Sort ID	Commenter	Commenter Org	Comment Text	Combined Theme and Individual Responses
1	Joshua Brand	Citizen	As a Minnesota resident and an annual visitor to the Biwabik area, I would like to state my support for the Polymet mine. The job generation opportunity is important to the area and should move forward as long as the project is in full compliance with all federal, state, and local laws and regulations. I firmly believe that a sound technical solution can be found to any environmental concerns about the project.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
2	Chris Loudon	Citizen	NO NO NO NO NO! No sulfide mining near the BWCAW. This mine will fail as all sulfide mines in the past have. The wilderness will be irreparably harmed costing generations of jobs. The state will be on the hook for the cleanup costs as the mining company will have declared bankruptcy and moved on.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
3	Ronald Namchek	Citizen	Polymet mine is a good project for Minnesota workers. The mine and all the good workers will protect the water quality at this mine. This mine and the workers want clean water and have a good plan in place to protect the water quality. Please proceed with this mine so good people can get back to work.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
4	Kenneth Sansome	Citizen	There is absolutely no 100% guarantee that mining will not produce leaking and contamination of soil and groundwater. Likewise there is no guarantee that cleanp can be done to restore land and water to its current clean condition.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
5	Kenneth Sansome	Citizen	If liability occurs to a mining company, there is no guarantee that that firm will forego bankrupcy and avoid ongoing responsibility. Since the BWCAW is unique, prisitine, and irreplacable, no risks to it should be taken. No permit should be given for this mining.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
6	Jim Bambenek	Citizen	Dear Sir or Madam The Boundary Waters Canoe Area and the surrounding lake country is a national treasure. It deservers the most protection available to it. The earth and the thousands of people, from all over the world who visit here, deserve to have it protected ! The earth, and the worlds people need it protected. The PolyMet mine is not in anyone's best interest, nor the interests of the Boundary Waters Canoe Area. The mine company says they will protect the air and water at the proposed mine site. However mining's track record with mines is deplorable. The Rio Tinto is a river in Spain polluted by a copper sulfide mine. It runs red and dead, with a ph of 2. The Phoenicians, then the Romans, started to mine here 3000 years ago. Is this the possibility we want to see in Minnesota ? Please do not let this ill advised mine proceed. Please stop the PolyMet Mine !Regards Jim Bambenek	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
7	Kathleen Weflen	Citizen	Copper-nickel mining has never been done anywhere in the world without damaging the environment. Because of this, the assurances of the mining company and its parent corporation ring hollow. All the potential impacts on our lands and waters cannot be known. Therefore, the only way to truly protect our irreplaceable natural heritage in this region is to preserve it as is. Because of pressure from commercial and individual interests, this stewardship will be hard to maintain. But conservation for the common good can and should be done because it is the right thing to do.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
8	Robin Vora	Citizen	We own property on the St. Louis River south of Aurora and are concerned about water quality and flow, and the long-term safety of the proposed Polymet mining project, including waste storage dams. We enjoy the river and do not want to see the flow or water quality diminish. Reduced flows or pollution would also considerably devalue our property. Basically, we do not support any permitting that would reduce water flows in the St. Louis River or result in any pollution of that river.	The NPDES/SDS permit does not regulate the volume of water in waters downstream of the project – the DNR water appropriation permit addresses that issue. However, as described in the EIS, the project is designed to distribute the discharge from the facility to the receiving waters such that the flow in downstream waters is maintained within +/- 20% of the existing flow. Treatment of the discharge through the WWTS using membrane treatment technology (e.g., reverse osmosis) will minimize effects on downstream water quality, and enforceable operating limits for sulfate and various metals apply.
9	Robin Vora	Citizen	I find it confusing to understand the overall situation given six different permit applications. It is difficult to ascertain if games are being played with the numbers.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
10	Robin Vora	Citizen	We understand Polymet plans to build the large tailings basin dam on top of old mine waste that may not be sufficiently stable for the large proposed dam. LTV did not design the original tailings basin for this purpose and size dam. Regardless of the strength and stability of the new dam, it's reliability also depends on the strength and stability of its foundation. A large earthen dam would obviously be a major safety and water pollution problem if it should fail, or be breached.	Comment noted. This comment pertains to issues considered in the development of the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.
11	Robin Vora	Citizen	We are concerned about who would maintain the dams adequately, or who would conduct associated monitoring, long after the 20-year period of mining operations. What happens if Polymet or a future owner declares bankruptcy and does not perform adequate maintenance? While dams are hopefully long-lived, they all have a finite life expectancy. Will these dams have to be maintained indefinitely? We could be leaving our children with a nightmare. A temporary earthen dam to store water mixed with toxic mine wastes forever is unacceptable.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
12	Robin Vora	Citizen	We urge Minnesota DNR to require Polymet to consider alternatives to constructing large dams to treat waste, some of it toxic. The rock and water within the tailings basin may not be as non-acidic as Polymet believes.	Comment noted. General comments related to impact minimization were considered during the environmental review process and the cross-media analysis. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
13	Robin Vora	Citizen	At the very least the acidity of the water needs to be monitored and Minnesota DNR maintain the authority to limit raising of the dam during the project, and suspend operations, if acidity limits are exceeded.	Monitoring for pH provides the same general information as monitoring for acidity; the lower the pH, the higher the acidity. Monitoring for pH is required of the influent and effluent of the WWTS, as well as at number of internal monitoring points (e.g., mine pit dewatering, stockpile drainage), in the groundwater and in surface water at the facility.

14	Robin Vora	Citizen	Bonds need to be posted to cover a worst-case scenario. The variance Minntac is presently requesting for their tailings basin illustrates the problem with mining company promises and commitments. Polymet would especially need strongly enforced environmental protections to safeguard water quality. If approved, I highly suspect Polymet, like Minntac at present, will someday be pleading for relief to maintain jobs and will be supported by the same present politicians and local officials, or their successors, who today assure Polymet will never create an environmental problem. I question that Polyment will make sufficient real financial commitments (bonding) to pay any environment problem or catastrophe.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
15	Robin Vora	Citizen	This proposal is too risky to the environment given that the water in the mine waste will need to be contained forever, long after Polymet ceases to be a company held responsible for its actions. The permit should be denied.	Comment noted. This comment pertains to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to this comment. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
16	Robin Vora	Citizen	The taxpayer should be not be left holding the bill for the clean-up.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
17	Robin Vora	Citizen	Properties downstream could be ruined.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
18	Robin Vora	Citizen	Please continue to keep me informed if further opportunities to comment, decisions, and any opportunities to appeal decisions.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
19	Donald Namchek	Citizen	Polymet mine will be a awesome project. Good paying jobs with benefits will be good. Polymet is going to use high tech equipment to protect the water quality. This mine is needed so Americans can become mineral independent.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
20	Richard Masur	Citizen	I stand opposed to permitting Polymet because of environmental risks.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
21	Jason Etten	Citizen	Water is one of the key resources to sustain life. Water is a key resource for the state of Minnesota. Water is a key resource for the current and future economic health of northern Minnesota.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
22	Jason Etten	Citizen	The draft water permit for the Polymet mine does not protect water in three major ways. First, the draft permit does not properly account for the capture of polluted water from the mining process. Water not captured will pollute. Second, as part of the process for cleaning water it allows highly polluted water to naturally attenuate making the potential for underground water pollution very high. Finally, it allows the mine to hold polluted water in an earthen damn. This type of damn has failed with horrible consequences. This type of damn is not a proven safe way to prevent water pollution.	The seepage containment systems function on the principle of maintaining an inward hydraulic gradient across the barrier wall that is part of the system design. If the hydraulic gradient is inward, hydraulic head is greater outside the basin and water cannot escape -- instead, water will tend to flow into the capture system. In addition, the project will include other engineering controls such as stockpile liner systems and seepage capture systems that are designed to control wastewater and runoff from the facility. The effectiveness of these controls were evaluated in the EIS and the water quality permit requires their installation/operation. The Annual Comprehensive Performance Evaluation Report required by the permit will provide an assessment of the performance of the engineering controls, including liner systems, using permit-required monitoring results and internal operational data. See response to Comment 612 regarding the attenuation of seepage from the existing tailings basin. Dam safety issues are addressed in the DNR's Dam Safety Permit.
23	Jason Etten	Citizen	These failures in the water permitting threaten the health of area communities both with the physical health of the residents and the loss of economic stability from tourism for decades or centuries.	Comment noted. This comment states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
24	Jason Etten	Citizen	This mine is a terrible idea for the future of Minnesota but the worst part is the proposed care of water resources.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
25	Jason Etten	Citizen	The DNR needs to hold Polymet mine to the highest standards.	Comment noted. This comment states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
26	Jason Etten	Citizen	This draft water permit is substandard and allows half measures to be taken that will endanger the future of our state.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
27	Julia McCormick	Citizen	I am livid, seething mad, that the impact study was negligently and drastically downscaled by the U.S. Forest Service. This area demands the most thorough level of environmental review of potential copper mining impacts. Copper mining is horrendously toxic and there are NO excuses for not recognizing that fact and putting this area into great danger!	Comment noted. This comment states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.

28	Julia McCormick	Citizen	The BWCA is Minnesota's crown jewel! People from around the world come to enjoy it's priceless splendor. Minnesotan's and people from around the world pay money to experience this gem for the NATURAL, UNTAINTED PRISTINE, UNIQUE beauty that includes viewing and listening to wildlife and feel the spiritual quietness that is now almost non-existent in our state and in the world. I have relatives and friends who send their children to camp there, year after year after year because of the experience this area holds and the fact that it offers "once in a lifetime" memories like nowhere else! We make it a priority to spend time in and escape to the BWCA to let go of the trials and tribulations of life. To be able to breathe the fresh air, listen to the wind, the wolves howling, the loons and experience the real definition of wild nature and the positive rejuvenation, revitalization, relaxation, healing and the appreciation of natural beauty that you can never find in every day life!	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
29	Julia McCormick	Citizen	How dare our precious treasure be exploited, ESPECIALLY by another country! The Environment-Killing Trump Administration has NO right to put these lands in great danger of guaranteed contamination. It's a known fact, that the company(s) behind this knows the dangerous risks involved yet continues to push it down our throats with the knowledge that their mines are completely irresponsible, short-sighted, regressive, self-serving, greed-based, exploitative and deadly to humans and nature! These companies could care less about the maiming of these areas, the people, wildlife, terrain, and water that are affected. This endeavor is greed-based! WE LIVE IN THE 21ST CENTURY! This is horrendous throw-back legislation! If Chilean Billionaires want to destroy and contaminate lands in pursuit of greed, then let them attempt to do it in their own country, NOT OURS! I find it outright criminal that this is being done by a Billionaire's family who rents property from the Kuschners! How convenient an arrangement is that? The nepotism and rabid, metastatic takeover of our pristine lands by the Trump Administration is rampant, sadistic, villainous, outrageous and monstrous! YOU WILL NOT TURN THE BWCA INTO A TOXIC WASTELAND FOR PERSONAL PROFIT! If money is the motivator, then preserving the BWCA and "using it" for ECO-TOURISM is where the long-term monetary gains lie, NOT IN THE DESTRUCTION OF IT! The fact that these copper-nickle mines are even up for debate and allowed in these areas all with the knowledge of the lethal-known risks and life-time lasting irreversible damage is CRIMINAL! Only greedy, self-serving morally bankrupt people pass this type of legislation!	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
30	Jeanine Kelley	Citizen	I don't think the DNR and MPCA has done an adequate job of explaining how Polymet proposes to protect the area water.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
31	Jeanine Kelley	Citizen	I've heard that tailings will be held behind a dam wall and a liner will be used to prevent sulfuric acid tainted water from leaking. Other sulfide mines have had dam walls that have failed.	Comment noted. This comment pertains to issues considered in the development of the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.
32	Jeanine Kelley	Citizen	How will this one be different? How long will the liner last? What will prevent it from being punctured & leaking? If a leak occurs, can a clean up be done before long term damage occurs? How much money will it take to monitor this for 500 years after the mine closes? I have not heard clear answers to these questions.	See response to Comment 359. Financial assurance for liner systems is addressed by the DNR's Permit to Mine for the project.
33	Jeanine Kelley	Citizen	Minnesota's clean water and wilderness should not be at risk for short term gain.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
34	Keith Hovland	Citizen	I fully support the well regulated Polymet project and look forward to seeing it operational in the very near future.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
35	Darryn Ochsner	Citizen	Hello, my name is Darryn and I am putting forth my comment of FULL support of the PolyMet/NorthMet Water Quality Permit! I as a former citizen of the metropolitan area in Princeton, MN, and now current resident of Buhl, MN as a iron ranger for the previous three years of my life completely support the acceptance of this Water Quality Permit.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
36	Darryn Ochsner	Citizen	Growing up near the Twin Cities and having seen life on the Iron Range has been a real eye opener on the importance of this mine coming to fruition. We currently rely on our precious metals we need for everyday life and security to come from other countries where there is no such thing as environmental protections or worker's health standards. We have those regulations and protections here in MN and are some of the strongest in the nation. I have never experienced such clean water and clean air as there is in northern MN, We have been mining here for almost the last 200 years and have some of the cleanest resources there are. This is proof that mining can be done responsibly without excessive harmful pollution. With the large scale mining projects that have existed like Minntac, Hibbing Taconite, Keetac, Minorca, and the Thunderbird Mine, and all the previous smaller mines that have opened and closed since, if pollution was certain as a result of mining companies, it would be here as we speak and as I write this comment. But it is not, We have some of the cleanest freshwater and air in the country and world.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
37	Darryn Ochsner	Citizen	Polymet has shown and proven they have a plan to responsibly finance, build and construct, and operate the Copper/Nickle mine without harm. Please approve this permit so we can continue to have great family supporting jobs in northern MN and fuel our nation independently with the resources we need. Please let this letter participate in the final decision of this Permit. Thank you Thank you,	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
38	Thomas Mcneil	Citizen	I oppose copper nickel mining in this area of our state. There are other locations in the country that pose fewer risks to the water systems. A corporation can leave a polluted mine for the state to clean up, and this can go on for many years and billions of dollars . It would make more sense for our state to invest in other types of business, especially small to medium types, that would help the economy of the region. I like our motto to stay " the land of ten thousand lakes", not the land of ten thousand mines.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
39	Mary Erickson	Citizen	Polymet Mining My family has been involved in mining on the Mesabi Range since it began - two great grandfathers, a grandfather, a father, a husband and myself have all worked in the mining industry. I have lived the boom and bust of iron ore and taconite mining and I understand the importance of good jobs. As I look at the permit process for Polymet I can tell that a lot of planning and thought has been done by the mining officials and the government as they both do due diligence with this project. However, this plan has two inherent flaws. And we are fooling ourselves if we don't face the deeprooted fundamental flaws to this mining site and the inconclusive long range environmental guarantee. The Site: This is a freshwater environment. The St. Louis River flows into Lake Superior which holds Ten Percent of the worlds surface freshwater. Add the water within The Superior National Forest and the Boundary Waters - and we have an important resource. With this type of mining we are putting our water resource at risk for centuries - for 25 years of mining.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
40	Mary Erickson	Citizen	The Guarantee: Who can guarantee that this site will be monitored for 200 or 500 years? Who can guarantee that the costs for possible catastrophic environmental damage will not fall on the backs of those people living here when those who have benefited are long gone. No matter how sincere and hopeful we are, things do go wrong. And an example of things going wrong can be found in the number of miners who have lost their mining pensions. After working 30 years at Eveleth Taconite, my husband believed that he had a guaranteed pension. But it was not to happen because the truth about mining companies is that they are often merged, bought out or go bankrupt. After the legacy costs were eliminated at Eveleth Taconite, Cliffs and the Chinese came in, and made enormouse amounts of money. I don't have any doubt that this can happen with these non ferrous companies as well. Especially among corporations which owe a duty first to their owners and stockholders. I wonder how an industry that faces fluctuations in metal prices, has a history of not fulfulling pension obligations, and is becoming more and more foreign owned, can guarantee that it will be responsible for a site, 175 years (at minimum) after they have left? Think about it. Mary Erickson Mountain Iron, MN Feb. 7, 2018	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
41	Steve Antolak	Citizen	I have studied Polymet for years. I believe that they have done everything correctly to open a successful and profitable mine.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

42	Steve Antolak	Citizen	They will provide jobs for many for years to come. I hope that Polymet gets approved by the Senate and the President. I am looking forward to great things from this company! Sincerely, Steve Antolak	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
43	Michael Hughes	Citizen	Northeastern Minnesota has some of the finest, cleanest and freshest water in the state.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
44	Michael Hughes	Citizen	This, in spite of the fact that mining has been part and parcel to the area for over a hundred years. The business of sulfide being part of the copper and nickel ore is not unique to those ores. Sulfide also is part of iron ore and even though iron has been mined in northeastern Minnesota for over a hundred years, it has not damaged the watersheds.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
45	Michael Hughes	Citizen	Mining for copper and nickel will be no different and for that reason, I support the application for Polymet to mine copper and nickel in the Arrowhead of Minnesota.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
46	Kristin Pursell	Citizen	Mining so near to a world-class national (and international!) treasure should be a crime. The permanent damage this sort of mining will certainly do to our state's natural resource gem should not be allowed.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
47	Kristin Pursell	Citizen	if this company shuts down and moves- it is the people if Minnesota who will have to clean up this mess for GENERATIONS (if it's even possible to clean up at all).	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
48	Kristin Pursell	Citizen	NO to PolyMet's permit to mine. Yes to clean water and the future of clean and pristine water in Minnesota.	This comment states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
49	Richard Nolan	U.S. House of Representatives, MN 8	Dear Commissioners Landwehr and Linc Stine, Today, I write in support of the NorthMet project's major draft permits under review, and urge DNR and MPCA to move forward with their issuance. As the elected Member of Congress representing the proposed NorthMet project site and its surrounding communities, I have a longstanding interest and involvement in its development and progress. I also wish to commend both of you and your agencies on the extensive work and open process that has led to the ongoing comment period and public meetings being held in northeastern Minnesota. As both of you are well aware, these draft permits follow a decade of extensive and thorough environmental review that successfully determined the NorthMet project could move forward to this next stage. Under public review and comment today is the "fine print" spanning thousands of pages outlining how PolyMet will comply with strict state and federal laws that protect and ensure the quality of our region's precious waters and air. Below are my specific views on these permits and why I believe they should be issued to help power the next generation of mining on the Iron Range.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
50	Richard Nolan	U.S. House of Representatives, MN 8	The Draft Permit to Mine (PTM) contains a comprehensive summary of the project, the mining and reclamation plan, environmental and natural resource management and protection, and PolyMet's proposed approach to financial assurance. It also describes in detail specific regulatory standards governing various aspects of the project and the basis of design and/or operational protocols that PolyMet will use to meet these requirements. The issuance of a PTM will bolster Minnesota's efforts to diversify its mineral economy through long-term support of mineral development, production, and commercialization as set forth in Minnesota Statutes. Additionally, consistent with the policies set forth in Minnesota Rules, the project will promote the orderly development of nonferrous metallic mineral mining by using mining and reclamation best practices to minimize and mitigate adverse environmental effects and to preserve and protect natural resources through each phase of the project.	Comment noted. This comments pertains to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to this comments.
51	Richard Nolan	U.S. House of Representatives, MN 8	The NorthMet Draft Air Permit (13700345-101) contains the specific parameters PolyMet will comply with to ensure operations from mining and processing comply with the Clean Air Act and additional state-specific air requirements. The draft permit demonstrates that adjacent National Parks and Wilderness Areas – which are subject to more stringent air quality requirements – will not be negatively affected by the operation of the project.	See air quality permit response to comments.
52	Richard Nolan	U.S. House of Representatives, MN 8	The NorthMet Draft Water Quality Permit (MN0071013) is a draft National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) permit to construct and/or operate wastewater treatment facilities and to discharge into waters of the State of Minnesota. It contains the specific parameters PolyMet will comply with to reduce pollutant levels in point source discharges and protect water quality in accordance with the federal Clean Water Act (CWA), Minnesota statutes and rules, and additional federal laws and regulations. After years of modeling and engineering work, PolyMet has shown it will be able to utilize its Wastewater Treatment System to treat and release certain water back into the surrounding environment even cleaner than it was received by using a combination of membrane separation treatment technologies (such as reverse osmosis). This engineering technology is vital to protecting downstream water quality and the Great Lakes Basin.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
53	Richard Nolan	U.S. House of Representatives, MN 8	The NorthMet Draft 401 Certification (MVP-1999-05528-JKA) contains the conditions and monitoring regime PolyMet will comply with in accordance with Sec. 401 the Clean Water Act, which is closely interrelated with protecting wetlands under Sec. 404 of the CWA. To receive this certification, PolyMet has proposed to purchase wetland credits from the Superior Mitigation Bank, which is located in the St. Louis River watershed. PolyMet will also be required by the 401 Certification to monitor surrounding wetlands to determine whether indirect impacts will result from the Project. Collectively, the 401 Certification, individual NPDES, general NPDES, and other permits (including the CWA 404 permit) for the NorthMet project will ensure compliance with state and federal surface water pollution control statutes and regulations.	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.
54	Richard Nolan	U.S. House of Representatives, MN 8	In fact, these draft permits are proof that we have the brains, science and technology to create good paying jobs and protect the environment on the Iron Range for generations to come. Our Nation requires these strategic Minnesota minerals to strengthen our national security and economy, but perhaps one of their most critical uses will be to propel the next generation of "green" technologies in our society. For example, new hybrid cars contain more than 1 ton of iron, steel, copper, nickel, and nickel-based aluminum. Wind turbines contain hundreds of tons of steel and copper – and reduce our air pollution and dependency on fossil fuels. And practically every one of the appliances and devices that power our modern way of life rely on iron ore and precious metals. We have limited choices on how we get these strategic minerals. Though we can recycle a certain percentage, recycling will never be able to take the place of mining – not even by half. Therefore, we are left with two options. Either we can primarily import our strategic minerals from foreign countries with terrible environmental standards and worker protections. Or we can mine them right here at home, where we control the process, create good paying American jobs, and follow the toughest environmental rules and regulations in the world. In my judgement, the latter choice makes the most ethical, moral, and economic common sense. I therefore urge you to finalize these permits and continue the progress we have made to date. Thank you for your review and consideration of my views, and again, for all of your own individual work and that of your agencies on this project. Sincerely, Richard M. Nolan Member of Congress	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
55	Douglas Cook	Citizen	I am not in favor of issuing a water quality permit to an industry that has never proven that it cannot pollute both groundwater and watersheds. Either through leech water or berm failure, the results would be catastrophic to the pristine Rainy River watershed, including the BWCA.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

56	Kelly Dahl	Citizen	I object to the Draft Permit to Mine for the following reasons: 1) The refuse created by the mining and processing activities will produce acid run off that will be devastating to the surrounding area and watershed;	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
57	Kelly Dahl	Citizen	2) The proposed management methods for the inevitable contamination is inadequate; 3) The proposed technology to contain runoff is the same technology used by the Mount Polley mine in British Columbia;	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
58	Kelly Dahl	Citizen	4) The technology used at mount Polley failed causing irreparable damage to the entire watershed;	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
59	Kelly Dahl	Citizen	5) The calculations upon which it has been determined that the runoff containment is adequate are unreliable and insufficient	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
60	Kelly Dahl	Citizen	6) As climate change marches forward, historical rainfall totals and atmospheric conditions are unreliable and a much greater safety factor is necessary (Duluth has experience historic precipitation events in the recent past exceeding historical norms in amount and frequency).	Mine water sumps and ponds typically have normal operating capacity for the 100-year, 24 hour precipitation event (approximately 5.2 inches), and have additional capacity within the freeboard as a safety factor. In the case of a larger 500-year or 1000-year storm event, water can be transferred to the Equalization Basins if needed, where sufficient freeboard capacity is available to contain the aggregate volume of a 1000-year storm event (estimated at 7.0 inches of precipitation in 24 hours) without an overflow.
61	Kelly Dahl	Citizen	7) The financial assurance calculations are woefully inadequate compared to the cost of attempting to restore the ecosystem to pre contamination levels. 8) The Mount Polley, Anaconda Copper mine and other sulfide mine sites show that the cost calculations and assumptions of the length of remediation efforts are woefully inadequate.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
62	Peggy Scott	Citizen	In the villages near Africa's biggest copper, you can smell and taste the pollution Aug. 2015. Workers drain away polluted water near the Zijin copper mine in Shanghang 2011. Bingham Canyon Mine one of the world's worst water-polluting copper mines. The track record of sulfide mining polluting the water speaks for itself.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
63	Peggy Scott	Citizen	We do not want the waters of northeastern Minnesota polluted by PolyMet. The groundwater in Minnesota is a protected public resource, it is not the property of any mining company. We know in advance that PolyMet would pollute our waters and Water treatment would be perpetual. Residents of Salt Lake valley had no choice: their water was undrinkable. We do have a choice. Not to choose perpetual pollution in the first place. Please do not give PolyMet the permit to do harm to our drinking water. Lake Superior is too important to our health. We do not want our children to inherit a toxic environment and be fighting years from now on who let this happen to the water rich environment of Duluth and surrounding area.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
64	Peggy Scott	Citizen	There is not not enough money to clean up from these mining disasters and PolyMet will be no different.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
65	Steven Schmidt	Citizen	I am concerned about the water discharged and if the birds and deer etc. can drink it and if not then there seems to be a better solution. I also am concerned that this could affect my drinking water and property value in Embarrass. I guess I'm scared of the situation. thanks, steve schmidt	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
66	Ellyn Wiens	Citizen	I still have not seen proof that the proposed system for containment will work. Why does the experiment have to take place in MN? at the hands of a foreign government? I fear for the BWCA and all surrounding waterways. The damage will outlast the lives of my grandchildren. Please don't let this happen!!!	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
67	Elizabeth Miller	Citizen	I am a life long Minnesotan, born in Hibbing, and migrated to the cities. I am completely against this project as the economic benefits are extremely short term compared to the unknown ecological potentially catastrophic results that compromises the very essence of why we have this beautiful piece of land maintained the way it has been for so many years. This land is sacred and many generations before ours decided to treat it as such. Our future generations deserve to have this space kept safe from poachers trying to extract dollars from the earth with no real regard for the health and beauty of the land.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
68	Elizabeth Miller	Citizen	Northern MN can be a hard place to find a job as mining jobs have slowly gone away in the last 40 or so years, it is important that we do not keep repeating the pattern of digging more holes in the earth for quick money before another round of layoffs.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

69	Elizabeth Miller	Citizen	The damage will be irreversible as the studies are inconclusive and never ever has an enterprise interested in becoming filthy rich off the land ever left the land in the same condition or better. We as Minnesotans, North Americans really, need to protect our forests so that they can continue capturing pollutants and providing oxygen, maintaining a diverse ecology and a legacy to the future inhabitants. Please reject polymet, do not let them begin chipping away at the irreplaceable and priceless gift that is The Boundary Waters. Big business has no business there.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
70	Laura Gauger	Citizen	I am providing information from several different expert reports regarding water contamination at the now-closed Flambeau Mine near Ladysmith, Wisconsin. This is relevant to the present hearing because, in an effort to justify moving forward with the proposed PolyMet project, some have suggested that the Flambeau Mine, which was a copper-sulfide mine, operated "without polluting local waters." In fact, the trade organization, Mining Minnesota, sent a letter and glossy brochure to Governor Dayton and all of Minnesota's state and federal lawmakers several years ago in which they stated the reclaimed Flambeau Mine was "home to clean and healthy groundwater of the same quality as before mining took place."	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
71	Laura Gauger	Citizen	1. The first expert report1 I am submitting into the record (Tab 1; electronic page 8 of my submittal) was authored in 2017 by Dr. Robert E. Moran, a hydrogeology consultant from Colorado with over 45 years of domestic and international experience in doing water quality work for the mining industry, private investors, tribal and citizens groups, NGO's, law firms, and governmental agencies, at all levels (https://remwater.org/). Dr. Moran reviewed Flambeau Mining Company's own water quality data on file with the Wisconsin Department of Natural Resources and concluded the following: "Roughly 20 years after the cessation of active mining, Flambeau Mine ground waters are contaminated by past Flambeau Mining Company (FMC) activities. FMC data confirm that, as a minimum, dissolved concentrations of the following constituents significantly exceed FMCs baseline concentrations (1987-88): copper, iron, manganese, zinc, sulfate, alkalinity, hardness, total dissolved solids, specific conductance."	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
72	Laura Gauger	Citizen	2. But if you don't want to take Dr. Moran's word for it, the second report2 I submit into the record (Tab 2; electronic page 16 of my submittal) was issued by FMC in December 2015. In this report, the company itself documented 45 violations of Wisconsin water quality standards in 17 different wells at the Flambeau Mine site. The table showing all of the violations is buried deep within the FMC report. It's on electronic page 84 of my submittal. As Dr. Moran stated, "these waters would require expensive, active water treatment to be made suitable for most foreseeable uses. Historically, most such costs are paid by the taxpayers." In terms of water treatment activities at Flambeau, Dr. Moran also documented the failure of PASSIVE water treatment to control surface water pollution. He stated, "Contaminated discharges from the southeast corner of the FMC site have resulted in … [a tributary of the Flambeau River] being added to the Environmental Protection Agency (EPA) impaired waters list for exceedances of acute aquatic toxicity criteria for copper and zinc. Since 1998, FMC has instituted six different work plans to address this soil and water contamination issue. As of fall 2016, copper levels in the Flambeau River tributary still exceed the acute toxicity criterion, and FMC has not secured a mine reclamation Certificate of Completion (COC) for this portion of the mine site."	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
73	Laura Gauger	Citizen	3. The third expert report3 I submit into the record (Tab 3; electronic page 90 of my submittal), which also includes a number of instructive diagrams and tables, was authored in 2009 by Dr. David Chambers and Dr. Kendra Zamzow of the Center for Science in Public Participation in Bozeman, Montana ("http://www.csp2.org/). After an extensive review of FMC documents, the two researchers concluded the following: "Copper contamination in excess of Wisconsin water quality standards is reaching the Flambeau River from the Flambeau mine site and the Flambeau pit is leaching contaminants that exceed Wisconsin groundwater quality standards to beyond the slurry wall designed to separate pit water from the Flambeau River." Please note that the Flambeau pit was about 32 acres in size, compared to the PolyMet project that will have three open pits totaling 530 acres. In addition, all of the Flambeau ore was shipped to Canada for processing, so no tailings are stored at the project site. To see additional information on how the two projects compare, please see the attached chart (electronic page 7 of my submittal).	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
74	Laura Gauger	Citizen	In conclusion, I would like to leave you with a quote from Dr. Moran: "Flambeau ground and surface water quality is being and has been degraded—despite years of industry public relations statements touting the success of the FMC operation. Rio Tinto said in a 2013 public relations (PR) release regarding the Flambeau Mine: "Testing shows conclusively that ground water quality surrounding the site is as good as it was before mining." In efforts to encourage development of the other metal-sulfide deposits in northern Wisconsin and the Great Lakes region, the industry approach has been to simply repeat this false statement over and over, assuming that repetition will make it believed. Unfortunately, the FMC data show otherwise." I respectfully ask that you please consider the information provided by Dr. Moran, Dr. Chambers and Dr. Zamzow when making your decision about the draft permits for the proposed PolyMet mine.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
75	Shona Snater	Citizen	As a taxpayer on the state of Minnesota, I am thoroughly upset and disappointed to see the MPCA even considering the possibility of allowing the PolyMet mine to operate so close to a state and national treasure, the boundary waters. WATER, not metals, is our most valuable, precious resource. In a time of declining water quality AND scarcity, this is a foolish idea to even be entertaining. I ask that any further permitting by the MPCA not be allowed for this or any mine near the boundary waters.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
76	Shona Snater	Citizen	PolyMet has not even provided near enough money for the clean up once they are done. I am tired of seeing foreign entities come into our state and make money off of our resources. This is not worth the few jobs it will provide. We need to look more at sustainable sources for employment.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
77	Amy Berns	Citizen	The permit seems very comprehensive and will help Polymet to mine materials our society needs in an environmentally conscious manner. Reading through the permit, in section 6.16.52.c, "MSDS" (outdated term) should be corrected to "SDS" as it is listed in 6.16.52.b Great work. Amy Berns	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
78	J Lang	Citizen	The damage to this beautiful area cannot be allowed. Our environment needs to be protected from those who want to exploit it for profit. Safeguards will fail as they always do.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
79	J Lang	Citizen	The promise of "jobs" should not be a carrot to approve jeopardizing the environment and the tourist industry.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
80	Robert Stodola	Citizen	The DNR's draft permit would allow PolyMet to use the same wet slurry tailings storage method that resulted in a catastrophic collapse and devastating pollution at the Mount Polley mine in British Columbia, Canada, even though better and safer technologies are available. A tailings dam failure would threaten downstream populations, including Duluth, Cloquet & the Fond du Lac Reservation. The recent tailings basin disasters of Canada's Mount Polley dam in 2014 and Brazil's Fundao dam in 2015, whose toxic waste flowed over 400 miles downstream, demonstrate that large-scale mine dam failures are not only possible, but likely. Sulfates directly contribute to the methylation of mercury, with resulting fish consumption advisories. The old LTV taconite property purchased by PolyMet is already leaching sulfates and other metals into the watershed.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

81	Robert Stodola	Citizen	In addition to an acute potential for Acid Mine Drainage (AMD) and the discharge of heavy metals to the St. Louis River watershed, the PolyMet mine would discharge sulfates at a level that could decimate wild rice stands downstream. Wild rice holds critical importance for Minnesota's Native American tribes, and the St. Louis River watershed flows through tribal lands.	During the EIS process, PolyMet offered to resolve outstanding issues related to sulfate and wild rice by incorporating into the project design advanced wastewater treatment that is capable of achieving 10 mg/L sulfate, the current wild rice standard. The permit includes an operating limit of 10 mg/L sulfate for the effluent from the WWTS. This operating limit for sulfate is an enforceable permit limit; if it is exceeded, it will be a violation of the permit. In addition, the project will include other engineering controls such as stockpile liner systems and seepage capture systems that are designed to control wastewater and runoff from the facility. The effectiveness of these controls were evaluated in the EIS and the water quality permit requires their installation/operation. Because the authorized discharge from the WWTS is limited to 10 mg/L and the required engineering controls will prevent unauthorized discharges, the project as designed will not harm wild rice.
82	Paul Bultman	Citizen	This type of mining, in the entire history of the world, has never not polluted groundwater with toxic chemicals. Why would you think this mine will be any different? If you call yourselves scientists, history has provided the perfect scientific study with 100% conviction that this mine will damage precious water resources. Why would we knowingly and intentionally permit this to happen? What, for some temporary jobs that will end in the not distant future when the next recession occurs?	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
83	Ben and Barry Wolfe	Citizen	Regarding "restoration" when the PolyMet DOES in the future contaminate and destroy the environment....remind yourself what is happening today...and supposedly the science at the time was "god!" BAD will only come from what may happen if the permits are allowed....and most important, there is NO guarantee after PolyMet or any simiilar company destroys the safety and quality of the water, they will EVER have the money to pay for it...LET ALONE IT MAY NOT BE FIXABLE!!!! WE OPPOSE ANY TYPE OF COPPER-SULFIDE MINING....	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
84	Ben and Barry Wolfe	Citizen	Below is the article about the toxic problems trying to be paid for due to contamination by 3M...you know how bad it WILL be if PolyMet is allowed to mine, or any copper-sulfide mining company. This was in the Duluth News Tribune, Sunday, February 11, 2018 Minnesota vs. 3M: A guide to the $5B trial: State's biggest environmental lawsuit, over company's PFCs in groundwater, starts this month By Bob Shaw / St. Paul Pioneer Press on Feb 10, 2018 at 4:25 p.m. ST. PAUL — Call it the $5 billion Teflon trial — Minnesota's biggest environmental lawsuit ever. *Summary: The news article details the future lawsuit against 3M. The state says chemicals were made by 3M, dumped by 3M and consumed by 67,000 local water drinkers and have now spread around the world. The article provides viewpoints from both sides of the lawsuit. The article provides other examples of major environmental lawsuits, such as Deepwater Horizon and Exxon Valdez. The article discusses the chemicals used by 3M and their dumping of those chemicals. The article provides information about concentrations of chemicals and potential consequences to the environment and human health.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
85	Dominic DiVita	Citizen	To whom it may concern: Water quality in Minnesota is known to have been held to a higher standard than many other places, and for good reason. Minnesota contains the most visited recreational natural area in the United States, and one of the driving forces behind its popularity is the pristine lakes and rivers that keep people returning to the Boundary Waters Canoe Area Wilderness. Having connected personally with the land there and having my love of the outdoors and parks developed there makes it an extremely important place for me and many others. Because of this, any attack on this land that holds a special place in my heart feels like an attack on my soul.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
86	Dominic DiVita	Citizen	Copper-nickel mining has a terrible history, with not one of its sites being handled correctly for the environment. Runoff from these mines causes acid mine drainage, which, due to the location of the potential mine near the Kawishiwi river, threatens the Boundary Waters. This threat is not an isolated issue that would only affect water resources near the mine, since small waterways, groundwater, wetlands, and a host of other pristine bodies of water connect nearly every water system in the entire Northeastern region of Minnesota.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
87	Dominic DiVita	Citizen	Even without considering the negative environmental effects that this mine would potentially cause on the water quality of the area, is job creation the only force at play? Sometimes money is never worth the potential risk that a project will cause. According the the PolyMet Fact sheet, the mine will directly disturb 900 acres of wetlands, which they claim they will replace. However, leaving these wetlands alone in the first place will be infinitely better for the area, allowing habitat to be maintained for hundreds of species, allowing water to flow the way it has been for millions of years, and keep carbon sequestered rather than release it into the atmosphere. Copper nickel mining has an awful history, and even with computer modeling, the results from the mine are highly uncertain (see attached Acid Mine Drainage Technical Document published by the EPA). I am passionate about this issue, and Minnesota will be greatly disappointed if the community sees the government put a few jobs above the well being of an entire ecosystem, even more recreational jobs generated by tourism to the boundary waters, and some of the most pristine water that still exists in the United States. The first attachment is an essay I wrote back in freshman year of high school, detailing the negative effects of this mine. Please read it closely. Think about your decisions carefully, and refuse to put business before the environment as governments have been doing for so many years. Sincerely, Dominic DiVita	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
88	Kathryn Stodola	Citizen	AGAINST PolyMet: the wrong mine in the wrong place. Deny the permits.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
89	Kathryn Stodola	Citizen	There are inadequate funds to be set to be aside regarding state financial assurance regulations. PolyMet's proposed $75M in cash for financial assurance was always a joke, and even with the DNR increase of several hundred million, this amount would not even begin to cover the inevitable environmental damage, including widespread air pollution.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
90	Kathryn Stodola	Citizen	Further, much of the information in PolyMet's applications for permits is ten years old. Using incorrect information for such an important decision is misleading at best.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
91	Kathryn Stodola	Citizen	Take, for example, the assessment of directly impacted wetlands if permitting and construction proceed, most recently conducted by the Corps of Engineers. These results should be made available and should be public knowledge. However, the Corps is not allowing access to this information which almost certainly reveals that larger areas than originally estimated will be impacted.	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.
92	Kathryn Stodola	Citizen	It's time for meaningful reinvestment on the Range instead of allowing permits for PolyMet and other similar mines.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

93	Robin Raplinger	Citizen	I object the proposed system of liners for the hydrometallurgical residue facility. I see no evidence that the liners will last indefinitely as they must to contain the sulfide/sulfur concentrate indefinitely. Also the hydrometallurgical residue facility will have to be monitored and maintain indefinitely violating Minnesota Administrative rul 6132.3200 subpart 1 that requires the goal of a post closure mines to be "maintenance free."	The HRF liner system is designed to meet the long-term solid waste storage requirements for the HRF waste. This includes: a drainage collection system; a primary 100-mil HDPE liner; a leakage collection system; and a secondary 60-mil HDPE liner placed on top of a geosynthetic clay liner. This has been determined to be a robust liner system for the proposed waste. After operations at the facility cease, the drainage collection system will minimize head on the primary liner to reduce the possibility of seepage losses. If seepage through the primary liner occurs, the leakage collection system will serve as a means of detecting and collecting that seepage. HDPE has increasingly become the liner material of choice since the 1980s. As noted by the commenter, this restricts HDPE liner usage to approximately the last 40 years. Therefore, the actual life of HDPE membrane is unknown. Degradation of HDPE liners is contingent on multiple variables including factors such as temperature and exposed-vs.-covered applications. R.M. Koerner, et al1 predicts that "the half-life of covered HDPE geomembranes (formulated according to the current GRI-GM13 Specification) is estimated to be 449-years at 20°C." Limiting exposure to sunlight/UV and elevated temperatures will prolong the liner life. The primary liner of the HRF would be exposed to the elements for the first few years of its service life before residue levels rise and provide some protection. Further, the residue is expected to be discharged from the Hydrometallurgical Plant at temperatures in the range of 85-105°F (29-40°C); however, some degree of cooling would be expected in the HRF and these elevated temperatures would not be expected for the life of the system. As a result of these factors, during operations the primary liner would experience some exposure to the natural elements and to higher temperatures which will decrease – at an unknown rate – the predicted half-life of the primary liner from the predicted baseline. After operations cease, the primary liner would remain covered for the rest of its life. The secondary liner would be covered and protected for the entirety of its service life. Ultimately, there is no certainty that any waste liner system can reasonably be expected to function in perpetuity without degradation. However, under a dewatered scenario with little to no head on the covered liner system, MPCA believes that the proposed HRF liner system is appropriate for this type of waste at this specific site. 1Koerner, R.M., Hsuan, G.Y. & Koerner, G.R., GRI White Paper #6 "Geomembrane Lifetime Prediction: Unexposed and Exposed Conditions." Geosynthetics Institute. geosynthetic-institute.org/papers/paper6.pdf June 7, 2005. Updated: February 8, 2011.
94	Robin Raplinger	Citizen	This same "maintenance free" objection and violation pertains to the reverse osmosis and nanofiltration (WWTS) proposals in the permit.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
95	Robin Raplinger	Citizen	How do you calculate the costs and therefore the amount of financial assureance to be required as part of this permit? The permit must be withheld until the issues are resolved protecting MN and US taxpaying citizens.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
96	Robin Raplinger	Citizen	How do you calculate the costs, and therefore the amount of financial assurance to be required as part of this permit?	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
97	Robin Raplinger	Citizen	The permit must be witheld until the issues are resolved protecting the MN and US taxpaying citizens.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
98	Mark Delver	Citizen	Allow Polymet to proceed as standards are met.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
99	Kathy Littler	Citizen	I support the Polymet mine project.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
100	Cynthia Klaras	Citizen	I believe Polymet has gone above & beyond to prove that mining can go hand in hand with the environment.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
101	Barry Lesar	Citizen	The time has come to stop this nonsense and either approve or dissaprove the permits based on the science. To base a decision such as this on what might happen is ludicrous, if everyone based their activity on bad things that could or might happen, no one would do or manufacture anything. Let's move on and mine these materials here, where the mining will be monitored & the environment protected, not elsewhere where the environmental pollution will be far worse & more far reaching.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
102	Roxanne Wright	Citizen	Rain water is dirttier	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
103	Thomas Gentilini	Citizen	Polymet has and will meet all requirements that it should move forward.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
104	Tom Rukavina	Citizen	After 14 years, it is time to issue the necessary permits & let us move forward so we can safely provide the minerals that society demands. 134 of mining in NE MN proves we can do it correctly.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
105	Karl Littler	Citizen	I support the Polymet Mine Project	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
106	Ken Vogl	Citizen	Water is life, already, significant area's of this planet, and literally millions of it's inhabitants have no clean drinking water, or unpolluted air. Once begun man's greed for quick profits over peoples well being, will snowball, as it has in other (poor) communities all over this world.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
107	Ryan Fink	Citizen	I support the water quality permit.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

108	Don Guttormson	Pastor	I believe that a permit should be granted and that adequate monitoring take place. The impact of potential jobs is of great benefit. It will help address poverty on the Iron Range. National avg 12%, St Lois County 15.5%, Virginia, MD 20-25%. Drug addiction is epidemic - Jobs are critical to change this!	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
109	Pierce	Citizen	You have done a great job.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
110	Robert Kohzmeter	Citizen	I attended 5 hearings on sulfide-ore mining both here in duluth and on the iron range. I heard many good comments both for and against. One comment stood out: a pro miner stated defiantly "we will mind." If I would have had the opportunity to respond, I would have said, "I'm ok with that but you will not polute out lake superior. We drink from that lake and it is not yours to pollute. You don't drink from it but we do!" If the permit to mine is issued, which I believe it will be, the DNR and Polymet is 100% responsible. Lake Superior cannot be permitted to be polluted. Thank you for protecting the water we drink.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
111	Virgil Sohm	Citizen	I am enrolled member of the Lake Superior Band of Ojibwe, Treaty of 1854, Bois Forte tribal member. Our lakes and streams of the Arrowhead region of the state of MN include our treaty rights to hunt, fish and gather. As a tribal member your proposed facility to mine copper endangers our water. Water is life.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
112	Jason Wall	Citizen	Water is essential to healthy living. We cannot compromise one of our greatest natural resources in Minnesota because we could potentially make some money and jobs available. The risk of long term harm is great and no amount of redundancy will safe guard our water against large scale mining. Water is worth more than transient copper and nickle.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
113	Kim Davis	Citizen	Sulfide mining will damage our water forever! We all need water to survive and can't live without clean water. Please do not approve this permit! Thank you!	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
114	Paul Christensen	Citizen	The mine will damage the water quality irreparebly for hundreds of years. We need clean water. We can't live without clean water, we can live without copper and nickel. Please do not approve this permit!	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
115	Wendy Salin	Citizen	I strongly oppose the polymet mine. I have serious concerns about the high risk to water, human health, and environment. I am appalled to hear that a health impact analysis has not been thoroughly conducted. I am appalled that we would prioritize a high-risk mining endeavor over precious and rare fresh water.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
116	Wendy Salin	Citizen	I am not in favor of the liability this poses to MN's taxpayers. The risk is too great. The reward, too little.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
117	Tahera Mamdani	Citizen	Sulfide mining poses great danger to fish, other wildlife and humans.	This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
118	Tahera Mamdani	Citizen	The acid mine drainage and discharge of heavy metals could decimate wild rice stands downstream.	During the EIS process, PolyMet offered to resolve outstanding issues related to sulfate and wild rice by incorporating into the project design advanced wastewater treatment that is capable of achieving 10 mg/L sulfate, the current wild rice standard. The permit includes an operating limit of 10 mg/L sulfate for the effluent from the WWTS. This operating limit for sulfate is an enforceable permit limit; if it is exceeded, it will be a violation of the permit. In addition, the project will include other engineering controls such as stockpile liner systems and seepage capture systems that are designed to control wastewater and runoff from the facility. The effectiveness of these controls were evaluated in the EIS and the water quality permit requires their installation/operation. Because the authorized discharge from the WWTS is limited to 10 mg/L and the required engineering controls will prevent unauthorized discharges, the project as designed will not harm wild rice.
119	Joanne Isdahl	Citizen	Please deny all permits to Polymet. This mining has never been done successfully in a water rich environment. There are documented disasters with this type of mining. The effects of this could last 500 + years. Why would we risk our beloved northern MN when the stakes are so high?? The EPA itself has said sulfide mining is the most toxic industry. We need to protect our water & environment at all costs. Deny all Polymet permits.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
120	Rachel Schardenbey	Citizen	I request that the DNR reject any motion to issue a permit for the proposed polymet mine, until assurance of 0% contamination can be made. There has be no such assurance under normal conditions and are most certainly not assured in the event of a disaster.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
121	Sally Downing	Citizen	All mines pollute, there is no way we can undo the damage. No matter how much money Polymet says they will provide for clean up, history shows us it is never enough.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
122	Mary Klausen	Citizen	There is no way to safely mine this product. It's never been done without devastating & permanent damage to water, habitat & ecosystems. Don't do it. Shame on us for even considering this in this state of water & huge interconnected watersheds. MN is the giant sponge for water far south of us. Just say no.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
123	Eleonora Lesar	Citizen	I believe that mining & clean water can co-exist. Polymet has met all the particulars asked of them. I strongly support mining & Polymet	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

