Polymet - MPCA monitoring discussion

Wednesday, April 19, 2017 10:52 AM

Monitoring
Yelp creek
Background stations that are really background
Unnamed creek aka west pit outlet
Parameter list - biological index monitoring

Meeting with mpca on polymet

Wednesday, May 03, 2017 10:02 AM

Construction and industrial stormwater

Richard sent writeups on 5/2/17

Excavation of mine pit. When would individual permit coverage be required. Construction GP would cover excavation. Mpca says that excavation of the mine would eventually have dewatering water go into pit and then to wwts. But initially wetlands dewatering would be under construction gp. We raised issue on whether this is appropriate due to issues of metals release, mercury aluminum. Mpca thinks this would be done just like other facilities. They will work on making record clear and review of whether the construction stomrwater is approp for this type of project.

Construction stormwater - as areas are reveg and stabilized, industrial

Industrial stormwater.

Maps on construction and industrial stormwater coverage areas.

Polymet has not amended application in light of changes to wastewater facility changes. Polymet is still making changes so they will submit new materials when all the changes are finalized.

Untreated water now in pipeline - no double wall, no sophisticated leak detection. Would be inspected.

Mpca to send the stormwater maps and we will provide feedback before next meeting.

Stormwater part 2

Wednesday, May 31, 2017 10:03 AM

Bauer, pierard, bell, mckim, rountree, wester

Clark, handeland, schmidt, foss

Mpca - looking at revisions to stormwater plans

90 acres (less than, so can be covered under GP) - brian seems to understand this

Asked about documentation - mpca is not sure. Speculating on how polymet will amend application and documentation for NOI submission.

Train cars will not be covered - but designed to eliminate or greatly reduce the spillage out of the bottom. Something about this in the EIS.

Mpca did pose question to polymet about mercury and construction phase. Potential for mercury to be discharged during wetland draining phase. Polymet will get back to mpca regarding more detail on construction in wetland areas vs upland areas. Mpca says controlling tss does help with controlling mercury.

Polymet did mention that during construction they could put water in basin. not all but some water could go in there.

Future topics - what permit will require to verify modeling predictions/assumptions. Revisit approach for monitoring.

POST MEETING FOLLOW UP
From the FEIS - rail cars are "side dump"
From page 3-85:
The side-dump cars have two hinged doors that act as the sides of the car and drop down when the cars are tipped at the coarse-crusher for unloading. PolyMet plans to use an existing but currently decommissioned fleet of LTVSMC side-dump ore cars. This ore car fleet currently shows wear at the hinges and joint areas, which have resulted in gaps in these areas where couplings and linkages have loosened over time. Prior to the start of operations, PolyMet would refurbish these ore cars, which would include tightening or replacement of the couplings and linkages to minimize gaps along the hinges and joint areas. Figure 3.2-21 shows the configuration of the ore cars. These side-dump ore cars are different from the bottom-dump pellet rail cars that LTVSMC used to haul taconite pellets, which were spilled along the railroad. Since these side-dump cars proposed to be used for the NorthMet Project Proposed Action would be refurbished and only used to haul ore, they would result in less spillage than from the bottom dump cars that were used for the LTVSMC operations (PolyMet 2014a).

From page 5-164:
Based on observations at other mining operations using similar side-dump rail cars, it is assumed that spillage is most likely to occur along the first 1,000 meters of rail from the Rail Transfer Hopper (PolyMet 2015q). The railway does not cross any streams along this stretch. Rainfall contacting the spilled ore would have the potential to release contaminants, but the relatively small volume of material and

dilution from other sources are expected to result in surface water quality meeting the evaluation criteria (PolyMet 2015q). During closure, there may be residual effects on surface water quality from the spilled ore, although the small quantity of expected spilled material would become rapidly depleted of sulfide materials compared to the much larger waste rock stockpiles (PolyMet 2015q).

Three potential ways that ore could be released to the environment during transport via rail car include: 1) ore spillage through the hinge gap, 2) ore spillage through the door gap, and 3) dust from the top of the car. To guard against possible adverse effects from spilled ore, PolyMet plans to refurbish the ore cars, tightening or replacing the couplings and linkages to minimize gaps along the hinges and joint areas where spillage could occur (PolyMet 2014a). The quantity of ore that could potentially spill through the door and hinge gaps of a single refurbished ore car is estimated to be 0.20 tons per year. This is a 97 percent reduction from the originally calculated value of 6.14 tons per year of unrefurbished cars (PolyMet 2015q).
Water quality monitoring is recommended downstream from the rail line on the Partridge River tributary streams to check for any potential deteriorations of water quality over time from ore spillage, and, if detected, adaptive water management measures would be implemented. Dust could be mitigated by spraying water on the loaded ore prior to transport. If significant accumulation of ore spillage occurs, it would be removed.

From page 5-239
Contingency Mitigation
Streams along the railroad corridor between the Mine Site and Plant Site showed degradation in water quality as a result of material spilled from the rail cars – Catchment areas could be developed adjacent to the tracks at stream crossings to minimize the amount of material that reaches the streams.

Nolan call june 2017

Wednesday, June 28, 2017 10:04 AM

Forest service
Dnr
Mpca
Epa
Nolan's office
Polymet
USACE

Dnr - 3 major permit applications. Dam safety, permit to mine, ... water appropriations... road widening. Dnr reviewing permit applications. 2 have gone out for internal state government review. 3 tribes also included in local govt review. Another permit - wetland replacement also in review

Received dam safety geotech report - will be used to assist in review. One of the panel members worked on mt polley failure assessment.

Dnr maintains all applications and supplements on website. Little contact from public . 15k visits to website. 7.5k people signed up to received email updates. Meeting with mpca regularly. Will continue to meet regularly with company. Permits... financial assurance... public waters work permit is on 30 day review. Polymet continues to provide information on wetlands replacement (part of permit to mine)

Mpca - 401 cert.
Air quality permit - making way through apps thinking about permit conditions
State website - do quarterly updates
Meet regularly with company, state and federal partners.
Schedule - public notice... opportunities for legal challenges at this time and before permit decision...

