I will create a document and share it.

Sandow: I will look into this further with colleagues and get some examples.

Leonard: I will ask Marve what he thinks. EPA needs to be involved in that.

Sandow: When the sub-committee is formed, we need metrics and frequencies monitored and temperature/water quality.

FOMP Adaptive Management Criteria – Objectives 3 and 4

Leonard: More detail on salvage and sediment will be implemented

Beavers: One comment, use of term: Protocol is blasting. We need a protocol by the numbers that covers details. Need protocols for construction. What are the step by step processes to get water in the tunnels? How it minimizes impacts to downstream.

Richardson: Diverting over time?

Miller: Yes, falling short of details, understanding how and when, sediment moved and used, timing of salmon basin work, more details on how we are going to make sure fish won't stage and spawn there.

Leonard: Or how when we clean it out to prevent spawning.

Miller: Logistics? For machinery, what are the limitations on machinery used? With really low flows, we can clean it how? High flows clean it out again?

Leonard: Questions for Gene?

Beavers: In the field, in general each monitoring/maintenance action will need to describe timing, isolation, salvage and operation associated with each action. Also, describe method used to find/establish fish release locations in case of trap and haul.

Kline: [**Action item:** Method to complete action]

Sandow: North Portal, boulder weirs to central water elevation. North channel dictates jump height at entrance. It is not to exceed 1 or 1 ½ jump height in weirs (North channel and tunnel entrance). We need concrete statements regarding maintenance and entrance conditions.

Beavers: That would be an example of two separate actions. First, monitoring the fishway entrance to ensure the correct hydraulic drop is maintained. Second, if the hydraulic drop falls out of criteria adjustment of the downstream hydraulic control (the boulder wiers) will need to be initiated. Both actions will need to describe timing, isolation, salvage and operation associated with each action.

Sandow: Getting boulder weirs into fishway on North end for adults

Leonard: South has one weir that diverts flow and separates. North has boulder weirs. North pool elevation, the rock weir would have to be fixed.

Beavers: Example of monitoring for hydraulic drop at fishway entrance could be as simple as installing a staff gauge and having on-site staff observe the staff gage and record water surface elevations.

Miller: A breakout session would be helpful.

Sandow: Juvenile passage, we need a discussion on juvenile tagging with all of the methodologies.

Miller: Juvenile testing associated with the tunnel. Two options: 1. Get fish from hatchery. 2. Or, a capture method upstream, not reliable and would have to monitor downstream.

Sandow: Yes, both.

Sandow: I am interested in fish getting tagged there naturally/getting tagged. We can talk more about this as a group. If we use a hatchery. we would have to recapture them.

Leonard: it's easier to do a controlled batch.

Kline: Earlier we talked about handling fish. Any probability of take while doing this?

Messner: It's more of a benefit using take.

Kline: Any idea of juvenile passage? Is it better or worse than existing conditions?

Keller: We can do fish metrics to evaluate.

Leonard: There are evidence of fish in the stream of the cascade.

Sandow: 100%? Any redds?

Leonard: Unlikely, but could be.

Sandow: What juvenile criteria makes sense?

Sandow: Aaron, any thoughts?

Beavers: Whatever the group decides it is imperative that we get some idea of impacting fish health. Other projects are very applicable to this project, as well.

Sandow: I will reach out to Trevor and Richie to get more information.

Leonard: One more passive and one more answers the critical question up front (natural vs. hatchery).

Miller: We need to sample them and look at them and that origin was upstream.

Messner: Go up and tag juvenile cutthroat and bull trout.

Sandow: Another one; Trap and Hall. We need more protocols specified and described. How fish are collected, how many, where held and where out planted, etc.

Kline: If we decide not to use the tunnel, what is obligatory for Midas Gold to trap and hall?

Sandow: We don't know why they won't be using a tunnel. We don't know if they will use a tunnel because the project is banking on these. That is why the need for the trap and hall.

Kline: That is a fallback. If it doesn't work, then trap and hall is the method (back-up plan).

Sandow: Discussions with USACE? There is so much uncertainty. Is the tunnel worthwhile to design? Rely on trap and hall?

Kline: Midas Gold wants to put the fish passage in.

Keller: What triggers the trap and hall method?

Sandow: We do not know. I think we have 95% passage criteria.

Leonard: We might need to collaborate to use the tank trucks.

Keller: There are some metrics in the BA.

Sandow: The sub-committee would create that. We are the trade-offs of the tunnel vs. passage? We do not have an answer.

Leonard: We need to address the turbidity plume.

Richardson: We could block plumes. It could be managed but will be effort.

Kline: In the sub-committee group, we need to explore that.

Sandow: Splitting flows or moving flows? Are we considering double stream flows? When will it be doing this? Timing is important with the plan. Aaron?

Beavers: Is the tunnel fishway identified as a passage barrier?

Miller: We monitor all flows for species.

Richardson: In SFA, ID'ed as not a barrier.

Kline: The intent of the tunnel is to allow all fish at all times.

Miller: We are trying to fulfill NOAA criteria. If that's the case then 100%.

Beavers: It doesn't meet upstream juvenile criteria.

Miller: We are trying to establish criteria.

Beaver: Tunnel fishway does not meet upstream juvenile criteria. So its not 100%. It is a barrier for juvenile salmonids.

Miller: The design team designed it for adult passage.

Richardson: Right now it doesn't specify an adult only passage. (**Action item:** Send Darcy's Law spreadsheet to the group)

Future Meeting Items Discussion –

- Review fish salvage and relocation plan after draft review by ESA IC Group. Include estimated density and where relocation will occur.
- Review temperature impacts analysis
- Review 2019 stream field data

Review Past and Current Action Items –

Aylin reviewed past action items

New Action Items

1. IDFG and Tribes need to provide input where BT relocation would be recommended
2. BC & MGII: Make sure FMP contains:
    a. Fish salvage and relocation plan which needs to include isolated populations
    b. Non-ESA species

3. ALL - Make sure ESA IC group provide recommendations on bull trout relocation
4. BC: Send finalize 2018 Stantec fish baseline report. Plus, table of 2019 results (eDNA), if available.
5. BC: Apply temperature across site to potential impacts on fish species and add into such a matrix YPP-like feature (Start to frame up temperature impacts of proposed action on ESA fish species).
6. BC: Make sure blasting model validation (modeling) is included in blasting protocol plan, FMP and BA.
7. RIO/MGII: 2019 stream data collection report, send to ESA IC group and review in future ESA IC meeting.
8. BC/MGII: Consider diverting Meadow Creek for peak shaving into hangar flats pit on top of the DRSF to avoid fish screening problems.
9. BC: Make sure BA discusses downstream effects of flows from peak shaving in hangar flats pit
10. MGII: Put together a sub-committee meeting with USACE, services, MGII, BC, RIO, TE to discuss and define stream performance criteria. Ask Marve if EPA needs to be part of group.
11. RIO: To send out Darcy's Law spreadsheet on stream discharge.

Next Meeting:/Wrap Up

October, 8th (Tuesday)

November 6th (Wednesday)