124	Barry Lesar	Citizen	Living downstream of the plant that Polymet will use, I firmly believe the science & technology exist to protect the water I drink. It is time to grant the permits & start mining & processing the Cu Ni deposits.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
125	Jeffrey LeDoux	Citizen	The information available to all who attended this event shows due diligence. I was particularly interested in all of the wells that have been drilled so you can effectively track and trend water quality. I am very impressed! Thank you!	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
126	Floyd Littler	Citizen	Support	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
127	Ronald Childs	Citizen	I support Polymet 100%	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
128	Donna Littler	Citizen	Support	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
129	Carrie Nicklow	Citizen	Hello, I am writing to share my deep concern and pposition to the draft permit for PolyMet. I do not feel that this process has adequately explored the potential ramifications of a mine such as this, nor has it met state requirements for environmental review, protection of groundwater (per state law) or protection of the watershed.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
130	Carrie Nicklow	Citizen	There are many unknowns in a project such as this, and of course no mine such as this has been undertaken in Minnesota yet. In fact, no mine such as this has been implemented ANYWHERE without causing grievous harm to the surrounding watershed, anywhere in the world. Northern Minnesota as a pristine location, and is not the place to skimp on environmental review, or fast-track industry requests just to create a few jobs (or make some company a profit at the taxpayers expense.) I understand that there has been taconite mining up there for years, which is fine, but PolyMet proposes an entirely new kind of mining with much more severe and essentially unavoidable catastrophic consequences.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
131	Carrie Nicklow	Citizen	I do not feel that the future cost of the all-but-inevitable leaking of the dam has been adequately assessed. Truly, anyone who says that they can account for the cost of managing this boondoggle for 500 years is either lying, ridiculously uninformed, or both. I think that the DNR and the MPCA stop this process if they cannot ensure that they can be ONE HUNDRED PERCENT confident that adequate protections exist for the watershed. Further, if approved, which I strongly disagree with, POLYMET SHOULD PAY IN ADVANCE for the cost of maintaining their mess for the next 500, 1000 years, whatever it is to deal with the fallout of this dam bursting forth its toxic sludge.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
132	Carrie Nicklow	Citizen	I've lived in Minnesota my entire life and have spent many seasons up north in many parts of Minnesota and my husband and I plan to retire near the area where this mine is proposed. I cannot express to you the depth of my concerns for the natural habitat of the area, the watershed, the tourist economy, and the preservation of the area for future generations. Please oppose this permit, as it's just not sufficient to protect the best interests of Minnesota. Thank you, Carrie Nicklow	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
133	Doris Malkmus	Citizen	I am not a scientist I am an elder in our community. When people speak with pride of Minnesota, they think of the lakes and their purity. The MPCA 401 certification should not be given when there is such a vast quantity of tailings to be maintained for so long when climate change may make projections of today unstable. Please act with caution not concern for the next very short 20 years.	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.
134	Doris Malkmus	Citizen	When it comes to a water quality permit what could be farther from quality of water than stirring up the earth sediments, mixing it with solvents and then letting it sit around for centuries. When I think of water quality I think of pristine. I don't need to go to the BWCA to feel the quality they confer on our state. It is our gift. My parents have a cabin that was one of only a dozen on a pristine lake Now the shore is lined with to huge house all meeting new requirements, but cumulatively the lake is now siltier, there are a small percentage of fish compared to fifty years ago. No one hoped for this, but it happened. The that intangible quality of pristine is just as fragile in the BWCA. Do not believe that water quality can be protected with major disruption in the watershed. Do not issue a NPDES/SDS water quality permit.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
135	Robert Kohlmeier	Citizen	My wife and I attended the Polymet hearing in Duluth on February 8 and I just have to say we Northern Minnesotans have never ever been more divided. We, and we alone, who amongst us are staunchly for, or against, copper nickel mining must work out our divisiveness between ourselves. It is clear to me that this foreign company Polymet stands between us. They are not bringing us together because they are unwilling to take the necessary preventative measures to eliminate the risk inherent in their mining venture that uses outdated technologies. They and they alone are dividing us, and it is wrong. This has become a political issue of jobs versus clean safe drinking water, which all of us deserve and must not be mutually exclusive to either goal. We heard State Senator Tom Bakk testify that there would be "some level of risk". No level of risk upon our citizens should be acceptable!	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
136	Robert Kohlmeier	Citizen	So I wish to float a visionary idea of removing Polymet from the equation, and instead, bring Northern Minnesotans and our own DNR together and do the mining ourselves, using our own private and state funding on a more modern mining venture where we the people are in charge. All profits would be poured back into our own state economies instead of leaving the country. We would take responsibility for our own environmental concerns which would necessitate the strictest of requirements, not 40 year old technologies. If Minnesota can afford $500 million dollars for a modern Vikings stadium, we can afford this.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
137	Robert Kohlmeier	Citizen	I am confident we can do this mining safely, but only together. We need to reunite as we should. Why are we letting Polymet tear us apart? I mean it was like a police state at the hearing the other night, frisking etc. What have we become? Our common enemy is pollution and our common goal is safe risk free mining, for ourselves and for our environment. I am simply ncomfortable with Polymet "guarding" our back yard. They need to go, and we need to take over.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
138	Liv Mostad-Jensen	Citizen	I do not support Polymet mining for copper and nickel. I am an active user of the Boundary Waters and do not want to see it environmentally compromised.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
139	Liv Mostad-Jensen	Citizen	While I understand people's desire for good jobs, I do not believe the long-term risk is worth taking for a limited number of jobs in the short-term.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

140	Liv Mostad-Jensen	Citizen	Also, looking at the history of mining operations around the world, I do not trust Polymet to supply the funds needed for potential clean-up. They might promise the world, but it is another thing to actually come through with promises when the time comes.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
141	Candice Pierce	Citizen	Polymer intends to use the cheapest,least safe way to contain toxic tailings; wet tailings behind a 45+ yr old dam. They should be made to use the best, if more expensive, technology: dry tailings containment. Sincerely Candice Pierce.	Alternatives for tailings basin design were addressed in the EIS process, and the EIS was deemed adequate. Tailings dam design is addressed in the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.
142	Anita Tillemans	Citizen	NorthMet Draft Water Quality Permit comment to MPCA at link survey.mn.gov/surveylanding/interviewer.asp: This permit proposes to monitor discharges in the Laurentian area from this project's copper-sulfide mining of low grade ore in an extremely waterdependent area of the world at the headwaters of the Great Lakes and the St Lawrence Seaway. Infrastructure including rails and roads will be required.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
143	Anita Tillemans	Citizen	Among the facilities referenced in this draft, the following: o A beneficiation plant o A hydrometallurgical plant o A flotation tailings basin (FTB) including Seepage Capture Systems o A hydrometallurgical residue facility (HRF) o A waste water treatment system (WWTS) – discharge of which will be routed through pipes to maintain flows in Trimble Creek, Second Creek, and Unnamed Creek, with some being recycled directly to FTB pond. o Other ancillary facilities (eg Colby Lake water pipeline): o Mine water filtration train o Tailings basin seepage treatment train o Wastewater treatment solids/byproducts: from the tailings basin seepage treatment train including waste from filters and membrane cleaning and concentrate, which will be routed to FTB pond and mine water chemical precipitation treatment train.	The NPDES permitting program nationwide is reliant on self-monitoring by the permittee. The permit includes specific requirements on the sampling, analysis and reporting of monitoring data. For example, the permit requires that all analyses must be conducted by a laboratory certified by the Minnesota Department of Health. The permit also states that knowingly making a false statement or certification is subject to criminal and civil penalties. The monitoring, assessment and reporting requirements of the permit are intended to identify potential problems before they impact water quality. For example, the permit requires the annual Groundwater Evaluation and Performance Evaluation reports to evaluate the monitoring data on a proactive, forward-looking basis such that adaptive management or mitigation can be implement before impacts occur.
144	Anita Tillemans	Citizen	Can we rely on a for-profit corporation to monitor itself? The permittee, Polymet, is expected to report all data from the required monitoring stations, whether favorable or not. If reported accurately and standards are not met, then Polymet will be required to monitor again until standards are met. What worthy and worthwhile actions will be taken at the "end of the day?"	See response to Comment 143.
145	Anita Tillemans	Citizen	If the unfathomable number of reports (essentially required just to monitor the discharge from this mining operation) are maintained accurately with regularity, consistency and competency, what truly effective actions can be taken when standards are exceeded? What of the monitoring stations that have no set standards as guidelines? What of those that are not enforceable? What actions are possible that will return the water to its base levels when the degradation becomes apparent to us all? What amount of money in the form of fees or financial guarantees can reclaim what is lost?	See response to Comment 143.
146	Anita Tillemans	Citizen	In addition, there is little that anyone can do to prevent natural processes and disasters from occurring, or human error whether knowingly or not; and so, by any standard, this mine will degrade our water resources in Minnesota and beyond. Can any permit for such a mine adequately address these issues?	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
147	Anita Tillemans	Citizen	Once copper mining has run its course in the Arrowhead by setting precedent with Polymet, the first of many to come, what will remain and what can truly be reclaimed? "Downstream,"the St Louis River estuary and Lake Superior, the largest body of fresh water in the world? "Downstream," the BWCA, and the Rainy River Watershed, the Superior National Forest and Voyageurs, the most pristine wilderness areas on the planet?	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
148	Anita Tillemans	Citizen	Can we afford this mine? There are hundreds of pages listed in the water permit draft of essential equipment and gauges required just to monitor pollution on a continuing basis daily, monthly and/or annually through the life of this mine and beyond. This alone speaks for itself and cannot be reconciled with the safety of our greatest natural resource. I respectfully request that MPCA deny this permit to pollute our waters.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
149	Candice Pierce	Citizen	PolyMet intends to use cheaper, more dangerous wet tailings capture behind a 45+ yr old dam. Instead they should be made to use the safer, dry tailings containment option. After all, that is the best & safest technology. Sincerely, Candice Pierce	Alternatives for tailings basin design were addressed in the EIS process, and the EIS was deemed adequate. Tailings dam design is addressed in the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.
150	Candice Pierce	Citizen	PolyMet intends to use old, outdated, unsafe technology in the form of a 45 yr old earthen dam keeping back millions of gallons of toxic slurry. They should be made to use industry best practices in the form of dry containment. Sincerely, Candice Pierce	Alternatives for tailings basin design were addressed in the EIS process, and the EIS was deemed adequate. Tailings dam design is addressed in the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.
151	Jesse Coenen	Citizen	My name is Jesse Coenen of Duluth, MN. I am addressing the Water Quality permit. I am trained in molecular biology, and medicine. I am a family doctor. I live and work in Duluth, which lies downstream from the proposed Polymet mine area. It is my job to look after the health of the people in this community and the greater region. I feel the need to speak because, when considering effects on human health, sulfide copper nickel mining represents a very different situation than traditional iron ore mining. It has never been done in Minnesota before, and for this, we are fortunate!	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
152	Jesse Coenen	Citizen	The concern lies in the fact that the desirable minerals, such as copper, are connected to sulfur. And when these minerals are mined, they are exposed to air and water, and sulfuric acid is generated. This acid is released into the surrounding environment , and pulls heavy metals from the rocks. This is acid mine drainage.	Comment noted. This comment contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
153	Jesse Coenen	Citizen	Regarding human health, one particularly concerning metal is mercury. Mercury contamination of fish, which WE EAT, is already widespread in Minnesota. We must prevent additional mercury from entering the environment, as this is damaging to our brains, in particular, those of fetuses and children.	The permit includes enforceable Operating Limits for mercury (1.3 ng/L) and sulfate (10 mg/L) for the WWTS discharge that will minimize the potential for increased mercury methylation as a result of the project. In addition, the project will include other engineering controls such as stockpile liner systems and seepage capture systems that are designed to control the wastewater and runoff that may contain elevated mercury and direct it to the WWTS for treatment. The effectiveness of these controls was evaluated in the EIS and the water quality permit requires their installation/operation.
154	Jesse Coenen	Citizen	I want to reiterate: We are fortunate that this type of mining has never been done before in Minnesota. Most of the currently operating copper sulfide mines in the country are located in the west and southwest places like New Mexico, Arizona, and Utah, where the climate is arid, and precipitation is limited, minimizing the amount of mercury that will end up inside of humans. There are claims that modern technology will prevent this pollution from happening, but they have not been proven in a water rich environment.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
155	Jesse Coenen	Citizen	I am not wiling to put the brains of our children on the line. The Land of 10,000 Lakes is definitely not the place for this type of mining. We must address this problem BEFORE it affects our children, because as we already know about mercury in our environment, there is no simple cure. As I ask for the denial of this permit for Polymet, I want to make the point: We must prevent that which we cannot cure.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

156	Abigail Nordstrom	Citizen	Please reject mining proposals in northeastern Minnesota. I'm not against mining; I'm against mining that is economically and environmentally unsound from the start, meaning that the odds of a cleanup in the future are even worse. This is one of the reasons people speak of the "resource curse," one aspect of which is that some people make money--but not the locals, who just get stuck with the Superfund site. For a grand total of 350 jobs, this one is a bad bargain from every angle.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
157	Abigail Nordstrom	Citizen	If we are going to risk ruining the BWCA and sinking tourism around the Iron Range, why are we offering this to the least experienced, smallest company of its kind instead of the most experienced corporation with a track record of success in this type of mining? Polymet itself has no track record for this type of operation. The company has no earnings and is what's called a shell corporation. Its stock (PLM) trades for 95 cents per share and is priced not on current operations but on possible future projections, the most risky type. Companies like this go out of business every day which is why the stock is priced so low. Everyone including the Governor and Mr. Landwehr state there is some risk to this effort. So I'll ask again why are we placing this risk in the hands of a company that is inexperienced with no track record to demonstrate their ability to manage the risk we are placing in their hands? It's not in the interest of the state, to allow Polymet to use out-dated methods to extract the ore, and Yes, mining generates jobs, but they are ALWAYS temporary.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
158	Abigail Nordstrom	Citizen	They always put at risk the potentially permanent tourism jobs. Moreover, I personally believe clean water will be the "oil" of the next generation -- worth big $ and fought over. So please let's not put water -- our invaluable, irreplaceable, and to some degree uniquely Minnesota -- resource at risk for some temporary jobs.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
159	Abigail Nordstrom	Citizen	Why not find opportunity, and create jobs recycling the same metals they are going to extract? Copper and copper alloys have been recycled for thousands of years. Landfills, doing no good to our environment and human health, are a source we can utilize for metal materials. Also green energy. Minnesota has a dozen landfills, and with wise investment, each have an opportunity to be a source of recoverable materials, and energy if burned. Why not create jobs here? Minnesota would be making another strive in it's admirable green-energy economy AND taking care of the burden of human waste, already placed on the environment and our health. The ore has been and will continue to be in the ground and available forever. There is no demand for this ore that outweighs the risks. Leave it there until sometime in the future when it can be safely extracted and not create such a huge risk to us and the environment.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
160	Abigail Nordstrom	Citizen	During the mine's permitting phase, Eagle (copper-nickel mine in MI) pledged to use environmentally responsible bag-house filters to remove heavy metals, sulfide rock particles, exhaust from underground equipment and cancer-causing particulates ejected from the mine following blasting. The have since changed the design, revised the permit and removed all filters. Why are we being so shortsighted? Jobs are important. BUT once the natural world is polluted, there is no way back.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
161	Candice Pierce	Citizen	Theme: Reasons why PolyMet Mine Permit is a bad idea in its present form. 1) DNR draft permit allows PolyMet to use same wet tailings basin design that caused catastrophic collapse & devastating pollution at Mount Polley in 2014. After that disaster, the expert panel that investigated, said any risk of mine waste dam failure was unacceptable & new mines should stop storing waste mixed with water behind earthen dams. Dry waste containment is now industry best practice. PolyMet should be required to use best practice technology, even if more expensive, to prevent perpetual risk to downstream people & water.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
162	Candice Pierce	Citizen	2) DNR draft permit allows PolyMet to use 6.2 BILLION gal/ yr of water & drain the headwaters of the Partridge River. DNR draft permits don't protect surface water, ground water or the Lake Superior Basin.	Comment noted. This comment pertains to issues considered in the development of the DNR Water Appropriation permits. No changes were made to the draft permit in response to this comment.
163	Candice Pierce	Citizen	3) DNR reasonably estimates mine closure & centuries of water treatment to cost more than $ 1 BILLION. But the DNR PolyMet's permit to mine to guarantee less than 10% of that amount upfront, with almost no insurance for spills or collapse.	Comment noted. This comment pertains to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to this comment.
164	Candice Pierce	Citizen	4) The PolyMet draft permit does not implement all of the steps the State's own experts & engineerd recommended to protect MN taxpayers. The best practice is upfront cash. PolyMet's draft permit doesn't require this. After the initial$ 10 million, PolyMet is only required to put up $ 26 million after 9 yrs of mine operation to pay for a potential $ 1 BILLION cleanup. Instead of cash upfront, Poly Met's permit depends heavily on " surety bonds" & "letters of credit", despite the State's own experts stating it likely won't work.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
165	Candice Pierce	Citizen	5) DNR should, if PolyMet is permitted : a) Have outside experts annually review Poly Met's financial- assurance. This should be open & transparent to the public. b) DNR should have options other than mine closure should PolyMet fail to meet its financial- assurance obligations. Options such as prohibiting dividends to shareholders or bonuses or stock options to executives if PolyMet fails to meet its financial- assurance obligations. c) State of MN should have the ability to require full cash funding of all financial assurance obligations if the mine is sold.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
166	Candice Pierce	Citizen	6) DNR permit allows PolyMet to pollute many square miles of ground water in blatant violation of state law. The permit ignores promises made in the EIS to contain & collect at least 90% of ground water from the most polluted areas. The draft permit to mine doesn't protect public interest, puts people downstream at risk, & leaves the taxpayer unprotected. It is the job of the DNR to protect the public interest. Sincerely, Candice Pierce	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
167	Candice Pierce	Citizen	Theme: The PolyMet mine permit is a bad idea in its present form. Content 1) Sulfuric acid produced could leach heavy metals & other pollutants into pristine waters downstream.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
168	Candice Pierce	Citizen	2) The PolyMet project is located in a particularly bad location for a sulfide mine: a) It is located at the headwaters of the St. Louis River; the largest tributary to Lake Superior. b) Is located by wetlands/peatlands & streams in the Lake Superior Basin. c) Located upstream of drinking water of Fond du Lac reservation & City of Duluth, & estuary where the St. Louis River meets Lake Superior.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
169	Candice Pierce	Citizen	3) Across the country there is NO example of a sulfide mine that has been operated& closed in a water- rich environment (like that in Northern MN) without polluting surface, and/or ground water with acid mine drainage, sulfuric acid, and/or toxic metals. This is a striking 100% FAILURE RATE in protecting clean water.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
170	Candice Pierce	Citizen	4) There is an expected 2 BILLION gal/ yr of toxic tailings seepage.	Comment noted. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.

171	Candice Pierce	Citizen	5) PolyMet plans to use 6.2 BILLION gal/yr of MN water, paying MN taxpayers only $ 50,000/ yr for its use. Essentially this is unlimited free freshwater usage for the mine.	Comment noted. This comment pertains to issues considered in the development of the DNR Water Appropriation permits. No changes were made to the draft permit in response to this comment.
172	Candice Pierce	Citizen	6) PolyMet touts the 300 jobs/ yr it will provide over 20 yrs. But Paul Renneisen warns that the rapid automation in the mining industry will soon replace Humans with Robots in MN mines as is happening in mines worldwide. PolyMet state permits have no contracts mandating HUMAN employment numbers.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
173	Candice Pierce	Citizen	7) We recycle 1/3 of copper globally. If permitted, PolyMet would only increase global copper production by 0.2%. Discarded iPhones are 40x richer in copper than the Northmet ore body. Their extraction is far less destructive & dangerous than the PolyMet proposal. Let's learn to recycle. Only 20% of e-waste waste was recycled in 2016. But a total of $ 65 BILLION worth of e-waste was generated in the USA in 2016. E-waste contains rich deposits of gold, silver & copper & more. We don't need more polluting mines... We need to learn to recycle.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
174	Candice Pierce	Citizen	8) We should not accept mining practices that outside experts from all over the world have repeatedly warned against. Remember the Mount Polley disaster. Sincerely, Candice Pierce	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
175	Susan Bembenek	Citizen	Hello. I am not in favor of granting any permits to Poly Met. At this time there is no safe way to mine without a serious threat to polluting Lake Superior or the BWCA.. Jobs are important, but the number and how long they will exist in not worth the possibility of polluting these great bodies of water.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
176	Susan Bembenek	Citizen	Recycling the metals from out digital gadgets is better than constantly starting with new minerals.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
177	Susan Bembenek	Citizen	If you live in an area that does not offer good jobs, one has to move. My relatives live in a small town and their children have had to move to earn a proper living. This is unfortunate, but reality. Tourism is a BIG industry in this area. How will pollution upset this industry?	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
178	Susan Bembenek	Citizen	Too many goals are based on greed and short term return. That is the case here. How many environmental disasters have happened that were not supposed to? Stored sewage from fowl farms, invasive fish from fish farms, oil from pipelines, all leaked and polluted.	Comment noted. This comment generally states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
179	Susan Bembenek	Citizen	Your job and mine as a citizen is to protect that which cannot speak for itself. I stand with mother nature on this one. From "Letters From Yellowstone". A telegram written by a park ranger about train property and protecting Yellowstone. "...Invited to dinner with Northern Pacific and Senator Jackson to discuss virtues of private enterprise. You must know I am not in agreement. ...The Park belongs to all Americans. Should be nurtured for generations to come. Not exploited for short term financial gains of few. Nation has but one Yellowstone Park. (my words - Lake Superior, BWCA) I intend to ensure it is protected... ."' "I am also happy to report that Captain Craighead has declared his own independence on behalf of the Nation and our National Park. He has steadfastly refused to entertain any additional railroad leases, in effect ending the history of monopolization of the public trust for the profits of a few."These words hold the heart of my feelings about Poly Met and our sacred trust to protect Lake Superior and the BWCA. Sue Bembenek 2-18-2018	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
180	Shannon Martin	Citizen	I formally request that the MPCA reject this mine proposal on the grounds that it will have extremely long-term deleterious effects to our state's water resources. According to PolyMet's own Environmental Impact Statement, water treatment at the plant site would be required for 500 years. Any project requiring that level of long-term maintenance to protect our water supply and resources is simply too dangerous to allow in Minnesota, let alone anywhere else. It is not in the long-term interest of this state to approve such a mine.	Comment noted. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
181	Shannon Martin	Citizen	Short short income for rural communities should not be the tradeoff for such severe environmental damage. Additionally, since pollution would contaminate Hoyt Lakes' drinking water, the Embarrass, Partridge & St. Louis Rivers, kill downstream wild rice, and increase mercury contamination of fish, it is simply too big of a risk to take. Please reject this proposal for the health of the environment and the people of MN.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
182	Sarah Nelson	Citizen	Issuing a permit for copper-sulfide mining in our water-rich north is absolute madness - from both an environmental and a public health standpoint. Allowing this dangerous industry to operate in MN - a landscape defined by the abundant presence of water - is the absolute opposite of protecting MN's water quality, and I am deeply disappointed in the DNR and MPCA's decision making. We know, without doubt, that the proposed mining will contaminate ground water. The company knows it; the state knows it. And no one has a plan or a way to prevent the problem. Copper-sulfide mining has been identified by the EPA as "America's most toxic industry." And water pollution problems result 100% of the time where these mines operate. Drinking water for adjacent and downstream communities will be negatively impacted and this is just an absolutely unacceptable risk. It's also a violation of state law. Polluted, highly dangerous water would need to be contained and treated for centuries to come - long after Polymet (and all of us) are gone.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
183	Sarah Nelson	Citizen	Besides the inevitability of pollution leaking into ground water and seeping downstream (considerable problems in themselves), the risk for accident is catastrophic. Accidents at similar mines (such as the Mount Polley mine in B.C.) have contaminated ground water and hundreds of miles of waterways - with devastating environmental, health, and financial costs to the public.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
184	Sarah Nelson	Citizen	Furthermore, we have a clear, moral obligation to protect and preserve our beautiful natural resources and our remaining wilderness areas. The Boundary Waters region is a national treasure and an area of unique beauty and biodiversity. It deserves our awe and our respect. When I was a girl my family canoed through a portion of the area; when we were thirsty, we drank straight from the lakes. We got a rare experience to coexist with nature and to experience the real Minnesota. For me, it was transformative.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
185	Sarah Nelson	Citizen	Those who are lucky enough to live in the far north certainly (like all of us) need jobs. But more than that, they need clean drinking water - now and generations from now. And that's really the only consideration for your agency. We rely on you at the MPCA to protect us from dangerous projects like the Polymet copper-sulfide mine. Please do your job and rethink and rescind this permit.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
186	Vince Trovato	Citizen	This is madness! How can we allow environmental super-villain Tony Hayward of BP oil disaster infamy to potentially poison the pristine boundary waters for a thousand years? The company Hayward is chairman of owns the vast majority of Polymet. He has already shown his true colors - total disregard for water quality and the environment.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

187	Vince Trovato	Citizen	We rely on the MPCA to protect our water quality! A permit to Polymet for copper-sulfide mining does the opposite - it sells off our precious water resources to what the EPA calls "America's most toxic industry." Water pollution problems result 100% of the time where these mines operate. Drinking water for adjacent and downstream communities is at risk. This is a terrible chance to take. It's also a violation of state law and antithetical to your agency's purpose. In addition to inevitable and widespread ground water pollution (a result your agency knows for sure is an outcome) the potential for catastrophic accidents is horrifying.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
188	Vince Trovato	Citizen	When the Mount Polley mine disaster occurred in B.C., hundreds of miles of waterways were contaminated - with devastating environmental, health, and financial costs to the public now and for decades to come. The proposed Polymet mine plans to use the same water containment systems as the B.C. mine. Again, total madness. This mine is an awful deal for Minnesota - ten or twenty years of jobs for a few, followed by centuries of danger or disaster. We would be fools to permit this exploitation.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
189	Linda Forcier	Citizen	Have you heard about 3M polluting ground water? Have you heard that metro waters are polluted with road salt? Have you heard that S. Africa is almost out of drinking water? You MUST not allow Polymet to pollute our waters! Just the fact that Polymet has been required to put up upfront cleanup monies proves that you believe there will be pollution. I am concerned about my grandchildren's lives without clean air and water. This is not an economic issue, it is an issue of human survival and I implore you to look at the long term and not cave in to greed for today. Thank you	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
190	Ellen Hawkins	Citizen	Dear Commissioner Stine, I live northwest of PolyMet's proposed mine site, in western Cook County. I ask you not to issue the water quality permit for NorthMet. Over the past several years, we've all learned so much about the critical necessity of protecting the wetlands in this headwaters region, and the inevitability that they would be polluted by this project. Downstream, wild rice, waterfowl habitat, healthy fish populations, and people who depend on these things would all suffer.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
191	Ellen Hawkins	Citizen	One of the many reasons NorthMet is a very bad idea is pretty well illustrated in recent news stories about Minntac's variance request. They want to continue to pollute to the degree to which they've become accustomed – over the decades – which state agencies have allowed. Minntac is in a different category of the mining industry than NorthMet, but it's a great example of the shameful behavior all these companies tend to engage in: This is a predatory delay - a strategic, deliberate dragging of the feet when it comes to meeting obligations, keeping promises, and following the law, with the sole purpose of maximizing profits for as long as possible – while preying on others who will have to foot the bills and clean up the mess – that is, us and our descendents.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
192	Ellen Hawkins	Citizen	There is a long and well-documented record of sulfide ore copper-nickel mining that predicts that we should expect the same behavior from PolyMet. I didn't find anything in the draft permit that convinced me otherwise. The state's failure to enforce sulfate standards is one example of unreliable or nonexistent enforcement that gives a clear warning that regulations on the books don't mean no pollution on the land and waters. It's discouraging when environmental standards in laws and permits aren't enforced – and when agencies that are meant to be about land stewardship enable a proposal like PolyMet's to get so far.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
193	Ellen Hawkins	Citizen	But the wildlife, the forests, the traditional land uses, the clean waters and fresh air and our descendents that would be hurt so badly by this kind of mining are so precious to us that we have to persevere, and ask that even at this late stage you thoughtfully consider the many unresolved problems with NorthMet, and deny this permit. Loss of wetlands. As I understand it, nearly 1000 acres of wetlands located within the NorthMet Project area would be permanently destroyed, including coniferous bog, shrub swamp, coniferous swamp, shallow marsh, deep marsh, sedge/wet meadow, hardwood swamp, and open bog. This represents a very rich mix of a multitude of plants and animals.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
194	Ellen Hawkins	Citizen	No mitigation can replicate the degree of biodiversity that would be lost – and what ineffective mitigation measures are planned are outside the St. Louis River drainage basin, so nothing would make up for the losses to that watershed.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
195	Ellen Hawkins	Citizen	Wetlands that would be harmed or destroyed by the PolyMet mine are part of the headwaters of Lake Superior, and recognized by many people and by the EPA as being water resources of national and international importance. Many more acres of a diversity of wetland types would be degraded to various degrees; some quite possibly to devastating degree, given that an unknown, yet surely huge amount of water will drain into the mine pit, thus drawing down surface waters and groundwater. Also, due to the vagaries of the water modeling, the degree of pollution suffered by wetlands further down the drainage can't be known. A larger total acreage of wetlands than this has been lost in Minnesota since it became a state, but never this much for a single operation. I don't believe the proposed project,which is expected to operate for only about 20 years, is worth this level of destruction of such a vital natural resource as our precious waters.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
196	Ellen Hawkins	Citizen	The draft permit would allow PolyMet to appropriate 6.175 billion gallons per year of water from the small the headwaters of the Partridge River. Water flow. The diversity of wetland types hints at the complexity of groundwater movement through and away from the project location. This is hugely important – all sides agree that this type of mining provides many ways for the environment to become polluted - so the ways the various toxic substances will travel is a key issue. The complex hydrologic system underlying and surrounding the operations sites doesn't appear to be understood by PolyMet, or by the DNR, based on what we see in the draft - even though this is key to a safe mining operation.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Water appropriations are addressed in the DNR's water appropriations permits. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
197	Ellen Hawkins	Citizen	Water pollution. NorthMet squats on the headwaters of the St. Louis River, the greatest river to flow into the Great Lakes on the US side. Its freshwater estuary is so important, ecologically and for recreation, that taxpayers have spent millions - maybe billions - of dollars over the past several decades to clean it up. PolyMet and the agencies have the responsibility to make sure that those efforts weren't wasted. Yet it appears that crafters of the permit have juggled factors so that the end result is "hey, no problem!"	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

198	Ellen Hawkins	Citizen	That includes discounting the importance of mercury pollution that would be generated by the project, even though here in the Great Lakes Basin every new source of mercury is significant. All waters potentially impacted by the PolyMet operation already exceed water quality standards for mercury; it would be morally reprehensible to choose to add to the problem. PolyMet and DNR apparently agree that mercury will leach from waste rock at more than four times the water quality standard. Sources of mercury leachate include mine pits, tailings, disturbed peat, and waste rock, and this project will generate massive tonnages of all of these. Some would enter both the Partridge and the Embarrass Rivers. Wetlands lost or degraded by the project will no longer function to bind up mercury as they do now; as far as I can tell you don't care about that. Increased sulfates and mercury will combine to further endanger the ecological health of the St Louis River Watershed, including its vital estuary.	The permit includes enforceable Operating Limits for mercury (1.3 ng/L) and sulfate (10 mg/L) for the WWTS discharge that will minimize the potential for increased mercury methylation as a result of the project. In addition, the project will include other engineering controls such as stockpile liner systems and seepage capture systems that are designed to control the wastewater and runoff that may contain elevated mercury and direct it to the WWTS for treatment. The effectiveness of these controls was evaluated in the EIS and the water quality permit requires their installation/operation. The EIS evaluated the project's potential for increasing mercury loading to downstream waters and determined that overall, the project would result in a very small net decrease in mercury loading.
199	Ellen Hawkins	Citizen	Wild rice and fish, both essential tradition resources protected by and managed under the 1854 Authority as well as being important recreationally, are already severely degraded. The tailings pond that would be incorporated into the proposed operation is currently under court order to meet its permit standards, and that seems a good predictor of its success under PolyMet. Operations at the tailings pond are a crucial part of the plan to keep pollutants from getting out into the environment, yet they sound problematic. The idea that a barrier, of unspecified content, can be inserted through various types of soil, rock, peat and wetland to make a tight seal - or to "key" - with the uneven and cracked surfaces of ancient bedrock at varying depth, is not credible. Realistically, the barrier's effectiveness will vary along its miles-long length, water will move through bedrock to get past the barrier, precipitation amounts will vary across seasons and years, there will be catastrophic precipitation events, and all of these are out of human control. The pond and seepage collection systems will not function indefinitely. These problems will result in more sulfates and other pollution entering the Embarrass River and points downstream.	The effectiveness of the FTB seepage containment system, including the barrier component, was evaluated in the EIS. The permit has been revised to include the barrier design specifications (i.e., thickness, permeability) that were evaluated in the EIS. The permit also requires that the effectiveness of the seepage capture system be evaluated on an on-going basis.
200	Ellen Hawkins	Citizen	Unforeseen problems. It doesn't look like you've planned for dealing with the kinds of failures and mishaps that routinely occur in mining operations. While this mine is still in operation, more than 6 million gallons of polluted water would need to be treated every day. Pipeline spills, accidental releases, failure of water collection and treatment infrastructure, and tailings basins failures will occur.	The permit has been revised to include "system redundancy" at key locations such as the FTB seepage containment system and equalization basins. This provision requires that redundant pumping capacity and spare parts be kept on site, or be available within 48 hours from a local source, to minimize downtime and prevent an unauthorized discharge. See response to Comment 60 regarding management of large precipitation events.
201	Ellen Hawkins	Citizen	And because the provisions regarding financial assurance are so plainly inadequate, the possibility of responding to such failures looks unlikely.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
202	Ellen Hawkins	Citizen	The DNR's draft permit would allow PolyMet to use the same tailings basin design that caused the catastrophic collapse and devastating pollution at the Mount Polley mine in British Columbia. MPCA should demand truly state of the art designs and techniques.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
203	Ellen Hawkins	Citizen	Perpetual treatment. PolyMet acknowledges that the stream of pollution will continue indefinitely. Graphs illustrating water treatment of discharge show 0 decline for the presence of sulfate, lead and copper after a certain point. Every year for decades and centuries, millions of gallons of polluted water will seep and flow from the operations sites. Apparently you blithely ignore impacts to water quality, wildlife, and human health if the water treatment system ceases operations at some time during the 500+ years during which the polluted water is being discharged.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
204	Ellen Hawkins	Citizen	Financial assurances. Even now we don't have basic information as to the costs of various treatment, containment, abatement, and mitigation measures; or amounts of water that will leave the mine site; or how much contaminated water will have to be treated and/or contained - for perpetuity. This has huge implications for how much it will cost to maintain all the systems necessary to handle the contaminated water – for perpetuity. The PolyMet project would require perpetual tailings dam maintenance, hundreds of years of water quality treatment, and longterm containment of toxic tailings and processing wastes, which the DNR has estimated would cost more than $1 billon. Yet DNR proposes that PolyMet guarantee less than 10% of that amount up front, with most of that in letters of credit and other less than reliable substitutes for cash. I don't think anybody really believes PolyMet will be around to follow through on clean up, restoration, and to respond to failures of their various systems, do you?	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
205	Ellen Hawkins	Citizen	So it really seems that the only honest action for an agency charged with protecting Minnesota's water quality is to deny this permit. At the listening session at the DECC in Duluth earlier this month, speakers who are members of Fond du Lac Band as well as an employee of	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
206	Jim Seme	Citizen	The first thing, I'm not against mining, but I'm against mining that does it cause any problems with sulfides. I worked 42 years for the mine. I know all about the contamination that's presently taking place. I realize the three agencies have a tough time because of political pressure, mining pressure, and now they have got comments for good and bad from the public.	Comment noted. This comment generally states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
207	Jim Seme	Citizen	I think that somebody should make a better decision scientifically what standard they can live with as far as mining companies. Right now, it's 10 milligrams per liter. If PolyMet does get their permitting in effect, I worked 42 years in that mine, I saw the contamination that's still taking place. It's flowing into Embarrass River, St. Louis and Lake Superior. The proposed area they are going to be in, there's contamination going into Partridge River right now. That's more than the 10 milligrams per liter. And PolyMet, if they get their permitting, will be responsible for all that cleanup. The Dunka River area, that's where they have precious metals also, they have two surface dumps between the north and south pit,& that contamination right now flows into Birch Lake through into Bob Bay. In the wintertime they monitor that once a month, and that will run as high as 2000 milligrams per liter for sulfides. In the summertime, when it's raining, it might go down to 1800 milligrams per liter. That has to be cleaned up.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
208	Jim Seme	Citizen	I don't know how they are going to take and harness this scientifically. I don't think there is any proven theory that can take and harness it. Mining companies, when they want to walk away, they walk away. And I'm a witness, because I worked 42 years for that mine that's going to be PolyMet.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
209	Jim Seme	Citizen	So I think the three agencies have to take and stand their ground and do what's right to protect our most precious resource, water. They have to take and come up with a standard. Right now, 1992 is the last water permit US Steel had, and they are flowing sulfides into the Dark River into Dark Lake and they are flowing it into Pike River into Lake Vermillion and it exceeds the 10 milligrams per liter. It's running around 200 right now. So I'm concerned about protecting our water and I hope they make the right decision, and it's in their court that they have to take and make that decision because that's what we have those agencies for. Thank you.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
210	Dianne Rowse	Citizen	My name is Dianne Rowse. I live at 10704 Prescott Court, Burnsville, Minnesota. As a citizen of Minnesota and a professional interpretive naturalist with 33 years of experience, I advocate for the safekeeping of the Boundary Waters Canoe Area Wilderness for future generations. I've been canoeing with my family in the Boundary Waters since 1980. I value this wilderness for its clean water and air, its dark skies and quietude. The NorthMet mine proposed location is not compatible with its close proximity to this federal wilderness area. The State of Minnesota must protect this magnificent wilderness area by prohibiting copper-nickel mining within the surrounding watershed.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

211	Dianne Rowse	Citizen	Because the long-term integrity of tailing ponds in mines worldwide has proven to be inadequate, resulting in irreparable water pollution, the MPCA must deny the water quality permit. There is no failsafe technology to contain these mine waste products in perpetuity and protect Minnesota's water resources. Mining that results in sulfates in the water systems will damage or destroy wild rice production which will impact tribal people.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
212	Dianne Rowse	Citizen	For all these reasons, Minnesota must deny the four pending draft permits for PolyMet's proposed NorthMet mining project. Thank you for considering my comments.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
213	Robin Raplinger	Citizen	So my name is Robin Raplinger. I live in Virginia, Minnesota. I have concerns about the hydrometallurgical residue facility or HRF. I understand through discussions with EPA or MPCA representatives here at the open house that the HRF containing many remnants of toxic waste from the mining process will be stored with containment that is made up of one layer of 100-mil or one hundred-thousandths -- a mil is one-thousandth of an inch. So this is a 100-mil HDPE plastic barrier separated by permeable material and then an additional 60-mil HDPE barrier. The representatives from the MPCA could cite no long-term or longitudinal studies on the expected lifespan of HDPE. It was mentioned that HDPE has probably only been on the market some 40 years. I'm very concerned that this toxic waste is going to be contained by two relatively thin layers of a material, HDPE, that we do not have any longitudinal or lifespan studies or guaranties of. The threat to our water and the environment are depending on these two very thin layers of apparently not very well understood material.	See response to Comment 93.
214	Robin Raplinger	Citizen	I think this part of this permit needs to be reviewed and more information about the longevity of any containment basin materials needs to be understood. Everybody is telling me that this is supposed to last hundreds of years, but nobody can tell me how long the containment vessel is going to last. I object to this part of the permit and hope you investigate and review this part of the permit. And I'm particularly referencing the draft water quality permit number MN0071013, section 6.10.92, page 51 of 103.	See response to Comment 93.
215	Michael Pfau	Citizen	Thank you. That's spelled Michael Pfau, P-F-A-U. I appreciate the chance to speak to you tonight. The message that I'd like to take to you is that the risk is too great. Any risk is too great. I've been inspired by the example, in recent years, of the Water Protectors who have taught us that water is life, that you can live without oil, even though it would be tough, you can even live without a cell phone, even though my daughter probably couldn't, but you cannot live without fresh water, clean water.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
216	Michael Pfau	Citizen	So I'd like to suggest to you today that we are truly lucky here. Duluth, we look to the south and the east and we see the greatest fresh-water sea in the world, with 10 percent of the nonfrozen fresh water on the planet. We look to the north and see a pristine wilderness of lakes, rivers, and streams. We are truly blessed, and if, as some serious thinkers say, that water, in the 21st Century, is the new oil, then we are the Saudi Arabia of the water, and we have a special duty to protect this resource. Now, if our water resources were to come under a threat from terrorists wielding chemical weapons, every single resource of our government would be levied against preventing that threat from coming to fruition. You know, if we can prove they were foreign terrorists, even the president might take an interest in protecting Lake Superior's water.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
217	Michael Pfau	Citizen	But I want to suggest to you that Lake Superior is under a threat from a chemical weapon of even greater magnitude than could ever be wielded by any terrorist. The true chemical threat comes not from imagined foreign terrorists hungry for blood, but from foreign multinational corporations hungry for our minerals. There are more than 200 million tons of toxic acid and heavy metal-bearing waste generated by this mining proposal, and it's a ticking time bomb. And it's not a matter of if it will go off, but when this time bomb will go off, sending millions of tons of toxic cargo straight down the St. Louis River towards Lake Superior.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
218	Michael Pfau	Citizen	All parties agree, including the mining companies, on three things. First of all, hundreds of millions of tons of extremely toxic waste will be generated by the proposal. Second of all, it is so toxic that it must be permanently and totally contained. Third, it will be toxic for hundreds of years, perhaps, and any water even leaking from it has to be treated with a complex process. All parties agree to this, but where they disagree is, the mining companies believe that this toxic slurry can be contained for hundreds of years. Opponents believe, maybe not. The risk is there, and the risk is too great.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
219	Michael Pfau	Citizen	Now , we're told that this time it will be different, that all of the previous times when this mining has destroyed water ecosystems, after promises it wouldn't, are exceptions, that that's the past, that we have new technology, things are different now. Well, what is the new technology? As several speakers have noted, the new technology is a 40-year-old dam. That's right: The only thing separating us from 200 million tons of weapons-grade chemical materials is a 2 1/2 mile-long dam. Please, it's too risky. Water is life. I ask --	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
220	Ray Skip Sandman	Citizen	Ray Skip Sandman, S-A-N-D-M-A-N. I live right here in Duluth, downstream from PolyMet. Maintaining our clean water is necessary for our physical health and our economical health. It is our responsibility to fight for our children and the rights to have clean water to fish from and enjoy this beautiful Lake Superior that is in our backyard.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
221	Ray Skip Sandman	Citizen	PolyMet is the largest threat to our region's supply of fresh water. To mine copper sulfide ore, the metal needs to be separated and finely crushed, crushing sulfide-bearing rock. When exposed, the sulfide creates acid, which leaches into -- leaches several heavy metals, such as mercury and lead, from the remaining waste rock. These heavy metals need to be contained to prevent them from getting into our air and our water. When containment fails, and it will, they'll leak heavy metals, and then sulfates are released and converted into methylmercury in our rivers and in our bodies when we eat the fish from the contaminated rivers.	See response to Comment 198.
222	Ray Skip Sandman	Citizen	1 in 10 newborns in Lake Superior Basin already have unsafe levels of mercury in their blood. This simply cannot add -- the risk cannot be adding more mercury to our environment.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
223	Ray Skip Sandman	Citizen	PolyMet plans to place a 250 -- tall earthen dam on top of the existing LTV tailings pond to contain the toxin this produces. They believe that containment pond will last hundreds of years. Over those hundreds of years, it will nearly be impossible to prevent catastrophic failure of the contaminant, and the pollution would work its way down the St. Louis River and into Lake Superior. Additionally, any environmental safeguards will be expensive to maintain and will be abandoned, eventually, by PolyMet when they close the mine. It should be crystal clear to all of us that we will be left to deal with the mess. We cannot trust these companies to simply do the right thing.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
224	Ray Skip Sandman	Citizen	Plus, our current political power in Washington, D.C. and St. Paul is bent on eliminating environmental regulation and handcuffing our enforcement agents. Therefore, it would be in everybody's best interest to approach, wouldn't it, with -- our best approach would be to let -- never let PolyMet begin mining in the first place. PolyMet has been preying upon our desperate workforce by offering them exclusive jobs like a carrot on a stick. So let's understand fully: They are only mainly there for profit. Thank you.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
225	Virgil Sohm	Member, Lake Superior Band of Ojibwe	Hello. My name is Virgil Sohm, V-I-R-G-I-L, S-O-H-M, and I'm from Tower, Minnesota. I'm here to represent seven generations of our people. I am an enrolled member of the Lake Superior Band of Ojibwe, and I have great concern for all of our grandchildren. I want to thank you, commissioners, representatives, people here with open hearts that are listening. We need to hear the truth. We need to get away from scientists that are leading us down a scorched path.When I go up to Lake Vermillion, when I go up to our land at Net Lake, which is a prime ricing lake, I know that our grandfathers are continuing to watch over us, and they will continue to be here with us. We do not need a toxic environment. We need good wild rice, we need to be able to hunt moose, our wolves need land to live on.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
226	Virgil Sohm	Member, Lake Superior Band of Ojibwe	I've driven by your PolyMet site many times, and I know the area. I know the way that the rivers flow through there and the creeks, and you do not have permission to have that water to flush out some crud that's in the ore and throw away 99 percent of it. Miigwech.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
227	Rachel Burroughs	Citizen	Hello. I'm Rachel Burroughs from Duluth. I'm here tonight as a Duluth resident to speak for the protection of the water, to speak out against corporations and colonialism, even when I've benefited from it. In the land of 10,000 lakes, we do not often think about water scarcity, but I think about seven generations and beyond, and the world that we will leave believe for them.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

228	Rachel Burroughs	Citizen	We can't drink poisoned water. Those future generations won't be able to drink poisoned water, and they should not have to pay corporations in order to have access to this life-sustaining resource.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments. Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
229	Rachel Burroughs	Citizen	This corporation wants you to believe that this project is about jobs. This company, with foreign interests, will close up shop and leave its mess behind for generations and few jobs. It's time to say no. I speak for the water. Water is life. The water sustains us. Mni Wiconi.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
230	Beth Blick	Citizen	Yeah, hi. My name is Beth Blick. It's B-E-T-H, and Blick is B-L-I-C-K. I'm from Oak Park Heights in the Twin Cities, and I urge this commission to put a damper on not -- on not putting a license on -- out for -- for -- you know, for this company, because, you know, water is life.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
231	Beth Blick	Citizen	And we need better alternatives for jobs, and I think, you know, what's going on, you know, is a copout, and we just can't have it. There are much better things.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
232	Beth Blick	Citizen	And I keep thinking too much about what took place in -- out in Detroit, Michigan -- well, not in Detroit, but in Flint, Michigan, when all the water went poisonous, and people cannot live on poisonous water. That is not good. That just isn't good, and we need better than that.People don't deserve this. Again, water is life.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
233	Cindy Whiting	Citizen	My name is Cindy Whiting, and I'm here to do what I can to protect our clean water. I would like all of you to think for a moment where any of us would be, jobs or not, without our clean water. I would -- and that goes to the risk, Representative Tom Bakk. Where would you be without clean water? And if there's any further question on that, any of us could ask Cape Town, South Africa.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
234	Cindy Whiting	Citizen	I've been at this for a while and I would like, and encourage everyone, to go online and Google some of the destruction that has happened by sulfide mining in Canada. You will be astounded. Please, please do not allow this permitting to go forward. Clean water. I defer the rest of my time to Kevin Lee.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
235	Alan Anderson	Citizen	Hello, I'm Al Anderson from Hermantown, Minnesota. I'm not much of a speaker, but I've got to say what I need to say. I'm Alan Anderson from Hermantown, Minnesota. I hunt and fish in this area. I'm grateful for the miners for what you did in the past for making steel and everything for the wars we went through, but this is a different animal, this is sulfide mining.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
236	Alan Anderson	Citizen	Sulfide mining, you've got to make the dams, whatever, last 500 years, whatever. I talked to these people out here and they said, "Oh, there's going to be a 255 berm? I didn't know that." They're DNR people. Am I supposed to trust these people? I'm not sure.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
237	Alan Anderson	Citizen	I went through the -- what, the school, trust land thing back about four or five weeks ago. And I said, "Is this land going to be for mining or anything?" Well, yes, it was. They didn't tell me that. They were dishonest with me. Don't trust them. Because I found out a couple weeks later, Twins Metals had interest in it. Did I know that? Were they honest with me? No, they put up a facade on. I don't trust the DNR. I used to, not no more.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
238	Alan Anderson	Citizen	Now, my thing is, water is precious. When I grew up population in the United States was 225 million, now it's 325 million. So, water is a more precious resource in the long-term, more people, very precious. We need water.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
239	Alan Anderson	Citizen	We're downstream living in the Duluth area, the St. Louis River, it's going to be polluted, heavy metals. We have more rains. We have heavy rains. I think 1970s we had a ten-inch rain. Back a few years ago we had a ten-inch rain. Those dams can hold? I think not. I'm pretty good at stats. And you can crunch the numbers. Is these dams going to hold for 500 years, 200 years? I rather doubt it.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
240	Alan Anderson	Citizen	In Dubuque, Montana, they got that mine up there. It's a hazardous waste, it's a Super Fund. They tried to clean it. In Canada, British Columbia, the dam break up there, more pollution. Can we fix? No. Once it gets deep in aquifers, we can't clean it. How can you do that? Minnesota is going to be stuck with a Super Fund site eventually. What can we do about it?	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
241	Alan Anderson	Citizen	The taxpayers will be held holding the bag. These corporations, if they got too much -- sue too much, they'll go bankrupt. Who's holding the bag then? We've seen that happen many times.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
242	Alan Anderson	Citizen	I don't know what to do. I'm just putting my word out here. I'm not much of a public speaker, like I say, but I know what's wrong and what's right. But I'm grateful for the miners and what they did in the past, but this is a different animal, as I said. Thank you.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
243	Paul Renneisen	Citizen	Dear interested parties, The exhibits at the Aurora and Duluth Polymet Mining Hearings did not show any evidence of stress testing the permits as crafted by the mine sponsoring organizations. The first precaution should be a DNR certified water sample from all wells in the watersheds that could be impacted by mining operations or the disposal of mining by products. This would be a public notice period where residents through out the Minnesota Arrowhead would be able to provide well water samples for testing to be documented PRIOR to mining operations. This establishes a control data base for future comparisons. The program would be voluntary. Residents would have to comply with certain measures to meet a control standard for certification PRIOR to mining operations.	There is no provision in state or federal permitting rules that requires watershed-wide monitoring of residential wells prior to permitting. Furthermore, such a monitoring a program is beyond the scope of the NPDES/SDS permit. However, residential monitoring wells downgradient of the tailings basin were monitored on a one-time basis as part of the EIS process.
244	Paul Renneisen	Citizen	Second, the "stress test" of all permits should be accomplished using Monte Carlo Simulation where variables, probabilities, and the costs in extreme events would show the likelihood of a disaster in the mining operations. This information is likely in use by the environmental insurance underwriters. These insurance measures were available at the exhibit hall. However, no stress test evidence was present. Also, the insurance underwriters were unwilling to insure the project for the extremes and probabilities of a Monte Carlo Simulation.	There is no provision in state or federal permitting rules that requires a “stress test” for predicting the likelihood of a disaster prior to permitting. Furthermore, such a stress test is beyond the scope of the NPDES/SDS permit. However, the EIS did evaluate a range of possible outcomes using a probabilistic Monte Carlo approach.