Forest service
Land exchange - working on the litigation - 4 lawsuits - water legacy, mcea, land exchange appraisal. Biodiv - biological opinion , save sky blue waters - violations of NEPA and Weeks Act. Hearing on april 28th. Prelim injunction on implementing exchange. Polymet filed motion to dismiss. Another hearing scheduled august 3rd for motion to dismiss
30 day congressional oversight is completed. Preliminary title opinion to regional office by mid july.

USACE
ROD. Moving along. Working with mpca and mndnr. Project modifications. Back into work that has already been done due to changes. Continuing to get FOIA's, every 2 to 3 weeks. ESA suit could affect timelines. Timing? Things may come together in last quarter of this year.

Epa
Peter - reminder - there is a downstream water quality review process. 401a2. corollary to 401 cert process that provides for input from downstream states/tribes. initiated when 401 cert is issued. Triggered by epa notifying downstream tribe/state that their waters might be affected.

Polymet
Spending resources on litigation on land exchange. Joined with forest service. Working with mpca and coe on getting that 401 cert, npdes permit, permit to mine. Hope that in next month ... smaller decisions... will see press on this area. Focusing on permitting and eis work.

Note august 2nd 2016 is when 401 cert application came in.

401a2 update

Thursday, July 06, 2017 1:04 PM

Keys off of 401 cert. state deadline is august 1.
Options:
- Deny without prejudice
- Waive - state has said it will not do this.
- approve
- Company could withdraw application

- Antidegradation
  - ...you can't unless... can't lower wq unless econ devel in area of activity. Tribe may argue that they are not getting benefit and that lowering of wq should not be allowed
  - State's procedures

Ord can't recreate mercury scenario that is laid out in EIS
- (the mass balance - more hg in partridge, less in embarrass)
- Still can say may affect

Consider getting ORD - cormier to put conductivity memo through formal process so that we can potentially use this for hearing/determination (or whatever)

Idea for recommendations
402 permit must have limits - criteria end of pipe
Study including baseline to look at mercury methylation
404 permit could hold effective date until appropriate npdes permit is issued

Set up call with cormier and katie and carole

July 26, 2017

Wednesday, July 26, 2017 10:04 AM

Go over document mpca sent regarding stormwater

Asked what the construction related activities are covered under construction GP
Roads, water collection systems, stockpile foundations, buildings, "work that needs to be done prior to construction of the wastewater treatment facility"

Activities not clearly defined. Does include preliminary stripping of overburden at the mine site. Expectation is that .... Overburden can be removed down to bedrock. Wetlands draining may or may not be in scope.

Epa: we still have questions about what is going to be covered where and how water quality will be protected. SWPPPs will be shared and have controls in it.

Mpca has preliminary ideas on activities that would be covered by each permit, CGP vs individual.

Preliminary list of activities associated with each permit mechanism. Richard has written it. Richard will have documentation in the record regarding what each stormwater permit covers.

Mpca may transfer activities that are covered under cgp, but trigger could move water to individual permit. mpca says permit would not be modified. Not sure if stormwater termination that is needed. question is how to manage this from regulatory perspective and track what wastewater streams are covered under which permit. Company will need to submit documentation for each construction stormwater wastestream - terminate CGP coverage and initiate individual permit coverage, but not with a modification to the IP. "trigger events" would be defined in individual permit.
Calculation of effluent limits is based on full flow (post triggers)

Other eventuality likely to occur - construction of additional features. Polymet will be required to get new stormwater permit coverage. Requirement will be written into the IP - for new construction activities polymet will need separate stormwater coverage.

Monitoring stations that we discussed last time we had a stormwater call. Mpca presented our comments to polymet. Polymet appears to have recognized the need for additional bechmark stations.

401a2 conductivity call with cormier

Thursday, July 27, 2017 1:15 PM

Overview of 401a2 process

Conductivity not raised during pebble process

Susan generally in support of johnson and johnson factor.

Keep in mind dilution factor. Need to look up what conductivity is in STL.

What sc would do
Characterize water in area. How far downstream, what is conductivity at stl. Try to look at with additions of new sources of ions, what would be predicted change. Ord has some models that haven't been published that will predict affect levels. 2% of organisms affected vs 20%.

While mining, can't exceed a certain amount.

Will need some data on flow, swat model type of stuff. Put in salts into model and at what level would that affect downstream.

Susan needs location of mine site, reservation, 5% from background, then 5% from current conditions.

Inputs, flow, precip, polygons and outfall locations.

Can do! Need to loop in special assistant for program stuff. ...internal epa peer review. What level signoff. Emma should be involved in signoffs and needs. She would work with DD in ORD (Tina Baakdori, annette gotchet?) since this is original ord report, that is different than using ORD to review what Tribe comes up with.

Susan to write up at what level would be of concern

401a2

Wednesday, August 09, 2017 2:36 PM

NCEA working on conductivity

Duluth working on mercury
No model built yet to analyze mercury methylation. Ord looking at mass balance approach presented in EIS and expert opionion by branfuran. Ord can review that memo. Peat. Release of mercury

Wqb Call with mpca oct 31

Tuesday, October 31, 2017 1:01 PM

Pfiefer
Wester
Johnson
Gluckman
Swenson
Marko
Anson
Proto
Pepin
Mimi, erica (hq)

Mpca
Lottheimer
Neusch
Swain
Munson
Jerry
Pat
Phil
adonis
Liz

Areas epa is focusing on for comments. Going to go over htem. Meeting is intended to provid clarity for epa on some things and to discover some things that pca might need.

Mpca wants to discuss something they heard last night in terms of what people want and wants to discuss those things

Mines, mn power... well epa... .... Could remove 10 mg/L standard and keep standard and that would be fine. Mpca suggest epa would not .... Do anything... science there to remove 10, but policy decision to add new criteira. (according to mining and mn power)

What is WID discussion. Mpca says wild rice is different than other aquatic life uses because whole wid doesn't need to be covered. Dave wanting to understand what wids were originally intended to do and why they are hook for defining wild rice waters. Dave also asks about mn dnr splitting wids. Mpca says that in some cases the wids splits are instigated by mpca. Swan lake is example (note to self: is this the same swan lake as keetac and essar discharge)

Mpca has database to maintain history of wid portion of wid in which des use applies without rulemaking.