245	Paul Renneisen	Citizen	That is because the likelihood of a mining disaster, from which no recovery is possible to achieve the pre-disaster level of environment, could occur. In summary, residents would have premining data certification of their well water for post mining comparisons. A voluntary program. Monte Carlo Simulation would show, in understandable probabilities, the likelihood of a mining failure. This stress test shows due diligence rather than untested acceptance of a insufficiently bonded mining operation. Paul F. Renneisen 954-812-2674	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
246	Patricia Renneisen	Citizen	Hello! Thank you for reading my comments. I believe that water is going to be, if not already, our most precious resource. Only 3% of the water on Earth is considered fresh water. Lake Superior makes up 10% of that amount.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
247	Patricia Renneisen	Citizen	Once the tailing pond fails, as I believe they all will eventually, rivers, streams, and ground water will all be contaminated, Lake Superior included. On this basis alone, I would ask that the water permit be denied.	The permit includes provisions intended to prevent the groundwater from being polluted. See response to Comment 510. The permit ensures that groundwater outside the seepage capture system will not become polluted.
248	Duane Gustafson	Citizen	To Whom It Concerns: Groundwater belongs to the public even when it is located on private property, just like surface water. The problem with the Polymet Permits is that they are written to allow contamination up to the sites boundary line. This is not allowed in Minnesota law and demonstrates a very poor public policy.	See respons to comment 510. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
249	Duane Gustafson	Citizen	The permits do not mandate that an underground barrier be totally effective to prevent underground and surface water pollution, There are also no fines applied if the system fails - the mining company should cover all expenses..	See response to Comment 560. In the event of noncompliance with the permit, the assessment of penalties is determined through the MPCA's enforcement process. As with any NPDES/SDS permit in Minnesota, penalties are not "pre-established" as a term of the permit. MPCA enforcement actions include corrective actions to be taken by the regulated party.
250	Duane Gustafson	Citizen	Permitting a tailings basin with toxic waste in liquid form behind a dam is a very dangerous act that could threaten the safety of our clean waters for generations to come. Thank you for your attention.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
251	John Novak	Citizen	I know there is probably little that I can say at this point that can change the mind of our state experts. We all know the chemistry and the water flow. The process has been followed and the proposal has been found "adequate," but the PolyMet project is wrong for the state of Minnesota.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
252	John Novak	Citizen	Copper-Sulfide mining is wrong for a state where we boast proudly "Land of 10,000 lakes." It is our water that makes Minnesota unique. It is what people from other parts of the union comment on when I meet them at a state park. "So much water here. Nothing like my state." We are the guardians of three watersheds and a drop of water falling on Minnesota could end up in the Mississippi, the Great Lakes, or even Hudson Bay. It is a job Minnesota should not take lightly and it worries me that the plan is found adequate by antiquated standards. My issue is sulfide mining and water do not mix. In the land of 10,000 lakes, the waste will meet water. With available water, the sulfide waste creates sulfuric acid waste that needs to be contained forever. Any chemist knows that atoms are forever - not just 100 years like the proposal implies.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
253	John Novak	Citizen	In addition, the methods proposed involves mechanical methods yet to be proven. The simple fact that PolyMet has to clean the water for 100 years should cause even the casual observer to take notice and pause. What happens in year 101? Sure, the water "should" flow towards Duluth, but does that make it any better to know that it will run towards Lake Superior? Sulfide mining works in Arizona or Montana, but they are not know for their lakes and water resources. A state that is wet like Minnesota is a terrible place to put this type of mine.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
254	John Novak	Citizen	Second, once you deem PolyMet's proposal satisfactory, you have given the green light for the Twin Metals project which IS in the BWCA watershed and a much larger project in years and size. Pollution will happen, and the water will flow to the Rainy River watershed. The line drawn 40 years ago when the BWCA wilderness was established will not prevent the water from flowing into it. It saddens me that it is the 40th anniversary of that landmark ruling.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
255	John Novak	Citizen	Finally, gone is gone for good. It does not matter how much money you have to clean up the mess left behind, the land will never be the same even if everything goes right, and there is no recovering what was lost if this go poorly. Northern Minnesota is a delicate landscape when it comes to acidic waters. I grew up in the 80's during the acid rain years. As a kid I wondered why the north latitudes were affected more than the south.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
256	John Novak	Citizen	As a chemistry major, and educator, I now understand the idea of buffers. Calcium carbonate in the south acts as a buffer, but the granite lined lakes in Northern Minnesota have no buffer capacity. Gone will be gone for good. I know the project has checked all the boxes. They have promised all the right things, and proven on paper they have good intentions, but profit, not protection, drives their decisions. PolyMet will only do the bare minimum forced on them and nothing more. There are no policies that will make this a good idea.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
257	John Novak	Citizen	If an accident happens, or there is a bankruptcy - tax payers will ultimately pay for the damage and at the end of the day the one thing that makes Minnesota unique will he irreparably damaged. We have fought wars over land and oil. It will not be long before we start to fight over clean water. Water is what makes us Minnesota. When my grandkids ask me about what happen in 2018, I hope I will be able to tell them that the good people of MInnesota put their future above our present.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
258	Nell Wegmann	Citizen	I appreciate all the DNR and MPCA has done to make this an open responsive process. I attended the hearing in Duluth and found it very informative. Based on what I heard there, learned from the state's technical experts, & my own readings, I oppose the certification of the PolyMet mine Project permits for the following reasons.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
259	Nell Wegmann	Citizen	If the Mission of the MPCA, is to protect and improve the environment and enhance human health, the PolyMet mine should not be allowed anywhere near our state. The risks are great (99% waste rock & potential toxic tailings) and the rewards (1% copper /nickel) are minimal. Those are not odds worth betting on. I love me cell phone (which needs copper), but if I have to choose between copper needed for my phone and Guaranteed clean water for future generations, I'll let my cell phone go. No contest.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

260	Nell Wegmann	Citizen	If it weren't for 350+- jobs over the next 20 years, no one would want to take on the risks of introducing toxins to our air, wetlands & water. MN spend millions / billions to clean up our air, our water and restore out wetlands. Why would we go backwards and bring in great risks to all three? This project is backward thinking, not forward thinking.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
261	Nell Wegmann	Citizen	MN CO2 emissions are already cause for great concern and I understand the PolyMet mine will increase that. Please don't deliberately add to the CO2 emissions in the state. There is only so much we can do to remediate (mass transit, organic composting, biking, ride sharing, using more solar & wind energy). Everyone is trying to do their part to remediate the destructive impact of chemicals on our planet, so please don't make this even more of an uphill battle.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
262	Nell Wegmann	Citizen	The risk of mercury contamination to our waterways and fish is already out of control and that threatens us all. There is more mercury risk from the PolyMet mine. MN is already over the mercury TMDL (Total Maximum Daily Load). Again don't set us back even further.	See response to Comment 198.
263	Nell Wegmann	Citizen	We've lost precious wetlands that filter our water and MN is trying to restore them, as they are a vital part of the overall ecosystem. Why would we take wetlands, precious to the state, and the native people and jeopardize them by putting a discarded mine tailings dump on them? The kind of mine PolyMet is proposing has never been done successfully before in a water sensitive place like the NorthMet Deposits in northeastern MN. This is not a gamble we should take. It jeopardizes our fish, tourism and overall water quality.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
264	Nell Wegmann	Citizen	Sometimes you need to take risks with our environment because something like copper is scarce, but it isn't. There is plenty of copper and recycling copper would be far more appropriate and less risky. But if we were going to risk our precious natural resources, we would need to have a trusting partner. Glencore / PolyMet is not really local and will not be around to suffer the consequences of any environmental impact. Glencore, the major financial backer is based in Switzerland, and has no vested interest in our state. In addition, they (or at least Marc Rich) do not have a good track record with the environment or with unions. PolyMet is not who we want to partner with when there is so much at stake. The amount of monitoring that the MPCA requires in order to certify these permits is extensive & expensive. Monitoring requires judgment and interpretation and organizations like Glencore, who have a history of fraud and a focus on financial gain may well put their profits before long term environmental safety. Will they even be around in 500 years when the tailings are still posing a risk to our state? Think Mount Polly in British Columbia.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
265	Nell Wegmann	Citizen	A cautionary tale from Houston TX, where I lived & raised my family. Because of the petro-chemical industry, there are MANY Superfund sites. They were contained and supposedly not damaging the surrounding environment until Hurricane Harvey hit last August. No one could have predicted that Houston would receive over 50 inches of rain in 24 hours. They did and the superfund sites were flooded spilling toxins into surrounding neighborhoods, wetlands and the Gulf of MX. People broke out in rashes from touching the flooded material. No one knows the long-term effect of detected chemical releases into the air, ground water and on health. There are known risks from PolyMet mentioned above, but there are also unknown risks that come from disturbing the environment. Climate change is real and we have to be cautious about what we expose ourselves too. Keeping the sulfide in the rock is safe. Mining it is not; Keep it in the ground.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
266	Nell Wegmann	Citizen	This is a deal with the devil to get jobs, any jobs, at any costs. At any cost, to the very people who are already hurting because they don't have good jobs. They are the ones who will live near the toxic tailings, whose water may be tainted & whose families may be sickened. And the rest of us live "downstream" of those risks.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
267	Nell Wegmann	Citizen	I've heard that the Democrats (Gov Dayton & Amy Klobachur) have sold out on their environmental concerns for political gains. They want more DFL seats and they think PolyMet is one way to get them. This puts more pressure on the DNR & MPCA to be a-political and put the stewardship of the state's natural resources before political interests.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
268	Nell Wegmann	Citizen	Bottom line: We can live without copper, we can't live without water. MN is steward of some of the best water in the world and we need to protect that at all costs. Water is the new oil and any forward looking state is going to invest & protect their water from potential contamination. Ask the people in Capetown, South Africa.; They'd love to have our water.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
269	Ken Steil	Citizen	To think that polluted water from this mine will be cleaned for the next five hundred or thousand years through this permit is ludicrous. That alone should stop this mine. Nor is enough money being set aside to do this and not enough administration is being identified for a thousand years (or whatever number of years).	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
270	Ken Steil	Citizen	We cannot eat the fish from the St Louis River now. For all these years the DNR has failed to get the iron mines to not pollute or to meet water quality standards. Are we now supposed this Polymet thing will be different. All the water from Polymet cannot be treated because it cannot be contained. Inevitably polluted will get into other waters both above and below.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
271	Ken Steil	Citizen	The DNR talks about shutting down the mine but there are no clear lines, that, if crossed, will automatically result in the shutdown of the mine.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
272	Ken Steil	Citizen	The only safe way for this mine is that all the leftover rock and material, including the tailings basin be dumped back into the mine and covered to prevent the release of sulfide. Once the ground water is polluted nothing can be done. Sure you can pump out and treat the polluted water but for a thousand years? I certainly do not think that will happen which makes a farce of the current permitting process. Ken Steil	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
273	Adam Swanson	Citizen	I am writing in opposition to the Polymet Mine in northern Minnesota.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
274	Adam Swanson	Citizen	I was fortunate to attend arecent City Council meeting where a group from Canada was speaking to share their true story of a failed copper nickel mine in Canada, the Mount Polley Mine disaster in 2014. The exact reality and future concerns for us is why the businesses of the Downstream Business Coalition joined more than 2 years ago. The communities near Mount Polley bring a warning of the negative impacts the likely contamination will bring to the region. No Copper Nickel mine has ever been done without polluting! This is a fact.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

275	Adam Swanson	Citizen	I am a member of the Downstream Business Coalition. We are a united group of 100 small businesses. We employ more than 1200 people who in one way or another rely on the environment which includes, most importantly, clean water. Combined statement at the DBC website and see the list of businesses here. Duluth and the region in the 1970's and 80's was in the bust cycle of a boom and bust economy typical of extraction industries. There was a famous billboard in the 1980's in Duluth that said… "Will the last one leaving Duluth please turn out the light". And as the Duluth News Tribune wrote, it spoke to "yet another notch in the deteriorating industrial Rust Belt in tough economic times." Small Home Grown Independent Business is the engine of growth in this country. We continue to be incubators for innovation with both economic and employment growth. Even massive companies started small and in the so called "garage"…….Microsoft, Apple, Amazon, Google to name a few. All the businesses I am speaking for today did that too. Some facts on Small Businesses in Minnesota can be seen here: MN.gov: https://mn.gov/deed/newscenter/infographics/smbiz-infographics/impactinfographic. 783,400 jobs are in small business. They create $28.7 Billion in wages According to a study by Key-Log Economics in a 2017 analysis, in the Northern Arrowhead region alone: There are 22,000 jobs related to the environment Annual visitors there for the wildness of the place spend $288 million. This generated $31 million in state and local taxes annually. With $181 million in income and business to business transactions. It's all growing but, it's all in jeopardy of going away when Copper Nickel Mining pollutes our unique resource.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
276	Adam Swanson	Citizen	This Polymet project is primarily touted as creating jobs. 650 temporary jobs with 300 FT jobs for 20 years. These estimated numbers have also been reduced over the past 10 years and with manufacturing automation will continue to be reduced. Many of the FT jobs will not be filled by folks already living on the range. So one can conclude that when these jobs end in 20 years they will be followed by unemployment and lost tax revenue. This will cause fiscal problems in state and local governments and the communities affected and most importantly, families and individuals. This is a cycle we all know very well in this region. So it's really about a tradeoff. Are we willing to trade the existing long term employment, economy, our water and environment for a short term gain over 20 years? Is this our gift to the future generations? "Here, watch over this contaminated water and make sure it doesn't spill…..for 500 years!" How about giving the gift of long term jobs and clean water.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
277	Adam Swanson	Citizen	This is a cycle we all know very well in this region. So it's really about a tradeoff. Are we willing to trade the existing long term employment, economy, our water and environment for a short term gain over 20 years? Is this our gift to the future generations? "Here, watch over this contaminated water and make sure it doesn't spill…..for 500 years!" How about giving the gift of long term jobs and clean water. Water is a far greater resource for Minnesota and the world and its value is increasing every day. Its value will continue to create businesses and jobs as it already does. Invest instead in long term sustainable small businesses in Minnesota. The DBC businesses that I stand with today are proof that it works. We are not in a bust economy any longer. Sustainable business practices are the new norm. A clean environment creates jobs and a strong economy. If I erected a billboard today in Duluth, it would say: "Now that the new economy is going strong, Please don't turn out the light." Please follow the lead of the Carlton City Council and publicly take a stand to protect the St. Louis River and Duluth.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
278	Mark Gustafson	Citizen	I am totally opposed to issuing a permit for this mine to go forward. I have heard there is a dam that would contain the polluted water. It is totally unrealistic to think that this dam will be sound and able to contain the water for the up to 500 years that water would have to be treated. I have heard in the news that the sulfide contaminated water would need treatment for 500 years and perhaps more time.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
279	Mark Gustafson	Citizen	The idea that any company will be around to continue treatment or even that any state agency will be around to continue this treatment and monitoring 500 years from now is pure fantasy at best. Even if some amount of money is set aside now to cover 500 years of treatment, again this is a fantasy that the money would still be available 500 years from now. The costs of treatment and remediating any number of major illegal releases of polluted water would likely deplete the funds in the first 50 years.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
280	Mark Gustafson	Citizen	Anyone who thinks this is a sound idea should consider whether any business contracts or commitments that were made in the year 1500 are still being honored today. I live right next to the Arden Hills Army Ammunition Plant site, and I understand treatment of polluted aquifers underneath that site and Arden Hills and other communities has been going on for over 40 years with no end in sight.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
281	Mark Gustafson	Citizen	This is a disaster waiting to happen, and no way is it worth the risk to our environment and livelihood in Minnesota to take this risk for only 300 jobs. We have had "promises of jobs" from Delta Airlines and other mining companies in the iron range that have not panned out. The mining company is presenting the most optimistic picture possible, and the potential disasters far outweigh the benefits!	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
282	Diana Schansberg	Citizen	I strongly object to PolyMet Copper sulfide mining. It is very toxic to land, water and air. Minnesota is rich in our water resources which would make this pollution even more devastating to our state. Why would this type of mining even be considered when the negative effects would cause so much damage that will be with us forever? PolyMet will do the damage and leave Minnesota to deal with the consequences.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
283	Paul Perkal	Citizen	There is no way that Polymet can fulfill the requirement of maintaining the area long enough to make sure that there are no serious pollution incidents.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
284	George Bentley	Citizen	For many very valid reasons the water quality surrounding this proposed mine cannot be guaranteed, and indeed the plan for holding waste and tailings is especially troubling in it's a lack of comprehensive protection. With the future in mind and protection of all the extremely valuable surface waters in the boundary waters area, this mine should not be permitted.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
285	Anne Johnson	Citizen	I urge you to deny Polymet a permit to mine. Mining companies have been exploring for copper-nickel in sulfide matrix across Northeastern Minnesota for years. This includes on federal lands adjacent to and draining into the Boundary Waters and Lake Superior. Sulfide ore mining has never been done in our state.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
286	Anne Johnson	Citizen	Acid mine drainage has polluted water in every water-rich location across the world where it has been allowed. Minnesota waters must be protected from this threat.	Comment noted. This comment generally states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
287	Anne Johnson	Citizen	The recently released draft permits would allow PolyMet to cause centuries of toxic pollution from mine pits, tailings piles and waste rock.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
288	Anne Johnson	Citizen	The DNR would allow PolyMet to use the cheapest and riskiest method of tailings disposal, with a threat of catastrophic dam failure as well as continuous pollution. The DNR's Draft Permit to Mine fails to hold PolyMet accountable for any of its promises to control toxic seepage.	Comment noted. This comment pertains to issues considered in the development of the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.
289	Brian Guimond	Citizen	This seems like money is in control, I understand this company has said they will not ruin anything but time and time again where ever they have done this everything is ruined but it is not going to happen this time. How many times does somebody do something they say they will not before it becomes apparent that there is no way to do it without ruining the land and water. Do not let the almighty dollar win with our land.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
290	Jeff Ballenthin	Citizen	I first want to acknowledge the fact that I am not an expert in mining or environmental protection. I am an expert in real estate and accounting. I believe that when one owns a class A real estate asset, they should work hard to encourage development around that asset that enhances the value. For example, when the green line light rail project was built, the Met Council went to great lengths to ensure that development near the light rail enhanced the value of the public asset. Likewise, the state of MN should go to great lengths to ensure development near the Boundary Waters enhances the value of this exceptional public asset.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

291	Jeff Ballenthin	Citizen	I also want to acknowledge that I have not read the draft permit. I looked for it briefly but it was not readily available on your website. Regardless, I hope and trust that the conditions in the permit sufficiently protect the public assets of our land, air, water and the Boundary Waters.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
292	Jeff Ballenthin	Citizen	I want to suggest that the best way to ensure protection is with thoughtful conditions in the permits and strict, long lasting financial liability for the breach of any condition. To me thoughtful conditions do not mean a compromise or negotiation that gets the best result possible while still making the mine financially feasible. Thoughtful conditions means identifying what is best for the people of the state, country and world.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
293	Jeff Ballenthin	Citizen	I liken the boundary waters to central park in New York City. Nobody believes that a garbage dump or mine should be put next to central park regardless of the amount of Jobs and money provided. The quality of life provided to the citizens of New York because of that park is worth more than a few more jobs and a little more money. If you put the wrong conditions in the permits, it will be like building a nuclear power plant next to Central Park.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
294	Jeff Ballenthin	Citizen	When it comes to real estate development, the value of land surrounding great public assets has the highest value. Please recognize the value of this land in the big picture.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
295	Jeff Ballenthin	Citizen	It only now occurred to me that the name of your agency is "Polution Control." I can only hope that you view yourself as the "Pollution Prevention Agency." When you analyze the conditions of the permits, ask yourself if you want to control pollution or prevent it. Thank you for your service to the state and your consideration to this difficult task.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
296	Connie Grundhofer	Citizen	Water is important to all living things. Please make sure that we have clean water for our future. Once the water and area has been damaged it will take billions of dollars to fix. The persons who damaged it will not take the responsibility to fix the area or the surrounding areas that are effected to it's original state. Water is far more important to every living thing than money. Thank you.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
297	Scott Stowell	Citizen	At some point in the future humans will have mined the final speck of precious metals from the Earth and none will be left to extract. Then what? The short-term mining and supplemental jobs will be permanently gone and PolyMet profits will be nowhere in sight. By comparison, these few benefits are minuscule to the long-term jobs, prosperity and welfare of the region. Then what?	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
298	Scott Stowell	Citizen	If a toxic disaster should occur from failure of the protections assumed to ensure safety, as it did in British Columbia on August 4, 2014, not only will mining be gone, but so will the precious environment it permanently destroyed. Industries like tourism will be gone forever. Then what? Are you good with leaving that to future generations?	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
299	Scott Stowell	Citizen	New mining regulations are continually added to those already in place because the former have been found to be inadequate. Is that a chance worth taking or are you confident that the current regulations have finally covered it all? Think about this.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
300	Scott Stowell	Citizen	The final environmental impact statement for the NorthMet Project in northeastern Minnesota offers indications of inadequacy and that PolyMet Mining, Inc. is attempting to circumvent environmental regulations and water quality standards in order to legalize their pollution. As an example, PolyMet's proposed land swap with the U.S. Forest Service would transfer federal land that is currently part of the Superior National Forest to the private ownership of PolyMet. The Minnesota Pollution Control Agency cannot enforce groundwater quality standards until contaminated water departs from private land and flows into public property.	See response to Comment 248.
301	Scott Stowell	Citizen	Unfortunately, water doesn't know where to stop; it doesn't recognize boundaries. PolyMet's computer modeling shows that the levels of pollutants in their water will be many times greater than Minnesota's water-quality standards. Therefore, according to the law, PolyMet is free to pollute within their boundaries. But that same water will flow into the Embarrass, Partridge and Dunka rivers, and eventually the Boundary Waters and Rainy River watersheds, and the St. Louis River which drains into Lake Superior. As a result, Minnesota's highly touted water-quality regulations are actually a sham. Individual people will determine the issuance of mining permits to PolyMet. People, not agencies, are in a position to prevent such a legal loophole from being egregiously misused. Those people must scrutinize PolyMet's FEIS in minute detail. Otherwise, they'll go to their graves knowing they could have made responsible decisions, but chose to ignore them. That's what. Scott Stowell	See response to Comment 248.
302	DyAnne Korda	Citizen	The final environmental impact statement for the NorthMet Project in northeastern Minnesota indicates inadequacy. Polymet Mining Inc. is attempting to circumvent environmental regulations and water quality standards in order to legalize their pollution.	Comment noted. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
303	DyAnne Korda	Citizen	The Minnesota Pollution Control Agency cannot enforce groundwater quality standards until contaminated water departs from private land and flows into public property. Unfortunately, water doesn't recognize boundaries. PolyMet's computer modeling shows that levels of pollutants in their water will be many times greater than Minnesota's water-quality standards. Therefore, according to the law, PolyMet can freely pollute within their boundaries. But that same water will flow eventually into the Boundary Waters and Rainy River watersheds, and the St. Louis River, which drains into Lake Superior.	See response to Comment 248.
304	DyAnne Korda	Citizen	I am employed at a basecamp school that has been a leading provider of wilderness expeditions in the US for over 50 years. It is located at the edge of the Boundary Waters, the largest wilderness east of the Rockies and north of Florida's Everglades. Students range from middle school to adults, and include specialized groups for struggling teenagers and veterans. While immersed in the wilderness, they learn technical skills, develop greater self-confidence and accomplish more than they ever thought possible. The school could not function if the outdoors, its main "classroom," was tainted. This is one small example of probable loss due to the mining.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
305	DyAnne Korda	Citizen	People, not agencies, are in a position to prevent legal loopholes by scrutinizing PolyMet's FEIS further to the most minute detail. Otherwise those individuals will carry the memory of dismissing one of the most responsible decisions of their lifetimes. DyAnne Korda	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
306	Donald Daher	Citizen	Why we would even consider another boom and bust mine is hard to understand given the dangers to water and the amount of time our kids and grandkids will have to live with this toxic waste and poison. In the land of sky blue waters why even consider this plan. When our wells are poisoned where do we go? What if a tornado gets into this pond of poison or if we get 10 inches of rain? When these companies can take their garbage to their home let them come.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
307	Donald Daher	Citizen	We humans are mostly water and current science suggests that water has memory and will reflect back on us what we do with it. Northern Minnesota has some of the purest water in the world. We have been blessed with a resource so profound it is worshiped in other areas of the world. In parts of our country it is being fought over. With the new technology being used by Scientist Masaru Emoto, described in his books, The Secret Messages in Water and The Secret Life of Water, we are now coming to understand aspects of water that reveal its sacredness.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

308	Donald Daher	Citizen	His research and books have become a global sensation. He reveals how human thought and emotion can affect the formation of crystals when water is frozen. This becomes important because we, as human beings, are on average 70% water. He has shown that negative thought and emotions dramatically affects water and the crystals that it forms. What his work reveals is that water has memory and can reflect how people feel and think about it. Water has a form of consciousness we are only now coming into contact with on a scientific basis. For those who might think this is pie in the sky or mumbo jumbo I suggest you read the books and then decide. His evidence indicates that polluted water forms little or no crystals and that water prayed over or thought positively about generates beautiful crystal shapes, none of which are the same.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
309	Donald Daher	Citizen	It is hard to imagine giving up clean and healthy water for an eternal polluted garbage pit just so some minerals can be taken out over a twenty year period and then leave the waste for future generations to deal with. It is unconscionable.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
310	Donald Daher	Citizen	This boom and bust philosophy has to go. Yes we need the jobs, but If that's the case let's think long term and permanent jobs.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
311	Donald Daher	Citizen	The gold mine of Minnesota is its beauty and water, not nickel and copper. Anyone who has a well knows without doubt how important clean and healthy water is. Recent articles in the StarTribune reveal that two thirds of the state's water is questionable and the clean water is in the northern third.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
312	Donald Daher	Citizen	How about the 3,000 geese who landed in the copper waste pit in Montana and died? How about the 10 inches of rain that fell this past summer in Minnesota? Will that garbage pit survive? No one really knows. Even the mighty Mississippi is only clean in Northern Minnesota. Is it worth it? We are water and what we do to water we do to ourselves. Another important scientific book on water worth reading is Water Pure and Simple by Paolo Consigli, M.D.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
313	Tom Wojahn	Citizen	To whom it may concern: It concerns me that we would even contemplate taking a chance of any kind of risk close to the boundaries water's. Once it is contaminated polluted or destroyed we will be left to try to re-create a pristine wilderness. A priceless area that can't be re-created once destroyed. Tom Wojahn	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
314	Jon Clark	Citizen	I understand that the proposed PolyMet mine can potentially provide several hundred jobs for residents of the Iron Range over the next several decades. This area certainly needs more permanent jobs. But there are simply too many significant, long range environmental risks associated with PolyMet's current mining proposal for this plan to go ahead.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
315	Jon Clark	Citizen	And these risks could very potentially downgrade the quality of life in this area, and other areas in Minnesota. Here are some of these risks : 1. Mining copper and nickel in a wetland and watershed area is an extremely poor choice of location. And that's especially the case with the current PolyMet proposal, since the long range potential for the highly acidic mining tailings to pollute groundwater and nearby water sources, such as Lake Superior, which is the largest freshwater resource in the world, is very high. Recent studies have also shown that water quality in the BWCA watershed area could also be severly compromised.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
316	Jon Clark	Citizen	2. The earthen dike tailings basin that has been proposed by PolyMet is nearly identical to the design that was used in the Mount Polley dam in British Columbia, a dam that catastrophically collapsed. Safer basin designs are out there, and they need to be pursued.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
317	Jon Clark	Citizen	3. The potential for water pollution from the acidic tailings is also going to be greatly accelerated by climate change, especially over the next decades and beyond. Climatologists predict that the incidence of severe mega rain storms is only going to increase, which means that the risk of PolyMet's proposed weak tailings basin collapsing and failing will also increase significantly.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
318	Jon Clark	Citizen	4. Rare metals such as copper and nickel will certainly continue to be necessary commodities. But in the future, clean water will, by far, be one of the most rare, precious and sought after resources on the globe. Minnesota is already being asked to supply water to other areas in need of clean water. The bottom line here is, there should be no compromises when it comes to protecting our water resources.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
319	Jon Clark	Citizen	If future generations could have a say in this issue now, I'm certain they would say that the high risks and high costs of environmental cleanup, that could very potentially be passed on to them, is totally unacceptable.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
320	Jon Clark	Citizen	The mission of the DNR, I read, "is to provide for commercial uses of natural resources in a way that creates a sustainable quality of life". If the DNR wants to meet this objective, I believe PolyMet's existing proposal should be scrapped, and a more robust tailings basin can be proposed and reviewed.	Comment noted. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
321	N/A	N/A	No Comment provided- survey was submitted blank	
322	Rich and Carol Staffon	Citizen	PolyMet Permit to Mine Comments Submitted 3-6-2018 by Rich and Carol Staffon, 1405 Lawrence Road, Cloquet, MN. 218-879-3186, mailto:rcstaffon@msn.com. I am a retired MN DNR area wildlife supervisor and am currently president of the Duluth Chapter of the Izaak Walton League. These comments represent our personal concerns about these permits, coming from people who live near the St. Louis River and downstream from the proposed PolyMet mine.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
323	Rich and Carol Staffon	Citizen	1. I remember when the lower St. Louis River in Duluth was an industrial wasteland. It was not fishable, swimmable or drinkable. Thanks to the Clean Water Act and after spending nearly half a billion dollars, the river has been restored to the point that it is now an economic asset, rather than a liability for Duluth. Is it not inconsistent polity to spend so much money to clean up the lower river, and then issue permits to create an industrial wasteland in the headwaters?	The NPDES permit's purposes are to restrict discharges to the waters of the State of Minnesota so that water quality standards and other state and federal clean water requirements will be met.
324	Rich and Carol Staffon	Citizen	2. Copper and other minerals are valuable for our economy and society. But they are not more valuable than water. Water is life and essential to everything we do. Protecting watersheds is how we safeguard our water. Both the DNR and PCA promote the importance of watershed protection. The land where PolyMet wants to build their mine was purchased with the Weeks Act for the very purpose of protecting the headwaters of the St. Louis River and the watershed. It defies common sense that we can sustain this watershed, while building a huge toxic mine in the midst of the headwaters. Again, this is an inconsistent policy for natural resource agencies.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
325	Rich and Carol Staffon	Citizen	3. This is a forested, swampy, stream laden landscape. It is an ill-suited place for Minnesota to experiment with the risky business of coppernickel mining. If it is so important that we mine these minerals, the permit should at least require PolyMet to use the best available technology, such as dry stacking their tailings, rather than storing them in a flooded tailings basin that we know will leak into our surface and ground waters, and if the dikes fail, send a slurry of contaminated water right into the river. Why are you not demanding that the best available technology be used?	See response to Comment 720-E, which addresses consideration of alternatives.
326	Rich and Carol Staffon	Citizen	4. Unfortunately, one of the duties of the DNR is to promote the mining of our state's minerals. Because of this bias to support mining, we ask that a contested case hearing be held as a check on the DNR, to make sure the facts around copper-nickel mining are complete and accurate. We must get this decision right and a contested case hearing would provide another opportunity to vet and validate the facts about this proposed mine project.	This comment presents a general request for a contested case hearing. Without a specific material issue of fact in dispute, a contested case hearing is not appropriate. The comment does not raise a specific issue regarding the NPDES permit.

327	Rich and Carol Staffon	Citizen	5. And, as a check on the safety of the mine itself, we ask that the permit require all employees who mine, transport and process the ore, be regularly monitored for the uptake of pollutants. They are the "canaries" in this mine and monitoring their health would be the best way to determine if standards are being enforced and are actually protecting the workers and our environment. In addition, a Health Impact Assessment should be required.	This comment requests monitoring of employee health, which is beyond the jurisdiction of the MPCA commissioner. The need for a health impact assessment was addressed as part of the environmental review process. No changes were made to the draft permit in response to these comments.
328	Rich and Carol Staffon	Citizen	6. Finally, we are especially concerned about the way industry and our state legislature has been able to thwart the enforcement of existing water quality regulations. What good are these permits if they will not be enforced?	See response to Comment 753.
329	Rich and Carol Staffon	Citizen	7. We recommend that before mining, Minnesota should consider requiring the recycling of copper as a better way to meet our needs for this metal. There is no shortage of copper today. So, we believe it would be prudent to not issue a mine permit at this time. Let's leave these minerals in the ground and wait until mining technology has advanced so that we can mine them safely. It is time for somebody to stand up and just say no! It would be irresponsible to leave this legacy of pollution of future generations to clean up. Thank you! Sincerely, Rich and Carol Staffon	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
330	Henry Mott, PhD, PE	Citizen	In comments submitted relative to the Supplemental Draft and Final Environmental Impact Statements, I discussed, in detail, shortcomings of the reclamation plan for PolyMet's NorthMet mining proposal. I will not revisit those comments in detail here, but will offer some brief, tothe-point background.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
331	Henry Mott, PhD, PE	Citizen	The literature is rife with accounts of environmental devastation left behind by mining companies who've unearthed sulfide bearing ore to extract valuable metals. Standard operating practice has been to dig up ore and overlying rock, process the ore creating tailings and other toxic wastes, leave waste rock in piles on the Earth's surface, deposit processing wastes in dammed surface ponds, leave exposed reactive rock open to air and water, and leave pits open to fill with toxic water. Sumi and Gestring (Earthworks, May 2013) summarize metals mining legacy – 57 mines in 15 US states are already producing or are destined to produce perpetual toxic discharges, requiring many, many billions of dollars, mostly from taxpayers, simply to keep, if even possible, environmental devastation at bay. PolyMet's NorthMet mine proposal is listed separately in that document as a potential future mine which, if developed as currently planned, will swell the list to 58 mines producing perpetual toxic discharges.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
332	Henry Mott, PhD, PE	Citizen	PolyMet's closure plan goes little beyond standard historical practice – waste rock is to be left on the Earth's surface, tailings and hydrometallurgical wastes are to be left in open dammed ponds and a pit is to be left open to fill with toxic water. Plastic covers over waste rock piles will retard leachate formation for perhaps 30 years – just long enough for PolyMet to argue for early return of bond money. Subaqueous isolation of tailings must be maintained in perpetuity to adequately protect local water resources. Subaqueous disposal of category 2-4 waste rock is a small step in the correct direction. Unfortunately, few details are provided regarding the precise methods to be implemented to really isolate this reactive waste rock to control formation of toxic acidic discharges. Great dependence on future active water treatment and allusions to future development of "passive" treatment for collected toxic drainage are cornerstones of the reclamation plan.	Comment noted. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment. This comment pertains to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to this comment.
333	Henry Mott, PhD, PE	Citizen	There's not much published documenting successful passive treatment of toxic mine drainage – I believe the plan for passive treatment amounts to wishful thinking at best – active treatment will be necessary in perpetuity. The proposed closure plan will leave a nasty scar that will be an environmental ill in perpetuity.	NPDES permits have a five-year term, but the issue the comment raises might occur at some time after facility closure. The MPCA has added language to the permit to require construction of the WWTS component as proposed in the application. The permit does not authorize a discharge from a passive treatment system.
334	Henry Mott, PhD, PE	Citizen	To its credit MNDNR is requiring a substantial bond - ~$1Billion at the height of mining, backed by cash and other securities, and ~$½Billion, all cash, at the completion of mining. The toxics formation processes are biogeochemical in nature and likely will come to their ugly fruition many years down the road. Leachate production from waste rock will be delayed until plastic covers deteriorate. The west pit is projected to take ~35 years to fill. Who knows what the character of that water will be – I'm betting heavily on a toxic result. Based on its humidity cell tests, PolyMet claims west pit water will not be acidic. However, typical humidity cell tests arenot at all representative of the long-term leaching/equilibration process that will be active in the pit, if left to fill. West pit overflow, leachate from the waste rock pile and leachate from the tailings impoundment will need to be collected and actively treated in perpetuity. NorthMet tailings placed with those from historical taconite operations and the hydrometallurgical wastes placed in a separate pond will be there, on the Earth's surface, awaiting whatever extreme weather/hydrologic event might occur. Toxics may take many, many years to show up in wells downgradient from the plant and mine sites or in springs feeding the local rivers.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
335	Henry Mott, PhD, PE	Citizen	Minnesota should plan on holding PolyMet's half-billion-dollar bond in near perpetuity and will need to resist all requests for its release for generations to come.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
336	Henry Mott, PhD, PE	Citizen	A large divide exists among Minnesota's population. Iron Range residents want revitalizing economic development now and are drawn to the immediacy of the good jobs promised by the NorthMet project. Organized groups concerned for Minnesota's environment and for wellbeing of several generations of posterity are adamantly opposed to the PolyMet project as planned. I, also, am adamantly opposed to the project as planned.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
337	Henry Mott, PhD, PE	Citizen	However, as an environmental engineer, working at the interface between society and the environment, I see an option that satisfies both sides of the issue. Let's require that all potentially harmful wastes be securely isolated in a subsurface repository.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
338	Henry Mott, PhD, PE	Citizen	A conceptual design for such a repository is attached to these comments. I see this approach as a six-win scenario: 1) Minnesota wins: new iron-range jobs are created, both for mining and reclamation 2) Minnesota wins: economic development is spurred from products and related jobs 3) Minnesota wins: environmental security is assured at the culmination of mining 4) Minnesota wins: recreational resources are enhanced, a prime fishery is created 5) Minnesota wins: future mining efforts can be collaborative among diverse interests 6) PolyMet wins: a sizable portion of its environmental bond is recovered promptly, more than offsetting repository costs and greatly lessening investor uncertainty.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
339	Henry Mott, PhD, PE	Citizen	What should PolyMet's NorthMet mine legacy be: A scar on the land with toxic discharges demanding societal resources in perpetuity? A new lake that, in the end, enhances Minnesota's recreational resources? I'm for the second result and would be interested in discussing these comments or any other aspects of the NorthMet mine proposal with the MNDNR, MPCA and any other organizations responsible for action regarding the issuance or enforcement of this controversial permit.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
340	Dan Nelson	Citizen	Regarding the Water Quality at the Polymet mine. since this is the first mine of it's kind in Minnesota we have to have the most stringent standards we can have. Especially as water pollution is the main problem with this kind of mining.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
341	Dan Nelson	Citizen	I have several concerns besides the financial assurances which I feel are not adequate.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
342	Dan Nelson	Citizen	The reliance of using water pressure to keep the water contained and routing out the bottom of the containment structure for treatment should not rely on rain and melt. What I mean is the mechanical means should never be allowed to be turned off when conditions are wet. It is not controlled enough.	The MPCA has removed the "temporary conditions" language and has revised the language of the permit in light of the comment to state that if an inward gradient is not reestablished within 14 days of detection, it is a violation of the permit. The permit also requires monitoring of the Category 1 stockpile paired wells/piezometers weekly following a 100-year storm event to ensure that monitoring and any necessary preventative maintenance occur promptly.
343	Dan Nelson	Citizen	Also, dry stacking should be studied further as it is easier to not pollute the water in the first place, rather than trying to treat it for 500 years. I am not a scientist and I do not know the minute details of the plant but I do not see a state-of-the-art mine when I am shown the plan.	See response to Comment 720-E, which addresses consideration of alternatives.

344	Dan Nelson	Citizen	Let's get it right or, even better, deny what is sure to be a polluting mind like all the others before this. I also worry as this is this the first mine the company has operated and since they have just done the minimum needed through this process, they have not impressed. Please deny the permit.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
345	Tonia Kittelson	Friends of the Boundary Waters Wilderness	Dear MPCA, Please deny the PolyMet I strongly urge you to reject the PolyMet NorthMet water quality permit application. It is immoral for us as a society to create a contaminated site that will last for centuries when we cannot know that our current economic and regulatory systems will be there as long as needed to take care of it.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
346	Tonia Kittelson	Friends of the Boundary Waters Wilderness	New content or unresolved issues that still need to be addressed include but are not limited to the following: " Given that acid mine drainage from the Mt. Polley dam collapse traveled 400 miles downstream, please determine how far out into Lake Superior the PolyMet pollution will go. For reference, both dam failures at the Mt. Polley Mine, British Columbia, Canada, in 2014 - which was touted as the "Gold Star" of sulfide mining operations for best engineering design and safety - and the Samarco, Brazil dam failure in 2015, sent billions of gallons of toxic waste downstream. The pollution traveled over 400 miles from the mine sites.	Comment noted. This comment pertains to issues considered in the development of the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.
347	Tonia Kittelson	Friends of the Boundary Waters Wilderness	If PolyMet's pollution could travel 400 miles in Northern Minnesota when the tailings basin dam fails, that means that contamination will travel almost 200 miles from PolyMet site down the St. Louis River to the Lift Bridge between Duluth, MN, and Superior, WI. Pollution will continue to flow another 200+ miles out into Lake Superior - beyond the Lift Bridge. That is unacceptable. Citizens deserve to know the reach of contamination before a decision is made; " Decades of work has been done in the St. Louis River Estuary to clean up Legacy pollution from past industries.	The discharge from the WWTS is required to meet Operating Limits for sulfate, copper, arsenic, cobalt, lead, nickel and mercury at the point of discharge at the project site. The permit also states that the discharge must not violate water quality standards; again, this would be at the point of discharge. In addition, the project will include other engineering controls such as stockpile liner systems and seepage capture systems that are designed to control wastewater and runoff from the facility to prevent the pollution of downgradient water. Consequently, impacts to the St. Louis River and Lake Superior will not be discernable.
348	Tonia Kittelson	Friends of the Boundary Waters Wilderness	Do not allow PolyMet to add new toxic pollution to this Federally designated Area of Concern; " Require PM to prove it can capture and collect 90% of its wastewater before you make a decision. No other metal mine has ever collected 90%, let alone suggested that they could. Mines usually promise high, and perform low. Meaning, they promise 60-80% collection rates, but fall short of their promises by 25-30%. PolyMet plans to use the same technology that other mines have used, nothing new, nothing better, yet claims it will achieve what has never been achieved before. Reject the permit application and require proven technology be used to capture and collect 90% of wastewater.	The containment systems function on the principle of maintaining an inward hydraulic gradient across the barrier wall that is part of the system design. If the hydraulic gradient is inward, hydraulic head is greater outside the basin and water cannot escape -- instead, water will tend to flow into the capture system. The Modflow modeling conducted for the EIS indicated that the capture efficiency for both systems would be in excess of 90% and the subsequent GoldSim modeling indicated that degree of capture would be sufficient to protect downgradient surface and ground water quality. See FEIS at 5-7. The comment questions the efficacy of controls of the seepage capture systems required in the NPDES permit at the Mine Site and Plant Site. The same issues were raised in the EIS and DNR, in consultation with MPCA, considered those issues. The comment does not raise any new facts for MPCA to consider at the permitting stage, it merely disagrees with MPCA's conclusion.
349	Tonia Kittelson	Friends of the Boundary Waters Wilderness	10% of billions of gallons of waste is bad enough - it is too much pollution to allow into our public waterways. Please do not allow more than that; " Conduct a Health Impact Assessment - even Alaska does these for proposed sulfide-ore mines. Human health is at great risk with this proposal. PolyMet's contaminated waters will be carrying 6 of the top 10 worst pollutants for humans, according to the World Health Organization. Surely, people living downstream and near Lake Superior deserve to know what health risks will be placed upon them.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
350	Tonia Kittelson	Friends of the Boundary Waters Wilderness	" Require PolyMet to conduct a Reverse Osmosis test using acid mine waste produced from sulfide-ore mining operations. Do not accept the mining company's current test of Reverse Osmosis using taconite iron ore mine rock. The waste is not the same and the test result from iron ore should not be accepted for this proposed sulfide ore mine operation;	To demonstrate that membrane treatment technologies were capable of meeting treatment targets, the company conducted a 6-month pilot testing program using seepage water from the existing tailings basin. For a portion of the test, additional metals were added to the test influent to more closely simulate projected effluent quality (i.e., wastewater that would be expected from the mining of sulfide-bearing ore). Results of the pilot testing were used in the MPCA's reasonable potential analysis and in MPCA's engineering review of the treatment system design, and MPCA again determined the proposed design is capable of meeting the Operating Limits in the draft permit. In addition, the modeling and pilot testing demonstrated that concentrations of other parameters in the effluent would be far below the water quality standards when the sulfate Operating Limit is met. To ensure that is the case, Operating limits for arsenic, cobalt, lead, nickel and mercury have been added to the draft permit.
351	Tonia Kittelson	Friends of the Boundary Waters Wilderness	I have paddled the Partridge River, as have many others have. It's quite beautiful. This river lies directly downstream of PolyMet's proposed mine site is a publically accessible waterway. The water that PolyMet plans to pollute belongs to the public. And, during the course of these many years of public hearings, over 100,000 citizens have commented to agencies that we do not want PolyMet's pollution. I hope you listen to the people and deny the PolyMet Permit To Mine application. Respectfully, Tonia Kittelson	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
352	D. Gary LaFave	Citizen	Hello, My name is Gary LaFave and I am a journeyman pipefitter. My wife Cathy and I are life-long residents of northern Minnesota and we are both in favor of the Polymet NorthMet Project. Polymet has proven its' commitment to northern Minnesota by complying with every one of Minnesota's strict environmental standards and are doing more than what is expected by addressing the current water quality issues created by legacy mining.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
353	D. Gary LaFave	Citizen	Their water quality will generate a net decrease in mercury and sulfate that may reach the St. Louis River and Lake Superior. All water on the NorthMet Project site will have low concentrations of mercury. All water discharges will comply with the Great Lakes Initiative standard of 1.3 nanograms per liter of mercury. Because of this treatment process, all discharged water will be about 8-9 times cleaner than the rainwater that falls on the site and will also be 2-3 times cleaner than the natural runoff within the watershed.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
354	D. Gary LaFave	Citizen	Polymet is also protecting the environment by using an existing basin that has been stable for over 40 years. They will also replace every acre of wetlands distributed by the project at a greater than one-to-one ratio. No other country in the world has stricter environmental standards than those here in the United States, and if we cannot produce the raw materials needed manufacturing electronics, etc. in this country we'll be forced to get them from countries who could care less about the environment or the air we breathe.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
355	D. Gary LaFave	Citizen	Polymet's NorthMet Project will create up to 1,000 very much needed jobs in this region of our state. These jobs will play an important role in sustaining the viability of the Iron Range, not to mention the $515 million boost to St. Louis county annually.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

356	D. Gary LaFave	Citizen	Polymet is a solid company that is wholly committed to doing the right thing for our environment and the people of Minnesota. That is why I am in favor of Polymet's NorthMet Project. D. Gary	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
357	Suzanne Sorkin	Citizen	Please deny all PolyMet pollution permits. I am very concerned about contamination of the Lake Superior watershed. Sulfide mining has a 100% track record of polluting and in this case the pollution of Lake Superior watershed and Boundary Waters pristine wilderness can never be recovered from. Boundary Waters Canoe Area is the most-visited wilderness area in the country! Please, I urge you to deny all pollution permits for PolyMet.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
358	Kathryn Sitter	Citizen	I attended the public hearing in Duluth on February 8 and viewed the information boards that were displayed by the DNR and the PCA regarding the PolyMet mining permit process. I am no expert in this type of information, so the research you presented seemed thorough, BASED ON WHAT IS KNOWN BY TODAY'S STANDARDS. Therefore, I cannot address the science of your research, but I would like to comment on my concerns for our shortsighted "long range vision" of this project.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
359	Kathryn Sitter	Citizen	1.Research has been presented for the storage of wastes using best practices and current knowledge for tanks and liners, but we don't know how our planet will change and perhaps alter the effectiveness of storage procedure. 2.If the storage is compromised, how far will the contamination flow and leech into our soils and water sources? 3.PolyMet states it will monitor the storage membranes and the PCA/DNR will also be monitoring the project. It is admirable that PolyMet says they will monitor, but to me, that is like the fox guarding the hen house. Also, in today's political climate and actions, we cannot be assured that environmental standards will be strict enough to protect the human, wildlife, and plant populations, or that the monitoring process will even be funded in the future.	To demonstrate that membrane treatment technologies were capable of meeting treatment targets, the company conducted a 6-month pilot testing program using seepage water from the existing tailings basin. For a portion of the test, additional metals were added to the test influent to more closely simulate projected effluent quality (i.e., wastewater that would be expected from the mining of sulfide-bearing ore). Results of the pilot testing were used in the MPCA's reasonable potential analysis and in MPCA's engineering review of the treatment system design, and MPCA again determined the proposed design is capable of meeting the Operating Limits in the draft permit. In addition, the modeling and pilot testing demonstrated that concentrations of other parameters in the effluent would be far below the water quality standards when the sulfate Operating Limit is met. To ensure that is the case, Operating limits for arsenic, cobalt, lead, nickel and mercury have been added to the draft permit.
360	Kathryn Sitter	Citizen	4.I am not convinced that the promised money for long range protection will be enough if a catastrophe occurs or if PolyMet leaves; it seems that Minnesota taxpayers and those downstream of the mining site would be left to deal with a literal toxic situation.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
361	Kathryn Sitter	Citizen	5.Many Minnesotans live in the state to enjoy an environment that is light, noise, water, and air pollution free (or relatively low). A large operation of this type goes against that desired habitat.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
362	Kathryn Sitter	Citizen	6.Obviously, the promise of jobs is a personal and political incentive. As I look at the big picture, 650 construction jobs for only 2 years, and 350 mining related jobs for 20 years is certainly valuable, but I believe not entirely a valid promise. Where is it guaranteed that all those jobs will employ Minnesota residents or in the future, even continue to be human vs. robotic jobs? I have seen local projects claim to bring in jobs and yet the trucks bringing in workers are from out of state, or even out of country. So, unfortunately the "job card" is an emotional political motivator to gain project acceptance, in my opinion.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
363	Kathryn Sitter	Citizen	After hearing and reading information presented about this critical decision, my opinion is that this project is too high of a risk to allow the permit process to proceed. If there really is that much mineral waiting to be extracted, why are we impatient to get it now as opposed to developing new extraction technologies (and jobs for the future) that could potentially be safer for both humans and the land? As I said, I don't have the science background to refute your research, but I do know why I value living in this state. This is not the right project at this time and I hope you will consider the "gut" feeling of mine and other residents holding similar perspectives. This project is too high of a risk for the future welfare of our state.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
364	Anna Weyers	Citizen	For as long as I can remember my family has taken yearly trips up to the boundary waters. Growing up in central Illinois it was about a 13 hour drive to get to the public boat ramp. The long car ride was worth it when you got to the lake. To me it is about spending time with family. Not just my immediate family, but days spent with my grandma, cousins, aunts and uncles making memories. It's a chance to unplug for a week. To listen to the loons, catch some small mouth bass, make s'mores sitting around a campfire, and watch the sunset while trying to take in all of the beauty. I hope to someday bring my future children canoeing up in the boundary waters. I hope they will get a chance to see a family of common mergansers and watch bald eagles fly over. It truly is a unremarkable place. Tourism, especially fishing is HUGE for Minnesota. I know I have purchased out of state fishing licenses many many years.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
365	Anna Weyers	Citizen	I read the yearly rule and regulations publication and I pay attention to the fish consumption advisories. Pollution and public health is important to me. Please think about recreational use and how important the boundary waters and the other public land in Minnesota are important to not just Minnesotans, but to the rest of the American people.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
366	Mark Moehlenbrock	Citizen	A quote from Minnesota Administrative Rules: "6132.3200 CLOSURE AND POSTCLOSURE MAINTENANCE. Subpart 1. Goal. The mining area shall be closed so that it is stable, free of hazards, minimizes hydrologic impacts, minimizes the release of substances that adversely impact other natural resources, and is maintenance free." The mining plan calls for continued water treatment for an unspecified period of years after mine closure in order to meet water quality standards. Since this is not maintenance free, it is in violation of the law. For this reason, the mine should not be granted a water quality permit. Thank you. -Mark Moehlenbrock	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
367	Glenn Merrick	Citizen	I am submitting comments in opposition to Polymet's development of a copper-nickel mine in northeastern Minnesota. The immediate and long terms risks associated with this project are unacceptable to me as a lifelong resident of northeastern Minnesota.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
368	Glenn Merrick	Citizen	Excellent water quality forms the foundation for the high quality of life that my family has enjoyed as residents of this unique area. We are not willing to risk endeavors under the leadership of a company without a mining resume and a parent company that has a track record notably marked by serious environmental and economic problems it has left behind.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
369	Glenn Merrick	Citizen	Specific reasons for my opposition include; 1. the recently developed and continuing to unfold understanding that sulfide generated by sulfate reduction is central in controlling the occurrence of wild rice (Zizania palustris) in shallow aquatic ecosystems. My family consumes naturally occurring wild rice regularly every year and hunts ducks nearly exclusively on bodies of water what support wild rice.	See response to Comments 81 and 718 through 718-B.
370	Glenn Merrick	Citizen	2. the direct causation of elevated methylmercury in aquatic systems as a consequence of elevated sulfate reduction to sulfide. Contributing to increases, rather than reductions, in bioavailable mercury contamination is morally unacceptable in a region where fetal development is already being impacted by it.	See response to Comment 81. The control of sulfate in the discharge to less than 10 mg/L will minimize the potential for increased methylation of mercury.
371	Glenn Merrick	Citizen	3. the reality that methods for affordable and scaleable treatment of sulfate are in their infancy, but do show some progress. Development of advanced sulfate removal processes in Minnesota should be a goal that will not only protect Minnesota's water quality, but also diversify our economy with a technology needed worldwide.	The MPCA does not disagree that further development of sulfate treatment processes is a desirable goal. However, in the context of the NPDES/SDS permit for the proposed project, MPCA has reviewed the proposed WWTS and determined that it is capable of achieving the required effluent quality.

372	Glenn Merrick	Citizen	4. the enormous risk of mining and postmining maintenance in a such a complex environment . Enormous pits will slowly fill with contaminated water which will travel toward the Partridge River after mining ceases with the quality of the water and the rate of flow marked by uncertainty. Underground barriers and water collection systems will need to be maintained and continually operated for centuries as will the storage of tailings behind a dam. Structural failure, poor management, and accidents all pose realistic threats to water quality that are unacceptable under current and currently foreseeable conditions.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
373	Glenn Merrick	Citizen	It is an observable truth that the value of ecosystems and their services, as well as the value of minerals, grow with time. Investing in ecological understanding of sulfate, sulfate removal technologies, and how to create diversified, sustainable economies in northeastern Minnesota should be the current focus of our efforts. In the short and long term the present risks to water quality associated with this mining exceed the value they promise to all residents of northeastern Minnesota. There may be a time in the future if we apply ourselves to solving these risks when this type of mining will become safe enough that it can proceed, but it is most clearly not now. Sincerely, Glenn Merrick Glenn Merrick 1219 105th Ave. W. Duluth, MN 55808 Glenn Merrick	The MPCA does not disagree that further development of sulfate treatment processes is a desirable goal. However, in the context of the NPDES/SDS permit for the proposed project, MPCA has reviewed the proposed WWTS and determined that it is capable of achieving the required effluent quality. General comments related to water quality and flow were considered during the environmental review process.
374	Cynthia Ellingson	Citizen	We need clean air to breathe. We need clean water to drink. You know that PolyMet will poison our water and air, and our children and grandchildren. Do NOT give our children's future to this filthy corporate monster. Our health should not be for sale. I will not vote for the people who support PolyMet. I will not accept a global corporation's greedy destruction. Sulfide mining equals death for the land and people of Minnesota. NO! NO! NO!	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
375	Doretta Reisenweber	Citizen	See commenter Multiple-170 for full delineated comment.	See responses to comments Multiple-434 through Multiple-461.
376	Doretta Reisenweber	Citizen	See commenter Multiple-169 for full delineated comment.	See responses to comments Multiple-434 through Multiple-461.
377	Doretta Reisenweber	Citizen	Commissioner Landwehr: Water is life - for you, me -- all of life. You of all must enforce proper stewardship of water for the future. Thank you! Borie R.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
378	Carly Anderson	Citizen	Dear MPCA, Here is a photo of my brother Scott of Scandia fishing in the St. Louis River. Below is a photo taken by Jim Brandenberg of the BWCA and goons, own totally cool state bird... None will be the same after sulfuric acid and mercury contamination from copper mines. Please do not allow the permit for PolyMet. Listen to the pleas and warnings of those whose waters have been ruined. Thank you, Carly Anderson.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
379	Nancy Haarmeyer	Citizen	Hello: Polluted watershed including the BWCAW, Lake Superior and Beyond, Loss of drinkable water, death of aquatic life, death of forest and other ecosystems, pollution of air (smelter operation), cancer, loss of tourism based industry jobs, plummeting property values due to unhealthy water, and more. The damage this will cause can not be reversed.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
380	Nancy Haarmeyer	Citizen	Is all that "worth" the possibility of perhaps 300 Jobs? Our environment needs strong protection. Polymet can make no guarantees that this project will do no harm. And past mining of this type has always been great environmental disaster and destruction of the environment, which damages are not possible to fix or reverse.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
381	Nancy Haarmeyer	Citizen	If Jobs are the goal, imagine all that will be lost. No fishing, reduced hunting, tourism decline. Toxic environmental dangers due to sulfides. This risk of damage is too high! Please consider my commands and stop this polymet permit process. Save our water, ecosystems, plant and animal life and quality of human life. Thank you!	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
382	David F. Reisenweber	Citizen	I urge you to deny the PolyMet draft permits.I've worked with dirt and water all my life and have learned some undisputable facts. Water always seeks the lowest level and turns dirt into mud, which then slips out of the way. Subsurface water also moves to the lowest level. It just takes longer. It is laughable for PolyMet to say they will plug cracks in the bedrock with cement.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
383	David F. Reisenweber	Citizen	About the only manmade things that last "forever" are nuclear waste, some types of garbage and acid mine drainage. As Richard Feynman is credited with saying: "For a successful technology, reality must take precedence over public relations, for Nature cannot be fooled." Copper-nickel mining in water-rich northeast Minnesota would end up the biggest ever disaster in Minnesota.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
384	Linda M. Goude	Citizen	Commandments are an index to 613 Statutes found in Genesis to Deuteronomy. Rest is required in God's Government ... Not only in the daily cycle, weekly cycle and holidays ... But in freedom from worry/stress ... This type of mining causes worry ... It causes stress ... It causes pollution ... I am concerned ... Minnesota is the epitome of outdoor rest and relaxation ... We all need places go to get away from stress and to hear God's quiet voice ... And that in these outdoor areas the WATER AND AIR MUST STAY PURE AND LAND UNTOUCHED. These things represent what God is doing in our lives, making us pure and holy and we need untouched outdoor areas to communicate with God and to hear His quiet voice. You did not consult God, our Creator about whether it is good to pollute the earth. You do not have a right to give away what is not yours to give. The various agencies involved in this process are only stewards of God's resources. God is the owner. When God created the earth He did it in 6 days and it only takes two chapters to tell about it (Genesis 1-2). This has taken thousands of pages and wasted our public servant's time and the time of hard working people. TRUTH is for the purpose of freeing us from sin. God's word is truth (John 17:17). Jesus is the word (John 1:1). He created and redeemed us from sin. He is coming soon to take us to His Father's house, heaven (John 14:1-3). Because of Jesus blood I am free to choose God with all my heart, mind, soul, body, spirit, and strength. God's law shows love. God's 10 Commandments (Exodus 20) are an index to 613 Statutes. These are the law of heaven (Revelation 11:19) God instituted rest in the daily cycle as well as in the weekly cycle and in holidays that He set up. The sign of God's dominion is the Sabbath-Friday sundown to Saturday sundown (Genesis 1,2; Revelation 11:19) He commands us to spend time with Him to enjoy relationship ... The CONSEQUENCES of ADDING to the truth, plagues ... of TAKING AWAY from the truth, your name will be removed from the Book of Life (Revelation 22:17-18). God communicates in a still small voice (1 Kings 19:11-12) .... I need rest and quiet to hear God myself, and also for my family and for my community to hear God. Please deny the requests for DNR/MPCA permits. Linda M Goude	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
385	Carol Rasmussen Hering	Citizen	The PolyMet public comment period runs through March 6, 2018 with public meetings Feb. 7 in Aurora and Feb. 8 in Duluth. It seems that possible acceptance of this operation is drawing closer. Supporters are touting the hundreds of jobs it would create and the many assurances by the company of its environmental safety.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

386	Carol Rasmussen Hering	Citizen	I feel that this mine and a proposed Twin Metals mine near Ely would cause long term (as in forever) devastating consequences. Edward Lotterman wrote in his column Jan. 21, 2018 in the Pioneer Press that "Nearly all mining pollutes ground and surface water while it is going on, particularly in relatively high rainfall areas like Minnesota. But in some cases damages end when extraction ends. Sulfide ores for copper and other non-ferrous metals are an exception. When these are exposed to oxygen and then water, sulfuric acid is formed. This itself contaminates water. More importantly, the acidic water can leach other harmful substances out of whatever material though which it flows. This is not rare. It is in fact nearly the rule."	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
387	Carol Rasmussen Hering	Citizen	We need minerals, why not from PolyMet? Because Minnesota i not just any state. The Weatherguide facts in the Pioneer Press provided by the Freshwater Society on Jan. 26, 2018 state that Lake Superior holds half of the freshwater in the Great Lake and 1/5 of the world ' fresh water supply! We cannot risk losing the purity of that precious water in exchange for a temporary (the mine would close in 20 years) mining operation in which the benefits would end and the consequences would be forever. In light of the current anti-regulation and anti-environmental views held by many of our politicians, we need to be even more vigilant in our protection of our natural resources. For these reasons I strongly oppose the PolyMet mine and the proposed Twin Metals mine near Ely, Minnesota.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
388	Sharon Zoff	Citizen	I am writing to comment on the possibility of giving a permit to PolyMet. I want to clearly state my opposition to this permit being granted.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
389	Sharon Zoff	Citizen	As the Pollution Control Agency, I hope you take the science into account on the potential risks involved in permitting on the scale being requested. The potential for our water and soil disruption to the point of public health safety and environmental damage is too great and unknown and very possible.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
390	Sharon Zoff	Citizen	If you must give a permit I suggest giving it on a much smaller scale, such as a test plot for 20 years on 100 acres, to see how safely done it really is and to do adequate monitoring so there is more facts behind the decision. Thank you for your time, Sharon Zoff	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Monitoring data considered in the development of the draft permit and required by the draft permit documents are publically available. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
391	Nancy Norr	Board Chair, Jobs for Minnesotans	To the Minnesota Department of Natural Resources and the Minnesota Pollution Control Agency: On behalf of the coalition Jobs for Minnesotans, which represents business, labor and communities across the state, I'm submitting a formal comment related to the draft Permit to Mine, draft water quality permit, draft 401 Certification and draft air emission permit for the PolyMet NorthMet Project. We are confident the state has been thorough in its permitting processes, and the conditions the state has included in the draft Permit to Mine and air and water permits are prudent and reasonable. The permit conditions, which were informed by the comprehensive environmental review process, spell out the monitoring, operating, reporting and inspection requirements for the mine during construction, operation and closure. Together, they provide a framework for mining and environmental protection to co-exist.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
392	Nancy Norr	Board Chair, Jobs for Minnesotans	We trust the science and the findings of the state's experts, which show the Poly Met NorthMet Project will protect human health and the environment and that taxpayers will be protected under the financial assurance provisions. Mines across the country post bonds and letters of credit as the primary means of meeting their financial obligations. That is the same high standard the state of Minnesota requires. Furthermore, Minnesota has some of the strictest environmental standards of any state, and PolyMet has demonstrated through the environmental review and permitting process that it can meet those standards.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
393	Nancy Norr	Board Chair, Jobs for Minnesotans	Poly Met has committed to full compliance with the conditions of the state's air, water, and mining permits, and we are also confident the state can adequately enforce compliance with the conditions it is imposing on the company. Poly Met is setting the standard for how responsible copper-nickel mining can and should be done in the state.	Comment noted. This comment generally states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
394	Nancy Norr	Board Chair, Jobs for Minnesotans	The project should be allowed to move forward with its promise of jobs and significant economic benefits for the region, including the opportunity to di\ersify the Iron Range's economy and create hundreds of middle-class jobs in an area of the state that really needs them. A study by the Laboliitz School of Business and Economics at the University of Minnesota Duluth estimates the Poly Met project will generate $515 million in economic benefits annually for St. Louis County alone. This adds up to $1.4 million per day or $10.3 billion over the 20-year permit. It is time to move past the debate about jobs and the environment and focus on the positive effect the project will have on local infrastructure, schools, commerce and other areas. Toe economic benefits the project will generate will have a profound positive effect on the daily life of local communities - even for people who may never work at or be associated directly or indirectly with the mine.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
395	Nancy Norr	Board Chair, Jobs for Minnesotans	There is no better time or place to build a mine. Toe NorthMet ore body is part of a world-class resource located in the middle of a mining zone with a knowledgeable, skilled and trained workforce that has more than 135 years of responsible mining experience. This region has existing roads, rail, piping, power, tailings dam and other mining infrastructures already in place and, by using existing infrastructure on the former L 1V site, the NorthMet project would be one of the largest recycling projects in the state. We urge the state's timely consideration of public comments and finalization and issuance of the Permit to Mine and other permits. It's time for the state to allow this project to mo-.e forward. Toe people, businesses and communities of Northeastern Minnesota can't wait any longer; they're ready to get to work.	Comment noted. This comment generally states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
396	Joan Nichols	Citizen	I urge you to deny the "Permit to Mine" for the proposed PolyMet sulfide mine, which would pollute Minnesota waters for hundreds of years, endanger the health and well-being of Minnesota residents, and directly threaten the watershed of Lake Superior.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
397	Joan Nichols	Citizen	At present, I am in training as a Master Water Steward and have become increasingly aware of the challenges that we face to maintain water quality through the various activities of individuals, communities, and corporations. No matter the efforts that individuals and groups make to protect the integrity of our water resources, government entities have a greater capacity to more broadly and significantly impact the quality of those resources into the future. As a consequence, denial of the "Permit to Mine" will go much further than any action a citizen or group of citizens can take to protect our natural environment and water resources. Please accept this responsibility.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
398	Joan Nichols	Citizen	The risk of the proposed PolyMet sulfide mine to Minnesota's communities is too great to permit. Short-term economic gains do not justify the long-term consequences to the environment for which future generations will have to pay. This type of mining has a 100% track record of pollution, and a tailings dam breech could be catastrophic for downstream communities. The mine's toxic wastewater would have to be treated for five hundred years. This is an unacceptable legacy to leave for current and future generations of Minnesotans.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
399	Joan Nichols	Citizen	The PolyMet mine would set a dangerous precedent for Northeast Minnesota, opening the door to an industrial acid mining corridor that threatens the Arrowhead region and Boundary Waters Wilderness. Having kayaked, canoed, and hiked in this area, I value the recreational and spiritual benefits that this part of the state provides for individuals and families all over the state and region. Please protect it.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

400	Joan Nichols	Citizen	Minnesota's legacy hangs in the balance. If you allow the permit, you will be remembered as instrumental in the degradation of water resources and animal habitat, the long-term denouement of Minnesota's north-eastern towns, and the destruction of that environment which serves us through carbon sequestration and aquifer recharging. I urge you to deny the "Permit to Mine" for PolyMet.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
401	Elizabeth Kieckhafer	Citizen	Please decline this permit. It is too risky the sulfuric acid from this mine will be there on the site & watersheds (3), for 500 years. No one will want to live here. We must think of our future generations & our clean water resources.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
402	Dave Walter	Citizen	Dear Commissioner Stine, I'm writing to you concerning the proposed PolyMet mine near Hoyt Lakes. For all the research I've done and the people I've talked with about the PolyMet mine proposal, I'm uncertain where the proposal is at in the review process, or who is responsible for the next decision. But, I understand that the Minnesota Pollution Control Agency is part of the decision-making process, so I'm writing to you to express my sincere and profound dismay at the possibility of this mine coming to fruition.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
403	Dave Walter	Citizen	The thought of the Partridge and the St. Louis rivers, and Lake Superior, becoming polluted with sulfuric acid is heart-rending. Minnesota's incredible natural resources, including its rivers and lakes, are precious. This mine would push Minnesota backwards for hundreds of years.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
404	Dave Walter	Citizen	I have a background in biology and have just a smattering of understanding about how sulfuric acid affects the organisms of a river's ecosystem. I think it would be a travesty to see such damage occur from leakage from tailing basins from the proposed mine. I know I don't need to tell you this, you know much more than I do about this issue. But I sincerely hope this mine proposal is denied, for the better of all Minnesotans. I so believe in the quality of this state, and don't want to see us go backwards. Thank you, Commissioner Stine.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
405	Dave Walter	Citizen	I'm writing to you concerning the Polynet mine proposal near Hoyt Lakes. The thought of a sulfide mine operating in Minnesota in heart-rending. The pristine natural resources of our state are precious, and sulfuric acid leakage from mine tailing basins likely. Our state would be home to a long-term natural travesty, like so many mines in western states. Once sulfuric acid pollutes our rivers and lakes, no amount of money or apologies or drained can remediate the damage; our whole state will be changed for the worse. I sincerely hope this mine is not allowed to proceed. Thank you, Deputy Commissioner Beeman.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
406	Linda Vukson	Citizen	Researching and studying the Polymet proposal to open a copper sulfide mine in northern Minnesota and attending the Polymet hearing in Duluth necessitates me to contact the Minnesota DNR and PCA. These are the reasons I oppose the Polymet project: •The International Copper Study Group projects an abundant copper surplus and even Glencore, the largest shareholder in Polymet, has idled copper mines because of low prices of copper. Reserves of copper are greater than demand. Instead of mining copper we should be recycling copper which is cheaper and more sustainable. The Ely Timberjay August 23, 2017 editorial stated "...the way to advance a truly green economy - not consuming huge amounts of carbon-based energy to extract and process low-grade ore from a highly sensitive environment that will require pollution mitigation for centuries."	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
407	Linda Vukson	Citizen	•Copper mining is too dangerous in our water-rich Minnesota. Polymet proposes an above ground, open pit of wet tailings with a dam wall that requires water treatment for centuries. Because this type of dam fails at alarming rates and ALL US sulfide dams have had spills, experts recommend that copper sulfide mining in areas with abundant water-rich environments have dry closures with dry covers for mining waste. The Mount Polley dam failure in 2014 was caused by the dam being altered beyond original engineering. That's reason enough not to allow Polymet to use the LTV tailings basin.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
408	Linda Vukson	Citizen	•The Duluth News Tribune on February 13, 2018 states that Polymet's "...earthen dam will reach 252 feet high when finished, holding back millions of gallons of water mixed within a slurry with finely ground rock left over after crushing and processing...the basin will cover 21/2 square miles with 10 million cubic yards of mine waste pumped in each year for 20 years." Certainly that is a recipe for disaster and an unacceptable risk to Minnesota.	Comment noted. This comment pertains to issues considered in the development of the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.
409	Linda Vukson	Citizen	•A catastrophic spill would harm not only northern Minnesota but the St. Louis watershed and Lake Superior. No one can guarantee that won't happen. Senator Tom Bakke suggested at the February 8 meeting that we should all accept risk. But he doesn't live downstream of Polynet so that is an easy thing for him to say! The acceptability of risk should be with the public whose health, lives and livelihoods would be at risk if the wet tailings dam is breached. Not to do so is a complete failure in the entire permit process.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

410	Linda Vukson	Citizen	•The draft dam permit for perpetual water treatment violates MN Administrative Rule 6132.3200, Subpart 1 in which abandoned mines must be maintenance free upon closure. Also the MPCA has failed to reprimand all six Minnesota taconite mines that are operating now with expired permits or variances and not meeting environmental standards. Why should we now trust the MPCA to enforce all Polymet permits?	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
411	Linda Vukson	Citizen	•Polymet proposes to have a meager $544 million to cover catastrophes while the mine is in operation. The Minneapolis Star-Tribune reports that experts say that it should be $1 billion during peak mining years to cover potential cleanup that could last for centuries.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
412	Linda Vukson	Citizen	•Native American treaty rights, as usual for the US government, are being ignored when considering this project.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
413	Linda Vukson	Citizen	I would also like to make a comment about the public hearing held in Duluth on February 8. This meeting was for the public to express their views on the proposed mine. I object to any elected official speaking at these public hearings. Elected leaders have plenty of venues at which to speak and express their views. This hearing was not intended for them.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
414	Linda Vukson	Citizen	This proposed tailings basin of Polymet reminds me of the 1970s when I had to haul water from the firehall in Lakeside because of asbestos from taconite tailings being dumped into Lake Superior by North Shore Mining at Silver Bay. Only a lengthy court case and Judge Miles Lord put an end to that. I do not trust that any mining company's top priority is the stewardship of our environment. And now Lake Superior and its watershed is under threat again. Corporation profits and temporary jobs are not worth ruining Lake Superior forever.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
415	Lea Foushee	Environmental Justice Director, North American Water Office	It is with greatest concern that I write this letter. All Minnesotans depend on clean air and clean water, the Water Cycle. We need Water for Life...without clean water we die. Many Minnesotans rely on our game, fish, and our wild rice resources for way-of-life and economic survival. Indigenous Peoples, in particular, rely on game, fish, wild rice, and other plants that comprise a diet, which enables their social structure and culture to flourish in Minnesota and surrounding Great Lakes States. Indigenous Peoples have a right to a modest living (Attachment A).	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
416	Lea Foushee	Environmental Justice Director, North American Water Office	Resorts, cabins and other forms of hunting and fishing tourism income is critical to Minnesota, and will be severely affected by publicity in affected metals extraction regions.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
417	Lea Foushee	Environmental Justice Director, North American Water Office	Mining precious metals and associated minerals is a one-time harvest. The results of a one-time harvest of metals and minerals will damage, if not prohibit the continuing harvest of Minnesota's wild survival foods. For some, this destruction of wild foods is the equivalent of genocide. This is a choice between short-term financial gain, mostly corporate earnings and some worker wages on one hand, and generations of visitors to Minnesota, Indigenous and other Minnesota citizens living in a healthy and protected environment. This is a challenging choice for any governor to make.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
418	Lea Foushee	Environmental Justice Director, North American Water Office	There are already thirty existing mine site permits in the three-county Arrowhead region of Minnesota according to the Minnesota Pollution Control Agency. NAWO requested a mapping of these thirty mine sites permit applications with wild rice waters identified (Attachment B). These three counties rich with wild rice waters are included in the 1854 and 1837 Treaty Ceded Territories harvest boundaries. These Anishinaabeg (Ojibwe) Treaties have been litigated up to the United States Supreme Court level and have been affirmed and remain in full force and effect. Our Department of Natural Resources has an in depth discussion of the litigation on their website.1	Comment noted. This comment raises a general concern about wild rice waters in Minnesota and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
419	Lea Foushee	Environmental Justice Director, North American Water Office	Media coverage of the pending PolyMet decision identifies your concern for doing a mining project where the corporation applies a rigorous set of clean up standards. This is laudable. However, descriptions of the acreage to be disturbed totals over two thousand acres and hundreds of square miles in the drainage area are in harms way.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
420	Lea Foushee	Environmental Justice Director, North American Water Office	The Partridge and Embarrass Rivers are wild rice production waters (Attachment C). These two rivers will be affected by the PolyMet proposal. The Embarrass River drains to the Boundary Waters Wilderness, and the Partridge River drains to Lake Superior. Sulfide mine waste water discharge would damage if not destroy these waters as food sources. The reclamation process of sulfide-mined lands and impacted waters has been described as one that requires hundreds if not thousands of years to return to a pre-mined condition.	During the EIS process, PolyMet offered to resolve outstanding issues related to sulfate and wild rice by incorporating into the project design advanced wastewater treatment that is capable of achieving 10 mg/L sulfate, the current wild rice standard. The permit includes an operating limit of 10 mg/L sulfate for the effluent from the WWTS. This operating limit for sulfate is an enforceable permit limit; if it is exceeded, it will be a violation of the permit. In addition, the project will include other engineering controls such as stockpile liner systems and seepage capture systems that are designed to control wastewater and runoff from the facility. The effectiveness of these controls were evaluated in the EIS and the water quality permit requires their installation/operation. Because the authorized discharge from the WWTS is limited to 10 mg/L and the required engineering controls will prevent unauthorized discharges, the project as designed will not harm wild rice.
421	Lea Foushee	Environmental Justice Director, North American Water Office	Yes, this is the decision by which your Governorship will be remembered. You cannot have both choices. We either have sulfide mining for a few corporations' bottom lines and their employees, or we have clean water, abundant wild rice, tourism, safe fish and healthy forests. NAWO hopes that, in your wisdom as our Governor that you will choose the long-term values and not the one-time-harvest opportunity. NAWO petitions to be included in the citizen group you are creating. We thank you for your concern.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
422	Karin Krueger	Citizen	I feel that if PolyMet has met all the state of MN requirements then the company should be allowed to move forward and mine.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
423	Doretta Reisenweber	Citizen	I'm sending my public comments regarding the PolyMet Draft permits to you, because I know you cannot have analyzed the thousands of pages -- nor have I --. Still I have followed closely the project. We are both of a generation raised to "do the job right" & to "leave the place as good or better than" we found it. Those permits rein counter to our upbringing. Please read the litany of faults. We must protect the environment for future generations. I urge you to summon the courage to deny the PolyMet permits. Thank you for listening. Yours for a better future, Doretta (Dorie) Reisenweber	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
424	Doretta Reisenweber	Citizen	I urge the DNR to deny PolyMet's NorthMet Dam Safety Permit for the numerous reasons provided below. The comments focus on dam failure and catastrophic collapse. Despite PolyMet having absolutely NO experience mining---not so much as a gravel pit, the DNR and MPCA contemplate granting PolyMet permits to permanently store on-site hydrometallurgical residue from metals processing. Can the DNR and MPCA claim that this highly toxic waste is not hazardous? Neither agency has even required PolyMet to disclose the level of pollutants in these concentrated wastes. That is irresponsible. "Who is in charge? PolyMet or the DNR and MPCA? Who is writing these permits? PolyMet, the permittee? Or the grantors, the DNR and MPCA? I remind you that the landowner writes the contracts, not the renters. The same should apply here. The people of Minnesota are actually the landowners---and the owners of the water---not the foreign mining companies, PolyMet and by extension Glencore with its own sordid record of mining abuses throughout the world. The DNR has failed to require studies of the effects of a PolyMet dam failure on downstream property owners, the rivers and streams, and yes, northeastern Minnesota's drinking water. The DNR and the MPCA should place the people's interest---life-giving water above any company's bottom-line. Deny the permits.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

425	Doretta Reisenweber	Citizen	For the record, an environmental review of documents indicates that the hydrometallurigical waste facility's sulfate concentrations would be higher than 7,300 mg/L. That is 700 times more than Minnesota's wild rice standard. Factoring in twenty years of mining, that would be 3,280 pounds of toxic mercury which is usually controlled in billionths of a gram. If the DNR and MPCA allow such concentrations, a pandora's box of methyl-mercury related ailments would be expected, not to mention the health horrors unleashed by the heavy metals released into the waters. Already, the sulfate concentrations in northeastern MN waters has led to 1 in 10 babies having higher than normal levels of mercury. How do sulfides and sulfates relate to methyl-mercury? Ask Fond du Lac's water quality director. She can clarify that for even lay people to understand. Although our governor has not asked for one, please require a health impact study as 30,000 medical professionals have requested. First do no harm is their adage. Water is life----healthy life, IF it is not contaminated. Deny the dam permits.	Comment noted. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
426	Doretta Reisenweber	Citizen	Contrary to DNR and MPCA conclusions, the Mt. Polley dam which suffered a catastrophic collapse in 2014 and the PolyMet dam do indeed have dangerous similarities, which should be considered before rubberstamping copper-nickel sulfide mining permits. On August 4, 2014, the tailings dam at Mt. Polley copper mine failed in the wee hours of the morning. It released around 6.3 billion gallons of contaminated slurry and polluted water downstream into Hazeltine Creek and on into Lake Quesnel, a once pristine and clear lake prior to the 2014 disaster. On February 12 and 13, I heard former miner & Luck ,BC, resident Doug Watts speak in Duluth about the disaster from his own experience living downstream from the Mt. Polley mine. He had actually worked in that mine for 5 years and previously at other mines. Mr. Watts reported that government agencies were negligent in developing protections and stringent standards and in monitoring. Despite early promises to help the citizens, Canadian agencies and leaders were generally unresponsive to people's concerns following the disaster. Contrary to the help the people had been told to expect, the Mt. Polley mine was granted all kinds of permission to forge ahead purportedly to make money for clean-up costs. The DNR and MPCA must look at reality and consider, if sulfide mines can even be cleaned up. Please bear in mind that closed sulfide mines top the EPA's SuperFund list. With EPA funds and staffing slashed the current EPA won't come to Minnesota's rescue. The DNR and MPCA must stand up for and must protect northeastern Minnesota's wate;, Consider who would pay for clean-up were it even possible? The taxpayers of Minnesota would pay, while the downstream citizens would also suffer the aftermath. Deny the permits. Leave the ore in the ground until and IF it can ever be done without polluting the water throughout twenty years of mining and another twenty years of closure. These ores are found throughout the earth. There is no need to pollute Minnesota's richest resource water. The world is running short of drinkable water. The Pentagon predicts water wars by 2025. That is seven short years from now. Deny the dam permits.	Comment noted. This comment pertains to issues considered in the development of the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.
427	Doretta Reisenweber	Citizen	Consider that the DNR draft permits as written would grant PolyMet the same choices which lead to Mt. Polley's catastrophic tailings dam failure. Just like Mt. Polley, PolyMet's cheap and risky plans include an upstream style dam against which internal and outside engineers have warned repeatedly. Tailings dams failure rate is almost ten times higher than that of a water supply dam, and when they break, they leave more than a path of destruction, they leave toxic devastation. While the PolyMet tailings waste storage is called a "tailings basin." It is not really a "basin." According to the PolyMet FEIS and the PolyMet permit the plan is to pile wet tailings waste up to 252 feet (over two hundred fifty feet) on top of the existing, LEAKING 40-year-old LTV taconite tailings piles, tailings slimes and wetlands. I remember a song from childhood about "The wise man built his house upon the rock .... " House, dam, sawmill, tailings waste basin---a firm foundation should be part of permit requirements. Deny the dam permits. Furthermore, upstream-type dam construction,as proposed by PolyMet is the type at the highest risk for static, as well as seismic failure. On top of that, the hydromeallurgical waste facility would be built on wetlands and slimes---an unstable foundation. Also not a good idea. However, the agency draft permits do not even insist on excavating the unstable foundation, nor do they require concentrated wastes to be shipped to a safer, dedicated waste storage facility. Who is in charge? It does not sound like the agencies are taking responsibility. It is the agencies whose responsibility is not only to develop natural resources, but also to protect them and the people. Furthermore, like Mt. Polley ,tailings would be kept in a wet slurry---again contrary to the advice of engineers who advise dry stacking of tailings. Deny the dam permits.	Comment noted. This comment pertains to issues considered in the development of the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.
428	Doretta Reisenweber	Citizen	I know the DNR and the MPCA are supposed to study the permits, but that scope is too narrow for the global society in which we live. The agencies need to know that the UN Environmental Programme issued a 70-page report on November 13, 2017, urging governments and industry to act to stop these deadly and damaging mining spills worldwide. It calls for stronger regulations internally. The report tells of more than 40 mining waste failures over the past 10 (ten) years, seven of which made international headlines since 2014. Seven headline-making dam failures since 2014. Seven in four years! Since 2008, 341 human beings have been killed and hundreds of kilometers of waterways have been damaged. Those dam failures have affected drinking water sources and jeopardized the very livelihoods of downstream communities. If those experiencies were applied to a potential PolyMet disaster, the affected watershed would include the communities of Fond du Lac, Cloquet, Carlton and Duluth. In view of that threat the Carlton City Council passed a mining moratorium last week. The public awareness and concern is growing. Deny the dam permits.	Comment noted. This comment pertains to issues considered in the development of the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.
429	Doretta Reisenweber	Citizen	The UNEP further reports that "The inclusion of number and size of tailings dams around the world magnifies the potential environmental, social and economic cost of catastrophic failure's impact and the risks and costs of perpetual management. " Maybe PolyMet has done a cost/benefit analysis, but I'll bet it was more like how much the NorthMet mine would cost PolyMet vs. how much the North Met mine would benefit PolyMet and its stakeholders. Has the DNR or MPCA required a study of the environmental impacts? The social impacts? The true economic costs of perpetual toxic seepage from the proposed PolyMet copper-nickel sulfide mine, much less the colossal harms from a dam failure? Are the downstream communities prepared to deal with the likelihood? Have the agencies asked the public for input on an emergency preparedness strategy in case of a dam collapse? No, they have not. That might stir up controversy even among the "converted." Mining supporters might soon oppose coppernickel sulfide mines, when they realize just how seriously their water is threatened. Deny the dam permits.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
430	Doretta Reisenweber	Citizen	Continuing from the UNEP report: "These risks present a challenge for this generation, and if not addressed now, a debt we will leave to future generations." Part of that debt would include not only the money expended to try to clean up the toxic water, but significant health problems, and, gosh, yes, jobs----What would industry look like up here? Employment at some sort of giant SuperFund sites, and top-level mining executives trying to figure out from afar just where and how to transport whatever toxic soup they can scrounge up? Oh, yes, and lots of medical personnel to care for the mounting health problems. On second thought, patients would be sent away for care in a cleaner environment.That is not the dystopian future I want for future generations---your children and grandchildren on down. Deny the dam permits.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
431	Doretta Reisenweber	Citizen	Among the recommended best practices from the UNEP report are: 1. "Avoid dam construction methods known to be high risk" (such as Mt Polley's disastrously failed and Polymet's own planned upstream dam) and 2. "require detailed and ongoing evaluations of potential failure models, residual risks and perpetual management costs of tailings storage facilities." Make the monitoring realtime and send it not only to PolyMet employees in charge, but also to knowledgeable DNR and MPCA staff people tasked with the same. Why wait for a monthly or yearly report? Demand an on-going, upto-the-minute reporting system---real-time is the modern term. Insist on more monitors being placed in areas where seepage and leaks can be expected.	Comment noted. Monitoring data considered in the development of the draft permit and required by the draft permit documents are publically available. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
432	Doretta Reisenweber	Citizen	Better yet, deny the permits to mine until such mining is ever proven to operate safely for twenty years and also be shown not to pollute for another twenty years after closure. Perpetual pollution is a long time compared to forty years. Again, please, deny the permits. Yours in the interest of clean water for future generations, Doretta (Dorie) Reisenweber	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
433	William Straub	Citizen	Dear folks at the Minnesota Pollution Control Agency: I have concluded that it is overall best to deny the permit for the PolyMet sulfide mine project that would be located near Hoyt Lakes. Yes, our state needs jobs, but not at the potential risk of polluting the water supply. I am specifically concerned about this project accidentally contaminating the St. Louis River, which is said to be the largest tributary to Lake Superior.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

434	William Straub	Citizen	Even a cursory reading of a variety of peer-reviewed scholarly scientific journal articles from academic databases clearly shows that scientists agree that sulfide mining poses grave threats to the environment. A few articles show that possibly the effects of acid mine drainage (AMD) can be mitigated using economically feasible eggshell powder, algae, or other naturally occurring substances. But such approaches are based on recent, very limited studies, and have not-fully tested in large scale production mining environments. A potential breakthrough scientific study of a promising new technique that has been approved for Swedish sulfide mining only eliminates on average a little over 50% of the contaminates, and perhaps only 67% of the mostly highly toxic substances. This would leave approximately 1/3 of contaminates uncontrolled. Minnesota should not face the risk of unproven or only partially effective poison abatement techniques.	The permit does not authorize a discharge from an unproven or innovative treatment system. MPCA has reviewed the proposed WWTS technology and determined that it is capable of achieving the required effluent quality. The MPCA has added language to the permit to require construction of the WWTS component as proposed in the application.
435	William Straub	Citizen	As the Corp of Engineers vastly underestimated the water flow from the Hurricane Katrina that caused devastating flooding in New Orleans a decade ago, I question whether the Corp is really looking out for the best interests of most of the citizens of Minnesota. As even the right-leaning Cato Institute think tank asserts: "...many of projects [of the Army Corp of Engineers] have been economically or environmentally dubious ... [and they have] ... often subsidized private interests at the expense of federal taxpayers."	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
436	William Straub	Citizen	I therefore question whether the risks are worth the possibility of centuries of AMD pollution and therefore I respectfully request that you deny the 401 permit and halt the PolyMet mine project. A handful of jobs is not worth destroying the Minnesota environment that will provide more tourism dollars and jobs in the long run for the greater good.	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.
437	David Gilsvik	Citizen	Hello MPCA, My name is David Gilsvik and I am an ordinary citizen and life long resident of Minnesota. At sixty years old I feel I have some perspective on the past and future, but what I have in abundance is a love and concern for the BWCA, northern Minnesota, and most of all my grandson and his generations future. I hear that proposed permits will not have limits on contaminates leaking into ground water or water sheds. This is unacceptable. Any commercial venture in Minnesota should be held to the strictest environmental standards. Good science needs to lead these proceedings. My understanding is that Minnesota and its citizens have little to gain and much to loose from sulfide and other heavy metal mining.. Over 18 million people around the nation have joined in "save the boundary waters" efforts. Our clean water is a resource that someday may be priceless to the world as a whole. Nothing is worth risking this legacy.	The permit restricts leakage to groundwater through engineered controls. Engineering controls include stockpile liner systems, seepage capture systems and wastewater storage and conveyance systems that are designed to minimize leakage and minimize impact to groundwater and surface waters. The effectiveness of these controls were evaluated in the EIS and the water quality permit requires their installation/operation. The Annual Comprehensive Performance Evaluation Report required by the permit will provide an assessment of the performance of the engineering controls, including liner systems, using permit-required monitoring results and internal operational data to ensure that management of wastewaters generated at the facility is adequate.
438	Doretta Reisenweber	Citizen	Commissioner Stine: Water is the great commons of the earth. Clean water is in diminishing supply. You can make a difference in Minnesota. Please.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
439	Doretta Reisenweber	Citizen	See Multiple-168 for the remainder of the delineation of this comment	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
440	Roslyn B. Hjermstad	Citizen	I am writing in opposition to the copper-nickel mining proposals to mine in the BWCAW and St. Louis/Lake Superior watersheds by PolyMet and Twin Metals companies.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
441	Roslyn B. Hjermstad	Citizen	Earthworks studied the issue and found that all modern U.S. copper mines that had operated for five years or more polluted water. The World Health Organization said that copper mining releases at least six toxins that cause numerous harmful health effects including cancer. Why are we even considering this type of mining in Minnesota?	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
442	James Reinke	Citizen	Many claims about rights and needs have been made during this polymet process. In reality much of what has been said about employment and garnering important natural resources has been about wants. But truly key rights in this situation include: First, the upholding of the human dignity of every person involved in some way with the mining is nonnegotiable. Second, human beings are stewards of the environment, not dominators and exploiters. We have an obligation to pay to our home planet, God's creation. Third, the principle of solidarity requires the interconnection of people locally, globally, and inter-generationally. Fourth, the common good requires an outcome that promotes the human flourishing of all. These are the key rights that override this whole process. I am not a scientist or engineer. I am a very concerned citizen living downstream in Duluth.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
443	James Reinke	Citizen	My comments apply specifically to the role that your agency has been commissioned to play. In this regard your agency plays a key custodial role. You have an obligation to humanity, future generations, our home planet, and the common good of all-- environment, ecosystem, and waterways included. You have been set up as the guardians of the common good and official assessors of the polymet mining plan. Essentially, you are in the position of either guaranteeing the plan and accompanying science or of identifying where obstacles to success still remain.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
444	James Reinke	Citizen	This mining will expose sulfates to air and water leading to toxic acidification. This is an uncontested point. The proposed mine site is an incredibly water rich ecosystem. There can be no doubts left as to the plan and the accompanying science if it is okay-d. Assessing the environmental impact of this Polymet venture demands transparent political processes, characterized by a farsighted statecraft that prioritizes the long-term common good, and a decision-making process that is interdisciplinary, transparent, and free of all economic and political pressure. This process should be geared to facilitating consensus among all stakeholders. The potential negative outcomes require that decisions be made based on a comparison of the risks and benefits foreseen for the various possible alternatives.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
445	James Reinke	Citizen	Also, some considerations such as water must have a higher priority since it is an indispensable resource and a fundamental right. Pope Francis writes: "This indisputable fact overrides any other assessment of environmental impact on a region." Additionally, when comparing the risks and benefits of the venture remains inconclusive, the Precautionary Principle defined in the Rio Declaration of 1992 demands that those supporting the mine prove it will not cause uncontrolled environmental damage, versus the typical expectation required to prove or demonstrate that it will.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
446	James Reinke	Citizen	Your final choice must show itself as stemming from a balanced, transparent process that is manifestly free from every dominating special interest, ideology, power, and financial consideration. You have been assigned the task of assessing whether the many obvious difficulties can be managed with the proposed remedies. You have the major voice in determining whether this project goes forward. For the sake of the common good, this process has to be determined by current science and engineering, and not by loudness, money, numbers, or power. This is not a team sport. Either we, all the generations after us, and the earth are winners, or we are all losers. Our fate is in your hands. The question you are guaranteeing with your acceptance of this plan is that polymet will manage the toxic acidity both in the short run and, potentially, the next 500 years. If any doubts remain, the precautionary principle must come into play.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

447	James Reinke	Citizen	Science and engineering must have the last word as to the likelihood/ necessity of this plan working for all. Water is a nonnegotiable right and priority. Exposing sulfate rock to water and air will lead to acidification. You have been given the job of accurately assessing and guaranteeing that this plan submitted by polymet will work-- that is, that they will be able to manage both in the short run and the long this toxic pollution. They propose to mine in a water rich environment	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
448	James Reinke	Citizen	Are you sure that this plan will work? The Precautionary Principle says that when doubts remain about both the plan and the available technical ability to accomplish it, that the proposal should not go forward. Therefore, the question you are guaranteeing with your acceptance of this plan is that polymet will manage the toxic acidity both in the short run and, potentially, the next 500 years. Are you ready to give such a guarantee to this plan? Do you stand behind this plan 100%? Or, do you still have some doubts? If you still have doubts, you can only serve the common good by rejecting the plan.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
449	Blane Tetreault	Citizen	To Whom It May Concern, When analyzing projects which have potential environmental impacts, we must prioritize the risks to the environment over the potential economic benefits. If risks exist that could alter and/or damage the environment, then those projects should not be pursued. No amount of money could return an altered/damaged watershed to its native state.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
450	Blane Tetreault	Citizen	The proposed copper nickel mine should NOT be allowed because it is too risky. Not only does it have the potential to pollute the area near the proposed site, but also an entire watershed, including Lake Superior. Thousands of people get their water from these sources.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
451	Blane Tetreault	Citizen	I sympathize with the economic issues of those people who would like to build this mine. However, this mine is not for the common good. We must pursue other, less environmentally risky, economic investments in that area. Let's reinvigorate those local economies through cottage industries and other sustainable locally-owned businesses. That is how you build communities that are more resilient and self-sustaining. The bottom line is we need to do what is right and best for the common good. The right and best thing to do is not build this mine.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
452	Philip Romanek	Citizen	I am 100% opposed to the Polymet mine. To allow a company to pollute for perpetuity for a few years of employment for a few people is plain wrong. No company will ever set aside enough money to manage the area for polluted runoff and any unforeseen issue that was supposedly thought of and addressed.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
453	Chris Engel	Citizen	We have been following and closely watching and researching the entire Polymet project almost from day 1 and have been very impressed with the care and diligence the company has shown throughout the entire process including "over the top" scientific data showing how the company intends to protect the natural resources of Minnesota. We feel they have achieved all the necessary requirements to be granted ALL the proper permits to begin this project and also believe the MNDNR and MNPCA have done their due diligence necessary to not only protect the environment of Minnesota but also the citizens of Minnesota. We firmly support the Polymet project for Minnesota and feel all permit requests should be granted. Chris and Debbie Engel	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
454	John Dorival	Citizen	This permit is stands against everything the state of Minnesota says it is. It is no clean air, no clean water, no legacy for our children and grandchildren. Please stop this madness while you still can.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
455	John Dorival	Citizen	The number of promised jobs will be lost to robotics and automation. This permit goes against the will of the people of Minnesota. John Dorival	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
456	Rachel Nelson	Citizen	PolyMet Water Quality Permit Feedback March 14, 2018 DEAR MN PCA: I quote from your own website: "Water is one of Minnesota's most abundant and precious resources. The Minnesota Pollution Control Agency helps protect our water by monitoring its quality, setting standards and controlling what may go into it." Indeed. Protecting our water quality is how we are kind to the earth and to the generations of humans, plants, and animals to follow us here. Given that, I can only presume that the PCA has been influenced and bought on this PolyMet project issue.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
457	Rachel Nelson	Citizen	There was never a question as to whether there would be a spill affecting our water. That is a given. It will happen, sooner or later. The only question you asked and demanded answer from PolyMet was "How will you clean up spills when they happen? Prove to us that you have the funds in reserve to do this." There are no sufficient funds to clean up after such a spill. For how many years would that money provide reverse osmosis treatment to all drinking water for Minnesotans drinking the contaminated water? For how many generations?	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
458	Rachel Nelson	Citizen	HAS IT OCCURRED TO ANY OF YOU that MN is a co-guardian, with Canada and Wisconsin, of the largest freshwater sink in North America? That PolyMet's proposed aquifer would drain into that precious water? That WATER will be here, and already is in many parts of the world, THE SINGLE MOST ESSENTIAL AND THREATENED HUMAN RESOURCE ON THE PLANET? Given these facts, and placing them next to MN MPCA'a vowed mission is water protection, I must conclude that there has been collusion and illegal influence on MN MPCA in this matter. It is not too late to avoid investigation. Listen to the comments of your constituents who understand water and its current overriding value today. Deny the water quality permit draft to PolyMet. Rachel Nelson Two Harbors, MN	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
459	Ann Martin	Citizen	As a taxpayer and a concerned citizen, parent, and grandparent, I object strongly to the Polymer Mine project. The company has a poor record for using best practices, and they are not planning to do so. The storage of the tailings from the mine are not going to be stored properly which is what caused the catastrophic Canadian spill. We do not want the same experience.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
460	Ann Martin	Citizen	So far, there is no way to guarantee that the Boundary Waters won't suffer from this poorly planned excavation, and the jobs that will result will be for a brief duration who'll any damage will affect our precious waters for centuries. The descendants of the miners who chose a 20 year job over their water supply will not thank them. This mining project should be stopped.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
461	Ann Martin	Citizen	Failing that, the most stringent regulations for following best practices and for putting money up front for covering the future damage that will ensue must be part of the permitting process.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.