...accounting for habitat in rp analysis.... Mpca preference is to handle that in rp for permitting.... Mpca describes this as facility would not have rp and it wouldn't impact beneficial use. Dave - you're saying that beneficial use doesn't exist. Mpca agrees. Mpca now recapping original plan of doing 800 meters upstream and downstream approach. Mpca says its less burdensome to handle

this in the permitting situation.

Dave - understand there is 2 year rulemaking process generically. Variances.... Expedited in a way... would this type of thing... acknowledging adjustment to wid that meets epa requirements for standards action. Rulemaking or standards change/setting is needed for this. can't just not implement standards that epa approved.

Mpca floats - how about if we change from wids to saying "where wild rice use applies within a wid".. Talked through and mpca changes mind about the idea.

Mpca says auid and wid are exactly the same (not what we heard earlier?)

Issue of alternate standard:

Iron, carbon measurements go into standard.... Get sulfate number.... If sulfate in water column is higher than this number but wild rice is healthy.... Is 120 ug/l being maintained at higher sulfate value. Katie - when would sulfide monitoring occur (related to iron and carbon). Mpca - it would be done where there is evidence when equation is not accurately predicting .... Some other information.. Nto sure what it would be... sediment sampling protocol.... Implies those events take place on same day. scenario - permittees might feel they are in this situation and do all this sampling at same time. Phil - document... page 12... sample locations . Before conducting pore water analysis,.... Circle back to determining that wild rice is present... what are bounds or criteria for determining wild rice is present. what if bed was historically larger? Has mpca thought through this. Mpca - wild rice use should be protected, but no minimum density. If sulfide is below 120, wild rice will be protected. Wild rice being present is indicator that alt standard needs to be present. 120 is protective of sulfide. No evaluation of wild rice bed itself. if sulfide <120 then it's ok. Could be another scenario that something else is impacting wild rice.

Robie - what if sulfide <120 is impacting wild rice? What would mpca's approach to handle? Mpca says it would be site specific standard. Robie - so thi alt standard situation is for higher than 120, but not situations where sulfide would be lower.

Scenario - tsd - alt standard, only gw upwelling? Mpca , no this is just example.

What is universe of alt standard - 10% or less.

Dave - how many sample points... if there is unexpected relationship between sulfide and sulfate. First step, identify disconnect. Comparing calculated sulfate and measured sulfate. Only after this comparison would pore water sulfide data be taken.

There would be variability in sulfate concentrations. Particularly where there are dischargers.. Timing of sulfate data might not reflect annual average if it is a 1-time measurement. How would observational data be adjusted to account for days other than those when data are collected. Mpca - establishing sulfate level is 2 year 5 samples per year process. Dave asks about how variability might be accounted for . Mpca- thinks maybe the best way to frame it is that they would be relying on monitoring staff during open water season (4-5 month timeframe) center of lake for example, take data for 2 years in a row, and this is basis for annual average. Dave - would this be adjusted to account for flow regime during which samples were collected. Mpca - they don't account for whether it's been a wet year or a dry year.

Liz - has thoughts on this in effluent limits - flow is accounted for in effluent limit analysis - look at background concentrations - subtract out contributions from point sources.... Getting effluent

monitoring data... parse out what is coming from environment and what is coming from anthropogenic sources.

Mpca agrees they need discussion on what data is needed for this consideration of sulfate concentration comparison to calculated sulfate wqc. Also have question about enacting these changes without formal process. Epa concerned about this. needs approval process step from epa before it could be used.

1 in 10 can exceed. So mpca might keep collecting more data if 1 year exceeds... so need to find 2 years that are above to determine if waters are impaired.... Mpca would collect every 10 y ears. In fact, mpca would have to have 2 consecutive years to find impairment but mpca won't collect data for next 8 years. now it is described as rolling 10 year assessment.

Sediment sampling protocol
Mpca is really proposing a framework. Details that could be added. Intent is to have more elaborate guidance that would be provided. Intent is that 95+% would be done by mpca anyway.

How would someone else use this document - staff training, ability to identify wild rice?, quality control, etc.

What requirements would mpca need from outside parties who want to go through sampling? Can phil take through pre-assessment protocol - id wild rice within a wid. What data is mpca using to feed this process? Aerial photography? Might not capture rice accurately... ground truthing? Mpca thought about aerial photography, not planning to use it right now. Agree that it might not work, need on the ground determinations.... If mpca has info on where beds were in the past... people would maybe use that on ground for when people are sampling. Canvass wids, find wild rice and go sample there. Hierarchy - sediment sampling areas, finding wild rice and habitat suitable for wild rice - if there are 5 areas of wild rice, those samples must be taken within those areas. Why limit to wild rice beds? It is best indicator of wild rice habitat. At one point there was indication that sulfide is actually lower in wild rice beds.... If you are trying to characterize the wid.... What is impact of bias on sampling program when choosing areas where there is wild rice? Second Q, if there are more than 5 wr beds, how would the beds be chosen to pick. Mpca - on first point.... Comment would concern mpca because they think this comment would undermine designation process. Mpca will think through this question. Next part - if there are 10 beds and have to pick 5... professional judgement, staff who can't id wild rice is non-starter. ...sizes... proportionality... .... Mpca says they have no knowledge of waters that might be degraded/impaired.

Call with MPCA - list of outstanding issues and notice that we're writing

Wednesday, November 01, 2017 10:03 AM

Rountree
Wester
Mckim
Bauer
Ackerman

Mpca
Clark
Handeland
Foss
Schmidt

Richard - thoughts and comments that epa would like mpca to hear.

We say that we're going to summarize in writing

Mpca Wants a skype or something to see exact words.

Cb- we've discussed with wdd and RA to some extent. Word back to us is that we need to write down our positions. We haven't briefed what letter will look like. Ann will elevate. Will be requesting to see the words before they are sent. Because words are important. Sensitivities surrounding words, there are misunderstandings on epa's part, epa is not accurate. Don't' have time to start a back and forth on the record . Ann will raise with rebecca today. Candice hears what ann is saying and we will keep this in mind. Will not commit. Will loop back with mpca on this issue. Will keep request in mind and get back to mpca on this as we move forward.