462	Nancy Wiens	Citizen	I believe we are facing grave damage to our water quality in northern Minnesota if the proposed mining plan goes through. A recent letter from Senator John Marty in the Minneapolis Star Tribune stated that a consultant for the DNR, Don Sutton of Spectrum Engineering, raised concerns about the long-term instability of the waste rock "tailings" pond banks from erosion, and calls the risk of long-term failure of the dam an "almost certainty". Really? We are risking our lakes, streams and wetlands to an "almost certainty" of dam failure and subsequent release of toxic waste into our environment? This is a shortsighted and irresponsible plan and should be rejected. Let us learn from other mine failures. If PolyMet refuses to fund "best practices" such as dry storage and independent monitoring that lower the risk of failure, they should be sent packing. The risk is too great because the risk is forever.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
463	Chris Martin	Citizen	How can you allow - why do you have - such high limits for mercury on the SD001 discharge (1000 ng/L monthly average and 2000 ng/L daily max)? The EPA limits for NPDES wastewater dischargers are 1.3 ng/L for Great lakes watershed and 6.9 ng/L for non-Great Lakes watershed. And what about the other metals limits listed for that point discharge - are they "relaxed" as well?.	See response to Comment 604 and Comment 503.
464	Anita Tillemans	Citizen	Comment to the MPCA on NorthMet Water Quality Permit -comments due March 16, 2018 PolyMet draft water quality permit comment Minnesota Pollution Control Agency 520 Lafayette Road St. Paul, MN 55155 Creative expression is an essential ingredient in all of our lives and it stems from a love of beauty in all its forms. Without this where are we? Is artistic expression something we do when other "more important" things are accomplished? Or is it, like the song of a sparrow, the rush of a spring, essential to our survival? Sigurd Olson remarked that everyone needs to find their "spot of blue". Over the years, his reference developed from a "spot of blue" in his search for water on a portage in northeastern Minnesota in the BWCAW and in the Quetico of Ontario, the sense of adventure and discovery on that quest, to a metaphor encompassing a search for knowledge and spiritual meaning. Humans have evolved into super predators through the use of tools and weapons. Once our dominance over the animal and plant kingdoms was assured we turned these weapons on ourselves. As a consequence, it becomes even more essential that we find our "spot of blue" and a place where we can meditate on our existence and the paths each one of us needs to take for the sake of our species and life on earth. When there is no wilderness, places where we can find solitude, no respite from the drum of so-called progress, nothing but the steady beat of production at all costs and money our god, what then? Where will we find the space and the time to appreciate the beauty and find our spot of blue? Our survival as a human species may depend upon it.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
465	Anita Tillemans	Citizen	This permit proposes to monitor discharges in the Laurentian area from this project's copper-sulfide mining of low grade ore in an extremely water dependent area of the world at the headwaters of the Great Lakes and the St Lawrence Seaway.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
466	Anita Tillemans	Citizen	Infrastructure including rails and roads will be required. Among the facilities referenced in this draft, the following: A beneficiation plant A hydrometallurgical plant A flotation tailings basin (FTB) including Seepage Capture Systems A hydrometallurgical residue facility (HRF) A waste water treatment system (WWTS) – discharge of which will be routed through pipes to maintain flows in Trimble Creek, Second Creek, and Unnamed Creek, with some being recycled directly to FTB pond. Other ancillary facilities (eg Colby Lake water pipeline) including: Mine water filtration train Tailings basin seepage treatment train Wastewater treatment of solids/byproducts: from the tailings basin seepage treatment train including waste from filters and membrane cleaning and concentrate, which will be routed to FTB pond and mine water chemical precipitation treatment train.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
467	Anita Tillemans	Citizen	Can we rely on a for-profit corporation to monitor itself? The permittee, Polymet, is expected to report all data from the required monitoring stations, whether favorable or not. If reported accurately and standards are not met, then Polymet will be required to monitor again until standards are met. What worthy and worthwhile actions will be taken at the "end of the day?" If the unfathomable number of reports (essentially required just to monitor the discharge from this mining operation) are maintained accurately with regularity, consistency and competency, what truly effective actions can be taken when standards are exceeded? What of the monitoring stations that have no set standards as guidelines? What of those that are not enforceable? What actions are possible that will return the water to its base levels when the degradation becomes apparent to us all?	See response to Comment 144.
468	Anita Tillemans	Citizen	What amount of money in the form of fees or financial guarantees can reclaim what is lost?	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
469	Anita Tillemans	Citizen	In addition, there is little that anyone can do to prevent natural processes and disasters from occurring, or human error whether knowingly or not; and so, by any standard, this mine will degrade our water resources in Minnesota and beyond. Can any permit for such a mine adequately address these issues? Once copper mining has run its course in the Arrowhead by setting precedent with Polymet, the first of many to come, what will remain and what can truly be reclaimed? "Downstream," the St Louis River estuary and Lake Superior, the largest body of fresh water in the world? "Downstream," the BWCA, and the Rainy River Watershed, the Superior National Forest and Voyageurs, the most pristine wilderness areas on the planet? Can we afford this mine?	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
470	Anita Tillemans	Citizen	There are hundreds of pages listed (in this water permit draft and other permits) of essential equipment and gauges required just to monitor pollution from the proposed NorthMet Project (copper mine) on a continuing basis daily, monthly and/or annually through the life of this mine and beyond. This alone speaks for itself and cannot be reconciled with the safety of our greatest natural resource.	Comment noted. Monitoring data considered in the development of the draft permit and required by the draft permit documents are publically available. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
471	Anita Tillemans	Citizen	I respectfully request that MPCA deny this permit to pollute and mine the waters of the St Louis River watershed in a land that has no equal on earth in a water dependent ecosystem at the headwaters of the Great lakes and the St Lawrence Seaway. How long will such priceless resources last in a copper mining scenario?	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
472	Adam Sealock	Citizen	My personal interest in the draft water quality permit for NorthMet comes from my role as a Minnesota resident, Minnesota tax payer, and professional environmental scientist. Below are the changes I believe should be made to the draft water quality permit and the reasons supporting my position. Ultimately, I hope the MPCA will NOT issue a water quality permit for PolyMet's NorthMet project. I oppose issuing a water quality permit for this project because the legacy of sulfide mining is very clear, we will be creating a super fund site in northern Minnesota, just south of Babbitt if a permit is issued.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
473	Adam Sealock	Citizen	Look no further than the western United States to find many examples of former copper mines which are now super fund sites. Another good example comes from the Talvivaara nickel mine in Finland, which has experience several pond leaks in the last eight years resulting in great environmental damage. After the jobs are gone the long and costly process of environmental remediation and long term monitoring begins. Cleaning up the site will certainly create jobs but the cost to taxpayers and the environment will be enormous! Given the unknown clean up and long term site monitoring costs, it appears cheaper to pay the wages on this project and never build NorthMet. In current terms: 360 Jobs (PolyMet website) x an average wage of $60,000 x 20 years of employment (PolyMet website) = $432 million dollars $432 million in current terms appears to be a bargain compared to the unknown costs to remediate and monitor long term the NorthMet site which is approximately 30 contiguous square miles.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
474	Adam Sealock	Citizen	Suggested Changes to the Permit Requirements Section: Page 41, 6.10.28 PolyMet should provide documentation of their ability to maintain an inward hydraulic gradient across the FTB Seepage Containment System and other parts of the FTB Seepage Capture Systems, where appropriate during extreme rain, snowmelt, and equipment failure events. Documentation should address system redundancies and/or mine operational changes required to maintain the desired gradient. This change in the permit will help ensure nondegradation of groundwater.	The MPCA has removed the temporary exception language from the permit. The permit requires monitoring of groundwater levels on either side of the barrier wall to ensure that an inward gradient is maintained. The permit also requires redundant pumping capabilities be available to prevent an unauthorized discharge.

475	Adam Sealock	Citizen	Page 46, 6.10.69 subpart e. MPCA or a reputable expert should evaluate the potential for a north flow path in the bedrock or surficial aquifer north of PolyMet's property at the mine site before mining begins and/or a water quality permit is issued. This change in the permit is necessary to provide information from an expert second party concerning the potential for groundwater contamination via a north flow path. The MPCA can use this evaluation to ensure the proper protocols are in place for groundwater monitoring, sampling and protection during mine construction, operation, and post operation phases to adequately protect groundwater. Additionally, MPCA can use the evaluation as a reference when reviewing PolyMet's Annual Groundwater Evaluation Report where PolyMet will assess the potential for a north flow path.	The potential for a north flow path in the groundwater from the mine site was evaluated in the EIS. The EIS stated that such flow was not likely but could not be conclusively ruled out and recommended that the issue of north flow be further addressed during permitting. The NPDES/SDS permit requires the monitoring of water levels from 11 bedrock wells and 8 surficial aquifer wells. These water level data, plus information collected during installation of the monitoring wells, will be used to assess for the future potential of north flow. It should be noted that north flow, were it to occur, would not take place until many years after mine closure when NorthMet mine pits refill with water, so sufficient time is available to assess the potential and implement mitigation, if needed, to prevent the north flow from occurring.
476	Adam Sealock	Citizen	Page 48, 6.10.80 The annual inspections and/or assessments of HRF engineering controls, operational data, and water quality data at the HRF to evaluate the effectiveness of the liner and Leakage Collection System shall be conducted by a licensed professional engineer with the appropriate expertise. The engineer shall certify to MPCA that the HRF dam, HRF liner system, and HRF Leakage Collection System maintain structural integrity, complete containment, and compliance with performance standards. This change to the permit should be made to ensure a qualified engineer can certify to MPCA on an annual basis that the HRF and its associated components can be expected to continue to perform as designed to protect groundwater resources at the site. This change is similar to the requirements in parts 6.12.24 to 6.12.26.	In light of the comment, the permit has been revised to require a professional engineer, licensed in the State of Minnesota, to conduct the annual assessment required for the HRF.
477	Adam Sealock	Citizen	Page 48, 6.10.81 The monthly inspections of the HRF system, including: Pond, Leakage Collection System, Dam, and Liner System to ensure the HRF and all engineering controls are operating effectively shall be conducted by a licensed professional engineer with the appropriate expertise. The engineer shall certify to MPCA that the Pond, Leakage Collection System, Dam, and Liner System maintain structural integrity, complete containment, and compliance with performance standards. This change to the permit should be made to ensure a qualified engineer can certify to MPCA on a monthly basis that the HRF and its associated components can be expected to continue to perform as designed to protect groundwater resources at the site. This change is similar to the requirements in parts 6.12.24 to 6.12.26.	In light of the comment, the permit has been revised to require a professional engineer, licensed in the State of Minnesota, to conduct the monthly assessment of the HRF pond and HRF Leakage Collection System.
478	Adam Sealock	Citizen	Page 51, 6.10.92, i. to ii. I urge MPCA to consider the following questions concerning the proposed design and/or operation of the HRF before issuing a water quality permit. If the design and/or operation of the HRF can not sufficiently address the questions below a water quality permit should not be issued because the state's nondegradation policy for groundwater and surfacewater can not be reasonably guaranteed. Is the HRF liner system the best available technology for preventing groundwater contamination from stored HRF wastes? In case of a major failure in the HRF liner system can the damaged area be isolated and repaired in a reasonable amount of time? If the HRF liner system can be repaired, would the repaired area of the HRF liner be expected to perform equally to non-repaired areas? What is the life expectancy of the proposed HRF liner system? Is this life expectancy of the proposed HRF liner system compatible with the expected clean up time required after the mine is not operating? Does PolyMet have contingency plans for dealing with a HRF Dam, HRF Liner System, or Leakage Collection System failure for both the liquid and solid materials stored in the HRF? How will PolyMet's contingency plans for HRF Dam, HRF Liner System, or Leakage Collection System failure change over time given the anticipated increase in HRF solid and liquid volumes? For required maintenance, monitoring and repair of the critically important HRF Leakage Collection System will the sump, pumps, and associated piping be accessible after construction? If critical parts of the HRF Leakage Collection System will not be accessible for maintenance, monitoring, and repair after construction, then, what redundancies in equipment should PolyMet be required to implement in the HRF Leakage Collection System design?	See response to Comment 93.
479	Adam Sealock	Citizen	Page 51, 6.10.92, iii. Multiple monitoring devices, (eg. lysimeters and/or other suitable monitoring devices) should be installed under the HRF sump and northwest of and proximal to the HRF within the FTB seepage containment system to assess groundwater quality. This change to the permit should be made to provide redundancy in the critically important ground water monitoring system and to provide more data to increase the statistical validity of the groundwater monitoring data collected.	The MPCA evaluated the monitoring required at the HRF during permit development and determined that the currently proposed monitoring for the proposed HRF is sufficient until further information on the proposal is available. In light of the comment, a provision has been added to the permit that requires the HRF Liner Plan to include a specific analysis of the suitability of the proposed monitoring to detect leakage from the HRF.
480	Adam Sealock	Citizen	Page 51, 6.10.92, iv. Multiple strain gauges at relevant locations or a comparable strain monitoring system should be installed to thoroughly monitor both liners in the HRF. This change to the permit should be made to provide redundancy in the critically important liner monitoring system and to provide more data to increase the statistical validity of the strain monitoring data collected.	The HRF Liner Plan required by the permit includes a provision that the liner system design must include strain gauge(s) to provide assurance that the liner system is not subject to excessive strain. The details of the strain monitoring system will be subject to MPCA review and approval.
481	Adam Sealock	Citizen	Page 54, 6.12.10 If PolyMet installs an underdrain system, MPCA should provide a list of all the parameters the permittee should monitor quarterly in the discharges from the drain system. This change to the permit will make the monitoring requirements for PolyMet and MPCA unambiguous and will allow for a more accurate estimate of loading to the environment if underdrain discharge is contaminated.	In light of the comment, the permit has been revised to specify the required parameters to be monitored in the EQ basin underdrains; these now include total chloride, total sulfate, total dissolved solids and specific conductance.
482	Adam Sealock	Citizen	Page 56, 6.14.3 The land application of biosolids does not seem to be throughly explained or planned for by the Permittee. Part 6.14.3 should be deleted from the permit unless PolyMet has a biosolids land application plan, with sufficient monitoring of pH and metals in biosolids, that will satisfy all applicable local, state, and federal regulations	MPCA considered the comment, but determined that the identified permit requirement should not be removed from the permit. The language for domestic wastewater operator certification, including references to land application of biosolids, is standard permit language for operators with a Type IV certification. (Type IV certification specifically addresses land application of biosolids). In addition, biosolids removal is not expected to occur at this site during this permit term.
483	Adam Sealock	Citizen	Page 57, 6.14.8 PolyMet should be required to report to MPCA the concentration of metals, pH and other parameters of interest in the sludge from the sewage stabilization ponds. A detailed plan of sewage sludge management during and after operation of the mine should also be provided by PolyMet. This plan should include testing and disposal of the sewage sludge. This change to the permit should be made to ensure a sewage sludge disposal plan has been made and the disposal and management of stabilization pond solids will be in accordance with local, state, and federal requirements.	MPCA considered the comment, but determined that the existing language in the permit is appropriate. This language is standard permit language for domestic sewage ponds statewide and nothing about this proposed system warrants the additional monitoring. In addition, the removal of biosolids is not expected to occur at this site during this permit term. Oversight of biosolids removal will be regulated as described in Minnesota Rules 7041.
484	Adam Sealock	Citizen	Page 57, 6.14.13 If unauthorized releases occur from the sewage stabilization ponds the additional parameters of interest, (eg. metals and other parameters of interest) that should be tested for should be listed in the permit. This change to the permit will make the monitoring requirements for PolyMet and MPCA unambiguous and will allow for a more accurate estimate of loading to the environment if an unauthorized release occurs.	MPCA considered the comment but determined that the existing language in the permit is appropriate. This language specifies that any unauthorized release be monitored for permitted effluent parameters, which include CBOD5, TSS, pH and fecal coliform. This language is standard permit language for domestic sewage ponds statewide and nothing about this proposed system warrants the additional monitoring parameters.
485	Adam Sealock	Citizen	Page 64, 6.16.45 PolyMet should be required to report to MPCA the concentrations of metals, pH, and other parameters of interests in solid wastes disposed of at on-site and off-site locations. Information that will be helpful in estimating the yearly loadings of NorthMet waste to on-site and off-site locations should also be reported to MPCA. PolyMet should be required to sample their solid wastes at frequencies that are appropriate to provide the MPCA with a good characterization of the solid wastes and their variability over time. This change to the permit should be made to ensure solid wastes are disposed of in accordance with local, state, and federal requirements.This change will allow MPCA and others to more accurately estimate solid waste loading rates to on-site and off-site locations to inform clean up, waste inventory, and mass balance efforts.	MPCA considered the comment, but determined that the existing language in the permit is appropriate. This language is standard permit language for all NPDES/SDS permits statewide and are appropriate for this facility.

486	Adam Sealock	Citizen	Page 70, 8.1.1 The following parameters in surface water discharge from the WWTS should be monitored daily using a 24-hour composite sample: arsenic, cadmium, calcium, copper, hardness, lead, magnesium, mercury, nickel, pH, specific conductance, total suspended solids, zinc, and flow. This change to the permit should be made to ensure a statistically valid characterization of the effluent discharged from the WWTS on a daily basis given the random variables that can potentially impact WWTS effluent quality from day to day (eg. mine production, weather, equipment performance ect.). Daily monitoring of effluent from the WWTS will be similar to the requirements of the many publicly owned treatment works throughout the state. Sulfate should be added to the list of parameters in 8.1.1 surface water discharge monitoring. Sulfate should be monitored daily using a 24-hour composite sample. This change in the permit will help MPCA and others accurately estimate the sulfate loading from the WWTS into receiving waters.	MPCA considered the comment but determined that the existing monitoring requirements, including monitoring parameters and type and frequency of monitoring is sufficient. Given that the direct source of wastewater to the WWTS has been "equalized" in the FTB seepage containment system and the nature of the treatment technology provided (membrane treatment), the variability of the effluent is expected to be small and weekly 24-hour composite sampling is appropriate.
487	Adam Sealock	Citizen	Table 8.1.1 should communicate, where appropriate, if the surface water discharge monitoring parameters listed are to be analyzed on a total and/or soluble basis. This change in the permit will ensure proper analysis of the parameters of interest for MPCA and PolyMet.	In light of the comment, the monitoring requirements of the permit have been revised to specify "total" or "dissolved" as appropriate.
488	Adam Sealock	Citizen	Page 84 8.2.5 PolyMet should be required to monitor pH in addition to the parameters listed in the Category 1 stockpile groundwater containment system. This change to the permit will enhance the ability to detect groundwater contamination and help protect groundwater resources. Monitoring pH is a proposed requirement for other groundwater monitoring locations, see 8.2.6 and 8.2.7.	Water levels at the paired wells and piezometers at both the FTB Seepage Containment System and the Category 1 Stockpile Groundwater Containment system are monitored monthly and chemistry at the paired wells is monitored quarterly. The required parameters for this monitoring (chloride, sulfate, total dissolved solids and specific conductance) were selected based on their ability to provide the earliest detection of potential pass-through of impacted water. The addition of pH to the parameter list will not provide additional useful information beyond what is provided by the other required parameters.
489	Jaci Christenson	Citizen	POLYMET MPCA WATER QUALITY PERMIT Jaci Christenson 2/8/2018 In Minnesota, water is what defines us. No other resource should take precedence over water. Around the world that value is realized as far away as Cape Town South Africa, with just a few months supply of water remaining, to water wars and degradation in our own backyard of Lake Superior/Great Lakes. Clean drinking water must be a birthright for all and PolyMet takes us down a dangerous path in the opposite direction.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
490	Jaci Christenson	Citizen	Lest we be ignorant, in Minnesota we have already impaired 40% of our water. Decision makers, the PolyMet Permit to Mine is an absurd risk to the watersheds of the remaining 60%! I strongly oppose the PolyMet Permit for Water Appropriations, as it fails to include the economic impacts of pollution to the St Louis River Watershed, PolyMet is getting a ridiculous deal on our most pristine water, there is no assurance for when the mine fails and there are better ways to provide jobs and precious metals to Minnesotans.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
491	Jaci Christenson	Citizen	ST LOUIS RIVER WATERSHED St Louis River Watershed is the largest U.S. tributary to Lake Superior. PolyMet Permit to Mine fails to comply with Great Lakes Agreements "to restore and protect the waters of the Great Lakes." With 100% failure rate of sulfide ore copper mining in water rich environments, where is your commitment to the St Louis River Restoration Project, headed by our own Minnesota Department of Natural resources (DNR)?	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
492	Jaci Christenson	Citizen	There are more than 10,000 jobs in St Louis County that rely on clean water in areas of entertainment, recreation, accommodations and food service (US Census Bureau 2013). PolyMet risks 10,000 long term jobs for 300 potential mining jobs, few of which are local and remain only as long as the mine is active. This makes no sense!	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
493	Jaci Christenson	Citizen	We must uphold the inherent rights of the first people to hunt, fish and gather in the St Louis River Watershed, as promised in the 1854 Treaty. The PolyMet permit fails to address environmental Injustice to our Native communities! Why aren't we relying on Native wisdom and fact in this incredible area that has been deemed of High Biological Diversity by Minnesota DNR? Additionally, the study by Earth Economics commissioned by Fond du Lac 2015 found that a clean St Louis River Watershed is at least a $14 billion benefit, providing ecosystem services of flood reduction, recreation, food, carbon sequestration, habitat spawning and nursery, and water quality. The Value must be included in the permit!	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
494	Jaci Christenson	Citizen	WATER APPROPRIATIONS OF PERMIT TO MINE PolyMet is requesting 6,175 million gallons of our clean water per year. By comparison, that is 85% of entire water use of Duluth Water Utility per year. PolyMet is paying $8 per million gallons water, while Duluth area residents are paying 612 times more than PolyMet for water (http://www.comfortsystemsduluth.com/about-my-bill/rate-sheet/). Why does PolyMet get a super deal on our pristine, most valuable water?	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
495	Jaci Christenson	Citizen	And when PolyMet, a foreign corporation, is done with our water it will be returned to us polluted. PolyMet admits that more than 5 million gallons of contaminated waste water from the mine site and over 10 million gallons from tailings site would be released untreated into Minnesota's groundwater (see In the Matter of the Final Environmental Impact Statement for the PolyMet Mining, Inc., NorthMet Mining Project and Land Exchange, MN DNR Record of Decision ("DNR FEIS ROD"), March 3, 2016). This just from everyday operations, before considering the mine failure. MINE FAILURE, REAL COSTS, JOBS AND RECYCLING With 100% failure rate, fellow taxpayers, this will be ours to deal with for more than 500 years.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
496	Jaci Christenson	Citizen	PolyMet has not proven that it can meet the financial assurances to reclaim the site and pay for long term water treatment. The DNR estimates costs greater than $1 billion to close the mine and treat the water for centuries. Why, then, is PolyMet able to obtain a permit to mine by providing less than 10% of that up front with little insurance for spills and dam collapse? This permit must include REAL costs of this mine, rather than the externalized costs that PolyMet are off loading onto Minnesotans. An example is carbon dioxide costs, as PolyMet would generate more than the equivalent of ¼ of all of Duluth's total carbon footprint (Duluth Greenhouse Gas Emissions Inventory and Forecast, March 2011). We can do better!	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
497	Jaci Christenson	Citizen	Copper recycling (currently far too much copper ends up in landfills) uses 85-90% less energy than mining, would create far more jobs and minimize environmental impacts.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
498	Jaci Christenson	Citizen	IN CLOSING, THIS PERMIT TO MINE IS REPREHENSIBLE FOR ANYONE WHO DRINKS WATER! THAT MEANS ALL OF US! There were 58,000 public comments submitted on second draft of PolyMet environmental review. The largest number of public comments on DNR project in MN history, with 98% opposed to the mine proposal, yet here we are today commenting on PolyMet Permit to Mine. If this process is truly fair and just, you must take into account the voice of Minnesota, present and future and deny the PolyMet Permit to Mine!	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
499	Lori Olinger	Citizen	The mission of the Minnesota Department of Natural Resources (DNR) is to work with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life. The DNR is going against its mission by moving forward with Polymet permits.	Comment noted. This comment generally states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
500	Lori Olinger	Citizen	Polymet mining will set in motion an environmental disaster that will not be fixable. From the Flambeau mine in Wisconsin to the Berkeley Pit in Butte Montana, every copper mine pollutes and once started, there is no way to stop the chemical reaction and acid drainage that follows. This will be a disaster in water rich northern Minnesota. Glencore has many health and environmental violations in its mining operations.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
501	Lori Olinger	Citizen	The DNR should not assume that Glencore will do any more than is required by law under the permits and, given its history, probably will not comply with the permits. That it is why it is critical for the DNR to set exact requirements and to have actions that will occur if/when there are permit violations. The DNR should do the following to protect the State of Minnesota from the inevitable problems that will occur: 1) The DNR should require that mining operation stop if there are any permit violations and not begin again until the problem is resolved. Polymet must have some immediate financial repercussions that are strong enough to result in a change in operating processes. Polymet will see fines as just another cost of doing business. 2) Polymet should not be solely responsible for monitoring. The DNR should appoint an independent group to do additional spot check monitoring on a regular basis to ensure the accuracy of what is submitted by Polymet.	The NPDES permitting program nationwide is reliant on self-monitoring by the permittee. The permit includes specific requirements on the sampling, analysis and reporting of monitoring data. For example, the permit requires that all analyses must be conducted by a laboratory certified by the Minnesota Department of Health. The permit also states that knowingly making a false statement or certification is subject to criminal and civil penalties. The permit includes a provision that states the MPCA may revoke without reissuance the permit pursuant to Minn. R. 7001.0180 under certain situations of noncompliance.

502	Lori Olinger	Citizen	3) The monitoring results should be public. Many Minnesotans are very concerned about environmental problems and this information should be available within a reasonable period of time and on a regular basis (ex. Within 30 days of the DNR confirming results) 4) Secitons 8.1.4 through 8.3.8. Of the 24 tables listing monitoring requirements, one refers to flow, two show actual limits and twenty-one show the limits as "monitor only". This seems totally inadequate. If there are no limits set, Polymet can monitor and have no consequences. These sections should be changed to set exact limits.	All monitoring data is reported to the MPCA on monthly Discharge Monitoring Reports (DMRs) which are posted online on the MPCA website (available at https://www.pca.state.mn.us/quick-links/eda-surface-water-data). Monitoring data and report submittals are also available by request to the agency.
503	Lori Olinger	Citizen	3) The monitoring results should be public. Many Minnesotans are very concerned about environmental problems and this information should be available within a reasonable period of time and on a regular basis (ex. Within 30 days of the DNR confirming results) 4) Secitons 8.1.4 through 8.3.8. Of the 24 tables listing monitoring requirements, one refers to flow, two show actual limits and twenty-one show the limits as "monitor only". This seems totally inadequate. If there are no limits set, Polymet can monitor and have no consequences. These sections should be changed to set exact limits.	See response to Comment 718-A, which describes the reasonable potential analysis.
504	Lori Olinger	Citizen	6) 6.16.30 (Subject to Enforcement Action and Penalties. Noncompliance with a term or condition of this permit subjects the Permittee to penalties provided by federal and state law set forth in section 309 of the Clean Water Act.) It is one thing to say that a permit violation is subject to the Clean Water Act, but in reality, when sulfide pollution begins there are expensive options such as reverse osmosis that can be used to mitigate but there is really nothing that can be done to reverse the acid drainage that will occur. This is going to be a problem the State of Minnesota will have to contend with forever, just as Butte, Montana is doing to control, at great expense, the problem with the Berkeley Pit. One day the mining will end, jobs will be gone, and Minnesota will have the environmental disaster forever. The DNR should not approve this permit.	The permit focuses on preventing the impacts from occurring in the first place. The permit has been revised to be more prescriptive on the design components of the engineering controls (i.e., seepage capture systems, liner systems, WWTS, etc). It also includes provisions that are intended to assess monitoring and performance data in a proactive manner so as to identify the potential for impact to occur such that adaptive management or mitigation can be applied to prevent the impact from occurring.
505	Mary Kirsling	Citizen	I am a Registered Nurse, a labor activist, and environmentalist. This issue has been extremely challenging for me. I wish to protect our water first and foremost, but recognize the need for metals in our modern world and the fact that much of what is mined currently comes from countries that have no regulations and those practices pollute. I also hear from my labor friends the need for jobs.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
506	Mary Kirsling	Citizen	Up to this point, I was in favor of Polymet and was hopeful we could mine safely. I no longer believe we can. Some of the safeguards have already been walked back and we currently have political conditions that have weakened, and will continue to weaken, regulations and oversight.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
507	Mary Kirsling	Citizen	Secondly, the financial safeguards for cleanup should an event take place, are inadequate, leaving future taxpayer responsibility the default.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
508	Mary Kirsling	Citizen	This water rich environment is simply too vulnerable for this type of mining. Water scarcity is going to be a huge problem in the future in many regions of the country and the world. We should not jeopardize our precious resource. Mary Kirsling	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
509	Jami Burbidge	Minnesota Academy of Family Physicians	Dear Commissioner Linc Stine, The Minnesota Academy of Family Physicians (MAFP), representing 3100 family physicians from throughout the state, would like to express concern regarding the lack of health impact assessment included in the final environmental impact statement (FEIS) for the PolyMet project. While the FEIS was deemed "adequate" by the Minnesota Department of Natural Resources (DNR) there was minimal information provided regarding the effects on human health from the impacts of the copper-nickel sulfide mine project.	The comment related to a health impact assessment was addressed as part of the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
510	Jami Burbidge	Minnesota Academy of Family Physicians	Furthermore, the MPCA draft water pollution permit provides no control over contaminated wastewater that is collected in the tailings basin or waste rock pile, then seeps from ground water into wetland and streams. This leads to concern regarding the potential seepage of sulfates and toxic metals into both ground water and connected surface water.	The project includes engineering controls such as stockpile liner systems, seepage capture systems and wastewater storage and conveyance systems that are designed to limit and manage impacted water from the facility so that it does not impact groundwater or surface water. The effectiveness of these controls were evaluated in the EIS and the water quality permit requires their installation/operation. The Annual Comprehensive Performance Evaluation Report required by the permit will provide an assessment of the performance of the engineering controls, including liner systems, using permit-required monitoring results and internal operational data to ensure that pollution of groundwater and surface water does not occur. See also response to Comment 22.
511	Jami Burbidge	Minnesota Academy of Family Physicians	Since the PolyMet FEIS, the DNR has allowed changes which would eliminate the wastewater treatment facility at the mine site, seemingly making the project more of a risk to water quality and human health.	The proposed treatment components of the reconfigured WWTS are the same as originally proposed. Anticipated flow volumes from the Mine Site to the reconfigured WWTS will remain the same as originally proposed. The location of the proposed mine site treatment system is the only thing that has changed.
512	Jami Burbidge	Minnesota Academy of Family Physicians	As physicians, we play a vital role in the health of our patients and communities. Because of this responsibility, we would like to share our concerns regarding the unknown health impact of the PolyMet project and oppose the draft permit and certifications currently proposed by the Minnesota Department of Natural Resources and Minnesota Pollution Control Agency for the PolyMet copper-nickel mine project. Thank you for your consideration.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
513	Richard Staffon	Citizen	I am asking the MPCA to deny the water pollution permits for the PolyMet copper-nickel mine project because the PolyMet plan will fail to control polluted seepage into the groundwater and surface water from the tailings basin, waste rock piles and mine pits. The permits do not set limits for this polluted seepage and rely on assumptions, exclusions and poor information to claim that the mine will not pollute our waters.	See response to Comment 510.
514	Richard Staffon	Citizen	Also, the state should request that a health impact assessment be completed before this project is permitted to evaluate the human health impacts of the project.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). A health impact assessment was addressed as part of the environmental review process. No changes were made to the draft permit in response to these comments.
515	Bruce Anderson	Citizen	Dear MPCA Permit Administrators. I am requesting that MPCA deny water pollution permits as currently proposed for the PolyMet copper-nickel mine project because of the probable significant environmental impacts.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
516	Bruce Anderson	Citizen	The PolyMet plan fails to control polluted seepage into the groundwater and surface water from the tailings basin, waste rock piles and mine pits. The permits do not set limits for this polluted seepage and rely on assumptions, exclusions and poor information to claim that the mine will not pollute our waters.	See response to Comment 510.
517	Bruce Anderson	Citizen	Gov. Mark Dayton has stated that we can have mining and protect the environment, as long as we use best practices for mining and provide "safeguards" to prevent damage. Jon Cherry, the CEO of PolyMet, has committed to "meet or exceed regulatory standards and industry best practices." However the draft DNR permit as written does not meet best management practices. DNR mining consultant, Don Sutton of Spectrum Engineering, said: "I am surprised that the Minnesota Statutes allow a temporary [tailings] impoundment structure to be permitted permanently. This wouldn't be allowed in other jurisdictions." Sutton also brought up concerns about the long-term instability of the waste rock "tailings" pond banks from erosion, and calls the risk of long-term failure of the dam an "almost certainty." He explained that because of this erosion, "at some point the entire mass will unravel."	Comment noted. This comment pertains to issues considered in the development of the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.
518	Bruce Anderson	Citizen	This is important considering a similar mining operation in British Columbia (Mount Polley) had a devastating dam failure in 2014 that released a toxic slurry of waste rock in one of the worst environmental disasters in Canadian history. After that Mount Polley incident, a comprehensive review called for dry storage of mine tailings as a best practice, along with a requirement for an independent review to monitor the projects.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

519	Bruce Anderson	Citizen	Using these best practices would prevent the catastrophic harm caused by a dam collapse. The DNR mining consultant wrote that "if the tailings were placed in a dry, compacted state, I wouldn't be so concerned." When a good solution like this exists, why doesn't the PolyMet plan look at dry storage of the waste? Sutton added that "PolyMet is proposing to build the tailings disposal system that has the lowest initial cost, but has more long-term risks than other tailings disposal methods." He says that the state should "consider the consequences of a failure and estimate the cost of cleaning up the failure, and then add the cost of operating the repaired facility forever."	Comment noted. General comments related to alternatives and impact minimization were considered during the environmental review process and the cross-media analysis. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
520	Bruce Anderson	Citizen	PolyMet acknowledges that once it begins mining, the state will have no leverage to force it to pay for the mine cleanup. In years to come, taxpayers more than likely will have to finance any cleanup. The state must address the concerns raised by the mine engineers and financial consultants the DNR hired. Subsequently I recommend that MPCA deny a permit until effective best management practices including dry storage of mine tailings are outlined in the permit. Sincerely, Bruce D. Anderson Chisago City, MN 55013 Bdandersons1953@outlook.com	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
521	David Reisenweber	Citizen	No health study has been done and permits to add more toxins to our air and water should be denied. The water treatment system is based on estimates from models. So how does that work in the real world? Saying something does not make it happen, so how is MPCA going to make safeguards work?	Membrane treatment, including reverse osmosis, is a well understood technology that has been utilized for many years in a number situations, including for mining projects. The ability for the technology to work for the PolyMet project was demonstrated in the 6 month pilot test conducted during the EIS process. The design modeling referenced in the comment was used to further the detailed design of the full-scale treatment to meet the needs of the project. The MPCA has reviewed the design and has concluded it is capable of providing the required level of treatment. The issue related to a health study was addressed as part of the EIS process.
522	David Reisenweber	Citizen	Can you rely on slow self reporting to be accurate? I have found yearly and monthly reporting requirements to the state, but have not found continuous site monitoring by MPCA or DNR. Most commodity businesses have monitoring equipment in place to forewarn of problems. This is true on most farms today. At the very least the state should have personal on site to ensure compliance and honesty.	The permit has been revised to specifically require the completion of an operation and maintenance for each of the key engineering controls (WWTS, liner systems, seepage capture systems) which will describe day to day operations. Although reporting to the MPCA is monthly or annually, the actual operation of the facilities will utilize daily or continuous monitoring systems. For example, internal flow streams and/or the discharge from the WWTS will be continuously monitored for specific conductance to provide real-time feedback on treatment performance.
523	David Reisenweber	Citizen	Page 87 of the Permit Program Fact Sheet says that water quality degradation cannot be avoided but will be minimized. That's 6.2 billion gallons per year to keep from polluting surrounding waters all the way thru Duluth-Superior and all the Great Lakes. A lot of adaptive management is mentioned, whatever that might be. The latest best dam and management practices are not in the proposed permit.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
524	David Reisenweber	Citizen	I am pro-science, but what you are asked to permit is a pile of assumptions, guesses, theories, possibly some fraud, and mostly wishful thinking. The earth and too many people stand to lose too much for this project to be permitted. I urge you to reject the permit application and do a lot air and water toxicity studies before considering another permit. David Reisenweber	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
525	Eric Sve	Citizen	I'm opposed to the Poly Met mine. My businesses (a resort and Commercial fisherman) are dependent on Lake Superior. I'm concerned about down stream and ground water contamination and possible depletion of aquifers that I depend on for well water to supply my home and businesses.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
526	Eric Sve	Citizen	Another concern is the treatment of the waste water that I understand could last for centuries. Much has been done to replenish fish stocks and I fear this type of mining could put that in jeopardy.	Comment noted. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
527	David Gangeness	Citizen	Born at Ft Benning Georgia and a 65 year old lifelong resident of Minnesota with 2 degrees from the University of Minnesota and a resident of Duluth for 36 years, I have something to say about this PolyMet project. From a family of farmers in Minnesota, my family of grain farmers have fed NE Minnesota miners for 4 generations. Did I say FOUR generations? Some tout their FOUR generation mining families. Nice. They did not eat iron. We fed them. WE have a say. And we drink this water in Duluth, it is not theoretical.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
528	David Gangeness	Citizen	Deny the water pollution permits for the PolyMet copper-nickel mine project because the PolyMet plan will fail to control polluted seepage into the groundwater and surface water from the tailings basin, waste rock piles and mine pits. The permits do not set limits for this polluted seepage and rely on assumptions, exclusions and poor information to claim that the mine will not pollute our waters.	See response to Comment 510.
529	David Gangeness	Citizen	Also, the state should request that a health impact assessment be completed before this project is permitted to evaluate the human health impacts of the project. Do this right. No shortcuts. No Russian buy offs. Just honest oversight of the safety of current citizens and future workers's families and citizens. david gangeness duluth, minnesota	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
530	William Durbin	Citizen	I believe you should have a plan to mandate surface water quality testing to be done on a ongoing basis by an objective party.	See response to Comment 144.
531	William Durbin	Citizen	And there should be limits on ground water seepage. Copper-Nickel mining is far too risky a proposition, considering the short life-cycle of mines and the potential for long-term pollution.	See response to Comment 510.
532	Tracy Kugler	Citizen	Dear Commissioner Stine, As a Minnesota citizen who believes that our 10,000 lakes, along with rivers, streams, and wetlands, are intrinsic to the identity of our state and should be highly valued in their own right, I strongly urge the MPCA to take seriously its mission to protect Minnesota's precious waters and deny the NPDES/SDS water pollution permit and the Section 401 certification for the PolyMet copper nickel mine project.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
533	Tracy Kugler	Citizen	The proposed 401 certification asserts that the project satisfies antidegradation standards, and the NPDES/SDS permit states that the project, "does not have reasonable potential to cause or contribute to any violations of any applicable water quality standards in waters of the state." Given the hydrogeologic nature of the project site and the extensive disturbance the project will entail, I find these assertions hard to believe, particularly in the long term.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
534	Tracy Kugler	Citizen	The location of the proposed PolyMet mine is entirely unsuitable for a project of this nature. The extensive, complex, and fragile waters of this region are highly susceptible to contamination, and they are far too valuable in their own right to allow such contamination to occur. * The project site is located near the headlands of the Partridge and Embarrass Rivers, which are, in turn, in the upper reaches of the St. Louis River watershed. Any contamination flowing from the project site therefore has the potential to affect waterways downstream throughout all of these watersheds.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
535	Tracy Kugler	Citizen	* The hydrogeologic setting of the project is highly susceptible to contamination. The thin layer of glacial till lying atop fractured bedrock provide innumerable flow pathways. Saturated conditions and a shallow depth to groundwater indicate that water permeates this area. These conditions make it virtually impossible to hydrologically isolate any part of the area and mean that contaminants that may be released would spread easily throughout a large region. *	See response to Comment Multiple-543-EJ. The EIS included an assessment on fractured bedrock. While bedrock fractures are known to exist at the project site, existing information suggests that they are predominately relatively shallow and discontinuous in nature. Project engineering controls such as liner systems and seepage containment systems have been designed to minimize the potential for impact to groundwater including the shallow surficial aquifer and within the fractured bedrock.
536	Tracy Kugler	Citizen	Many waterways and water bodies in the region are already listed as impaired due to mercury in fish tissue and/or mercury in the water column. Contamination with methylmercury is a key concern for this type of mining, as sulfide ore is exposed to air and water, generating sulfuric acid, which leads to heavy metal leaching, the release of sulfate, and mercury methylation. The Partridge River, which winds directly around the proposed mine site was proposed for listing as an impaired water in 2016 as a result of mercury in both fish tissue and in the water column. In addition, Colby and Whitewater Lakes, downstream of the mine site are already listed as impaired due to mercury in fish tissue. In the Embarrass River watershed, downstream of the tailings basin, Sabin, Wynne, Embarrass, and Esquagama Lakes and the Embarrass River downstream of Embarrass Lake are already listed with mercury-related impairments. Given these existing impairments, it is paramount that no additional potential for mercury contamination be allowed in these watersheds. *	See response to Comments 198 and 722.

537	Tracy Kugler	Citizen	The wetlands, lakes, rivers, and streams in the region are valuable for far more than the low-quality ore that may be beneath them - as habitat, for the livelihood of Native Americans, as headlands for drinking water sources, and simply as natural areas with their own intrinsic value. These values have been recognized in the classification of all waters in the area as Outstanding International Resource Waters. Furthermore, the project lies within the St. Louis River Area of Concern, which has been the focus of at least $30 million of Great Lakes Restoration Initiative funding to remediate and restore the watershed from previous damages. Significant progress has been made over the past 25 years as a result of these efforts, including restoration of recreational access at Grassy Point, resumed natural reproduction of Lake Sturgeon, and the removal of a beneficial use impairment for aesthetics. Allowing the Poly Met project to go forward would seriously undermine all of these efforts.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
538	Tracy Kugler	Citizen	The PolyMet project will involve extensive disturbance to the environment of the region. The project proposes to remove ore from open pit mines over 500 acres in area and hundreds of feet deep, more than 90% of which will be considered waste rock and simply dumped into massive waste piles. It will process the sulfide- and heavy metal-laden ore, and store millions of gallons of contaminated water in a tailings basin, contained simply by an earthen dam. Within this complex, messy, and toxic process, the massive scale of the operation, and the long time frame over which the waste rock piles and tailings basin would persist, there are simply too many opportunities for failure. Such failures may be catastrophic, such as occurred at Mount Polley when the tailings basin dam, similar to the one proposed by PolyMet, failed. Or they may occur more gradually as containment systems break down over the life of the project and after the mining operation has ceased, as has occurred in every other instance in which sulfide mining has occurred in a water-rich environment.	Comment noted. This comment pertains to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to this comment.
539	Tracy Kugler	Citizen	Having worked in the Permits Division of the Office of Water for the U.S. EPA, I realize that the narrow regulatory definition of point sources can cause challenges for regulating projects such as this that do not fit the standard model of a contained facility with defined outfall locations under the NPDES/SDS program. Given the engineering design specified and the five-year timeframe of the permit, it may be true that the possibility of contamination from the defined outflow locations is quite low. However, I urge you to at least thoroughly examine all of the assumptions used by PolyMet in justifying this claim, and be creative in applying any and all available regulatory mechanisms. (After all, PolyMet would hardly submit an application that concluded otherwise.) Most effective, of course, would be to deny the permit entirely. It seems clear that adequate justification of such a denial could be made.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
540	Tracy Kugler	Citizen	The nature of the natural and human communities at stake and the evidence of the value placed on them by existing classifications and restoration efforts justify the need to protect them. The nature and extent of the disturbance justify the need to prevent it from starting. Unlike a factory, which could be shut down if excessive contamination were discovered and emissions would stop, once a mine is dug, waste rock piles are accumulated, and a tailings basin is filled, there is no going back. Contamination resulting from these disturbances would continue indefinitely, and no amount of money would ever be able to restore the damaged communities. I therefore strongly urge you to deny the NPDES/SDS water pollution permit for the PolyMet copper-nickel mine project. Sincerely, Dr. Tracy Kugler	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
541	Karen Hulstrand	Citizen	The proposed mining plan for PolyMet gives me great concern about public health issues and water quality. Currently the MN Department of Health already notes that one out of ten infants in the Lake Superior region have unsafe levels of mercury in their blood. 30,000 health professionals have requested a health impact statement and it is unconscionable that this has not been done. I am a family practice physician and am very concerned about the potential heavy metal exposure that this mine will expose the downstream population to.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
542	Karen Hulstrand	Citizen	To get at the copper, which is only 0.28% of the rock, the exposure of sulfide to oxygen and water will release heavy metals such as arsenic, cadmium, lead mercury, manganese etc. There are many very serious health consequences to exposure to these heavy metals. Arsenic – increases cancers including bladder, lung and hematologic cancers. Increased risk of gout and diabetes. Cadmium - osteoporosis, spinal fractures and renal failure. Half-life in the bones 16 years. Will take five half-lives to clear from the bones – 80 years. Lead – Neurotoxin. Lowers IQ in children, ADHD, ALS and kidney issues. There is no safe level of lead. Mercury – Neurotoxin, brain damage, psychiatric issues. Teratogen, causing birth defects. Manganes - Neurotoxin. Causes Parkinson like neurological disease. Has half-life in bone of 8-9 years. These effects are noted in exposure to each compound in isolation. There is insufficient knowledge of the interaction of these heavy metals in conjunction with each other.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
543	Karen Hulstrand	Citizen	I understand that copper and other minerals are of great value. However, there is no greater value than our public health and clean water. Clean water is becoming scarcer. We need to protect the water, not foreign companies profits. Please deny this permit.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
544	Mike Wenholz	Citizen	Thank you for the opportunity to comment on the draft MPCA NPDES/SDS water quality permit for the proposed PolyMet NorthMet Mining Project (proposed project). As a trained and formerly practiced aquatic toxicologist I have several concerns and recommendations regarding the draft permit. First, I want to thank you for the public meeting you co-hosted with Minnesota DNR on February 8, 2018, regarding this and other permits related to the proposed project. It was well laid out, and the inclusion of the staff who drafted the permits was excellent. I had many questions answered through them, and found them to be informative and easy to talk to. I would, however, ask and suggest that you make a significant change to future public meetings, in regards to the Public Comment Forum. I strongly suggest it is stated clearly from the beginning that the meeting and the Public Comment Forum is for statements directly relevant to the purpose of the meeting, and other types of comments will be cut-off. Further, if anyone starts down a path of comments not related to the purpose, they be cut-off and their comment period be ended. In the case of the PolyMet Forum, there should have been comments only directly related to the draft permits. As it was, over the first hour of comments my best guess is that 85- 90% of the comments had nothing to do with the draft permits, and thus were irrelevant, and thus a waste of people's time that understood what the meeting was for. Most appallingly is that all five of the elected officials that spoke barely had a thing to say about the draft permits – as in maybe 2-3 sentences among all of them combined. Again, please change this in future public meetings. As one who has worked in rule-making in the past, I know this can be done.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
545	Mike Wenholz	Citizen	In regards to the draft NPDES/SDS water quality permit, I have the following questions, comments, and/or recommendations: Section 6.2.1 and 6.4.1 and 6.5.1 Why is the permittee allowed 21 days to submit a DMR? It seems in today's world submitting a DMR should not take 21 days. It is my understanding from talking to staff at the public meeting that the 21 days is not a requirement in law, and was chosen by the permit drafters. If there are any exceedances or low flow rates, you may not know about them for up to 21 days. This seems antiquated, and inappropriate given the scope of this project and location adjacent to sensitive natural resources. I recommend a time no longer than 7 days to submit the monthly DMR.	The MPCA considered the comment but did not revise the permit to shorten the timeframe to submit DMRs. The 21-day reporting window is a standard requirement for all permits statewide to allow time for laboratory analysis of the samples, QA/QC of sample results, and for the verified sample results to be submitted.
546	Mike Wenholz	Citizen	Section 6.3.2 Why does the permit not include WET limits? The permit does not explain why. Given the scope of this proposed project, and the nature of copper-sulfide mining this appears a great oversight. At a minimum I recommend a WET limit for copper and nickel, and for sulfate if available.	In light of the comment, the permit has been revised to include an effluent limit of 1.0 TUc for Chronic Whole Effluent Toxicity (WET).
547	Mike Wenholz	Citizen	Section 6.3.2 – 6.3.7 Why are toxicity tests only required quarterly for one year, and then annually after that (for presumably 20 years given the stated projected project length)? It is my understanding from talking to staff at the public meeting that 1) this is standard for MPCA NPDES/SDS permits and 2) that there is not an absolute stated in rule. This is not simply a standard project, and should get more than a standard toxicity testing protocol, again especially given the nature of copper-sulfide mining and the location adjacent to sensitive natural resources. Toxicity testing is the one level of testing and monitoring that directly ties the discharge to biological effects, and is certainly warranted more often that annually for 19 years. I strongly recommend a toxicity testing timeline of quarterly for the entire time of mining and processing. Given the scope and the general profitability mentioned related to this proposed project, it would not be an unreasonable or unnecessary burden to do so.	In light of the comment, the permit has been revised to require quarterly WET testing following commencement of the discharge.

548	Mike Wenholz	Citizen	Section 6.3.11 Only two species are being required for toxicity testing: Pimephales promelas and Ceriodaphnia dubia. Given that copper is highly toxic to plants, and that a good amount of the discharge is to wetlands, why is a wetland and/or freshwater plant species not being included as a requirement for toxicity testing? It is my understanding from talking to staff at the public meeting that it is not standard for MPCA NPDES/SDS permits to include a plant species for toxicity testing. This is not simply a standard project, and should get more than a standard toxicity testing protocol, again especially given the nature of copper-sulfide mining and the location adjacent to sensitive natural resources. I strongly recommend including a wetland and/or freshwater plant species in addition to Pimephales promelas and Ceriodaphnia dubia as a requirement for toxicity testing. Additionally, I strongly recommend the plant species meet a toxicity testing timeline of quarterly for the entire time of mining and processing, as recommended above. Given the scope and the general profitability mentioned related to this proposed project, it would not be an unreasonable or unnecessary burden to do so.	The MPCA considered the comment but determined that the required test species for WET testing are sufficient and inclusion of a plant species is not needed. The WET testing requirements for this permit include the same test species that are required for other major dischargers statewide. In addition, protocols for the testing of plant species are not as fully developed for regulatory use and the availability of laboratories capable of conducting the testing are more limited than for the standard test species.
549	Mike Wenholz	Citizen	Section 6.3.18 Why is the permittee allowed 45 days to reconduct toxicity testing following a positive (failed) test? It should not take 45 days to retest. It is my understanding from talking to staff at the public meeting that the 45 days is not a requirement in law, and was chosen by the permit drafters. We should not need to wait up to 45 days to learn if discharges are continuing to be toxic, following a positive (failed) test. This is especially problematic if the testing frequency is not increased from quarterly for one year and annually afterward. This seems antiquated, and inappropriate given the scope of this project and location adjacent to sensitive natural resources. I recommend a time no longer than 14 days to commence reconducting toxicity testing or 21 days to complete reconducted toxicity testing.	The MPCA considered the comment and determined that the existing language in the permit is appropriate. The 45 day period for retesting takes into account the reasonable logistics related to collecting samples, performing the tests, conducting QA/QC and reporting the results, and is the same as required for other permits requiring WET testing.
550	Mike Wenholz	Citizen	Section 6.10.48 Why does the permittee have up to 14 days to notify the MPCA of the cessation of operation of the pump-back system? This seems antiquated, and inappropriate given the scope of this project and location adjacent to sensitive natural resources. I recommend a time no longer than 3 days to notify the MPCA. Section 6.10.49 Why does the permittee not have to begin sampling/monitoring waters downstream of the plant site until 18 months after the initiation of the wastewater treatment system? This seems very inappropriate given the scope of this project and location adjacent to sensitive natural resources. I recommend beginning sampling/monitoring waters downstream of the plant site within 1 month after the initiation of the wastewater treatment system.	The MPCA has modified the permit to require notification that operation of the pump-back system has ceased within 7 days instead of 14 days. The notification time for cessation of the pumpback system has been revised from 14 days to 7 days.
551	Mike Wenholz	Citizen	Why is "dry stacking" not required, while a wet slurry process is allowed? Dry stacking is noted to be a more protective approach. I recommend "dry stacking" be required rather than using a wet slurry process. Why is a liner system not required under the holding pits? I strongly recommend requiring liners to be installed under the holding pits. Additionally, I strongly recommend a treatment capture system be installed below the holding pits, if this feature is not already required. It was unclear if this is currently required. Thank you for the opportunity to provide comments regarding the draft MPCA NPDES/SDS water quality permit for the proposed PolyMet NorthMet Mining Project. Please contact me if you have any questions regarding these comments. Please also provide me with responses to my questions and recommendations. Mike Wenholz 5324 Tioga Street, Duluth, MN 55804 wenholzstuff@yahoo.com	Alternatives for tailings basin design were addressed in the EIS, and the EIS was deemed adequate. Because the FTB seepage containment system is designed and will be operated to maintain an inward hydraulic gradient which will prevent the outward migration of pollutants, a liner under the containment system is not warranted. (The NPDES/SDS permit has been revised to include a specific requirement that the FTB seepage containment system shall be constructed and operated to maintain an inward hydraulic gradient across its cutoff wall.
552	Margaret Watkins	Grand Portage Band of Chippewa	Dear MPCA: Please find attached Grand Portage comments regarding the PolyMet draft NPDES SDS permit MN0071013. Sincerely, Margaret Watkins Grand Portage Water Quality Specialist	Background statement for comments to follow. No response needed.
553	Margaret Watkins	Grand Portage Band of Chippewa	Comments related to operation of NPDES permit are attached. The comments from the Grand Portage Water Quality Specialist, Margaret Watkins, requests MPCA requires strict effluent limitations and carefully regulate PolyMet.	See Responses to Comments 799 through 829.
554	Frederick Campbell	Citizen	These comments pertain to the MPCA's proposed Polymet water quality permit. Figure 4 - Mine Site Layout. The figure shows that there is an insufficient number of compliance and indicator monitoring wells in bedrock and surgical aquifers in the area downgradient (south) of the equalization basin area.	The MPCA assessed the location of each individual well as dictated by the purpose of each well and how each well fit into the overall monitoring well network. This approach was coupled with the incorporation of existing monitoring wells (with a record of baseline water quality) and practical considerations such as access and potential disturbance to wetlands. The monitoring well network in the permit was developed to meet multiple goals, which includes monitoring the performance of engineering infrastructure; serving as indicators for the early detection of potential project impacts; and determining compliance at downgradient locations closer to the property boundary. The monitoring well network required by the draft permit is robust and includes 78 wells/piezometers at the mine site and 40 monitoring wells/piezometers at the plant site. The wells monitoring the mine site near the OSLA and EQ Basin are adequate for determining potential project impacts and determining compliance at downgradient locations. The MPCA has considered this comment and in addition to the wells identified in the draft permit, the MPCA will be requiring an additional bedrock well to be located downgradient of the tailings basin. In addition, the draft permit requires an annual assessment of the suitability of the monitoring network, and requires the proposal of additional/alternative monitoring locations in the event the original network is not sufficient, based on the ongoing collection of data (including flow direction and groundwater quality). If the MPCA determines in the future that the monitoring well network is insufficient, the agency has authority under Minnesota Rule part 7001.0170 to modify the permit, and authority under part 7001.0150 to require sufficient monitoring to determine compliance.
555	Frederick Campbell	Citizen	In addition, the proposed groundwater containment system does not adequately cover the southern portion of the mine site area, especially the east pit and category 2 and 3 stockpile areas. Figure 6 - Plant Site Layout (including Tailings Basin Layout).	The Category 1 stockpile Containment System is not intended to cover the area of the Category 2/3 stockpile or the East Pit. The temporary Category 2/3 stockpile (as well as the temporary Category 4 stockpile and Ore Surge Pile will be constructed with robust liner systems and leachate/runoff collection systems negating the need for a separate groundwater containment system at that location.
556	Frederick Campbell	Citizen	The Final EIS and the proposed permit should include a contingency design and plan for a groundwater containment system at the Plant Site, with an emphasis and focus on the Tailings Basin area. Reasonable Potential Analysis (pages 31 -) The Final EIS and this analysis did not consider any contingency plans for catastrophic events such as flooding, dike failure and collapses of various types. This analysis also failed to consider the possibility that the proposed wastewater treatment system (WWTS) may not adequately control or capture discharges or releases from source areas (mine pits, tailings basin, waste rock stockpiles , etc.).	The permit has been revised to include specific requirements for "system redundancy" at the FTB seepage containment system in the form of redundant, or quickly accessible (within 48 hours), pumping capacity, spare piping and other spare parts necessary to prevent an overflow/unauthorized discharge. See Permit at 5.176.78 and 5.179.149. The project includes engineering controls such as stockpile liner systems, seepage capture systems and wastewater storage and conveyance systems that are designed to control wastewater and runoff from the mine site so that it can be conveyed to the WWTS for treatment. The effectiveness of these controls were evaluated in the EIS and the water quality permit requires their installation/operation. The Annual Comprehensive Performance Evaluation Report required by the permit will provide an assessment of the performance of the engineering controls, including liner systems, using permit-required monitoring results and internal operational data to ensure that management of wastewaters generated at the mine site is adequate.
557	Frederick Campbell	Citizen	As a result the proposed groundwater and surface water monitoring systems designs are inadequate to protect the environment from potential releases. In addition, the pilot test results are biased because of the failure to consider these other factors. The proposal for only one internal performance monitoring point (WS074) is insufficient to adequately ensure that the WWTS is operating as designed.	See response to Comment 554. The MPCA considered the comment but disagrees with its conclusion. The MPCA considers the 6 month pilot test as reasonable evidence that the treatment technology can work for the volume and composition of the wastewater expected. Although the pilot test focused primarily on sulfate removal from wastewater with expected sulfate concentrations, for a portion of the test the influent to the pilot system was seeded with metals to more closely approximate expected metal concentrations. The internal monitoring station WS074 is the primary point for monitoring the final effluent from the WWTS. Contrary to what is implied by the comment, the permit also requires monitoring of the intermediate effluents from the mine water chemical precipitation (WS072) and mine water membrane treatment (WS073) components of the WWTS.

558	Frederick Campbell	Citizen	Metals and other parameters of concern. The lists of parameters in Groups A, and C are inadequate to protect the environment from potential releases at the Mine Site and the Plant Site areas. The parameters listed in Groups A, B, and C are limited to the most obvious metals and related ions, such as sulfate. The lists of potential parameters of concern should include a number of organic compounds, such as petroleum (DRO, GRO), total organic carbon (TOC), and other organic s and inorganic that are related to blasting agents and other process-related chemicals (Plant Site). As a result, Tables 11 and 12 should include plans and schedules for regular monitoring of groundwater and surface water for these other potential parameters of concern. I hereby submit these comments as a citizen of Minnesota. However, because of my previous work experience at the Minnamax Babbitt copper- nickel deposit and my previous work experience at the MPCA (1988-2017), I feel these comments have technical validity. Thank you for considering these comments.	The MPCA has considered this comment and determined that monitoring for organic compounds in the various wastewaters and in groundwater is not warranted. Monitoring of other indicator parameters (such as chloride, sulfate and/or specific conductance) will sufficiently identify the potential presence of impacted water at these locations. Although not directly related to the comment (which primarily addressed groundwater and surface water monitoring), the permit does require nitrogen /phosphorus monitoring of the WWTS effluent, and the monitoring required for permit reissuance does include DRO and GRO.
559	Mae Gackstetter	Citizen	My name is Mae Gackstetter and I am a concerned citizen living and using water in the downstream community of Duluth, MN. The MPCA does not exist simply to enforce minimum standards, but to be a steward of our lands, environment, natural resources and to act in the best interest of all Minnesotans. The MPCA is not here simply to ensure that Polymet and other mining groups fill out the paperwork, check the boxes and dot ever i or cross every t, but to determine if the projects they propose are really good for the state of Minnesota and its people. It is with this in mind that I encourage the MPCA to deny the Polymet water quality permit as it currently stands.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
560	Mae Gackstetter	Citizen	The EPA records a 100% failure rate of this type of mining to control pollution. This type of copper sulfide nickel mining is especially dangerous in a water-rich environment where no successful mine of this type has ever been operated. The EPA further estimates a 93% probability of failure with regard to water collection and treatment during operation of the Polymet mine and a certainty of failure if the mine is abandoned. Polymet promises that less than 1% of contaminated waste water from the tailings basin and less than 5% of contaminated water from the mine site would escape untreated into the ground water. However, the MPCA permit imposes no conditions that Polymet demonstrate it has upheld this promise and proposes no way of monitoring for waste water contamination.	The comment is correct that the permit does not specify a required seepage capture efficiency. Instead, it relies on the maintenance, and verification, of an inward hydraulic across the barrier component of the system. The containment systems function on the principle of maintaining an inward hydraulic gradient across the barrier wall that is part of the system design. If the hydraulic gradient is inward, hydraulic head is greater outside the basin and water cannot escape -- instead, water will tend to flow into the capture system. The permit has been revised to specify the required design components of the seepage containment systems and stipulates that the containment systems must be constructed and operated to maintain an inward hydraulic gradient across the cutoff wall. The permit requires monitoring of water levels on both sides of the cutoff wall to verify the presence of an inward gradient. If an inward gradient is not maintained, the Permittee is required to take corrective actions immediately to restore the inward gradient. The MPCA has removed the "temporary conditions" language from the draft permit and has revised the language to state that if an inward gradient is not reestablished within 14 days of detection, it is a violation of the permit.
561	Mae Gackstetter	Citizen	The proposed tailings basin and earthen dam are far from 'state of the art'. The current most safe standard, especially in water-rich environment, is to dry mine waste and store it in dry form. But this is more expensive and Polymet shows no interest in doing this, even though it is the best available technology. The proposed tailings basin and earthen dam are very similar to the set-up that failed catastrophically at Mt. Poly in Canada in 2014. The dam breach there caused massive flooding and water contamination, turning nearby Lake Quinault into a permanently contaminated body of water that has effectively become the tailings basin for the mine site and severely impacting local businesses. Residents and mine workers affected by the Mt. Poly disaster describe a harrowing situation with no emergency response plan for local or downstream communities. Emergency responders heard about the disaster via Facebook and phone calls from family and friends working at the mine. There is no reason to believe that a dam failure at the proposed Polymet site would be any different, with no emergency response plan stipulated in the permit.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
562	Mae Gackstetter	Citizen	A dam breach could result in significant flooding, along with both surface and ground water contamination from the mine site all the way to Duluth and Lake Superior. Such a disaster would have a large negative impact on local small businesses, tourism and the local economy with no guarantees from Polymet regarding clean-up or compensation, other than hugely inadequate insurance. Citizens who lived through the Mt. Poly disaster in Canada and continue to be affected by it, are so worried about the prospect of a dam breach happening at the proposed Polymet site, that an Amnesty International delegation from Mt. Poly recently visited Duluth to meet with government officials and educate the public about their experience with the Mt. Poly disaster and how similar it is to the Polymet proposed set-up. With no emergency response plan for the immediate area, yet alone downstream communities and inadequate consultation with downstream communities, it is not hard to imagine a disaster like Mt. Poly devasting everything from Hoyt Lakes to Duluth and beyond.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
563	Mae Gackstetter	Citizen	The draft MPCA wastewater permit fails to control or even monitor the effects of potential polluted seepage on adjacent wetlands and stream, in clear violation of the Clean Water Act requiring the protection of surface water from pollution released through connected groundwater.	See response to Comment 510.
564	Mae Gackstetter	Citizen	In addition, Minnesota rules state that copper-nickel mine tailings basins must be drained within 3 years of the start of mine closure and reintegrated into the natural watershed. So why does the MPCA permit allow Polymet to maintain a perpetual tailing pond and very long term isolation of the mine's toxic hydrometallurgic waste? Why is it acceptable for Polymet to permit and Glencore to operate a mine that will require perpetual water treatment, in clear violation of MN laws stating that these facilities should be maintenance-free after closure.	Comment noted. This comment pertains to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to this comment.
565	Mae Gackstetter	Citizen	Not only do the MPCA permits bend the rules for Polymet when it comes to mine waste management, but it also gives Polymet special permissions with regard to water usage. Even though the Polymet mine would use more that 5 million gallons of water per day, the MPCA has not allowed other Great Lakes States or Canada to review the Polymet plan under the Great Lakes Compact, a flagrant violation of this agreement.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
566	Mae Gackstetter	Citizen	In addition, the DNR draft appropriations permit would allow 10x as much water to be removed from the Partridge River as claimed by Polymet's final environmental impact statement. The impact of removing this much water from the local environment on streams, lakes and groundwater reserves has not been adequately studied and is likely to significantly impact the local watershed. Additionally, the draft water appropriations permit would allow Polymet 6.175 billion gallons of water per year, 85% of the public water usage of Duluth, Proctor and Hermantown combined. It is naïve to think that this level of water usage will not have a significant impact on water stores.	Comment noted. This comment pertains to issues considered in the development of the DNR Water Appropriation permits. No changes were made to the draft permit in response to this comment.
567	Mae Gackstetter	Citizen	None of the MPCA or Polymet permit documents or EIS documents calculate the value of Lake Superior Basin ground water that could be affected through appropriation or pollution. Instead, Polymet would pay only $8 million for the water used.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
568	Mae Gackstetter	Citizen	Furthermore, the Polymet mine project is located in and impacts resources in the 1854 Treaty Ceded Territories and upstream of Fond du Lac reservation, which would negatively impact aquatic habitats for wild rice and fishing that are already under threat from previous pollution. Polymet's own EIS concedes that in cannot maintain water sulfide level acceptable for the cultivation of wild rice, another flagrant violation of the treaty.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
569	Mae Gackstetter	Citizen	Also, there is a high risk of methyl mercury contamination in fish that are an important source of food and culture for tribal and low income communities, not to mention a beloved treat for local anglers and tourist, who come to enjoy the area and support local businesses. But the Polymet project stand to have a disproportionate burden on tribal and low income communities that rely on local rice, plant, water and fish resources, especially infants and children in these communities who are more susceptible to toxic pollutants, like mercury in fish and arsenic or manganese in drinking water. Yet, in review and drafting permits, the DNR has failed to heed the recommendations of tribal governments nor the scientific evidence produced on their behalf.	Comment noted. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment. The control of sulfate in the discharge to less than 10 mg/L will minimize the potential for increased methylation of mercury.
570	Mae Gackstetter	Citizen	Consultation has meant agency staff receive information from the tribes, but seem to disregard it in decision making. Why are the conclusions of scientists working for Polymet held above those of scientists working on behalf of affected communities or as independent agents? Tribes with treaty reserved rights to hunt, fish and gather near the Polymet mine site have not consented to destruction and pollution or resources needed to exercise these rights. This does not seem in the best interest of ALL Minnesotans.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

571	Mae Gackstetter	Citizen	Additionally, the MPCA refuses to independently evaluate the potential impacts of the project on human health using an open and public health assessment process (HIA) despite the fact that 30,000 MN healthcare professionals requested an HIA to assess risks of pollution on workers, infants, childres and everyone living around and downstream from the project. Several area physicians and healthcare professionals continue to passionately voice their concerns. Instead, the MPCA has allowed Polyment to control all studies and choose certain assumptions to deny health risks. PolyMet claims that pollution will meet "evaluation criteria," but its criteria won't protect human health. For example, PolyMet has set a criterion of 1506 micrograms per liter for manganese at the tailings pile. This is 15 times higher than the health risk limit set by the Minnesota Department of Health to prevent brain damage in infants, children, and adults. Even with all of its optimistic predictions, the PolyMet project would increase arsenic near the tailings pile by up to 417% - and increase arsenic in Colby Lake drinking water by 38.5%. This would increase the risk of cancer for Hoyt Lake residents above the level of concern in Minnesota's cancer risk rule. The PolyMet project would degrade Minnesota surface water quality, violating Minnesota water quality standards for toxic pollution in the wetlands near both the mine and the tailings pile.	The issue related to a health impact assessment was addressed as part of the EIS process. The derivation of the evaluation criteria for manganese in groundwater was described in the EIS; it was based on existing background conditions. As concluded in the EIS, the project is not predicted to increase existing manganese levels in the groundwater. Likewise, the EIS concluded that the engineering controls to be used at the Mine Site (and required by the NPDES/SDS permit) will not cause an exceedance of the water quality standard for arsenic in Colby Lake.
572	Mae Gackstetter	Citizen	This extreme use of water resources, destruction of wetlands, violation of treaty rights and huge risk to downstream communities with inadequate fail-safes, has all been touted as 'safe' and 'worth the risk' for a project that will be 99% waste and increase global copper by only 0.2%. The rock mined by Polymet is a limited low-grade ore body, which carries a huge climate change and environmental impact that would result in a few 100 jobs for 20 years at best. Despite this huge carbon footprint of the Polymet project, along with the fact that copper recycling uses 85-90% less energy, while providing long-term sustainable jobs, the MPCA's permitting and environmental review process fails to consider this potential to meet employment and market needs for non-ferrous metals, instead of allowing for a risky open-pit mine with minimal impact on the global copper market or even domestic copper resources. We have other options than just pulling metals out of the ground and, for a sustainable future, we need to start utilizing them. Let's start using alternatives before it is too late and we have destroyed the beautiful environment that we are lucky enough to call home. Don't continue the cycle of environmental destruction and unsustainable, short-term economic opportunities. Deny the Polymet Water Quality Permit and do better.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
573	Jacob Crawford	Water Legacy	March 16, 2018 Minnesota Pollution Control Agency PolyMet Draft Permit Comments — 4th Floor 520 Lafayette Road North St. Paul MN 55155-4194 RE: Draft PolyMet NPDES/SDS Permit and Section 401 Certification Citizen Comments Dear Commissioner Stine, Attached and delivered to you today please find 584 comments submitted to us online by citizens asking the Minnesota Pollution Control Agency to deny the PolyMet NorthMet Project a water pollution (NPDES/SDS) permit and Clean Water Act section 401 certification. These comments have been collected via our website since early March. The names and identifying information for each commenter follows each comment's text. Of the 584 comments submitted, 563 contain the following language verbatim:	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
574	Jacob Crawford	Water Legacy	Dear Commissioner Stine, I strongly urge the MPCA to deny water pollution (NPDES/SDS) permit and deny the Section 401 certification for the PolyMet copper-nickel mine project.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
575	Jacob Crawford	Water Legacy	The proposed NPDES/SDS permit is weak and fails to control the biggest threat from sulfide mining – the seepage of contaminated wastes to groundwater and then to drinking water and surface water from mine pits, waste rock stockpiles, tailings basins and other sulfide mine waste storage facilities.	See response to Comment 510.
576	Jacob Crawford	Water Legacy	The Section 401 certification relies on PolyMet's assumptions, exclusions and misleading information to claim that the PolyMet sulfide mine would not violate water quality standards, degrade water quality, and endanger the environment and human health.	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.
577	Jacob Crawford	Water Legacy	The PolyMet draft NPDES/SDs permit and draft 401 certification would conflict with federal and state laws and would jeopardize Minnesota water quality, natural resources, health and finances.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
578	Jacob Crawford	Water Legacy	The MPCA draft water pollution permit for the PolyMet sulfide mine wouldn't set limits on polluted seepage through groundwater to drinking water or surface water. *The MPCA draft water pollution permit for the PolyMet wouldn't even provide appropriate monitoring; PolyMet's pollution seeping from groundwater and welling up in wetlands and streams in violation of the Clean Water Act could go completely undetected.	See response to Comments 510 and M-475-A.
579	Jacob Crawford	Water Legacy	The MPCA draft section 401certification would ignore the deficiencies in the water pollution permit and erroneously claims that the PolyMet sulfide mine project would not violate water quality standards or degrade Minnesota water quality.	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.
580	Jacob Crawford	Water Legacy	The MPCA, along with other State agencies refused to evaluate impacts on human health from the PolyMet mine project through an open and public health impact assessment (HIA) process, even though groups representing 30,000 Minnesota medical and health professionals asked for an HIA to assess threats including brain damage to fetuses, infants and children from mercury contamination of fish.	The issue related to a health impact assessment was addressed as part of the EIS process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
581	Jacob Crawford	Water Legacy	Now, the MPCA draft section 401certification would accept PolyMet's exclusions, assumptions and junk science to erroneously claim that the PolyMet sulfide mine project would not endanger the environment and human health.	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.
582	Jacob Crawford	Water Legacy	Please accept your Agency's mission as a protector of Minnesota waters, fish, wild rice, wildlife, wetlands and human health not the protector of foreign mining companies seeking profit at our expense. I ask you to reject and deny the draft water pollution (NPDES/SDS) permit and the draft 401 certification for the PolyMet copper-nickel sulfide mine project.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
583	Jacob Crawford	Water Legacy	The remaining 21 comments oppose the PolyMet permit and certification, but amend the above text to provide specific comments from the commenter. These comments gathered online are submitted with a Declaration verifying the accuracy of commenter information and the comment collection process. Thank you for considering the views of these citizens across the State of Minnesota who want to have their voices heard regarding the PolyMet permitting process. Please feel free to contact me at 443-500-2952 if you have any questions about the submitted comments. Respectfully yours, s/Jacob Crawford Jacob Crawford WaterLegacy Communications Coordinator	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
584	Jacob Crawford	Water Legacy	The comment submission included four attachments.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
585	Mark Vesley	Citizen	The MPCA must not grant the permits to allow the construction of PolyMet's proposed "hydrometallurgical residue facility". The company's plan to contain liquid mine waste behind a collapse-prone dam indefinitely is absurd. Duluth recently witnessed a "thousand-year" flood event. When the next catastrophic rainfall comes to northern Minnesota, as it surely will, and the PolyMet dam fails and releases acidic heavy-metal slurry into the St. Louis River watershed and then Lake Superior, what will the MPCA say? "We're sorry?" "We didn't think this would happen?" "Oh, well?" Sulfide-ore mining is simply unacceptable in a water-rich environment.	The permit requires a geotechnical investigation of the proposed location of the HRF for site suitability/stability before it can be constructed. As currently proposed, the HRF will be constructed in several lifts, each of which will be timed to ensure the usable capacity of the HRF is not exceeded. The final design of the HRF, which is subject to MPCA review and approval, will be expected to address management of storm events.
586	Darren Vogt	1854 Treaty Authority	Dear Minnesota Pollution Control Agency, The purpose of this letter is to provide comments on the Draft National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Permit-MN0071013 and 401 Certification. The 1854 Treaty Authority is an inter-tribal natural resource management agency governed by the Bois Forte Band of Chippewa and Grand Portage Band of Lake Superior Chippewa, both federally recognized tribes. The organization is charged to preserve and protect treaty rights and related resources within the 1854 Ceded Territory. The 1854 Treaty Authority would like to highlight concerns related to the proposed project that we feel are not adequately addressed in the NPDES/SDS Permit and 401 Certification. Please note that these comments are submitted by 1854 Treaty Authority staff with the understanding that member reservations may submit comments from their own perspective.	Background statement for comments to follow. No response needed.

587	Darren Vogt	1854 Treaty Authority	NPDES/SDS Permit Responsibility to Legacy Water Quality Issues We have concern over language in the Permit to Mine (PTM) Appendix 15: Financial Assurance, Attachment 0: Memorandum from MPCA to DNR on Legacy (Memo) and how it pertains to the NPDES/SDS permit. On page 2 of the Memo, it states "It is important to note that operation of the proposed NorthMet project resolves any legacy water quality issues at the ferrous Basin" in both the Question and MPCA Response sections. This statement appears to absolve PolyMet of its obligation to mitigate water quality issues at the former LTVSMC tailings basin once operation commences. This assumes operation of the Flotation Tailings Basin (FTB) seepage capture and collection system and wastewater treatment system (WWTS) will effectively capture and treat the contaminated discharge that is already occurring and all the proposed discharge. This is a substantial assumption and we want to ensure that operation of the proposed NorthMet project does properly address PolyMet's obligation to legacy water quality issues at the LTVSMC tailings basin. Resolution should be based on actual results for as long as operation of the FTB seepage capture and collections system and WWTS are necessary (perhaps perpetuity). We are also concerned over language in the Memo that suggests PolyMet will not be required to treat or mitigate legacy pollution at the LTVSMC tailings basin if they are permitted but do not become operational. The Memo concludes that if the NorthMet project never becomes operational after PTM approval and the state becomes responsible for closure of the tailings basin (scenario II), "No treatment/mitigation for alkalinity, hardness, total dissolved solids (I'DS), specific conductance, sulfate, and mercury should be required." This cannot be allowed as it would violate the Clean Water Act. This issue needs to be clarified and addressed before final permit decisions are made.	The existing NPDES permit controlling legacy water quality issues will remain in place, as will the associated consent decree. As discussed in response to Comment 725-B, the Legacy Memo addresses a specific scenario in which the state becomes responsible for actions to mitigate legacy pollution.
588-A	Darren Vogt	1854 Treaty Authority	Water Treatment and Seepage Collection Effectiveness of the proposed water treatment and seepage collection methods are vital to the project meeting water quality standards. Analysis and design detail are lacking in the NPDES/SDS permit. There still seems to be uncertainty in the method of water treatment and we are concerned that proper testing of treatment technologies is lacking for the project at full scale. Adding to this uncertainty is the additional mine site process water being treated at the WWTS due to the elimination of the wastewater treatment facility (WWTF) at the mine site, which was not evaluated in the Final Environmental Impact Statement (FEIS).	The permit has been revised to include greater detail regarding required facility design of the FTB Seepage Containment Systems, Category 1 Waste Rock Stockpile Groundwater Containment System, and the Wastewater Treatment System. As described in response to Comment 707-C, The MPCA has revised the permit to require construction of the seepage collection to meet the standards in the application. Issues raised in this comment regarding efficacy of the WWTS were thoroughly addressed in the EIS. The GoldSim modeling conducted for the EIS considered a range of influent flows and concentrations. If flows are higher than expected, the WWTS could be expanded to handle higher flow or provide additional treatment. The flows are anticipated to increase over time, and there is sufficient expansion capacity available to handle these higher flow rates if they were to occur. To demonstrate that membrane treatment technologies were capable of meeting treatment targets, the company conducted a 6-month pilot testing program using seepage water from the existing tailings basin. For a portion of the test, additional metals were added to the test influent to more closely simulate projected effluent quality. Results of the pilot testing were used in the MPCA's reasonable potential analysis, and MPCA again determined the proposed design is capable of meeting the Operating Limits in the draft permit. In addition, the modeling and pilot testing demonstrated that concentrations of other parameters in the effluent would be far below the water quality standards when the sulfate Operating Limit is met. The proposed treatment components of the reconfigured WWTS are the same as originally proposed. Anticipated flow volumes from the Mine Site to the reconfigured WWTS will remain the same as originally proposed. The location of the proposed mine site treatment system is the only thing that has changed.
588-B	Darren Vogt	1854 Treaty Authority	The seepage collection system around the tailings basin is modeled to have a capture efficiency of 99% (100% of shallow surface seepage and greater than 90 percent of groundwater seepage) along the northern, northwestern, and western portions and 100% along the eastern and southern portions. Description is needed on how this efficiency rate was determined. We question if such a high capture efficiency can be achieved, especially since the current seepage management system on the southern portion of the LTVSMC tailings basin has been far less effective. We also question whether PolyMet will be required to achieve 99% capture efficiency in this or any other pe1mit. We also question whether PolyMet will be required to achieve 99% capture efficiency in this or any other pe1mit. In the NPDES/SDS permit (page 41), it states "The Permittee shall maintain an inward hydraulic gradient across the FTB Seepage Containment System as determined from water level measurements from the paired monitoring wells and piezometers, taking into account temporary conditions that may result from short-term precipitation or snowmelt events." It is not clear how maintaining an inward hydraulic gradient (if feasible) will ensure 99% capture efficiency and it is not stated anywhere in the NPDES/SDS permit if/how a capture efficiency would be estimated. Achieving 99% capture efficiency (as proposed) should be a permit requirement since it is what the FEIS, NPDES/SDS permit and other permits are based on and vital for the project meeting environmental requirements	The Modflow modeling conducted for the EIS indicated that the capture efficiency for both systems would be in excess of 90% and the subsequent GoldSim modeling indicated that degree of capture would be sufficient to protect downgradient surface and ground water quality. See FEIS at 5-7. The draft permit requires that 13 pairs of groundwater monitoring devices (wells and piezometers) at each of the systems be monitored on a monthly basis to ensure that the necessary inward gradient is being maintained. The system consists of one of the pair located just inward of the hydraulic barrier and one just outward of the barrier. The primary purpose of the paired devices is to monitor for the presence and maintenance of an inward hydraulic gradient across the barrier which is accomplished by simultaneous measuring of the water table elevation of the two devices. If there is an inward hydraulic gradient, flow will not move out through the barrier. The draft permit further requires that the performance of the capture/containment systems and the adequacy of the monitoring network be assessed on an annual basis. If an inward gradient is not maintained, the Permittee is required to take corrective actions immediately to restore the inward gradient. If the inward gradient is not restored within 14 days, it is considered a violation of the permit.
589	Darren Vogt	1854 Treaty Authority	Groundwater Flow to the North Significant uncertainties exist with groundwater flows and related contaminated water transport that were not adequately addressed in the FEIS and persist in the NPDES/SDS permit. In particular, the potential for groundwater to flow north from the proposed Mine Site to the existing Northshore Mine, ultimately to the Rainy River Watershed and Boundary Waters Canoe Area Wilderness (BWCAW), has been largely ignored. Little detail is given in the FEIS or NPDES/SDS permit on the potential impacts that would occur if groundwater flows north after mining operations cease and how those impacts could be avoided/mitigated. Given that a northward flow path currently cannot be ruled out, an impacts analysis needs to be conducted to better inform the NPDES/SDS permit and other permits (including 401 Certification conditions). There should also be inclusion of additional analyses performed by the Great Lakes Indian Fish and Wildlife Commission (GLIFWC), that was provided to the Co-lead Agencies, that details how a northward flow path could/will occur since their results have not been refuted.	Regarding the adequacy of monitoring to predict a north flow path, see response to Comment Multiple-543-BN. The monitoring in the permit will allow evaluation of the potential for a north flow path now and in the future.

590	Darren Vogt	1854 Treaty Authority	Of the potential contingency mitigation options provided in the FEIS to inform the NPDES/SDS and other permits (grouting, pit lake depression, ground water extraction wells, and artificial recharge), none of which have supporting literature and/or examples provided to support their potential use nor any detail about the potential cost for implementation and how that would affect financial assurance for the project as a whole. What is clear is that the existence of a northward flow path and the feasibility of using any mitigation option would not be determined until the project is up and running. On page 46 of the NPDES/SDS permit, it states "The Permittee shall provide an assessment on the potential for a north flow path in the bedrock or surficial aquifer north of PolyMet 's property boundary at the Mine Site. The assessment must provide discussion on whether or not a potential for a north flow path exists and the logic for that determination. If the potential for a north flow path exists, the Permittee must include a plan and schedule for MPCA review and approval for adaptive management or mitigation to prevent northward groundwater flow." This is a major concern and inadequacy of the project. Not knowing if there will be groundwater flow to the north (impacting the Rainy River Watershed, an entirely different watershed than what is described in the PTM or supporting documents) and the feasibility of the proposed mitigation options until operations have commenced is unacceptable. If a northward flow path is determined while in operation, it is likely that impacts will have already occurred and mitigation (not avoidance) will be the only option. There should also be an explanation of what will happen if, while in operation, a northward flow path occurs and it is determined that none of the proposed mitigation options are feasible. As the project is currently proposed, this is a possibility and it needs to be addressed.	Regarding the possibility of a north flow path, see response to Comment 589. Similar to the approach around the tailings basin and Category 1 stockpile described in response to Comments 711 & 711-A, the purpose of the north flow path wells is to monitor the hydrogeologic conditions such that it can be confidently predicted whether a north flow path may develop in the future. This can be accomplished by monitoring current and future groundwater elevations along the potential north flow paths; monitoring of groundwater quality is not needed to accomplish this purpose.
591-A	Darren Vogt	1854 Treaty Authority	Unauthorized Discharges On page 62 of the NPDES/SDS permit, it states "Unauthorized Releases of Wastewater Prohibited. Except for discharges from outfalls specifically authorized by this permit, overflows, discharges, spills, or other releases of wastewater or materials to the environment, whether intentional or not, are prohibited. However, the MPCA will consider the Permittee's compliance with permit requirements, frequency of release, quantity, type, location, and other relevant factors when determining appropriate action. [33 USC§ 1342 and Minn. R. 7001.0030.]". We are concerned about how unauthorized discharges from the NorthMet project will be handled. Our understanding is that the purpose of the required monitoring sites in the NPDES/SDS permit are to detect the potential for an unauthorized discharge before it occurs so it can be prevented. Detection of an unauthorized discharge after operation commences can either lead to PolyMet needing to eliminate the discharge or the location may become a permitted discharge. If it becomes a permitted discharge location, PolyMet must then comply with effluent limits for ce1tain parameters that would be included/amended to the NPDES/SDS pe1mit for that location. If/when this occurs, it is unclear in the NPDES/SDS permit what process would be used to bring PolyMet into compliance with the new permitted discharge effluent limits. A schedule of compliance seems likely and we are concerned how much contaminated discharge may occur before it is eliminated, mitigated and/or treated. In some instances, mining facilities have been allowed to be under a schedule of compliance for years, perhaps decades, while only being required to study the problem without actually complying with applicable water quality standards. Many locations of the proposed NorthMet project, especially at the Mine Site (e.g. mine pits, waste rock stockpiles, liners), along the Mine to Plant Pipeline and FTB seepage capture and collections system seem likely to have an unauthorized discharge(s) occur. We suggest including a more detailed process and required actions in the NPDES/SDS permit to address potential unauthorized discharges from the NorthMet project.	See response to Comment 753. The MPCA has added the following language to the permit: "The discharge of treated wastewater from the WWTS must not violate state water quality standards." The requirements of the permit are sufficient to address the potential for unauthorized discharges from the facility. The Annual Comprehensive Performance Report required by the draft permit specifically requires that the effectiveness of each of the major engineering controls (i.e., seepage containment systems, stockpile liner systems, equalization basins) be evaluated based on all relevant monitoring and performance data. NPDES permits do not define the authorities or processes for taking enforcement action. The MPCA's authority to take enforcement is grounded in state statute. The process used to take enforcement is determined by agency judgment based on the facts of the particular case.
591-B	Darren Vogt	1854 Treaty Authority	During consultation with the MPCA on 3/1/2018, it was unclear if the NPDES/SDS permit implies that any unauthorized discharges from the NorthMet project would have to comply with applicable water quality standards. Although it may be implied in the permit that an unauthorized discharge must comply with applicable water quality standards, it seems to leave the state vulnerable when it comes to enforcement. Currently, language in the NPDES/SDS permit (page 62) only specifies unauthorized discharges being prohibited with no mention of those discharges having to comply with applicable water quality standards We have seen instances with other facilities where an unauthorized discharge(s) exceeding applicable water quality standards was not found to be a NPDES/SDS permit violation since there were not any effluent limits in the pe1mit for the location(s). We suggest including additional language in the permit to address this issue. Please append this (or similar) language to the NPDES/SDS permit: "Any exceedance of Clean Water Act or Minnesota water quality standards is a violation of the NPDES/SDS permit'. In addition to strengthening language in the NPDES/SDS permit, we suggest adding effluent limits to all authorized discharge locations (including SD002-SD011) and all monitoring locations to make it clear that PolyMet is required to comply with applicable water quality standards for any/all discharges and to ensure the state has the ability to take enforcement actions for non-compliance.	Station SD001 is where the final effluent leaves the WWTS and is the "splitter box" where the effluent is distributed to outfalls SD002-SD011. Water quality samples collected at SD001 are entirely representative of the quality of water discharged at SD002-SD011. Limits apply at SD001 as well as the internal monitoring station, WS074, where the operating limits apply. The MPCA has added language to the permit stating the discharge of treated wastewater from the WWTS must not violate state water quality standards. Other discharges are not authorized by the permit.
592	Darren Vogt	1854 Treaty Authority	Wild Rice We are concerned about current and future impacts to wild rice in downstream waters. The MPCA needs to recognize Second Creek as a wild rice water in the NPDES/SDS permit and other relevant permits. There is currently a surface water discharge from the LTVSMC tailings basin south seepage management system to Second Creek at SD026, linked to legacy water quality issues PolyMet is now responsible for, that would not be an authorized discharge location in the NPDES/SDS permit and far exceeds the 10 mg/L wild rice sulfate standard. There has been little detail provided on how the south seepage management system will be improved to reach 100% capture efficiency as proposed and eliminate this discharge, which is a concern since the current design has been far less effective. Design details to improve the south seepage management system have been deferred until after the PTM is issued, so we question if 100% capture efficiency is even possible. If this discharge continues under the proposed NorthMet project, it needs to be treated as an unauthorized discharge and appropriate actions need to be taken to eliminate/mitigate/treat the discharge and meet applicable water quality standards including the wild rice sulfate standard of 10 mg/L.	An NPDES permitting action is not the appropriate procedure to revise water quality standards under the Clean Water Act. See 40 C.F.R. § 131.20. Regarding the south seepage capture, see response to comment Multiple-543-AM. All water from the SD026 location must be collected by the South Seepage Management System and pumped to the WWTS for treatment and discharge via SD002-SD011 or directed back to the FTB for reuse. The MPCA revised the language of the permit in light of the comment to state that a direct discharge from the south seepage management system to former SD026 is prohibited. See permit at 5.176.59. The permit contains an Operating Limit of 10 mg/L sulfate for the discharge from the WWTS to Second Creek. In addition, the MPCA has added the following requirements to the permit to address concerns regarding requirement for constructing/upgrading the South Seepage Management System: "The Permittee shall construct the FTB South Seepage Management System as an upgrade or replacement of the existing temporary surface seepage pumpback system located upstream of former Cliffs Erie outfall SD026. The South Seepage Management System shall be designed and constructed to collect seepage from the FTB in this area such that there will be no direct discharge of seepage to surface waters." Regarding the applicability to existing legacy discharges, see response to Comment Multiple-543-CI. Legacy discharges from the basin are authorized by a different NPDES permit. Regarding the enforceability of the operating limit, see response to comment Water-718-B. Regarding efficacy of the south seepage capture system, see response to Comment 588-B.
592-A	Darren Vogt	1854 Treaty Authority	Wild rice exists upstream in the Embarrass River from the draft MPCA staff recommended definitions of water used for production of wild rice (compliance points) that were provided in the FEIS to info1m the NPDES/SDS permit and other relevant permits. In the Partridge River, the 2009 survey identified rice near SW-004b, also upstream of the proposed compliance point. Currently, the wild rice water quality standard is not being met in po1tions of the Embanass and Partridge river systems. The FEIS states that the wild rice sulfate standard would be met for the Embanass River, assuming the seepage capture and collection system would capture seepage presently going to the Embairnss tributaries. However, the Partridge River will exceed the standard during low-flow conditions. We question how this will be handled in the NPDES/SDS permit when monitoring at/near these locations indicates exceedance of the wild rice sulfate standard.	Poly Met has incorporated into the Project a design of the WWTS that will meet a 10 mg/L concentration for sulfate at the point of discharge into the Project's receiving waters. The MPCA has included an operating limit of 10 mg/L for sulfate in the permit and thus will not cause or contribute to an exceedance of the wild rice sulfate standard in the Partridge River. The sulfate operating limit is an enforceable limit and an exceedance of this limit is a violation of the permit. In addition, all water from the SD026 location will be collected by the South Seepage Management System and pumped to the WWTS for treatment and discharge via SD002-SD011 or directed back to the FTB for reuse. A direct discharge without treatment at SD026 is prohibited. The permit contains an Operating Limit of 10 mg/L sulfate for the discharge from the WWTS to Second Creek. To further address concerns raised in the comment, the MPCA added a requirement prohibiting direct discharge from the South Seepage Management System to SD026.
592-B	Darren Vogt	1854 Treaty Authority	We also remain concerned about enforcement of the existing wild rice standard of 10 mg/L for this project. It is our understanding that PolyMet plans to meet this approved standard, and it is an enforceable limit in the permit. However, legislative pressures have limited the MPCA enforcement of this approved standard in the state (perhaps a violation of the Clean Water Act), and we question if this could impact permitting for this project. Any formal and approved changes to the wild rice standard may also impact future permitting.	See response to Comment 592-A. In addition, the MPCA notes that the permit includes an operating limit of 10 mg/L for sulfate in the permit. The operating limit is an enforceable limit and if the operating limit is exceeded, it will be a violation of the permit.