Candice recommends meeting next week. Mpca agrees this is a priority.

Richard agrees that what we discussed is the items that mpca thought were most difficult, items that they knew epa would be concerned with and items that are NPDES vs the SDS parts of the permit.

Zero discharge issue - using the 1-year carryover approach. Had an example from another region where the elg implementation that was less stringent. (note to self- email to cindy godsey)

Antideg - we agree that future discharges would be handled in the future. Antideg. - downstream waters are not considered directly. Looked at immediate receiving waters, general policy that since no degradation of those waters, then no degradation of waters downstream. Note - was this explained in the antideg analysis?

Mpca is still writing the antideg analysis - this could be edited still to incorporate our comments. Epa's comment could be, we looked at x version and we recommend mpca specify which waters are included and why.

General npdes industrial stormwater permit coverage. We would say that we need clarity on what would be defined.

Application -
Update should generally include all the updates and memos, etc. discussions with company, mpca, any other documents will be part of the administrated record. Question - is this it? Most of the materials were incorporated into the permit application - if polymet provided any documents not included in here mpca would consider those. Mpca does not expect another permit application. cb - other things that mpca is relying on will be available to the public ? Yes. Mpca thinks they can explain what all is included in what they relied on in writing the permit. how they are going to do it is open question. We would like mpca to identify documents that they relied on. Ann thinks she really needs to know how this is worded. Record is massive. ....talking about eis.... Record and what is relied on is extreme. What fits into definition is debatable. Not sure how to catalog and display to public. Also relying on eis records. Barbara - appreciate difference between record at time of litigation and record that constitutes documents relied on for draft permit. Mpca has public participation processes. When permit comes out the public needs to be able to understand the basis for the terms of permit being constructed, volume is not a valid restriction on what is available. need to have full access to record that mpca relied upon . This flows from commitments that were made during eis, decisions were pushed forward to permitting phase. Eis record is voluminous, contradictory, supplemented numerous times. We're expecting specificity with respect to the record.

Wqbels - story is the same as when we talked last time. Internal documentation is evolving. Trying to beef it up. Same data being used, updated form 2d is similar but not identical. Key parameter - clarity was provided by adding a less than sign. Operating limit of 10 and operating target for 9. other parameters - no other changes in the forms.... Copper, focus on that, little assimilative capacity. Mpca logic is that if you control fo sulfate you are also controlling for other constituents. No limit is needed for copper. No end of pipe wqbel is needed for any parameter. Imperative that facility be regulated to control for sulfate. That is approach behind the operating limit and operating target. Mpca believes that they followed all of their procedures, used data that was in references..... They plan to meet 9mg/L sulfate consistently. Pilot with real water. Ann wants to see how this one is being written. Barbara - facility can meet 9 or 10, why not put the limits in? Ann is curious, mpca is allowed to put limits in internal waste stream. This is federally enforceable. The exceedance of 10 will be a violation of a permit. this is RO so it is not something a goofball invented. We ask WHY mpca is going to so much work to avoid putting in limits. ann says we don't have time to go into details.

Monitoring - mpca might send us updated monitoring plan.

Call with MPCA to go over issues - follow up from last call

Thursday, November 09, 2017 10:02 AM

Goal:

2 weeks in advance of public notice
Public notice more than likely 1st quarter of next year
Mpca - since this is a publicly traded company we have to be careful about talking about dates

No update on the monitoring plan

Zero discharge examples

Operating limit for sulfate

Monitoring requirements at final outfall
Weekly monitoring - TBELs, sulfate metals, hardness, sp cond, pH sulfate, TSS,
Monthly - metals, hardness

Ann makes hard case for looking at draft letter over skype so they can view each word. We explain that this would be FOIAble but mpca thinks we could overwrite draft that is shared and therefore would not be

Barbara/kevin explain why we need to document concerns. Indicate that we have responsibliity to comment and be transparent

Ann still wants preview. We indicate we don't want this. We would like draft in advance of pn. Would like more than 2 weeks. Ann wants to know how much time we want.

Kevin agrees to not send a letter NOW if mpca agrees to a reasonable timeframe for a pre-pn draft review.

Polymet permit review meetings

Wednesday, January 31, 2018 11:08 AM

1/31/18
Pre meet for meeting with mpca

Rp analysis - did mpca follow 132?

Discharge prohibition for mine site. - prohibition seems narrow (indirect, process). Also, how would this be verified.

Orc will look into whether wecab can review the permit for enforceability.

Narrative effluent limits

Call with mpca 12:30

Mpca - richard, mike, stephanie, udd

Epa - mark mark krista jillian, scott, candice, kevin, barbara,

Permit went on PN this morning. 45 day PN period, ends march 16th. Public meetings next week. Jeff has new role - ann foss retired. Jeff took over her role. Title - metallic mining sector manager. Send comments to Jeff.

Richard wants to talk about communications - jeff. Point of this initital call is to check in. open to doing regular calls while pn is going on. richard wants to narrow epa comments to what we agree to disagree on. Going to set up every other week meetings.

Rp question relating to 132

Asked how to relate what they did to 132.
Mpca response - this is propose facility so there is no actual monitoring data to do calculations with. So what mpca did was to use a more qualitative approach. Looked at permit writers manual. Say that permit writers manual recommend qualitative approach in the permit writiers manual.
Considered treating to 9 mg/L sulfate. This removes other ions.
System is designed not to exceed 10 mg/L.

They have a summary of modeling.

Pilot study had all parameters -

Mpca doesn't have all individual model runs.

Pilot testing results are in appendix.

System is designed for 10mg/L sulfate.

Need to check and see if mercury was included in pilot testing

Kevin makes point about litmist not being a harm in this case and provide assurance.

Application - form 2d. 7 volumes. Mpca did go beyond form 2d.

Permit shield. Permittee provided information, and mpca is not applying conditions based on that.

Downstream water concerns - criteria are more stringent.

Barbara - pilot testing - influent from base of tailings basin. Richard - as part of piloting they spiked influent.

Agree to revisit this on next call

Discharge prohibition.