593	Darren Vogt	1854 Treaty Authority	Sulfate Limit at WS074 At the waste stream monitoring location WS074, the proposed sulfate limit of 10 mg/Lis to be rep01ted as an annual average instead of a monthly average like copper. This is a concern as it may allow for periodic (perhaps seasonal) discharges of elevated sulfate concentrations (greater than 10 mg/L) from WS074 out through the WWTS at SD00I, which does not have an effluent limit or required monitoring for sulfate. To date, there has not been evidence to support periodic/seasonal discharges of elevated sulfate having a lesser effect on wild rice as long as the annual average sulfate concentration of 10 mg/L is maintained. We suggest the sulfate limit of 10 mg/L be reported based on a monthly average concentration instead of the proposed annual average to lessen/eliminate the potential for periodic/seasonally elevated discharges of sulfate.	The operating limit for sulfate applies to the rolling average annual sulfate concentration at WS074, calculated as the rolling average of the most recent 12 calendar monthly average sulfate values. The annual average was used because recent research showed wild rice did not respond to shorter-term fluctuations in sulfate concentrations. The operating target of 9.0 mg/L as a monthly average is intended to trigger adaptive management to prevent the discharge from exceeding 10 mg/L.
594	Darren Vogt	1854 Treaty Authority	Hydrometallurgical Residue Facility (HRF) On page 10 of the NPDES/SDS permit, it states "The HRF is designed as a closed system: no water from the HRF will be released to the environment through overflow or outlet structures. The HRF is designed with a double liner with a Leakage Collection System between the two liners to prevent leakage to groundwater." We are concerned whether it is a safe presumption to operate the HRF without having any leakage or discharge. According to findings from Emmons & Oliver Resources (EOR), engineering consultants hired by the MNDNR to review HRF dam safety, there is serious potential for HRF dam failure due to an inadequate foundation beneath the proposed HRF (soft ground consisting of slimes, peat and tailings concentrate) and the risk of liner deformation from inadequate foundation support of added material. This suggests that a discharge from the HRF is likely and there does not appear to be a comprehensive monitoring plan proposed to detect a potential discharge. Currently, development of a monitoring plan consisting of only one monitoring well location for the HRF is proposed. This does not seem sufficient to detect potential leakage/discharge from the HRF or associated liner/collection systems to surface or ground water, especially given the concern for dam failure by EOR. We suggest the HRF monitoring plan include more surface and ground water monitoring locations in proximity of the HRF and Hydrometallurgical Plant, since they are to operate as a closed loop system with no discharge to the environment or the FTB seepage capture and collection system and WWTS, so early detection of any leakage/discharges is more feasible.	The design components of the HRF were raised in the EIS and DNR, in consultation with MPCA, considered those issues. The issue of foundation stability was considered in the EIS and requirements for a detailed process of investigation, design and MPCA approvals are included in the permit to address that issue. The MPCA and DNR worked with a third-party consultant to evaluate the stability of the HRF foundation and construction methods. The MPCA added language in part 5.182.239 of the draft permit in light of the comment to state that if the MPCA determines that site conditions at the proposed HRF location preclude the construction and operation of the HRF in compliance with applicable water quality standards, construction of the HRF at that location is prohibited. The permit requires monthly monitoring of the HRF pond water at WS004 and any leachate collected by the HRF Leakage Collection System at WS005. Direct discharges from the HRF Pond and/or the HRF Leakage Collection system are prohibited. The HRF will operate as a closed-loop system with no discharge to the ground or surface waters or to the FTB/WWTS system. The MPCA has evaluated the groundwater monitoring at the Plant Site and has determined additional wells to capture any effects from the HRF are not required. Any potential leachate bypassing the HRF Seepage Capture System would be captured by the FTB Seepage Capture System and treated prior to discharge.
595	Darren Vogt	1854 Treaty Authority	Mercury Limits at SDOOI In the PTM Appendix 15 Memo (page 5), it states "The applicable mercury standard is 1.3 ng/L" when referring to surface water quality monitoring for the NorthMet project. Proposed effluent limits for mercury at SDO0I (discharge from the WWTS) are 1,000 ng/L (monthly average) and 2,000 ng/L (daily max). No rationale is provided in the NPDES/SDS permit to support using these values over the applicable standard of 1.3 ng/L in Lake Superior basin waters. Therefore, we suggest revising the effluent limit at SD001 to 1.3 ng/L, as this should be the applicable water quality standard for mercury for the NorthMet project.	See response to Comment Multiple-543-CB. The MPCA has revised the permit to include an operating limit for mercury of 1.3 ng/L. See also responses to comments 722 through 722-B regarding applicability of legal requirements to impose a mercury limit. For additional rationale, see response to Comment Multiple-543-BX, escribing why the MPCA concluded that the WWTS would be able to meet the mercury operating limit.
596	Darren Vogt	1854 Treaty Authority	This letter provides comments specific to the 401 certification. Refer to the 401 Certification section for the delineation of those comments.	Background statement for comments to follow. No response needed.
597	Darren Vogt	1854 Treaty Authority	Conclusion Finally, we would like to highlight a general but important concern over the permitting approach. The NPDES/SDS permit and 401 Certification suggest commitment to project components vital to environmental protection such as effective seep capture, waste water treatment, long-term or perpetual water treatment, adaptive management, etc. The facility must be held to these commitments and requirements once operational. A pattern exists at other facilities for regulation and enforcement to be lax, rules ignored, and political pressures. It is important that permitting and regulation be implemented effectively to ensure protection of the resources of northeastern Minnesota and guaranteed by treaty with the United States. Thank you for the consideration of our comments.	Comment noted. This comment generally states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
598	Allissa Stutte	Red Cliff Band of Lake Superior Chippewa Indians	Boozhoo (Greetings) from the Red Cliff Band of Lake Superior Chippewa (Red Cliff). Please accept the following comments in regards to the NorthMet draft air quality permit, draft water quality permit (NPDES/SDS), and draft 401 Certification. Although Red Cliff is not located in the state of Minnesota, we retain hunting, fishing, and gathering rights among other usufructuary rights in the Lake Superior basin. Red Cliff is located at the top of the Bayfield Peninsula in northern Wisconsin and is enclosed by 22 miles of Lake Superior shoreline. In the ceded territory, Red Cliff has a legal and cultural interest in protecting treaty resources for the next seven generations. We, as with other Tribes and Nations, have lived in the Lake Superior basin for hundreds of years, and have relied on Lake Superior, its tributaries, and ecosystems for subsistence and cultural uses. Red Cliff is submitting the following comments.	Background statement for comments to follow. No response needed.
599	Allissa Stutte	Red Cliff Band of Lake Superior Chippewa Indians	Draft Air Quality Permit I.Fugitive emissions control plan The fugitive emissions control plan as described in Appendix B of the draft air quality permit does not include the use of fence line or near roadside monitors to aid in determining fugitive emissions concentrations. Although the permit states that a trained observer will monitor site and road dust levels and take appropriate action, PM10 and PM2.5 levels can easily exceed National Ambient Air Quality Standards (NAAQS). This fact coupled with any potential high wind activity, can distribute these emissions over a wide range. Red Cliff requests that the permit includes use of mobile and personal monitors to correctly identify true sources of excess emissions and consequently determine appropriate action.	See air quality permit response to comment 180.
600	Allissa Stutte	Red Cliff Band of Lake Superior Chippewa Indians	2.Section F: Receptors (RE Pathway) According to MPCA Modeling Practices, Table 11, there is a discrepancy in the meter spacing listed in the manual and the meter spacing described in the permit. We request that this discrepancy be remedied or an explanation provided as to why this is allowable for PolyMet.	See air quality permit response to comment 181.
601	Allissa Stutte	Red Cliff Band of Lake Superior Chippewa Indians	3.Section J· Nearby Sources In this section, it is stated that some nearby sources were omitted from particulate modeling. We would like to know why these items were omitted and what protocols were used. Please provide information on the policy for removing nearby sources, which permitting actions support this decision.	See air quality permit response to comment 182.
602	Allissa Stutte	Red Cliff Band of Lake Superior Chippewa Indians	4.Plant Site Class I Modeling Protocol There are several instances where spacing of receptors around property boundaries, within 1 km of the boundary, and from 1-5 km out differs widely from the MPCA' s Air Dispersion Modeling Practices Manual. There is no justification for these extreme exceptions to be made. Please explain this discrepancy.	See air quality permit response to comment 183.

603	Allissa Stutte	Red Cliff Band of Lake Superior Chippewa Indians	Draft Water Quality Permit 1.Unsupported and unenforceable inward.fl.ow claims The modeling in the EIS assumes that PolyMet will maintain an inward hydraulic gradient of contaminated groundwater at the flotation tailings basin and at the waste rock stockpiles. The effectiveness of this proposed containment system is defined by this assumption and also by the assumption that if a breach in a containment wall were to occur, the contaminated water would flow into the basin rather than the surrounding environment. Red Cliff is concerned that these claims of PolyMet to maintain a constant inward gradient are both unsupported and unenforceable. This unrealistic assumption does not model the consequences of scenarios in which the gradient may be reversed, such weather events like heavy rainfall or snowmelt, nor does the permit provide detailed language regarding such scenarios. For example , page 41 of the NPDES/SDS permit states that this system (in regards to the Category 1 Waste Rock Stockpile) will take into account " tempo rary conditions that may result from short-term precipitation or snowmelt events." However, this language is not specific enough to gain our confidence that a constant inward flow gradient will be maintained and that contaminated groundwater will not flow in the reverse direction into surficial aquifers and groundwater. Therefore, this permit cannot be based solely on the assumption of this system operating without failure, and these claims cannot be supported without more specific language to support the assumptions and enforce any violations of such claims.	See response to Comment 588-B (regarding rationale for wells) and 711 (regarding purpose and function of wells). The MPCA has removed the "temporary conditions" language and has revised the language of the permit in light of the comment to state that if an inward gradient is not reestablished within 14 days of detection, it is a violation of the permit. The permit also requires monitoring of the Category 1 stockpile weekly following a 100-year storm event to ensure that monitoring and any necessary preventative maintenance occur promptly.
604	Allissa Stutte	Red Cliff Band of Lake Superior Chippewa Indians	2.Great Lakes Initiative and Minnesota mercury standard The proposed PolyMet project area is located in the Lake Superior Basin, and therefore any water discharges from the project area must meet the protective Great Lakes Initiative and Minnesota mercury standard of 1.3 nanograms per liter (ng/L). Attachment 1 under the Wastewater Treatment System (WWTS) section of the NPDES/SDS draft permit document states that the daily maximum limit will be 2,000 ng/L and calendar monthly average limit will be 1,000 ng/L. These limits are 1,000 times more than the Great Lakes Initiative and Minnesota mercury standard of 1.3 ng/L. Red Cliff must ensure protection of treaty resources and requests MPCA to review this monitoring requirement and rewrite to comply with Great Lakes Initiative and Minnesota mercury standards.	See response to Comment 595. The MPCA included the TBELs cited in the comment as required by 40 C.F.R. part 440. In addition to TBELs, the MPCA added an Operating Limit of 1.3 ng/L for mercury. The Operating Limits and TBELs in the permit are enforceable and an exceedance of either the TBEL and/or Operating Limit is a violation of the permit. To address the concerns of this comment, the MPCA also added language to the permit stating the discharge of treated wastewater from the WWTS must violate state water quality standards.
605	Allissa Stutte	Red Cliff Band of Lake Superior Chippewa Indians	3.Bedrock Monitoring Wells The Draft NPDES/SDS Fact Sheet outlines the summary of all Mine Site Groundwater Monitoring. In regards to the Bedrock Monitoring Wells, Red Cliff is concerned about the proposed frequency in which the samples would be taken. As listed in Table 11 on page 53, Group B wells are monitored quarterly and Group C wells are monitored annually. We are concerned that this frequency would not accurately capture potential contamination if the bedrock is breached or fissured due to seismic activity from blasting. Therefore we request that the frequency of this monitoring be increased during all blasting phases to adequately capture any seepages of contaminated waste that may infiltrate groundwater and drinking water.	A total of 10 bedrock water quality monitoring wells will be installed at the Mine Site. The bedrock monitoring wells will monitor groundwater downgradient of various Mine Site features and are located along similar flow paths as the surficial aquifer wells. The bedrock aquifer monitoring wells will be monitored quarterly for Group B parameters and annually for Group C parameters. The parameters and frequency of monitoring for each category of monitoring device depends on the location and specific purpose of the monitoring. In general, monitoring parameters and frequency utilize a tiered approach with more frequent monitoring of key indicator parameters in conjunction with less frequent monitoring of a wider range of parameters. Key indicator parameters with quarterly monitoring includes, at most locations, arsenic, bicarbonate, calcium, chloride, copper, hardness, magnesium, manganese, nickel, pH, specific conductance, sulfate, total dissolved solids, and water levels. The wider list of parameters to be monitored annually at most locations includes relevant metals and inorganic constituents. The quarterly and annual monitoring frequencies for water quality sampling are sufficient due to the very slow flow velocities of groundwater at the site (on the order of a few to tens of feet per year) and will be sufficient to adequately monitor potential impacts from blasting and other site activities.
606	Allissa Stutte	Red Cliff Band of Lake Superior Chippewa Indians	4.Annual Groundwater Evaluation Report and Annual Comprehensive Performance Monitoring Evaluation Report Red Cliff requests that all annual reports be accessible to the public. This includes the Annual Groundwater Evaluation Report as well as the Annual Comprehensive Performance Monitoring Evaluation Report. As stated in the NPDES/SDS Permit Fact Sheet on page 69, the purpose of these reports is to utilize all available data to fully evaluate the performance of the facility and to assess the potential for or existence of any unauthorized discharge to surface waters. Red Cliff disagrees with the claim that this annual evaluation will provide early identification of potential impacts so that adaptive management or mitigation can take place. This ' early' identification of potential impacts requires the addition of continuous flow monitoring and increased frequency of water quality monitoring (see below comments). However, we still request that the annual reports to be made available to the public. This would include any needed changes to the monitoring network, evaluation of compliance with groundwater standards, monitoring data, assessment of spatial distribution of groundwater quality, and the current assessment on the potential for a north flow path in the bedrock or surficial aquifer north of the Partridge River. It is a concern that a north flow path in the bedrock is a likely possibility , underscoring the need for all information and analyses regarding such an outcome to be made accessible.	The MPCA expects that reports submitted to the agency will be available to the public, as are all reports. The content required by the permit is designed to allow for predictions regarding potential effects, which provides the early detection. The DNR's water appropriation permits (see Permit 2016-1363: East Pit Dewatering) require the installation of a new continuous flow monitor at SW002 in the Partridge River headwaters area upstream of the Mine Site, use of the existing continuous flow monitor at SW003 where the Partridge River crosses the Dunka Road and installation of a new continuous flow monitor at SW004a in the Partridge River downstream of the Mine Site. These are each continuous flow monitors with data loggers and are not event-based.
607	Allissa Stutte	Red Cliff Band of Lake Superior Chippewa Indians	Draft 401 Certification I.Inadequate water quality monitoring and response time Red Cliff is concerned that the proposed monitoring strategy is inadequate and will not allow for detection of discharges, depositions, or impacts to water quality with enough time to allow for adaptive mitigation as planned. The Section 401 Draft Water Quality Certification states that if surface water conditions exhibit deviations from baseline conditions that are attributable to Project factors, then adaptive management may be required. Continuous flow monitoring is necessary and should be required in order to detect these changes in real time. If monitoring data indicate that the Project has caused or contributed to a violation of water quality standards in Minn. R. chs. 7050 and 7052, the permittee must report as follows: a violation endangering the human health or environment must be reported within 24 hours; and other violations must be reported within 30 days and an adaptive management plan must subsequently be submitted within 30 days. These monitoring and reporting timelines do not adequately protect the impacted adjacent wetlands and downstream waterbodies from discharge violations. If a violation occurs that jeopardizes the water quality standards, despite the 24 hour reporting requirement, and the samples are only taken monthly or quarterly, then it is highly likely that the impact was occurring for a longer period of time. In order to accurately monitor and prevent detrimental impacts to water quality, there must be continuous flow monitoring as well as increased frequency of water quality monitoring. If not, the claims that adaptive mitigation can take place in time are not validated.	Comment noted. This comment pertains to the 401 certification, not the NPDES permit. No changes were made to the draft NPDES permit in response to this comment.
608	Allissa Stutte	Red Cliff Band of Lake Superior Chippewa Indians	2. Accuracy of wetland delineation The Draft 401 Certification includes details about PolyMet's plan for mitigation of wetland impacts. In regards to impacted wetlands, the wetland report completed by Barr Engineering (Barr) for the EIS does not indicate that Lidar data was one of the sources used to map the wetland areas. However, in 2011, detailed Lidar derived elevation data was collected and was utilized by the Great Lakes Indian Fish and Wildlife Commission (GLIFWC) to identify further areas inside the project boundary that may be wetlands not identified by Barr Engineering. GLIFWC's analysis identified 12% more wetland areas within the mine site project boundary and 12% more wetland areas within the direct impact footprint. Assuming that all areas identified originally by Barr and subsequently by GLIFWC are wetlands, then the wetland area may be 28% more than what is listed. Upon receipt of a Technical Memorandum describing GLIFWS's findings in August 2017, the United States Army Corps of Engineers had instructed PolyMet to reevaluate the wetland area estimation with the tools utilized by GLIFWC. However, Barr has yet to submit this report. If the number of wetlands is indeed different, a highly likely scenario, then mitigation plans must be adapted. Given this evidence, these permits cannot be approved without first checking the accuracy of the current wetland delineation. Red Cliff requests these discrepancies be reviewed to most accurately account for impacted wetlands, and mitigation plans adjusted accordingly.	Comment noted. This comment pertains to the 401 certification, not the NPDES permit. No changes were made to the draft NPDES permit in response to this comment.

609	Allissa Stutte	Red Cliff Band of Lake Superior Chippewa Indians	We appreciate the opportunity to comment and thank you for reviewing and considering the above comments.	Conclusion statement for previous comments. No response needed.
610	Lisa Fitzpatrick	Citizen	Dear MPCA folks, Please protect Minnesota from sulfide mine pollution! Protect our drinking water and beautiful St Louis River & L Superior from Polymet's toxic, long term pollution.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
611	Lisa Fitzpatrick	Citizen	The current MPCA draft water pollution permit does not set limits for Polymet's contaminated seepage from waste facilities to streams.	See response to Comment 510.
612	Lisa Fitzpatrick	Citizen	Currently, the MPCA wouldn't require surface water quality monitoring by the proposed Polymet tailings mud basin. So, if Polymet pollution violates the Clean Water Act, it could be decades before our waters' contamination is detected. Additionally, the Clean Water Act and EPA and Seagrant agencies are all under attack, so it is important to make strong draft standards to protect our waters. Sincerely, Lisa Fitzpatrick	The permit requires PolyMet to monitor the streams downstream of the tailings basin beginning 18 months after the WWTS begins operation. The 18 months accounts for the period of time that it will take the existing seepage water (that is not the result of the NorthMet project) to fully flow past the monitoring points and exit the watersheds. After 18 months, the stream monitoring required by the permit will monitor the impacts of the NorthMet project. It should be noted, that during this 18 month period, monitoring of the streams will still be required by the Consent Decree that is associated with the former Cliffs Erie tailings basin permit.
613	Mark Fitzpatrick	Citizen	Dear MPCA folks, I urge you to please protect Minnesota from sulfide mine pollution. The MPCA can be the Protecter of our drinking water and beautiful St Louis River & L Superior from Polymet's toxic, long term pollution.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
614	Mark Fitzpatrick	Citizen	The current MPCA draft water pollution permit does not set limits for Polymet's contaminated seepage from waste facilities to streams.	See response to Comment 510.
615	Mark Fitzpatrick	Citizen	Currently, the MPCA wouldn't require surface water quality monitoring by the proposed Polymet tailings mud basin. So, if Polymet pollution violates the Clean Water Act, it could be decades before our waters' contamination is detected. MPCA--be superheroes! Protect our waters! Sincerely, Mark Fitzpatrick	See response to Comment 612.
616	Marty Rye	Superior National Forest	Dear Mr. Stine I am writing to offer our comments on the Minnesota Pollution Control Agency (MPCA) Draft NPDES I SDS Permit and 401 Certification for the PolyMet NorthMet project. 1.The installation of an additional surface water monitoring site should be strongly considered (retention of SW003) to assist in the evaluation of flow paths and impacts to the Partridge River at closure.	The primary purpose of the surface water monitoring requirements in the draft permit is to assess the overall effect that the project may have on downstream water quality and to ensure that unacceptable impacts are not occurring or will be likely to occur. Surface water monitoring stations are generally located upstream and downstream of the two main project areas (i.e., Mine Site and Plant Site) and downstream of WWTS discharge points. The MPCA has determined during development of the draft permit that the proposed surface water monitoring locations are adequate to evaluate effects from the mine site and that monitoring of SW003 is not necessary.
617	Marty Rye	Superior National Forest	2.It appears the MPCA has determined that none of the monitoring points, except SD00I and WS074, have a reasonable potential because these are the only two points that include water-quality based effluent limits (WQBELs). The remainder of the monitoring locations require "monitor-only". It is unclear how the State will manage the site if required monitoring reveals exceedance of State water quality standards. Historically, mining activity that results in the exceedance of State standards that are not tied to a WQBEL have not been addressed at the permit expiration date to eliminate the exceedance. In order to address measured exceedances in a timely manner the MPCA should include an explicit clause to re-open the permit if an exceedance is measured. Section 6.3.3 of the EPA NPDES Permit Writers' Manual (2010) states: "The permit writer might also include a clause in the permit that would allow the permitting authority to reopen the permit and impose an effluent limitation if the required monitoring establishes that there is reasonable potential that the discharge will cause or contribute to an excursion above a water quality criterion."	In light of the comment, MPCA has added a specific "reopener clause" (in addition to the more general one already in the permit) that states that the MPCA may modify the permit, require corrective actions, or take other actions if it determines that the discharge is causing or contributing to a violation of water quality standards. See Permit at 5.119.2.
618	Marty Rye	Superior National Forest	3.The MPCA NPDES/SDS Permit requires raw data, analyses, and multiple reports. This submitted information is directly tied to the assumed project effects estimated in the Final Environmental Impact Statement (FEIS). It is unclear how this information will be conveyed to the public beyond either (1) publication when the considered change is large enough to justify a modification to the permit or (2) by individual request through the Minnesota Government Data Practices Act. The MPCA provides the information or data when queried, but the public does not necessarily know when the information is submitted and how it is incorporated into the management of the project effects to protect the public interest. Based upon these considerations, the State of Minnesota, and specifically the MPCA should develop an explicit communication plan and portal for the public and other resource managers to access data, reports, and analysis results through the life of the PolyMet NorthMet project.	All monitoring data is reported to the MPCA on monthly Discharge Monitoring Reports (DMRs) which are posted online on the MPCA website (available at https://www.pca.state.mn.us/quick-links/eda-surface-water-data). Annual report submittals are also available by request to the agency. Program-wide, the MPCA does not maintain websites to post report submittals from permitted facilities.
619	Marty Rye	Superior National Forest	4.Data collection appears to be solely calendar-based. In order to gain additional insight, the Monitoring Plan should also include efforts to ensure sampling occurs during a variety of hydrologic conditions such as baseflow, spring melt, rainfall events, overbank events and these should be analyzed accordingly.	MPCA considered the comment but did not change the permit. Monthly monitoring of surface water stations is sufficient to capture variable hydrologic conditions over the life of the permit.
620	Marty Rye	Superior National Forest	5.A photograph of the Partridge River at the time of surface water sampling (upstream and downstream) is helpful in discerning the local hydraulic condition at the time of sampling (ice cover, overbank, debris, etc.) and should be considered to be included in the data submittal to the MPCA.	MPCA considered the comment but did not change the permit. Nothing in rule requires a photograph of the sample site and photo documentation of sample sites is not required in permits program-wide.
621	Laura Gauger	Deer Tail Scientific	In February 2018 I submitted written comments to the Minnesota Pollution Control Agency and Minnesota Department of Natural Resources regarding draft permits for the proposed PolyMet Mine. As a result of speaking to MPCA's Stephanie Handeland and Richard Clark at the February 2018 public hearing in Duluth, there are several additional documents that I would like to submit into the record, along with observations regarding those documents made by Dr. Robert E. Moran (Golden, CO). Please see the attached report that constitutes the comments I hereby submit to MPCA on behalf of Deer Tail Scientific (Duluth, MN).	Background statement for comments to follow. No response needed.
622	Laura Gauger	Deer Tail Scientific	The comment included an attachment of a report on the Flambeau Mine.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
623	Rory Carlson	Duluth Chapter of the Izaak Walton League	Dear Sir/Madame, I believe the state of MN is making a grave mistake in allowing sulfide mining in MN. The risk/reward ratio does not make this a win for the people of MN as well as for future generations. A few jobs for 20 to 30 years does not risk polluting out watershed for generations.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
624	Rory Carlson	Duluth Chapter of the Izaak Walton League	If this mining is allowed, Polymet should be required to put 25% of the profits into a fund to mitigate potential future problems. After 100 (or 500?) years if the mining poses no future risk, the funds should be distributed to all Minnesotans. Thank you for your time, Rory	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.

625	Bruce Johnson	Citizen	These comments are in response to the Minnesota Pollution Control Agency (MPCA)'s PolyMet NorthMet Draft NPDES/SDS permit announcement for comments January 31, 2018. The mine site is still not owned by the project proponent. The project proponent still has no legal right to construct facilities at mine site. The mine site is subject to legal decisions that put proposer's access to the surface for the purpose of mining at risk. If this risk results in no access for PolyMet's mining, this MPCA action for public comment would be a waste of time, money and resources, and so also would any further action by state agencies on permits. The same is true from the beginning of the project. If PolyMet does not obtain access to the surface of the mine property, this EIS has been a waste. Minnesota Department of Natural Resources (MDNR) should have seen this in February 2005 and stopped the project when the proposer laid the environmental assessment worksheet (EAW) information in its lap, and MPCA should also have seen this when it received its first completed Air Emissions Risk Assessment from PolyMet in February 2005 (PolyMet submitted its first AERA to MPCA in February 2005 as a part of the air permit process according to PolyMet's Technical Report on the NorthMet Project, submitted to Securities Exchange Commission, Oct. 2006.)	Subsequent to the comment being submitted, the land exchange process has been completed. PolyMet now owns the property rendering the comment moot.
626	Bruce Johnson	Citizen	Nonetheless, under the provisions of the Minnesota Environmental Rights Act (Minn. Stat. Ch. 116B), we also make these comments to protect Minnesota's air, water, land, and other natural resources from pollution and destruction. We comment here on the MPCA NPDES/SDS permit to inform and notice MPCA, MDNR and responsible federal agencies of our identification of numerous illegalities identified in the Final Environmental Impact Statement (FEIS) that is the lawful basis for the NPDES/SDS Permit.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
627	Bruce Johnson	Citizen	The state agencies, the Responsible Government Unit MDNR and MPCA, use the FEIS to inform "permitting and approval processes and describes mitigation measures that may be available";...	Background statement for comments to follow. No response needed.
628	Bruce Johnson	Citizen	...federal agencies U.S. Army Corps of Engineers (USACE) and the US Forest Service (USFS) use the FEIS to evaluate "the potential to significantly affect the quality of the human environment" for their subsequent major federal action permitting and approval processes (FEIS, p. ES-3). The U.S. Environmental Protection Agency (USEPA) and the Minnesota Department of Health (MDH) also had critical roles in review of the FEIS. All of these agencies knew, or should have known, that this is the first copper/nickel/cobalt/ platinum group elements mine in Minnesota, and that this mine differs from other Minnesota and regional mines in many ways reasonably expected to be potentially significant for human and ecological health.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
629	Bruce Johnson	Citizen	The people of Minnesota expect and deserve an excellent job of evaluating impacts on the human and ecological environment, and they did their parts in providing their scientific and knowledgeable reviews through commenting. Federal and state agencies are in legal violation when they ignored the substance of many of these comments.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
630	Bruce Johnson	Citizen	Not providing many of the cited final documents forming the basis for the FEIS and MDNR Record of Decision for over a decade are also legal violations under the Administrative Procedure Act (APA), National Environmental Policy Act (NEPA), and associated agency-specific regulations governing the activities of the agencies responsible for the FEIS, for review of the FEIS, and empowered to act as safe-guards against state and federal malfeasance.	Comment noted. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
631	Bruce Johnson	Citizen	Since federal and state laws, rules or requirements are violated as described below, especially crimes under Uniform Code of Military Justice (UCMJ), then Minnesota cannot proceed with any permitting until such time as federal and state infractions, illegalities and/or crimes are adjudicated and remedied.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
632	Bruce Johnson	Citizen	The following violations of environmental laws and regulations by the Co-Leads and USEPA invalidate the FEIS and preclude issuance of any permits. Co-leads' and EPA's oversights, omissions and errors, irregularities, inaccuracies, incompleteness outright misuse and avoidance of environmental laws and regulations are described. We conclude the previous and following violations, alone or together, are so egregious that they constitute bad faith, waste, fraud and abuse in an effort to suppress knowledge of impacts and predetermine the outcome of the EIS. The regulation 40 CFR 1508.18 specifies that Major federal actions include the circumstance where the responsible officials fail to act and that failure to act is reviewable by courts or administrative tribunals under the Administrative Procedure Act or other applicable law as agency action.	Comment noted. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
633	Bruce Johnson	Citizen	The commenter lists aspects of the EIS that are in violation of regulations. The commenter states that the violations show there is no basis to proceed with permitting. The violations are included in the attachment, pages 2-28. Portions of the violations that specifically mention MPCA are delineated.	Comment noted. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
634	Bruce Johnson	Citizen	HUMAN ENVIRONMENT The information basis for the NPDES permit application is supposed to be the FEIS. All data within the application is a result of the FEIS. The FEIS is fatally flawed, as a result information on the permit application is also fatally flawed, thus the issuance of a NPDES permit based on the FEIS cannot be issued.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
635	Bruce Johnson	Citizen	Violation: The Co-leads improperly used the arsenic Maximum Concentration Level (MCL) of 10 ug/l as a ground water evaluation criterion to indicate acceptable risk at NorthMet. In doing so, Co-Leads violated 40 CFR 141.11, "The maximum contaminant level for arsenic applies only to community water systems." The reason for this regulation is that it would be too easy to minimize the potential dangers associated with arsenic. The regulatory arsenic risk level is the MCL Goal of 0.0 (zero) - there is no safe level of arsenic. It is unlikely these violations arise out of violation of 40 CFR 1507.2 Agency capability to comply. All of the people involved in evaluation criteria selection, MDNR, USACE, USFS, ERM, and PolyMet's advocate Barr, excluding the Tribes who were forbidden to participate in that group, ignored MDH and private party comments requesting evaluation criteria that reflected actual risk numbers pursuant to current science and the lowest statutory protective requirements, which for ground water is zero pollution by state statute. Law/ Regulation /Policy violated: 40 CFR 141, 141.11; arsenic MCL, MCLG promulgated.. Minn. Stat. 7060.0600 Subp. 2. Ground water pollution is not allowed except by variance. Minn. Stat. Ch. 116D.03, Subd. 2 utilize a systematic, interdisciplinary approach, consultation with persons in appropriate fields of specialization to ensure the latest and most authoritative findings. Therefore, the permits cannot be issued.	The comment predominantly is an objection to an evaluation process for arsenic utilized in the EIS and an opinion that the EIS is therefore inadequate. However, the EIS has been deemed adequate. To the extent the comment relates to permit requirements related to arsenic, the permit has been revised to include an enforceable operating limit for arsenic in the WWTS discharge. In addition, the project will include other engineering controls such as stockpile liner systems and seepage capture systems that are designed to control wastewater and runoff from the facility thereby minimizing impacts related to arsenic. The effectiveness of these controls were evaluated in the EIS and the water quality permit requires their installation/operation. See response to Comment 510.
636	Bruce Johnson	Citizen	Violation: The Co-Leads failed to identify appropriate risk-based numbers for all evaluation criteria with the MCL as the origin. Law/ Regulation /Policy violated: applicable promulgating regulations for the MCLs. Therefore, the permits cannot be issued.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

637	Bruce Johnson	Citizen	Violation: The inappropriate use of the ground water and surface water evaluation criteria results in deceiving the public and FEIS and subsequent decision-makers into thinking these numbers reflect health risk levels and that it is acceptable to pollute up to the MCL or other standards or health-based numbers; therefore the Co-leads violated 40 CFR 1502.24 that calls for professional and scientific integrity. Law/ Regulation /Policy violated: APA Sec. 10 Agency action, findings, and conclusions are unlawful when found to be arbitrary, capricious, and abuse of discretion, or otherwise not in accordance with law; without observance of procedure required by law; unsupported by substantial evidence, and other conditions. 40 CFR 141, 141.11 promulgated arsenic MCL, MCLG. 7060.0600 Subp. 2 No pollution in the ground water is allowed without a variance. 40 CFR 1502.24 Agencies shall insure the professional integrity, including scientific integrity. Minn. Stat. Ch. 116D.03, Subd. 2 utilize a systematic, interdisciplinary approach, consultation with persons in appropriate fields of specialization to ensure the latest and most authoritative findings. Therefore, the permits cannot be issued.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
638	Bruce Johnson	Citizen	Violation: Co-Leads did not scope in a requirement for technical analysis of all reasonable releases, direct and indirect, to water for the project, making any and all risk assertions about water contamination and health risks invalid. Law/ Regulation /Policy/Violated: 40 CFR 1502.24 Agencies shall insure the professional integrity, including scientific integrity. 40 CFR 1506.5 (a)(c) Agencies and federal officials are responsible for independent evaluation, scope and content of the EAW and entire EIS respectively. Therefore, the permits cannot be issued.	Comment noted. The draft permits were developed according to current state and federal law. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
639	Bruce Johnson	Citizen	Violation: MDNR, USACE and USFS failed to determine the risk to health in all media (surface water, ground water, soils, sediments) by the use of available standard human health assessment tools, and in so failing did not enable actions that protect, restore, and enhance the environment. Law/ Regulation /Policy/Violated: 1500.1 actions that protect, restore, and enhance the environment must be enabled by the NEPA process. Minn. Stat. Ch. 116D.03, Subd. 2 utilize a systematic, interdisciplinary approach, consultation with persons in appropriate fields of specialization to ensure the latest and most authoritative findings. Therefore, the permits cannot be issued.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
640	Bruce Johnson	Citizen	Violation: Cumulative health risks cannot be performed for property not owned by a project proposer because definitive access and boundaries are necessary for modeling. All this air emissions work is fiction until such time as final ownership of surface rights to the mine site are obtained from USFS. Therefore, permitting is not permitted or valid and should stop. According to USEPA staff, to apply for a permit and do modeling, the proposer must or own or lease the surface to be able to plan facilities exactly. According to USEPA staff, a proposer cannot do modeling if the boundary is not known. USEPA has no guidance on modeling for a project where land is not owned or leased, with no identifiable boundary. In summary, EPA staff confirm that modeling of any type and permit modeling is not allowed in proposals until such time as the land surface and subsurface access is owned or leased. Therefore, the permits cannot be issued.	Comment noted. The draft permits were developed according to current state and federal law. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
641	Bruce Johnson	Citizen	Violation: Receiving waters are already impaired with mercury and arsenic, GLI pollutants downstream from the Partridge River, existing priority pollutants and toxic pollutants are currently contaminating Colby lake, the City of Hoyt Lakes drinking water supply. The tailing basin is a source of mercury, arsenic. Elevated mercury is found in a surface water seep from the tailing basin. That seepage is pumped back into the tailing basin untreated. The extent and magnitude of the mercury released to ground water has been ignored. PolyMet has documented that other contaminants from the TB have reach the Embarrass River. The FEIS states mercury is contained within the rock to be mined. Discharge of any addition loading of mercury, arsenic, and lead to a known water supply that is currently contaminated with these parameters downstream is an arbitrary and capricious action that has unaddressed potential human health implications. Lakes in the Embarrass River and sections of the St. Louis River are impaired for mercury. In addition, the lack of a human health risk assessment meeting EPA protocols for the drinking water supply of Hoyt Lakes has not been done. This means no additional loading even up to water quality standard much less an effluent limit is allowed. Law/ Regulation /Policy/Violated: 7052.0300 NONDEGRADATION STANDARDS. Subp. 2. Maintenance of existing water quality. Existing water uses under part 7050.0185 and the level of water quality necessary to protect existing uses must be maintained and protected. Where designated uses of the waterbody are impaired, there must be no lowering of the water quality with respect to the GLI pollutants causing the impairment. 40CFR 401.15 As, Pb,Hg are toxic pollutants , 40 CFR 423 App. A listed priority pollutants are Arsenic, Pb and Hg. FEDERAL WATER POLLUTION CONTROL ACT TITLE I--RESEARCH AND RELATED PROGRAMS SEC. 101 [33 U.S.C. 1251] Declaration of Goals and Policy (3) it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited; 40 CFR 122(2) Each toxic pollutant listed in accordance with paragraph (1) of this subsection shall be subject to effluent limitations resulting from the application of the best available technology economically achievable for the applicable category or class of point sources established in accordance with section 301(b)(2)(A) and 304(b)(2) of this Act. SEC. 301 [33 U.S.C. 1311] Effluent Limitations (1)(A) not later than July 1, 1977, effluent limitations for point sources, other than publicly owned treatment works, (i) which shall require the application of the best practicable control technology. Therefore, the permits cannot be issued.	See response to Comment 198 regarding mercury discharges from the project. Contrary to what is implied in the comment, the project does not discharge to waters leading to Colby Lake. The WWTS discharges, in part, to Second Creek which enters Partridge River below Colby Lake. In addition, the WWTS is designed to remove arsenic and lead to levels below applicable water quality standards. The permit has been revised to include enforceable Operating Limits for arsenic, lead and mercury (among other parameters) set at the respective water quality standard. The same engineering controls described in the response to comment 198 for mercury will also control project wastewater and runoff for arsenic and lead. The effectiveness of these controls were evaluated in the EIS and the water quality permit requires their installation/operation.
642	Bruce Johnson	Citizen	Violation: In the draft scoping EAW, Co-Leads failed to independently evaluate and identify that the included summary of an AERA was produced under the MPCA-administered air quality permit action with the major effect that the Co-Leads accepted, without evidence of the complete report with calculations, the permit-based recommendation that air emissions would not have potential for significant impact, potentially prejudicing selection of alternatives by eliminating an alternative that might require more mitigation. If a complete HHRA were performed by a qualified preparer, it would show whether or not alternative(s) is sufficient. Law/ Regulation /Policy/Violated: APA Sec. 10 (e) Court will hold unlawful agency action unsupported by substantial evidence. 40 CFR 1506.5 Agency shall independently evaluate/verify for accuracy the information, issues, scope, content of EAW and EIS. 40 CFR 1506.1, No action (e.g., permitting) in EIS Agencies shall commit resources prejudicing selection of alternatives. 40 CFR 1508.18(4) defines actions with effects that may be major and which are potentially subject to federal control and responsibility that are not allowed during the EIS, including permit or other regulatory decision. Therefore, the permits cannot be issued.	Comment noted. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
643	Bruce Johnson	Citizen	Violation: In its review of Co-Leads' proposed action under Section 309 of the Clean Air Act, USEPA failed to identify environmental justices conflicts between the Co-Leads and the Bands or even to read the Bands comments which indicated the issues, so it failed to ensure that the agencies have fully analyzed environmental effects on minority communities and low-income communities, including human health, social, and economic effects, and in defining the area of potential effects. In human health, USEPA failed to review the permitting screening AERA for this complex project, and in so reviewing USEPA should have found there was no final complete AERA to review. Law/ Regulation/Policy/Violated: Clean Air Act, Section 309; Final Guidance For Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses, April 1998. Therefore, the permits cannot be issued.	Comment noted. This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
644	Don Arnosti	Conservation Director, Izaak Walton League	We submit these comments by the Minnesota Division of the Izaak Walton League of America on the PolyMet Corporation's Draft water permit and proposed 401 Water Quality Certification on behalf of our members and supporters in Minnesota. The Izaak Walton League is a 96-year old conservation organization with a mission to conserve, restore, and promote the sustainable use and enjoyment of our natural resources, including soil, air, woods, waters, and wildlife. Our membership includes many who have devoted their life professionally to the management of natural resources, as well all of us who use and enjoy our public lands in many forms throughout the year. We are very familiar with the lands and waters of the region of the proposed mine site itself. Some of our members and supporters live directly downstream, harvesting and eating wild rice and fish from the waters to be affected by the discharges from this proposed mine.	Background statement for comments to follow. No response needed.

645	Don Arnosti	Conservation Director, Izaak Walton League	We are deeply disturbed by this proposed Minnesota Pollution Control Agency (MPCA) Water Quality Permit– which has no enforceable discharge standards.	The MPCA conducted a reasonable potential analysis and determined there is no reasonable potential to cause or contribute to the exceedance of a water quality standard. Therefore, no WQBELs are required in the permit. The MPCA included TBELs in accordance with 40 CFR part 440. In addition to TBELs, the MPCA included Operating Limits for sulfate, copper, arsenic, cobalt, lead, nickel and mercury. The Operating Limits and TBELs in the permit are enforceable and an exceedance of either the TBEL and/or Operating Limit is a violation of the permit. In addition, to address concerns regarding the permit being protective of water quality, the MPCA has also added language to the permit stating the discharge of treated wastewater from the WWTS must not violate state water quality standards. A Whole Effluent Toxicity LImit of 1.0 TUc has also been added to the permit.
646	Don Arnosti	Conservation Director, Izaak Walton League	Further we find the water quality anti-degradation review overlooks important shortcomings in the wetland replacement plan proposed in the Permit to Mine. We also find inadequate the 401 analysis that depends upon a flawed draft DNR permit to mine that water quality will be protected with this mine plan and these permits.	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.
647	Don Arnosti	Conservation Director, Izaak Walton League	The mining plan as presented does not use the best practices possible to protect Minnesota's waters and other natural resources. This company, instead, proposes an off-the-shelf approach to accessing their minerals, choosing to brush aside the use of underground mining to reduce the impact to wetlands, reuses an old tailings basin structure designed to leak for disposal of filter waste products instead of using better waste disposal methods, does not propose to build an advanced water treatment facility until the final year of operations, and uses non-credible assumptions to wave away threats to groundwater which will flow both north into the Boundary Waters watershed, and south to affect waters draining to Lake Superior.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
648	Don Arnosti	Conservation Director, Izaak Walton League	We can do better. They can do better. We call upon the Minnesota Pollution Control Agency to revise this permit to have enforceable discharge standards, including 10 ppm sulfate, and to withhold 401 water quality certification until the mine plan is further refined to reduce water quality impacts.	PolyMet offered to resolve outstanding issues related to sulfate and wild rice by incorporating advanced wastewater treatment into the project design. While PolyMet volunteered to do this, compliance with the permit operating limit is not voluntary. The operating limit of 10 mg/L for total sulfate is an enforceable permit limit. If the operating limit for sulfate is exceeded, it will be a violation of the permit. To address concerns regarding the permit being protective of water quality, the MPCA has also added language to the permit stating the discharge of treated wastewater from the WWTS must not violate state water quality standards
649	Don Arnosti	Conservation Director, Izaak Walton League	This draft water discharge permit and 401 water quality certification present a selfish view of our present generation of Minnesotans: take the jobs and get the metals now, leave the hard regulatory decisions and inevitable environmental contamination to later generations. We see a shell mining company with zero operating experience, Poly Met, as the applicant, financed by Glencore, an international mining company with a sorry trail of labor and environmental abuse associated with their operations on five continents. We fully expect Glencore to buy out and take over operations once the permit is issued to their front company – Poly Met Mining, Inc. There is no accountability in issuing a permit to a poorly-financed shell company, Poly Met Mining, Inc. that is owned by another shell company, PolyMet Mining Corporation, in Canada, which is in debt to an international mining company, Glencore PLC, based beyond the reach of many financial regulatory laws in a notorious tax haven in Europe. In order to hold accountable the actual company that controls this mine, Glencore PLC must be on all permits issued. No permits should be issued to the poorly financed shell companies that are Poly Met Mining Inc, and PolyMet Mining Corporation.	Comment noted. This comment pertains to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to this comment.
650	Don Arnosti	Conservation Director, Izaak Walton League	Anti-degradation assessment is inadequate and fails to support the conditions for 401 certification. The wetlands replacement plan provided in the DNR draft permit to mine is inadequate and no 401 certification should be issued because the state anti-degradation standards are not met, until these inadequacies are addressed.	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.
651	Don Arnosti	Conservation Director, Izaak Walton League	1)The proposed wetland replacement plan is inadequate and makes no effort to replace wetlands type-for-type as called for in the Minnesota Wetlands Conservation Act. The Application notes the destruction of wetland types 2,3,4,6,7, and 8, while the replacement from Ecosystem Investment Partners (EIP) bank at Sax-Zim bog notes only type 8 credits. More effort must be made to mitigate with type-for-type replacement. 2)No replacement is proposed for partially drained wetlands, which the Environmental Impact statement indicated could extend to 8000 acres or more; instead the impact is to be monitored – with mitigation to be determined later. This is not consistent with federal and state law, which require the damaged wetlands to be replaced in advance of the impact. Replacement, not just monitoring of partially drained wetlands must be required in the permit.	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.
652	Don Arnosti	Conservation Director, Izaak Walton League	3)No effort is required of the permittee to minimize the indirect impacts to wetlands – as required by federal and state law and rule. The permittee should be required to adopt a plan to minimize the water drawdown in wetlands surrounding the mine footprint. Instead, it is assumed that the impacts of twenty years of dewatering will be reversed upon mine closure. This is not acceptable, as during years of drawdown, the plant community is likely to change radically, resulting in permanent alteration to the hydrology and biology of the area. Minimization of partial drainage of wetlands must be under a specific plan and must be required in permit.	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.
653	Don Arnosti	Conservation Director, Izaak Walton League	4)Northern Rich Spruce Swamp is a rare natural community as determined by the DNR's natural heritage program under Minn. R. 8420.0515, subpart 3. There are 225 acres of FPn62 – Northern Rich Spruce Swamp located at the Mine Site. Were this any other applicant, subject to rules under the Board of Water and Soil Resources, the permit must be denied to protect this rare natural community. Minnesota Rules chapter 8424.0515, Subpart 3 reads: "Rare natural communities. A replacement plan for activities that involve the modification of a rare natural community as determined by the Department of Natural Resources' natural heritage program must be denied [emphasis added] if the local government unit determines that the proposed activities will permanently adversely affect the natural community." Instead, the permit allows for the applicant to contest the classification of this as a rare natural community. Unacceptable! Any other company or individual in Minnesota would have to follow this rule, but DNR worked with the legislature to obtain a special law overturning a court decision (passed just last year) to regulate the mining industry under the state wetlands law as it sees fit. This is another case of the DNR acting as a mining promoter, rather than a regulator to protect the public interest. It was the DNR's own ecological experts who determined this classification – long before PolyMet applied for this permit. Stand behind your own experts – not "hired guns" for a company looking to exploit the public for private gain. Deny this proposed wetland impact and require the applicant to reconfigure their mine plan to leave this rare community intact.	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.

654	Don Arnosti	Conservation Director, Izaak Walton League	Mine operations will result in uncontrolled discharges to north-flowing watersheds. The water discharge permit fails to anticipate this, and the 401 certification fails to analyze this situation as well. Since groundwater in this geologic setting inevitably flows to surface waters, these seepages must be considered surface water discharges.	The MPCA evaluated the monitoring needed at the facility, including that needed to ascertain whether a north flow may occur in the future, in the development of the permit. The purpose of the north flow path wells is to monitor the hydrogeologic conditions such that it can be confidently predicted whether a north flow path may develop in the future. This can be accomplished by monitoring current and future groundwater elevations along the potential north flow paths. The Permittee is required to provide an assessment on the potential for a north flow path in the bedrock or surficial aquifer north of PolyMet's property boundary at the Mine Site. The assessment must provide discussion on whether or not a potential for a north flow path exists and the logic for that determination. If the potential for a north flow path exists, the Permittee must include a plan and schedule for MPCA review and approval for adaptive management or mitigation to prevent northward groundwater flow.
655	Don Arnosti	Conservation Director, Izaak Walton League	The proposed groundwater collection system is unproven, untested, and unlikely to perform as forecast – collecting over 90% of groundwater seepage for treatment...into the indefinite future? Particularly, since it is unclear whether the groundwater will all flow as predicted to the south, for collection and treatment. Given the proposed final profile of the PolyMet pit to be several hundred feet above the final profile of the Peter Mitchell taconite pit to the north, this assumption is unlikely.	The Modflow modeling conducted for the EIS indicated that the capture efficiency for both systems would be in excess of 90% and the subsequent GoldSim modeling indicated that degree of capture would be sufficient to protect downgradient surface and ground water quality. See FEIS at 5-7. The draft permit requires that 13 pairs of groundwater monitoring devices (wells and piezometers) at each of the seepage collection systems be monitored on a monthly basis to ensure that the necessary inward gradient is being maintained. The system consists of one of the pair located just inward of the hydraulic barrier and one just outward of the barrier. The primary purpose of the paired devices is to monitor for the presence and maintenance of an inward hydraulic gradient across the barrier which is accomplished by simultaneous measuring of the water table elevation of the two devices. If there is an inward hydraulic gradient, flow will not move out through the barrier. The draft permit further requires that the performance of the capture/containment systems and the adequacy of the monitoring network be assessed on an annual basis. If an inward gradient is not maintained, the Permittee is required to take corrective actions immediately to restore the inward gradient. If the inward gradient is not restored within 14 days, it is considered a violation of the permit. Furthermore, the draft permit requires annual assessment of the engineering controls and an assessment on the suitability of the in-place monitoring network for that purpose. The comment does not provide a basis to dispute that the groundwater collection system is unproven and that the wells are sufficient to evaluate the inward gradient.
656	Don Arnosti	Conservation Director, Izaak Walton League	The proposed permit condition is another shirking of regulatory duty: "issue the permit now, and figure out the solution later." Draft Permit Condition 66: "Prior to blasting within any mine pit footprint, the Permittee must submit a report and supporting data assessing the potential for current and future northward groundwater flow at the Mine Site. If the DNR concludes that this report, or other monitoring data, indicates a reasonable likelihood of northward groundwater flow at the Mine Site, then the DNR will require adaptive management or mitigation." This sort of information must be submitted, analyzed and made available for public review and comment prior to permitting or 401 certification.	The purpose of the north flow path wells is to monitor the hydrogeologic conditions such that it can be confidently predicted whether a north flow path may develop in the future. This can be accomplished by monitoring current and future groundwater elevations along the potential north flow paths. The Permittee is required to provide an assessment on the potential for a north flow path in the bedrock or surficial aquifer north of PolyMet's property boundary at the Mine Site. The assessment must provide discussion on whether or not a potential for a north flow path exists and the logic for that determination. If the potential for a north flow path exists, the Permittee must include a plan and schedule for MPCA review and approval for adaptive management or mitigation to prevent northward groundwater flow. Furthermore, the draft permit requires annual assessment of the engineering controls and an assessment on the suitability of the in-place monitoring network for that purpose. The comment does not provide a basis to dispute that the groundwater collection system is unproven and that the wells are sufficient to evaluate the inward gradient. The requirements for groundwater monitoring are effective upon issuance of the permit and are not depedent on blasting within the mine footprint. The Draft Permit Condition 66 cited in the comment is a DNR Permit to Mine condition and is regulated by the DNR.
657	Don Arnosti	Conservation Director, Izaak Walton League	Again and again, the DNR draft permit to mine uses so-called "adaptive management" as in the groundwater issue, above, while deferring difficult regulatory decisions to the future.	The MPCA used available data and reports when developing the permit. Adaptive management is commonly used in NPDES permitting to address issues as they arise. The incorporation of adaptive management as a failsafe does not invalidate the requirements for compliance, it allow a more rapid response in case of a problem. Adaptive management is regularly used in complex environmental scenarios to ensure standards are met while allowing flexibility. In this case, the underlying requirement must be met; the adaptive management is intended to develop strategies to maintain compliance.
658	Don Arnosti	Conservation Director, Izaak Walton League	The MPCA cannot use such vague assurances of future monitoring and regulatory responses to avoid careful analysis of actual threats to water quality under Minnesota's anti-degradation standards. This is unacceptable: it is a shirking of responsibility by regulators, and puts an undue burden on future generations of Minnesotans to figure out a solution to a problem we are about to create for them. This draft permit should be denied, because it fails to specify specific remedies for problems that are known, if not fully quantified or described, today. Passing such problems on to future generations is unacceptable. We can do better than this!	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
659	Don Arnosti	Conservation Director, Izaak Walton League	Disposal of water filtration membrane backwash in the leaky tailings basin poses a high risk for water quality in the future, when, as DNR experts forecast, the risky tailings dam inevitably fails.	Disposal of the small volume of membrane backwash into the FTB will not affect the ability of the seepage contanment system to capture or for the WWTS to treat the seepage that is captured. Dam safety issues are address by the DNR Dam Safety permit.
660	Don Arnosti	Conservation Director, Izaak Walton League	We object to the proposed filtration membrane wash waste storage that does not use best practices to assure that the waste is stored in a manner that does not pose a risk to public resources or people for the centuries required. The proposed tailings basin will result in a "permanent" 900-acre lake perched 250 feet above the surrounding landscape resting on old taconite tailings and uses geomorphologically unstable formations which will require constant monitoring and maintenance through the centuries. Numerous experts including the DNR's own dam safety experts have cautioned against this design. [The] Dam Safety [Division] has numerous concerns with this project because the tailings dams must function properly for an extended period of time – we've heard on the order of 900 years. Our first concern is whether the PolyMet tailings will form a structurally sound base to support the perimeter dams. Our second concern is that the proposed wet cap will significantly increase the potential for a dam failure, and will result in costly monitoring and maintenance over the life of the project (including monitoring costs to DNR for 900 years).2 PolyMet must find another disposal option for their filtration wastes before any consideration can be given to permitting this risky operation.	Comment noted. This comment pertains to issues considered in the development of the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.