How will mpca evaluate compliance with discharge prohibition at mine site.
Engineering controls -
Monitoring of volume and quality of water being captured
Monitoring wells at mine site.
Permit requires comprehensive performance and monitoring report and antoher report. So all data will be cincluded and assessment of how controls are operationg will be in there. Company will need to answer whether they are complying.

How will mpca evaluate compliance - polymet will do this and then mpca will agree or not agree. Wells are in place for different reasons. Looking for consistency with background values. Statistical approach is used in some examples - this is not specifically addressed - gw report... analysis of data collected using stat... methodology... requirements for what report must contain. Current and future potential for migration to surface waters.

Does mpca identify statistical method to use to look at data, no but rational would be needed to be provided.

Annual reports that include submittals and terms would be included in permit reissuance....
Mpca is picking up on this concern. Mpca might discuss internally adding conditions... a mod of permit may be required. Barbara - regulations on mods... major/minor.

Discharge restriction - elg regs -
Monitor precip and evap
Rain falling in 1 year does not nec report to collection point within a year. Mpca trying to limit allowable discharge and acknowledge travel time. Approach is precip - evap with a carryover year. Alt approach that they could take is could ... calc max value of allowable discharge. So limit will change each year. Would be reported in annual comprehensive compliance report.

Premeet for 2/13/18 meeting

Bring up that tbels are higher than wqs, permit would authorize discharge above wqs

Ask about stormwater permit coverages

Permit transfer.

Tb design - says as necessary in the fact sheet, not 98% capture.

2/13/18
Call with mpca
Pierard, Compton, rountree, Ackerman, bauer, wester
Mpca - clark, handeland, schmidt, udd

Public hearing - how did it go? - they were quieter than anticipated. Aurora - 450 people, in support of project. duluth 800-1000 people. Mixed group wrt support/opposition. Also had open houses at both meetings. Less interest and less contentious than expected. Any requests for extensions? No transcript yet. 1-2 weeks.

Mark - there is a number of maps/flow diagrams in fact sheet. Can mpca send full size diagrams? The copy paste is fuzzy. Mpca - look in volume I of permit application

Mark - mentioned last time.... Qualitative rp analysis.... Follow up.... We've looked in more detail... pilot study... one concern is that wqc .. Number of metals... tbels,... numbers are much higher than wqc for same parameters. ... permit then authorized discharge at tbel amounts. In essence the permit is authorizing discharge higher than wq. How can this be justified? MPCA - in our experience, if sulfate is met then wqc for metals will be met. Tbels are there to meet fed requirements. Mark - how would meeting sulfate target meet everything else? This is not abundantly clear by reading pilot study. What else does mpca have to justify this analogy of meeting sulfate and meeting wqc. Richard - they way engineers explained it.... When you select membrane... selective for sulfate which considered size and charge.... Same membrane would also be effective at removing metals. This was demonstrated to some extent... pilot test. Membrane pore size and size and charge. Mark - pilot study concluded that they don't know what will happen with regard to mercury . Richard - mercury.... Floatation tailings basin... taconite tailings.... Effective at removeing mercury.... Don't expect influent to system to be more than great lakes water quality standard. Candice - influent... tb, seepage capture... low mercury.... What about other sources and what is expected... will wq be same for those systems? Richard - think of wwts. It is a two part system.... Two processes. Water from mine site goes into chem precip and nanofiltration. Majority of metals are removed. Effluent from that goes to tb. From there .... Capture water goes to other half of treatment system. Membrane filtration. ....long story short, tailings treat mercury.

Asked about uncertainty - influent/effluent. Mark adds point about scale-up. Richard - not had additional discussion on that topic. Degree of treatment can accommodate some level of uncertainty by manipulating balance of RO and NF. Another consideration.... System is proposed and designed as modular system. Can add banks of membranes to alter treatment process. Mark asks about sulfate target limit... what would turn around be to alter system if operational limits are not met. Richard - during startup, will not discharge. Will route effluent back into tb until

system is proven out.

Note to self - ask about penalty calc if operational type limits not met vs wqbel.

Candice - what would cause facility to change operations - richard - sulfate target limits. company has to submit ... sulfate plan that is triggered by exceedance of 9mg/l sulfate operating limit.

Compton - if operating limit is violated, what is penalty/enforcement process. Richard - it is violation of permit subject to normal escalating enforcement policy. Schmidt - it would be dealt with through enforcement - penalteis and corrective action. Richard - 9mg/l is early warning trigger alterations of operations.

Asked about variability - . Richard - shouldn't be any variability.

Ackerman - lime addition, pilot study, al content of lime.... Could have wq affect. As part of pilot study.. . Lime suppliers, 3 were looked at.... Al... what considerations... Al and lime softening process. Richard will get back to us

Richard - variability - influent is from seepage capture system - seepage is... slow changing... consistent... influent will be consistent... ackerman - if influent is not variable.... How quick can wwts be adjusted? Mpca does not know. Will talk to "brian".

Kevin - get the feeling we have talked this through... we seem to be putting a lot of emphasis on the type of treatment, and a pilot study. Our concern... normally what you see is we establish limits.... All pollutants of concern... and company has to meet them. We don't have to get into a lot of work on agency side... company has to meet them... agencies don't need to get into treatment.... In this case, we have pollutants of concern.... Tbels at high concentrations... we're not applying wqbels. In this instance, if some pollutants are higher than anticipated it doesn't seem like they would have to take any steps to upgrade their system because permit authorizes it. So it seems like we have a lot of work on agency end to justify treatment system rather than just establishing wqbels. Not sure this serves any of us well in the end. This is what epa is struggling with. Reliance on this approach for new facility, new technology, only tested on pilot scale.....

Richard - point out... do try to address metals... oeprating limit for copper. Clearly based on wqs. Didn't do an operationg limit for each metal. Kevin - Troubling thing is that the assumption is that. And essentially permit authorizes tbels, vs offering a guarantee for folks that wqs would be met. Mpca indicates that they'll discuss internally.

Asking about construction..
Constrcution gp coverage.

Prohibition of mining ...discharge... construction

Draining of wetland? Is that construction stormwater? Richard - general logic answer - if not affected by construction... normal dewatering.... If picking up pollutants... construction stormwater. .... Meeting with polymet... swpp's.... Don't recall approach.

Permtting situation, ce, etc. Been a while since they looked at it in detail... plan is keep ce permits alive and active until after treatment system is operating and legacy pollution has been attenuated by clean water. Richard - permits may be transferred to polymet. They will be effective concurrently with this new permit. Wrote into this permit, 18months, calculations... surface water would take about 12-18 months to attenuate. Wester - are there documents explaining delineation of liability? Schmidt - npdes permit would be transferred, as part of that there would have to be assignment of liabilities. Cd would be transferred. Ce mine permit would not be transferred. Kevin - when would permits get transfer? Not decided yet, but at same time or before permit decision on polymet permit is made. Kevin - when does trench get constructed? Richard - dual permits would exist during trench construction +18 months... probably 36 months total.

Compton 0 what is trigger to terminating ce permits.... Richard - not based on monitoring... based on conservative calculations/estimate of attenuation process. Richard - it's a time trigger. Page 43 in permit describes this. doesn't say anything about permits. triggered actually on polymet requesting termination of permit. Cd ... just monitoring. No real incentive to terminate permit.

98% capture is not specified in permit. Monitoring and annual reporting. Paired piezometers and wells. Paired on either side of trench. Look at simultaneous measurements showing inward gradient. Don't know screen interval. Must be constructed to meet intent. Is trench still keyed into bedrock? Richard believes this is the intent. Mw's will be sampled. Water levels monthly, mw sampling quarterly. That is in permit. kevin - would violation be based on if there was a difference in gradient not being maintained.... Richard - not automatically a violation. would be part of annual assessment. Polymet would calculate amount of time gradient was reversed. Time would be compared to how long it would take to move through wall. Corrective action? Based on gradient not chemistry? Mpca - initial response will be based on gradient. What about pump failure and overtopping. Monitoring is downstream. But no requirements. Kevin - O&M requirements... requirement that there is equipment onsite - critical for repairs... are there spares onsite? There is boilerplate... mpca could maybe consider this.

2/23/18
Call with hq

Question about qualitative analysis -

Check state procedures for qualitative approach - is this allowed

Marcus - need to hear arguemnt why tbels are limits not as stringent as necessary

3/5/18
Epa. Cb, ma, jr, bw, km
Mpca, rc, sh, ju, ms, brian engineer

Questions from last call:
Variability -

Pilot testing - based on expected influent concentrations. There would be extrapolation from existing data and expected influent.
Same critical components because of copper operating limit. appendicies to wastewater design and operation report. Vendor details.
Uncertainty regarding influent data - design modeling... appendix a and c, probablistic goldsim predictions, used a P90 value for flows and water quality.
Reliability criteria - capacity has to be available.

Mpca says they will consider wqbel for mercury

Cwa authority over internal outfall recommendations.

Aluminium - chemical precip, lime, stabilization. Stabilization process. Polymet was very aware that aluminum is present in lime sources and could be a concern. Going to use high purity lime product because of testing on natural lime sources. ... what would compel them to use highpurity al. to get predicted outcome.... Would need to use the high purity lime to get outcome that is predicted. Internal discussion at mpca will consider requirement to use high quality lime for stabilization. Do have requirement.... Stabilization can't contain sulfate or copper. Bw - you could set a limit for Al in permit. Mpca will take under advisement a wqbel for Al.

Permit transfer - only 54089. one outfall will be extracted from mining area permit and placed into tailings basin permit. administrative mod of both permits. Two minor mods. Not a substantive change.

Jeff udd - as we're moving forward, it's march 5, 11 more days on PN. .... Does epa really want to send comments..... Yes we do. we plan to comment within the pn period.

Mpca asks for preview of comments outside of public record.

POST CALL - do iron mining tbels need to still apply

3/6/18 briefing for chris

Got call from mpca. (lottheimer). Don't want to see anything in writing. Pulled in MOA saying it's not comtemplated in there. Chris read moa and called back. Moa does not say anything on commenting here. Mpca says they'll elevate if we want to send comments.

Lack of limits
Weird permit mod stuff
Internal outfall enforceability

Need for briefing -
Chart/bullet points. Showstoppers.

Prebrief for RA briefing

Thursday, March 08, 2018 10:39 AM

Add in some background on mine, scale, pollutants of concern. Refer to application and monitoring requirements.

Add in tbel vs wqbel issue as point #2, and add table at the end.

RA briefing

Friday, March 09, 2018 10:32 AM

Chris introduces, we're still not on same page with mpca on sending a letter.

Kevin kicks off issues with permit

Recived 5 weeks ago. We've been working with mpca for years. biweekly calls for 1.5 years. verbal comms. Drafte rpermit received 5 weeks ago and we've continued discussions. Deadline to provide comments is 16th.

Major concerns. Recommendations, questions..

Substaintial concerns
Limits - this permit does not contain limits that are stringent enough to implement standards. This could prompt objections. State understands our concern but no commitment to address that.

Cathy - they would have to issue new npdes permit for this site. yes

Kevin - old facility is being reused... there were issues... this permit would address those issues.

Chris - this is minnesota - it's a state npdes permit.

Discuss details on the water quality based effleutn limtis.

Bring up sheild.

Cathy agrees that if facilty can meet limits, why not put them in permit.

....discussion... ken is taking notes...

Back to chris - process

Commenting on draft permit. not at objection stage. Ideally we'd provide comments on draft permit along with everyone else. State would then review comments, respond to comments, then propose permit. When proposed permit comes out we only have 15 days to decide on objection or not. Then we get 90 days. goal - permit that is protective, 2. don't want to come down to objection wire. We want to provide detailed comments. Identify concerns, and apply praise where praise is due. Mpca is concerned about comments in writing. Call with lottheimer yesterday. mpca's view is that staff have been talkinga already and think the conferastions should continue. Responding to commetns is burdensome. 3. mpca already knows that permit will be modified. Chris' response - believes in clarity. Verbal.... Not so... we don't want to run up on deadline.

Cathy will try to get stine on phone and find out his concerns. Transparency is important. Not comfortable with continued verbal only disucssions.

401a2. seems appropriate this time. doesn't need the case explained. The magnitude is different.

Mpca call

Monday, March 12, 2018 11:03 AM

Epa:wester, pierard, bauer, compton, ackerman, mckim
Mpca - clark, schmidt, udd(?)

Responses to questions from last call:

Waiving ability to do unannounced inspections - draft language is generic across all permits. not interpreted as having to announce.

Authority to impose internal waste stream limits - epa's authority is limited. MN 115.03 subdiv 1e4, general powers and duties of mpca. ... one of the powers mpca given.... Construction, operation, maintenance..... Disposal system. Jill - is the statute part of the npdes approved program. Ms - this is part of our general program authority so it should have been cited as part of program that was cited for npdes approval authority. Jr - how does this work with mn rules at 7001.0180 .Q .... Commissioner establishes internal wastestream limits only where final outfall limitations are infeasible. MS - where there is rp we would, but did not, so applied at internal outfall. ms explains rationale - the way the facility is designed. Km - the only way this is ensured is via the operating limit. 10mg/l limit is extra requirement to provide reasonable assurance. Barbara explains that it doesn't seem like the authority is npdes authority. we will need to go and research if the rule cited is part of the approved program. Epa/citizen suit rpovisions can be hinged on state rules that are outside of approved program. It is a problem if permit is only enforceable by your own state. Mpca will discuss internally some more.

Outfall administrative extraction - mike - advice - not a major mod. Minnesota rules for mods authorize mods that do not authorize increase in pollutants. .... Would be allowed under mn rule 7001.0190.3c

Talking about termination - viewed figure that richard shared.

Diverted into question of whether WET is limited or not .

Bw - significance of sulafte op limit, if there were to be some action... by leg... to remove sulfate limits.... Would this result in permit mod, or would it result in change to operation/water treatment plant.

Jeff provides update on comment letter - lottheimer has been in contact with kp, chris. Kp - we briefed RA on Friday. She was going to talk to stein either Friday or Monday (today). No agreement b/w shannon and chris on how to proceed.

Mpca call 4/5/18

Thursday, April 05, 2018 9:02 AM

Schmit, clark, handeland, udd

Bauer, ackerman, compton, pierard, wester, mckim

Pierard - we were prepared to send comments. We didn't send them due to new deal to ...

Kevin agrees. This would have been a comment letter.

Several items that we consider potentially objectionable. Some items are recommendations.

Kevn proposes to go over items that we view as likely objectionable none are surprises. We've talked about all of these items in the past.

Kevin hits high points of draft letter.

No wqbels,.... But high tbels... solution - resolved if wqbels included.

Narrative water quality exceedances statement with qualifier - remove qualifier...

....mpca asks for references as kevin reads comments. Reg and para in permit.

Sd001 .... Need monitoring...

Rpa - fact sheet .... Variability

132 appendix 5, procedure 5.

...need for wqbels (no need) relies on operating limit. no supporting evidence that meeting operational limits results in meeting wqbels. Esp. mercury.

...additives... needed between 074 and sd001. .... Need wqbel for aluminum.

WET - limits at final discharge point (or after mineral addition)

Permit and supporting materials do not contain sufficient info.... 402b5. downstream.... Wqc... hg.

.summary... wqbels.... Ref to applications

ELGs.
Permit does not include requirements to restrict discharge volume. 40 cfr 440 G, J, K. 440.104b2i.

Consider applicability and inclusion of 440.102. subpart A for iron ore.

Permit enforceability
Permit may preclude enforcement 402k.
Operating limits - might not be enforceable by epa/citizens, operating target and limit based on voluntary commitment. Recommendation - revise to ensure that all npdes requirements are enforceable under cwa.

Mpca plans to transfer cliffs permits.... Tb.... To an affiliate of polymet. Concern that arrangement .... Creates confusion over which discharges are covered by which permit - may preclude enforcement. On this one richard says that he doesn't think we've raised this concern before. We say that we disagree - that we have raised this issue before.

Mpca plans to issue general permit for construction storm water - delineation what activities are covered under which permit. .... Appropriateness of activities covered under which permit.

Permit 6.10.17. process wastewater from mine site to surface waters. 122.44i. .... Other citations. 6.10.26, ...

Decision making procedures. Permit states that plan reports..... Upon submittal... defacto permit mods..... Some major... 122.62. no public process for the mods. Permit mods .... May be unenforceable.

End of serious items.

Next:

Cbod, tss, pH, fecal.... Etc. sewage. Ws009, sd001

No rp discussion on sewage.

Wwts distribution of discharge to tribs. What is relationship to allowable discharge

Controlled discharge from stabilization - need enforceable requirements

Cells 2E, 1E to combine until seepage collections system... fully operating... define this

Paired wells. References to monitoring numbers need to be established

Discharge ... ftb seepage system is prohibited. How is this enforced.

Sampling needed for baseline at monitoring stations

Pcb discharge prohibited. If pcbs are present - monitoring needed to evaluate compliance with prohibition

Citation to fed and state authorities under which authorization to discharge is allowed.

References in permit and fact sheet go to application - but need more specific citations.

Adm/mitigation. Where are measures located?

Maps and figures - difficult to read. If can't be remedied provide links to maps

End of comment reading/review

Mpca wants to meet internally and digest list. They feel like they have addressed some of this. Need to talk internally before we talk together more.

Udd - several comments received were similar to our first comments.

Kp - how many comments were received ? Udd - individual comments at about 800. some campaign type comments over 1000. 4 contested case hearing requests. Determining whether to grant/deny. First priority is to decide on contested case hearing.

We may do a face-to-face on polymet.

Set up call - 2 or 3 weeks out

notes from
4_5_18 M...

Call with canada, State, EPA

Thursday, April 26, 2018 2:11 PM

Transboundary Mining Issues (US Lead)
• Polymet

Interagency workgroup established to look at gaps ... mines in BC. Joint statements and procedures have been developed for BC. Priority issue for many stakeholders....

Improvements comments - add'l protections, financial assurances, and involvement of IJC.

US appreciates initiation of conversation at federal levels.
Gaps identified that feds can fill - prelim gap analysis identifies issues - 2 highlighted - opportunities for national govs - 1. cooperation with Tribes/1st nations, ensure that they have seat at table, info sharing and decision making. We can work with canada to ensure that subnational partners .... Cumulative impacts... looking at watersheds holistically will help us... permitting, long term monitoring.... Increasing congressional attention, long term monitoring and cumulative impacts.

Would like canada feedback on whether to engage more fully.

Discussion on tribal input to canadian and/or US processes.

Call with mpca

Monday, April 30, 2018 9:33 AM

Handeland schmit, clark udd

Bauer, mckim, ackerman, pierard, rountree

Update from mpca
- Received 850 comments
- 2500 individual comments
- 4 requests for contested case hearings, npdes, 401 cert only
  - Mpca rules focus on ...material issue of fact... not legal interpretations or policy.
  - Mpca in process of reviewing comments to see how it relates to hearing being warranted.
  - Timeline is .... Idea of proceeding by end of May. DNR has statutory deadline to make determination, and mpca is working on coordinating. Commissioner decides ultimately

Epa comments that we discussed a few weeks ago.... Some overlap with contested case hearing comments. Mcea and water legacy raised some of the same concerns.

Mpca's response to comments won't directly address epa's concerns, but they view our comments to be similar to other comments that were raised.

Comments similar to epa's -
- Wqbels - not in permit
- Rpa not adequate
- Permit shield due to lack of wqbels
- Reliance on operating limit as indicator
- Desire for WET limit
- Discharge prohibition with insufficient monitoring
- Adaptive management - and permit mods

Strategy to move forward
- Steps
  - Determine material issues of fact raised in contested case hearings
  - Reviewing comments - with contractor support. Categorizing comments into themes/buckets
  - Focus right now is on contested case hearing requests due to end of may dnr deadline

CCH - happens at draft permit phase, this is primary time for hearing and to have judge decide on factual issues. Appeals court would be legal arguments not factual.

Call with tribes and coe

Friday, May 11, 2018 10:14 AM

Corps field verified wetlands that were not previously mapped for the EIS

Meeting in st paul, mpca polymet

Tuesday, September 25, 2018 12:40 PM

Polymet - christie Kearney, Don Richards (Barr), Dennis Donohue (Warner Norcross – counsel)
Mpca - udd, smith, schmidt, handeland, clark, Scott Kyser, Brian Schweiss

Polymet starts

1. **Background**

- General overview of where we are at in the permit process
  Mpca - has been working on responses to comments. Building record.

2. **Discussion**

- Treatment technology design and operation (PolyMet)
  - How does it work
  - Expected water quality at discharge
    Polymet gives powerpoint presentation
    Wfd: iron pretreat, greensand, primary RO/NF, lime contactor, degas
    Large range of influent parameter concentrations. (orders of mag)

- Limits development and monitoring (EPA, MPCA)
  - Water quality and technology approach

- Permit enforceability (EPA)
  - General concerns
    mpca has added language, that they are proposing, to the permit that will improve the aspects of our concerns that relate to decision making. They might not address bringing facility back into
- Decision making process and permit modification (EPA, MPCA)
  - Adaptive management
  - Process used for future changes

- Permitting approach to legacy issues (MPCA, PolyMet)
  - How will this work?

- Other (All)

Meeting in st paul with mpca

Wednesday, September 26, 2018 8:15 AM

Recap of yesterday

No movement on either mpca or epa's part

Mpca walks through changes:

Modified "no discharge" language. (change - no direct discharge....)
Hrf - no discharge to ground or surface waters

Monitoring locations - added bedrock monitoring well at tb. Additional sw monitoring along transpo corridor. Relocated another monitoring well.

Added limit for WET in permit. TUc 1.0. quarterly.

Mercury minimization plan added

Added language - construction as proposed in the oct 2017 application. Certification from PE that liner design meets spec. maintenance manual for each control. (not submitted).

Submittal of as-builts.

Seepage capture systems - maintain inward gradient. If outward gradient found, increase monitoring, eliminate outward gradient. Need to investigate cause. Get 7 days to re-establish inward gradient.

Added language - prohibits addition of aluminum.

Some cases - reduced notification times.

Adaptive management - added language specified that any proposed adaptive management is subject to review and approval. Any proposed adaptive management is subject to ...permit mod and PN.

Eq basins - mine site - constructed as industrial ww ponds. Ponds are part of performance evaluations.

Existing and proposed monitoring network for HRF... evaluation deferred until the HRF is designed.

Added dissolved merciry monitoring at infl and effl to treatment system.

NOT changed:

Allowable discharge (flow)

Sd001 - not necessary.... Dilution.... Sewage system effluent

Linda asks why mpca didn't find rp. Jeff explains that based on pilot study and treatment that was chosen. Controlling system for sulfate, means that other metals and things would go along with it. Asks about reponer. Mpca has reopener in rules.

Federal enforceability of the internal monitoring location - mpca understands that epa couldn't put it in, but according to mpca epa/citizen could enforce any condition of a permit. Case law is mixed on this.

Mpca seems to agree that they could add narrative statement on prohibition of discharge violating wqs.

Mark makes points about caveats in the pilto study reports from vendors saying that pilot study performance is not guaranteed in full scale.

Kevin asks if mpca would add more parameters for internal outfall limits.

Influent predicted to be higher than wqs.
As
Co
Cu
Pb
Ni
Hardness
sulfate

Migration from mine pit question: monitoring. Annual report. Migration will be evaluated.

Schedule: 3rd week in octoboer for dnr to issue permit. Depends on property transfer between cliffs and polymet.

Mpca is planning to send ppp and fs by 3rd week in october. Epa has 45 days to review per email agreement. Jeff is concerned about what epa would send, if we send something. Already bringing up the shortening of the 45 days.

Sum:
Prohibit violation of wqs
Wet limits
Reopener
Additional parameters operating limits
Specify on when mod needs to come in.

401 cert - following same schedule - target of 3rd week in october.

Adm provisions - intent is to get permittee to adjust as they go along to prevent violations

Construction stormwater. Has the narrative limit but no monitoring. Question is when does 401 cert monitoring start. Or do swp's include monitoring.

Mpca will look into swp review, potential monitoring under the swm and/or the 401 cert.