661	Don Arnosti	Conservation Director, Izaak Walton League	For all of the above-mentioned deficiencies we strongly urge the MPCA to withdraw the draft water quality permit and 401 water quality certification unless and until a better mine plan is submitted by Poly Met or any future applicant wishing to mine sulfide ores in Minnesota that can truly meet the requirements of law, which require non-degradation of our precious water resources. Thank you for your consideration of our comments.	Comment noted. This comment generally states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
662	Don Arnosti	Conservation Director, Izaak Walton League	"[The] Dam Safety [Division] has numerous concerns with this project because the tailings dams must function properly for an extended period of time – we've heard on the order of 900 years. Our first concern is whether the PolyMet tailings will form a structurally sound base to support the perimeter dams. Our second concern is that the proposed wet cap will significantly increase the potential for a dam failure, and will result in costly monitoring and maintenance over the life of the project (including monitoring costs to DNR for 900 years).2 PolyMet must find another disposal option for their filtration wastes before any consideration can be given to permitting this risky operation.	Comment noted. This comment pertains to issues considered in the development of the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.
663	Don Arnosti	Conservation Director, Izaak Walton League	For all of the above-mentioned deficiencies we strongly urge the MPCA to withdraw the draft water quality permit and 401 water quality certification unless and until a better mine plan is submitted by Poly Met or any future applicant wishing to mine sulfide ores in Minnesota that can truly meet the requirements of law, which require non-degradation of our precious water resources. Thank you for your consideration of our comments	Comment noted. This comment generally states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
664	Phyllis Saliin	Citizen	I am totally opposed to the Polymet Mine Water Quality Permitting. Minnesota's lakes, rivers, and streams are too valuable to our survival and we cannot afford to threaten them in any way by a potential sulfide mining disaster with its toxic metal contaminants. It has terrible consequences for our health, wildlife, vegetation, and our state's financial health.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
665	Phyllis Saliin	Citizen	The cost of cleanup would be immense. Sulfide mining companies have a poor track record. They file for bankruptcy and leave the cost to the communities that they have destroyed.	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
666	Christie Kearney	Polymet Mining	Poly Met Mining, Inc. submits the attached comments (including two exhibits) in response to the draft NPDES/SDS permit and draft 401 certification.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
667	Christie Kearney	Polymet Mining	Poly Met Mining Inc. (PolyMet) appreciates the opportunity to submit these comments regarding the Minnesota Pollution Control Agency's (MPCA) draft NPDES/SDS permit and preliminary determination concerning the Clean Water Act Section 401 water quality certification (401 certification) for the NorthMet Project (Project). These comments address three matters: (1) the Cross-Media Analysis prepared by PolyMet, which is referenced in both MPCA's draft NPDES/SDS permit fact sheet and its draft 401 certification fact sheet; (2) MPCA's preliminary surface water antidegradation review in support of the draft NPDES/SDS permit; and (3) two conditions in the draft NPDES/SDS permit.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
668	Christie Kearney	Polymet Mining	PolyMet appreciates that MPCA and its staff have invested substantial effort in developing the draft NPDES/SDS permit, draft 401 certification, and associated permit documents. PolyMet will remain available to provide additional information as part of the permitting process. If MPCA has any questions regarding these comments or any other matter, please do not hesitate to contact me at 218-461-7746 or ckearney@polymetmining.com.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
669	Christie Kearney	Polymet Mining	To more extensively consider the effects of the NorthMet Project (Project) on water quality, Poly Met Mining, Inc. (PolyMet) conducted a study that evaluated the effects of Project air emissions, wastewater discharges, and other Project actions on surface water quality. To inform the Minnesota Pollution Control Agency's (MPCA) understanding of the inter-relationship between different media (e.g., air and surface water), the agency relied, in part, on this study, which is generally referred to as the Cross-Media Analysis.1 A complete copy of this study is included in the MPCA's administrative record for the NPDES/SDS permit and Clean Water Act Section 401 certification. The Cross-Media Analysis was informed by an extensive process overseen by the MPCA. For more than a year, a working group of interdisciplinary experts from the MPCA, Minnesota Department of Natural Resources, and PolyMet (including its outside experts) evaluated the underlying science and assumptions for the Cross-Media Analysis and analyzed the results of extensive modeling and data collection. When the Cross-Media Analysis was complete, MPCA then submitted it for independent expert peer-review. This process ensured that MPCA had the necessary technical information to inform its decision-making and that the agency had the opportunity to independently evaluate the data, methodology, assumptions, analysis, modeling, and conclusions developed for permitting purposes.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
670	Christie Kearney	Polymet Mining	The Cross-Media Analysis demonstrates that the Project is not expected to cause or contribute to violations of any water quality standards or to cause any adverse impacts to human health, either in the immediate vicinity of PolyMet's facilities or in any waters farther downstream in the St. Louis River watershed. These determinations are founded on a sophisticated analysis of the overall impacts of air emissions, wastewater discharges, and other Project actions on mercury, sulfate, and metals loading and concentrations in surface waters in the immediate vicinity of the Project and the downstream locations. MPCA's staff memoranda reviewing the Cross-Media Analysis were consistent with these technical determinations. Accordingly, MPCA, in its fact sheet for the draft Section 401 certification, specifically summarized several important conclusions from the Cross-Media Analysis, including that (1) Projectrelated sulfur deposition is not expected to result in any measurable changes in concentrations of mercury in surface waters or fish tissues; and (2) no exceedances of water quality standards are expected due to any Project air emissions.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
671	Christie Kearney	Polymet Mining	To supplement the administrative record, PolyMet includes two additional documents relating to the Cross-Media Analysis with these comments: • Overview of Cross-Media Analysis: Exhibit A is a high-level summary of the Cross-Media Analysis's purpose, design, and results. • Representative Scenario: Exhibit B includes a supplemental evaluation that PolyMet conducted using different assumptions about physical and geochemical processes relevant to the release of sulfur and metals. PolyMet explained in the Cross-Media Analysis why it believes the assumptions in the study, while understandable for the study's purpose, were very conservative in several instances, causing the Cross-Media Analysis to overestimate potential Project impacts. This supplemental evaluation is referred to as the "Representative-Scenario" evaluation, which includes assumptions more representative of actual Project conditions.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
672	Christie Kearney	Polymet Mining	The results of the Representative-Scenario evaluation demonstrate the protectiveness of the Cross-Media Analysis. It also provides further support for the conclusions in the Cross-Media Analysis that the Project will not cause or contribute to any violations of applicable water quality standards or result in any adverse effects to human health.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
673	Christie Kearney	Polymet Mining	Under Minnesota Rules, chapters 7050 and 7052, MPCA conducted an antidegradation review in connection with PolyMet's applications for an NPDES/SDS permit and a Section 401 certification. In accordance with those rules, MPCA issued its preliminary determination on antidegradation, concluding as follows: [the] water quality degradation caused by the proposed project cannot be avoided, but will be prudently and feasibly minimized, existing and beneficial uses will be protected, and the proposed activity is necessary to accommodate important economic or social changes in the geographic area in which degradation of existing high water quality is expected. . . . Therefore, the MPCA has made a preliminary determination that the project will satisfy antidegradation standards in Minnesota Rules 7050.0265, 7052.0300, and 7052.0330.2	Comment noted. This comment generally states an opinion on the antidegradation analysis and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
674	Christie Kearney	Polymet Mining	In describing the general purposes of Minnesota's recently-adopted antidegradation rules, which MPCA has applied to the Project, MPCA explained: "[t]o summarize, antidegradation provisions are a decisionmaking process a state or authorized tribe uses to determine whether and to what extent water quality may be lowered." The U.S. Environmental Protection Agency (EPA) has stated that while the Clean Water Act provides a state "with discretion to permit activities that degrade water quality," the state at a minimum must maintain "the level of quality identified in [its applicable] water quality standards as being necessary to support the water body's existing uses." The focus on the protection of existing beneficial uses centers the antidegradation analysis on determining the extent to which the water quality for certain waters can be appropriately lowered based on existing conditions of the water, applicable water quality standards, available alternatives, and broader economic benefits.	Comment noted. This comment generally states an opinion on the antidegradation analysis and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
675	Christie Kearney	Polymet Mining	As EPA further explains: Antidegradation is not a "no growth" rule and was never designed or intended to be such. It is a policy that allows public decisions to be made on important environmental actions. Where the State intends to provide for development, it may decide under this section, after satisfying the requirements for intergovernmental coordination and public participation, that some lowering of water quality in "high-quality waters" is necessary to accommodate important economic or social development.	Comment noted. This comment generally states an opinion on the antidegradation analysis and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.

676	Christie Kearney	Polymet Mining	Both PolyMet and MPCA relied on the foregoing principles in developing their antidegradation evaluations for the company's applications for an NPDES/SDS permit and Section 401 certification. PolyMet agrees with MPCA's conclusion that the Project will not impair any beneficial uses of receiving or downstream waters and that the Project satisfies all applicable antidegradation requirements. PolyMet does note that its analysis differed in certain respects from that of MPCA and that some elements of MPCA's framework may not be necessary for any subsequent permitting processes (e.g., permit renewals). These differences do not affect MPCA's ultimate conclusion that the Project meets all antidegradation requirements, but are helpful to understand as MPCA responds to public comments and finalizes the NPDES/SDS permit and Section 401 certification.	Comment noted. This comment generally states an opinion on the antidegradation analysis and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
677	Christie Kearney	Polymet Mining	Use of FEIS-Model and Design-Model Concentrations PolyMet proposed in the antidegradation evaluations in support of its NPDES/SDS permit and Section 401 certification applications that MPCA utilize the treatment-target concentrations for the Project's waste water treatment system (WWTS) as developed in the models for the Final Environmental Impact Statement (FEIS). To establish that these FEIS-model concentrations in fact will be achievable in practice, PolyMet also provided MPCA with geochemical modeling results of its discharges from its preliminary design of the WWTS for corroborative purposes (referred to as the "design-model concentrations"). MPCA considered in greater detail the design-model concentrations in its antidegradation analysis and ultimate conclusion that existing beneficial uses would be maintained. PolyMet believes that the treatment targets (generally the FEIS-model concentrations) provide the best foundation for the antidegradation review because the Project's actual effluent quality must meet all of those targets under the terms of the NPDES/SDS permit. More specifically, PolyMet believes using the treatment targets as the basis of the antidegradation analysis is more protective of the environment because, generally speaking, the FEIS-model concentrations showed higher concentrations of various parameters in the treated water discharge, thereby ensuring that all potential degradation was considered in the regulatory review.	Comment noted. This comment generally states an opinion on the antidegradation analysis and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
678	Christie Kearney	Polymet Mining	This difference in how MPCA and PolyMet weighted the design-model concentrations in their respective antidegradation analyses is ultimately not significant for purposes of issuing the NPDES/SDS permit and Section 401 certification, however, because the same outcomes occur regardless of whether the FEISmodel concentrations or design-model concentrations are used for this antidegradation review. More specifically, both models show a limited number of parameters for which measurable increases in surface water quality are expected to occur as a result of the Project (for example at outfall SD026, there were thirteen parameters under the FEIS model and four parameters under the design model, depending on the criteria for "measurable change" as discussed below). Also, both models confirm that these increases in concentration will not violate currently applicable numeric or narrative water quality criteria and, most importantly from an antidegradation perspective, will not prevent attainment of any applicable beneficial uses.	Comment noted. This comment generally states an opinion on the antidegradation analysis and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
679	Christie Kearney	Polymet Mining	Consideration of Other Regulatory Criteria Having estimated that the Project may result in measurable increases in concentrations of certain parameters in waters receiving discharges from the WWTS (and if relevant, certain downstream waters10), PolyMet's NPDES/SDS permit and Section 401 certification applications proceeded to the next steps required by Minn. R. 7050.0265.11 That additional regulatory analysis supported its conclusions that: (1) the company had analyzed appropriate alternatives, (2) there were no prudent and feasible alternatives not already included in the Project design to avoid potential degradation, (3) the Project design is a prudent and feasible alternative that will appropriately minimize any degradation, and (4) any lowering of water quality from the Project is necessary to accommodate important economic and/or social considerations.	Comment noted. This comment generally states an opinion on the antidegradation analysis and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
680	Christie Kearney	Polymet Mining	MPCA in in its preliminary antidegradation determination agreed with these PolyMet conclusions, and confirms that the Project "satisfies the [antidegradation] standards in Minnesota Rules 7050.0265 and 7052.033, as well as federal surface water pollution control statutes and rules administered by the [MPCA] commissioner." MPCA supported its conclusions with an overview of the entire Project design, which PolyMet believes is the appropriate approach because the WWTS is only part of the Project's configuration for preventing water quality impacts. The agency's preliminary determination, however, focuses considerable attention on fine design details of the Project's WWTS and of the company's internal performance monitoring system to ensure treatment to the planned sulfate criterion of 10 mg/L in the WWTS discharge. While PolyMet appreciates the agency's attention to detail, the company has some concern that this aspect of the analysis could be misconstrued as tethering any future antidegradation review for the Project to the specific treatment design components described in the Project's application. It is important to note that federal and state antidegradation requirements do not impose absolute requirements concerning technological alternatives or degradation minimization, and, as recognized in the FEIS and permitting process, future modifications to the treatment approach or the applicable regulatory framework may warrant adjustments.	Comment noted. This comment generally states an opinion on the antidegradation analysis and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
681	Christie Kearney	Polymet Mining	The possibility of such refinements, however, does not create any impediments to MPCA's antidegradation determination or its issuance of a NPDES/SDS permit or Section 401 certification for the Project. As MPCA noted in its recent antidegradation rulemaking, changes in wastewater treatment design and operations are routinely accounted for in connection with antidegradation reviews because "wastewater treatment facilities must operate under a wide variety of conditions[,] which results in pollutant load and concentration variability." MPCA reaffirmed this statement in its preliminary antidegradation determination for this Project, and properly concluded that "[t]therefore, until a new facility is operational, effluent and water quality concentrations can only be a best estimate." PolyMet agrees with these conclusions, and accordingly, believes any WWTS design changes associated with final engineering, changes in statute or rule, or any other events should be evaluated for antidegradation purposes only when such proposed changes occur.	Comment noted. This comment generally states an opinion on the antidegradation analysis and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
682	Christie Kearney	Polymet Mining	PolyMet also agrees with MPCA that if at any time in the future there is a proposal for new discharges that vary from the levels allowed by the then-governing Project permits, the determination as to whether or not a new antidegradation review will be required should be based on the cause and scope of the proposed change and other relevant considerations at that time. Those considerations will include the specific details of any proposed change in design or operations, the terms of the law and water quality standards applicable at that time, then-existing water quality conditions, and if relevant, other factors such as available alternatives for prudently and feasibly minimizing degradation.	Comment noted. This comment generally states an opinion on the antidegradation analysis and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
683	Christie Kearney	Polymet Mining	Measurable Change PolyMet provides the following comments regarding an additional point addressed in MPCA's preliminary determination. To determine whether the Project would create a "measurable change" in existing surface water quality concentrations, MPCA used a "central tendency" analysis to conduct a statistical evaluation of the relevant dataset. MPCA's rules define "measurable change" as the "practical ability to detect variation in water quality," but do not mandate use of any specific analytical technique. The approach used by MPCA in the circumstances here is consistent with the requirements of the applicable rules.	Comment noted. This comment generally states an opinion on the antidegradation analysis and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
684	Christie Kearney	Polymet Mining	PolyMet believes it important, however, to further explain the company's method for determining potential measurable changes to existing water quality, which is not clearly described in MPCA's preliminary determination. PolyMet used the full range of available monitoring data to determine existing water quality, and reported average concentrations based on that data. PolyMet then used the Laboratory Control Sample (LCS) acceptance criteria, an approach approved by EPA for similar purposes, as a method to determine whether modeled (future) water quality would represent a measurable change from the existing water quality, which was determined using the full range of monitoring data.23 PolyMet used the LCS method for determining measurable change because it aligns with the regulatory definition in Minn. R. 7050.0255, subp. 24, and provides a practical method for comparing measured (existing) and modeled (future) water quality.	Comment noted. This comment generally states an opinion on the antidegradation analysis and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
685	Christie Kearney	Polymet Mining	These differing perspectives on the underlying statistical analysis again do not affect the MPCA's ultimate conclusion that the Project satisfies all applicable antidegradation requirements. The differing opinions only affect the number of parameters for which the Project may create a measurable change in water quality (with MPCA concluding there are fewer parameters that would result in such a change), but under the parameter-by-parameter evaluation required by the applicable rules, the number of changes is not important. For as discussed above, even if there is only a single measurable change, a review of alternatives and of the necessity of the proposed degradation is appropriate, and both PolyMet and MPCA conducted the required review.	Comment noted. This comment generally states an opinion on the antidegradation analysis and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.

686	Christie Kearney	Polymet Mining	PolyMet has technical comments on two specific conditions of the draft NPDES/SDS permit, as follows: 1. Condition 6.10.2 (located in the draft permit after Condition 6.10.19) states: "All water collected from the Category 1 Waste Rock Stockpile must be collected by the Category 1 Stockpile Groundwater Containment System and routed to the WWTS, with the exception of stormwater from the reclaimed portions of the stockpile." PolyMet showed in its NPDES/SDS permit application and in the FEIS that some of the water from the Category 1 Waste Rock Stockpile would be collected in the mine pits due to the Category 1 Stockpile Groundwater Containment System sump design. Page 23 of Volume II of the permit application refers to Section 2.1.2.2 of the Rock and Overburden Management Plan where the design is explained. The Category 1 Stockpile Groundwater Containment System sumps are designed for a small storm event (their holding capacity), with pumps designed for up to the 100-year, 24-hour storm event. Both sumps are designed to overflow into the mine pits if inflows to the sumps exceed their capacity. To address this design feature, this condition should allow for collection of water from Category 1 Waste Rock Stockpile to be collected by the Category 1 Stockpile Groundwater Containment System or within the mine pits.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
687	Christie Kearney	Polymet Mining	2. Condition 6.10.35 refers to "SW074." This reference is a typographical error. It should be to monitoring location "WS074."	Correction made.
688	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Attached are Minnesota Center for Environmental Advocacy's, the Center for Biological Diversity's, and the Friends of the Boundary Waters Wilderness's the Comments and Joint Petition for a Contested Case Hearing Regarding Poly Met Mining, Inc.'s Application for a National Pollutant Discharge Elimination System/State Disposal System Permit for the NorthMet Project. In light of the size limitations, the attachments to the Comments and Joint Petition will be sent via U.S. mail as permitted by the Notice.	Background statement for comments to follow. Comment noted.
689	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Minnesota Center for Environmental Advocacy ("MCEA"), the Center for Biological Diversity ("CBD"), and the Friends of the Boundary Waters Wilderness ("FBWW") (collectively, "Petitioners") submit these Comments and Petition for a Contested Case Hearing ("Petition") to the Commissioner of the Minnesota Pollution Control Agency ("Commissioner" or "MPCA") pursuant to Minn. R. 7000.1800-1900 with regard to the application ("Application") for a National Pollutant Discharge Elimination System/State Disposal System ("NPDES/SDS") permit (the "Permit") for the NorthMet Mine Project ("NorthMet Mine Project" or "Project") submitted by Poly Met Mining, Inc. ("Applicant" or "PolyMet").1 Petitioners seek an order of the Commissioner denying issuance of the Permit unless the Permit and the Project are substantially revised to address the material issues of fact and failure to adhere to applicable legal standards described below. If the Commissioner does not deny the Permit, Petitioners petition for a contested case hearing on the material issues of fact set forth below.	Background to support commenter's contested case hearing request. Comment noted.
690	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	I. TIMELINESS. Pursuant to Minn. R. 7000.1800, a petition for a contested case hearing "must be submitted during the public comment period established under parts 7001.0100." In this case, MPCA published the Permit for public comment on January 31, 2018. The end of the comment period is March 16, 2018. Petitioners filed this Petition on March 16, 2018. The Petition and Comments are timely.	Background to support commenter's contested case hearing request. Comment noted.
691	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	II. STATEMENT OF REASONS. In general, while MPCA attempted to create a Permit with enforceable conditions that will protect the environment, the Permit conditions do not address the fundamental underlying problem with this Project: the engineered systems will not function at their assumed efficiencies either during the mining operation or during the prolonged—essentially endless—period of post-closure. The mine pits, the permanent storage pile, and the flotation tailings basin all ultimately will be sources of pollutants that will cause exceedances of water quality standards and degradation of waters of the state. MPCA has turned a blind eye to the long-term impact of granting this short-term permit.	This comment provides a summary of detailed comments that follow. The MPCA provides responses to the comments in detail below.
692	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Once this project begins, there is no turning back. This can already be seen at the Mine Site, which is already a source of legacy mercury pollution to the watershed.	This comment presents the opinion of the commenter, but does not address the NPDES permit conditions.
693	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Early in the environmental review process, the Minnesota Department of Natural Resources ("DNR") considered whether it would be feasible to backfill waste rock into existing taconite pits Applicant owned. DNR's analysis found it would not be feasible, because the existing pit, created by LTV Steel fifty years ago, is already a source of mercury pollution via overflow.2 If more rock were added to the pit, the discharge of mercury would increase, which would not be allowable under the Clean Water Act, and the proposal was accordingly rejected. In other words, the history of mining on Applicant's property is already a source of legacy mercury pollution from 50 years ago, and what will happen in the next 20 years at that site will reverberate for centuries.	This comment presents background information and the opinion of the commenter, but does not address the NPDES permit conditions.
694	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Under the Clean Water Act and state law, MPCA has an obligation to ensure that the designs intended to prevent pollution of the groundwater and surface water will function as proposed for both the short-term and the long-term. MPCA also has an obligation to include conditions in the Permit that will ensure that the Permit can be enforced both now and in the future, and conditions that will ensure that MPCA retains the authority to require Applicant to meet the highest standards. It is not sufficient for MPCA to prohibit discharges except at the permitted outfalls when the evidence suggests that there will be numerous, unpermitted discharges that will eventually reach surface water undetected by the deficient monitoring system. Nor is it sufficient for MPCA to allow the Permit to be issued on the basis that, in the future, there will be "adaptive management" that will address the predictable problems, particularly where that adaptive management is comprised of untested schemes that are likely to fail. Ultimately, MPCA treats the Permit as if the next 5 years are the only years that matter for Permit approval. But the evidence shows the strategies Applicant proposes will not work long term and that Applicant intends to abandon3 all of water-treatment plans as soon as possible. MPCA cannot ignore known, long-term issues For these reasons and as set forth below, Petitioner seek substantial changes in the Permit and a contested case hearing.	Regarding adaptive management, see responses to Comments 716 through 716-E. The detailed responses to more detailed comments on this issue are below.
695	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	III. STATEMENT OF ISSUES. The Commissioner must grant a petition to hold a contested case hearing if the Commissioner finds that: A. there is a material issue of fact in dispute concerning the matter pending before the board or commissioner; B. the board or commissioner has the jurisdiction to make a determination on the disputed material issue of fact; and C. there is a reasonable basis underlying the disputed material issue of fact or facts such that the holding of a contested case hearing would allow the introduction of information that would aid the board or commissioner in resolving the disputed facts in making a final decision on the matter.4 In Parts VII-X below, Petitioners set forth the material issues of fact that are in dispute. Petitioners further provide the basis underlying the material and disputed issues illustrating that a contested case hearing would aid the Commissioner in making a final decision as to whether MPCA should issue the Permit.	This comment presents background information and the opinion of the commenter, but does not address the NPDES permit conditions.

696	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	IV. STATEMENT OF INTEREST. MCEA is a Minnesota nonprofit public interest organization with over 3,000 members and its mission is to use law, science, and research to protect and enhance Minnesota's natural resources, wildlife, and the health of its people. MCEA has program areas in mining and natural resources, and protecting Minnesota's resources from the unsafe development of copper-nickel deposits has been part of MCEA's mission since its inception. MCEA has participated in the administrative processes concerning the NorthMet Mine Project since the first incarnation of the project proposal in the late 2000s, by submitting comments, retaining expert consulting services, and attending and speaking at public hearings. MCEA members live and recreate on lands and waterways that will be impacted by the NorthMet Mine Project. MCEA members use and enjoy these lands, rivers, lakes and streams for recreation, spiritual, cultural, economic, and aesthetic enjoyment. Many members obtain nutrition and sustenance from resources that would be negatively impacted by the project, including fish and wild rice.	Background information. Comment noted.
697	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	CBD is a nonprofit conservation organization headquartered in Tucson, Arizona, with offices in a number of states, including an office in Duluth, Minnesota. CBD is a leading organization fighting on behalf of wildlife and wild places, including threatened and endangered species such as the Canada lynx and gray wolf that would be adversely affected by the NorthMet Mine Project. CBD believes that the welfare of human beings is deeply linked to nature—the existence in our world of a vast diversity of wild animals and plants. Because diversity has intrinsic value, and because its loss impoverishes society, CBD works to secure a future for all species, great and small, hovering on the brink of extinction.	Background information. Comment noted.
698	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	CBD has over 63,000 members, including members who own land and recreate in northeastern Minnesota, including downstream from the proposed NorthMet Mine Project. These members' interests include fishing, canoeing, wild-rice gathering, camping, hiking, and seeking quiet remote places to recreate within the Superior National Forest. These interests would be negatively and potentially permanently impacted if the NorthMet Mine Project is permitted and allowed to proceed. CBD and some of its members have been actively engaged in the NorthMet Mine Project for many years, including submitting detailed comments to state and federal agencies and attending public hearings.	Background information. Comment noted.
699	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	The mission of FBWW is "to protect, preserve and restore the wilderness character of the Boundary Waters Canoe Area Wilderness and the Quetico-Superior ecosystem." As the NorthMet Mine Project is within the Superior ecosystem, its protection falls squarely within FBWW's mission and within the interests of its 3,000-plus members and supporters. FBWW members recreate not only within the Boundary Waters Canoe Area Wilderness, but also in other parts of Minnesota's Arrowhead region, on federal, state, and county land. FBWW members paddle, fish, swim, and rice on the St. Louis River downstream from the NorthMet Mine Project. Impacts on water quality from the Project could affect these activities. Many FBWW members hunt in the area, and many more enjoy seeing and being in the presence of wildlife in its natural habitat. If the Project is built, it will destroy habitat for species that are important to FBWW members, such as moose, Canada lynx, wolves, northern goshawks, and great grey owls. FBWW and its members care deeply about the ecosystems of Minnesota's north woods, and are committed to ensuring that they will not disappear. The Project would destroy hundreds of acres of natural communities that are already considered vulnerable or vulnerable/imperiled and that will not be replaced. Most FBWW members are Minnesota taxpayers. They are also Minnesota residents who hope their grandchildren and great-grandchildren will live in Minnesota and enjoy the Superior National Forest and surrounding lands and waters as they do. The Project as proposed presents risks to future generations that will include the descendants of FBWW members. Those risks are both to natural resources, most especially clean water, and to financial well-being should Minnesota taxpayers be required to pay for the environmental damage caused by the NorthMet Mine Project.	Background information. Comment noted.
700	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Page 7 to 9 describes expectations of the contested case hearing, including timing, witnesses, and purpose of need.	Background information. Comment noted.
701	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	VI. APPLICABLE LEGAL STANDARDS. Before issuing the Permit, MPCA must make the following finding: Except as provided in subpart 2, the agency shall issue, reissue, revoke and reissue, or modify a permit if the agency determines that the proposed permittee or permittees will, with respect to the facility or activity to be permitted, comply or will undertake a schedule of compliance to achieve compliance with all applicable state and federal pollution control statutes and rules administered by the agency, and conditions of the permit and that all applicable requirements of [Minn. Stat. ch.] 116D, and the rules adopted under . . . chapter 116D, have been fulfilled. For solid waste facilities, the requirements of [Minn. Stat. § 473.823, subds. 3, 6] must also be fulfilled.11 Similarly, the MPCA can refuse to issue the Permit if it finds: A. that with respect to the facility or activity to be permitted, the proposed permittee or permittees will not comply with all applicable state and federal pollution control statutes and rules administered by the agency, or conditions of the permit; . . . . C. that the permittee has failed to disclose fully all facts relevant to the facility or activity to be permitted, or that the permittee has submitted false or misleading information to the agency or to the commissioner; D. that the permitted facility or activity endangers human health or the environment and that the danger cannot be removed by a modification of the conditions of the permit; . . . .12 In issuing an NPDES/SDS permit, MPCA must ensure that the permit contains "conditions necessary for the permittee to achieve compliance with all Minnesota or federal statutes or rules."13 The Commissioner is required to establish "effluent limitations, standards, or prohibitions for each pollutant to be discharged from each outfall or discharge point of the permitted facility."14	This comment cites state rule. The MPCA does not dispute the applicability of state rules.
702	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	The provisions cited above all have the goal of protecting water-quality standards, including water-quality standards applicable to surface water and groundwater. However, MPCA's rules also prohibit the issuance of permits if the activity would cause unnecessary degradation of waters. For groundwater, MPCA's policy is that "the disposal of sewage, industrial waste, and other wastes shall be controlled as may be necessary to ensure that to the maximum practicable extent the underground waters of the state are maintained at their natural quality."18 If groundwater is not going to be maintained at its natural quality, MPCA must determine "that a change is justifiable by reason of necessary economic or social development and will not preclude appropriate beneficial present and future uses of the waters."19 For surface water, Minn. R. 7050.0250 provides: The purpose of the antidegradation provisions in parts 7050.0250 to 7050.0335 is to achieve and maintain the highest possible quality in surface waters of the state. To accomplish this purpose: A. existing uses and the level of water quality necessary to protect existing uses shall be maintained and protected; B. degradation of high water quality shall be minimized and allowed only to the extent necessary to accommodate important economic or social development; C. water quality necessary to preserve the exceptional characteristics of outstanding resource value waters shall be maintained and protected; and D. proposed activities with the potential for water quality impairments associated with thermal discharges shall be consistent with section 316 of the Clean Water Act, United States Code, title 33, section 1326. Below, Petitioners set forth the detailed reasons why the Permit does not meet the standards set forth above.	This comment cites state rule. The MPCA does not dispute the applicability of state rules.

703	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	VII. MPCA CANNOT FIND APPLICANT'S PROPOSED ACTIONS TO MINIMIZE GROUNDWATER CONTAMINATION ARE ADEQUATE. The Permit does not adequately minimize groundwater contamination. To issue the Permit, MPCA must determine that Applicant will comply with all applicable state and federal pollution control statutes and rules administered by MPCA, and conditions of the permit.20 Similarly, under MPCA's rules "a [NPDES] permit issued by the agency must contain conditions necessary for the permittee to achieve compliance with all Minnesota or federal statutes or rules."21 Finally, as noted above, under MPCA's water-quality rules, the beneficial uses of surface water and groundwater must be protected from degradation. MPCA includes conditions in the Permit that prohibit Applicant from discharging to surface water from a number of different sites at the facility. For example, permit condition 6.10.17 states "[t]he Permittee shall not discharge any process wastewater from the Mine Site to surface waters under this permit." A similar condition is attached to the Category 2/3 Stockpile, Category 4 Stockpile, Overburden Storage and Laydown Area, Ore Surge Pile, and Equalization Basins:23 "[t]he Permittee shall operate and maintain its engineering controls associated with these infrastructure facilities to ensure there is no discharge to surface waters from the Mine Site."24 MPCA has included the following condition in the Permit applicable to the FTB: "[d]irect discharge to surface waters from the FTB Seepage Containment System is prohibited. All water collected from the FTB Seepage Containment System must either be pumped back to the FTB or routed to the WWTS." 25 In addition, "[t]his permit does not authorize the direct discharge to surface waters from the High Concentration, Low-Concentration and Construction Mine Water Pipelines."26 For each of these areas, the Permit includes conditions that are intended to act as insurance for compliance with the stated prohibitions. Although permit condition 6.16.36 states that "[e]xcept for discharges from outfalls specifically authorized by this permit, overflows, discharges, spills, or other releases of wastewater or materials to the environment, whether intentional or not, are prohibited," in fact MPCA has not prohibited discharges to the groundwater in this Permit.	The permit includes specific authorized discharge points (SD002-SD011). It does not authorize any other point source discharge and in fact prohibits direct discharge to surface waters from the mine site and plant site. The permit language quoted in the comment ("other releases of wastewater or materials to the environment, whether intentional or not, are prohibited") directly contradicts the conclusion of the comment, that other discharges are not prohibited.
703-A	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	27 Instead, MPCA has merely concluded that the "combination of controls and mitigation measures (such as engineering controls, wastewater treatment and water monitoring activities) that are part of the Project design" will meet the groundwater-protection requirement.28 For groundwater, these controls and mitigation measures included the "groundwater containment system" for the permanent Category 1 Stockpile and a geomembrane cover for that pile,29 and engineered low-permeability composite liner systems for the Category 2/3 and 4 Stockpiles and the Ore Surge pile, all with collected wastewater routed to the WWTS. MPCA also noted the plan to return the Category 2/3 and 4 waste rock to the mine pits, which will be flooded to control pollutants generated by oxidation.30 In the interim, wastewater will be treated.31 MPCA concluded that "[c]ollectively, the incorporation of these components into the project design at the Mine Site will minimize the release of pollutants from the Mine Site, which significantly contributes to the minimization of impacts from the proposed WWTS discharge at the Plant Site."32 It is unclear upon which basis the MPCA makes this conclusion, since the design of the containment systems have been called into serious question by DNR's consultants,33 and the final design of the containment systems is unknown.34	The MPCA relies on technical review of the permit application and plans submitted to determine if proposed systems will adequately minimize the potential degradation. The MPCA has reviewed the available information, including an engineering review, and concluded the permit conditions can be met and the engineering controls will function as designed. Although the comment questions the engineering conclusion reached by the MPCA, it does not provide a factual basis for disputing it. The comment cites the surface water antidegradation review, when in fact the groundwater nondegradation review addressed the issues regarding potential groundwater contamination raised by the commenter.
704	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Needless to say, if these activities and controls will not function as designed, MPCA lacks a reasonable basis for concluding that its permit conditions will be protective. MPCA cannot justify permitting inadequate systems by pointing to requirements in the Permit for the Applicant to do after-the-fact studies of these systems that may lead to their redesign35 because the standard for permit approval does not allow new facilities to be permitted that do not comply with requirements, except if there is a "schedule of compliance."36 For a new facility, a "schedule of compliance" should not be necessary and are not authorized.37	As noted in response to Comment 703-A, the MPCA relies on technical review. The MPCA concluded the permit conditions can be met and the WWTS will function as designed. Although the comment questions the engineering conclusion reached by the MPCA, it does not provide a factual basis for disputing it. The incorporation of adaptive management as a failsafe does not invalidate the requirements for compliance. Adaptive management is regularly used in complex environmental scenarios to ensure standards are met while allowing flexibility. In this case, the underlying requirement must be met; the adaptive management is intended to develop strategies to maintain compliance.
704-A	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Petitioners have examined the components intended to protect groundwater and have concluded that, as currently designed, the components will not function as designed to minimize contamination of the groundwater. This issue is compounded by the fact that the monitoring system is inadequately designed and will not identify problems if they do occur.38 Worse, no limits are included in the Permit for the groundwater, which is "monitor only."39 As a result, even if groundwater begins to show impacts because the activities and controls are failing, it is not a violation of the Permit. Although the nondegradation attachment to the Fact Sheet includes discussion of what would constitute degradation of the groundwater, no conditions in the Permit exist to make this determination enforceable.40 The lack of any enforceable condition constitutes a material deficiency in the Permit.	See response to Comment 703-A and 704 regarding the functionality of engineering controls. See responses to Comments 710 through 712-B regarding adequacy of groundwater monitoring. The permit requires an Annual Comprehensive Performance Evaluation Report (item 5.182.221), which must evaluate the effectiveness of each of the major engineering controls (i.e., seepage containment systems, stockpile liner systems, equalization basins) based on all relevant monitoring and performance data, and must identify any adaptive management needed to prevent impacts. The incorporation of adaptive management as a failsafe does not invalidate the requirements for compliance. Adaptive management is regularly used in complex environmental scenarios to ensure standards are met while allowing flexibility.
704-B	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	As the Applicant admits, polluted groundwater has the potential to reach certain surface waters in 30 to 35 years.41 Petitioners submitted the Permit and supporting documents to Dr. Tom Myers for review. Dr. Myers summarizes the issues, concluding that "[t]he NPDES/SDS permit for the PolyMet mine proposal should not be awarded because the application is based on overly optimistic design assumptions, modeling that does not consider flow path details near either the mine site or tailings impoundment, inaccurate analysis of pathways for contaminants to reach the rivers, and grossly insufficient proposed monitoring."42 Below, Petitioners describe the problems with the assumed efficacy of the mine pit management, waste rock systems, and seepage-collection systems proposed for the Category 1 Stockpile and the FTB. Petitioners demonstrate why it is not reasonable for MPCA to assume that these actions will be effective.	As described in responses to Comments 705 through 713, the MPCA already considered the information provided by Dr. Myers and reached a different conclusion.
705	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	A. The Mine Pit Lakes Will Cause Degradation of Groundwater. Applicant's proposal regarding management of the mine pit lakes will not avoid degradation to groundwater. Applicant proposes to dewater the West Pit during mine operations, and posits that during this time "groundwater will flow inwards towards the pit, thereby having no impact to groundwater quality during mining operations."43 After the mining operation, Applicant will accelerate the natural flooding of the pit with treated water and will treat and return the water as the West Pit fills "to manage the overall water quality of pit waters prior to groundwater outflow from the pit to the surficial aquifer."44 Applicant notes that, at about Mine Year 48, the West Pit will flow into the surficial groundwater flow path towards the Partridge River, but claims that the flooding of the West Pit will control water quality by reducing the oxidation time for the pit wall rock and that "contaminant constituent concentrations [will be at] long-term steady state concentrations."45 The East Pit and Central Pit will also be dewatered during mining operations, which Applicant claims will cause groundwater to flow inwards so that there is no impact to groundwater quality. After mining is completed, the East Pit and Central Pit will be backfilled and flooded. During flooding and approximately 14 years after flooding is complete, Applicant will recirculate and treat mine pit waters at the WWTS.46	This comment is predicated on what was submitted as new hydrogeologic modeling by the petitioners. Similar modeling was submitted by the petitioners during the EIS for which the DNR, through its third party consultant, completed a detailed review. The review specifically included certain model assumptions related to aquifer recharge, hydraulic conductivities, project engineering controls, and model boundaries and their effect on subsequent groundwater flow predictions. See FEIS Appendix A at 483; Comparison of Myers Flow/Transport Model with Agency EIS Models, Sept. 21, 2015. Given the differences in some of the assumptions for the alternative model, many of which DNR did not agree with, MDNR determined that the EIS modeling was sufficient and did not further consider the alternative model. MPCA has worked with MDNR in the review of the newly submitted modeling information and has determined that, in fact, it is not actually new information but rather a repackaging of information already addressed during the EIS process. The recent submission includes numerous assumptions that MDNR reviewed and disagreed with in the prior review. MPCA supports DNR's position on this matter. In addition, the comment addresses a potential discharge that is not authorized by the NPDES permit.

706	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Applicant's proposal suffers from two unreasonable assumptions that will result in groundwater degradation: (1) the amount of contamination the waste rock will generate; and (2) the way contaminated groundwater will behave. In both circumstances, MPCA relied on the unreasonable assumptions to support issuing the Permit. MPCA should not rely on these assumptions for the reasons set forth below. First, Applicant relies on unreasonable assumptions regarding the contamination that will be generated by the waste rock. Dr. Ann Maest, a leading expert in geochemistry and water resources, reviewed Applicant's assumptions and concludes that: Incorrect assumptions about acid drainage and contaminant leaching have led PolyMet to underestimate the potential impact of mine water on the environment at and around the mine and plant sites. The assumptions include that once wastes go acidic, the pH will "recover." In addition, the repeated and seasonal contribution of secondary salts to waste and ore leaching has been ignored, and release rates and concentration caps rely on incorrect conceptual models. For example, if the measured pH values of Category 1 HCT leachate were used to estimate the concentration cap for nickel, maximum nickel concentrations would be approximately 10 times higher than predicted by the site water quality model. If the pH range between 6.0 and 7.0 is considered, the maximum measured nickel concentration is 120 mg/L, almost 10 times higher than the maximum concentration cap.47 Upon reviewing Dr. Maest's conclusions, MPCA cannot assume that the water coming from the mine pit lakes will not be a significant source of contamination to the groundwater. Dr. Glenn Miller, an expert on mine reclamation, concurs with Dr. Maest, noting that in general predictions of pit lake water quality underestimate the amount of sulfate that will be delivered to the pits.48 Dr. Miller notes that the wall rock in the pits, as well as the dewatered cone of depression, contains sulfides, which suggests that sulfate will be released as the pit lake fills.49 Second, Applicant's conclusion that groundwater pollution will not occur stems from unsupported assumptions about how contaminated groundwater will behave. Dr. Myers reviewed the information in the record and concluded that: ▪ Backfilling the East Pit with highly reactive waste creates a high concentration water in the pit that will increase the concentrations in dewatering flow that is not considered in the application. ▪ Backfilling the East Pit with highly reactive waste and then filling it with water creates a situation where pit water will likely flow into surrounding groundwater, at least temporarily, and contaminate it. ▪ Rapid fill of the West Pit will cause pit water to flow into surrounding groundwater, thereby degrading the groundwater. The application does not consider this groundwater degradation.50 Dr. Myers reaches these conclusions because As PolyMet attempts to fully saturate the backfilled waste, water levels could be higher than the surrounding groundwater for substantial periods. If this occurs, water (and contaminants) will flow into the groundwater. Fracture zones that intersect the pit could allow contaminants to escape the hydraulic control of the pit. PolyMet has not considered this source of groundwater contamination nor provided monitoring to document whether it occurs.51 Both issues are material because they undermine MPCA's conclusion that the "combination of controls and mitigation measures (such as engineering controls, wastewater treatment and water monitoring activities) that are part of the Project design" will meet the groundwater protection requirement.52 The issues are also material because, based on modeling performed by Dr. Myers: Waste water seeping from both the tailings impoundment and waste sites on the Mine Site will reach surface water, as shown by transport analysis. Contaminant plumes released from both mine site and plant site sources will reach long stretches of surface water. This includes waste from the tailings impoundment reaching the Embarrass River and from mine site sources reaching the Partridge River both to the north and south.53 As a result, MPCA should not issue the Permit until Applicant correctly identifies the levels of contamination that will likely be present in the mine pit lakes and how those levels change assumptions about the potential impact from the facility on groundwater and ultimately surface water. MPCA require this information, modify the Permit accordingly, and grant Petitioners a contested case hearing on the issue.	The subject of waste rock characterization for the purpose of predicting geochemical behavior is under MDNR jurisdiction for the Permit to Mine according to Minnesota Rule 6132.1000. The issues of the type and degree of waste characterization done and the practical ability to segregate high-sulfur waste rock during operations was thoroughly addressed in the EIS process. See FEIS Section 3.2.2.1.7 and Table 3.2-8. MPCA concurs with this analysis. Specifically, DNR determined that the number of waste rock samples were sufficient. Samples were pre-selected to be spatially dispersed across the deposit, included rock from each of the major lithologic units, and captured the range in metal and sulfide concentrations found in hundreds of borings. Rather than conducting an assessment of neutralization potential of the waste rock, MDNR assessed the acid-generating potential of the rock by directly measuring effluent from the multi-year humidity cell tests that were performed. Finally, MDNR determined that new technologies, such as high precision GPS, make waste segregation in the field more practical and that they will require confirmational sampling of the Category 1 waste rock stockpile to verify proper placement of waste rock materials. MPCA staff participated in the review of this issue during the EIS process and agrees with the conclusions. The comment provided no new information that would give the MPCA reason to dispute the EIS analysis and conclusion. Regarding groundwater modeling assumptions, see response to Comment 705.
707	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	B. The Barrier Walls Surrounding the Tailings Basin and the Category 1 Stockpile Will Not Capture Nearly 100% of Mine-Impacted Surface Water and Groundwater. The barrier walls surrounding the FTB and Category 1 Stockpile will not, as assumed in the Permit, capture nearly 100% of mine-impacted groundwater and surface water. Generally, Minnesota law does not allow discharges to the unsaturated zone.54 Despite this prohibition, MPCA proposes allowing Applicant to discharge wastewater into the groundwater under the assumption that a secondary system will recapture the released pollutants. This "release and catch" system is the method that MPCA proposes to approve for both the seepage from the FTB and the Category 1 Stockpile, both of which will generate this seepage on a permanent basis.55 At both sites, the Permit would allow the discharge of contaminants to the groundwater on a permanent basis with the hope that the contaminants can be collected in a cutoff-trench seepage-collection system and later treated throughout the active mining phase until an unspecified time many decades into the future. Not incidentally, this method has been specifically rejected by the DNR, and permitting such a method would violate DNR's nonferrous mining regulations. Applicant modeled the seepage capture from the Category 1 Stockpile recovery system and has estimated that it will recover between 91% and 99% of the seepage from the waste rock.57 Similarly, Applicant has asserted that the seepage-collection system for the FTB will capture 90% of the seepage from the FTB, relying on a newer modeling exercise conducted by Barr Engineering (2015b).58 Based on these assumptions and Applicant's calculation of the potential level of pollutants in this seepage, Applicant posits that the impacts to groundwater (and eventually surface water) will be minimal.59 MPCA appears to have accepted these assumptions,60 despite the fact that the final design of these containment systems remains unknown.61 Petitioners' experts question these assumptions, however, as described below. Whether these assumptions are reasonable is material because, if the safeguards intended to recapture the seepage do not operate as designed, there is the potential for pollutants from the Category 1 Stockpile to reach the Partridge River, based on the modeling conducted by Dr. Myers.62 If the FTB seepage collection system does not operate as designed, there is the potential for pollutants to reach the Embarrass River.	The MPCA can, and has, issued NPDES/SDS permits prior to the completion of final plans and specifications. MODFLOW modeling specific to both the flotation tailings basin (FTB) seepage capture system and the Category 1 waste rock stockpile containment system was conducted during the EIS and provided reliable estimates of seepage capture. See FEIS at section 3-47, 5-7. Results from this modeling were used in conjunction with the overall GoldSim water quality model, which showed the predicted degree of capture would be sufficient to protect downgradient surface and ground water quality. Additionally, the design details in the permit application for the FTB seepage capture system (including the support drawings in Appendix B, to Vol. V of the application and referenced material in the Water Management Plan - Plant) and for the Category 1 waste rock stockpile containment system (including support drawings in Appendix B to Vol. II of the application and referenced material in the Water Management Plan - Mine) provide sufficient detail on how and where the capture systems will be constructed. The MPCA added language in parts 5.176.61 and 5.176.84 of the draft permit that specifically addresses the design and construction of the FTB and Category 1 containment systems by specifying the key components of the systems that are required, including cutoff wall permeability. In addition, the MPCA added language in parts 5.176.63 and 5.176.86 of the draft permit requiring a signed certification that the systems, as constructed, meet the design performance standards and the submittal of as-built drawings and QA/QC test results for the systems. These requirements provide assurance that the containment systems will be constructed as proposed and as modeled. The MPCA participated in the review of this issue during the EIS process and upon review of the permit application found no reason to disagree with the EIS analysis. The modifications to draft permit language are sufficient to adequately address the comment.
707-A	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Based on the evaluation of experts, Petitioners submit that the Applicant's assumptions about the "release and catch" systems are not based on any sense of reality. The first element of unrealistic optimism concerns the levels of pollutants likely to be present in the seepage.64 Dr. Maest examined the waste rock characterization studies performed by Applicant.65 Dr. Maest concludes that levels of contaminants coming off the waste rock storage piles will likely exceed predicted levels.66 Based on her review of the data, Dr. Maest finds that the number of waste rock samples analyzed was too small to generate reliable data about the Category 1 waste rock, and assumptions about neutralization potential cannot be supported due to Applicant's failure to use industry-accepted methods for testing the waste rock.67 The limited mineralogic results that are available indicate that waste rock has nearly no ability to neutralize acidic leachate, should it develop in the stockpiles or the pit.68 Dr. Maest also notes that "[t]he consistent separation of Category 1 wastes from wastes and ore with higher sulfide content during operations will be difficult, if not impossible, leading to a greater potential for pollutants to be generated in the unlined Category 1 storage pile than Applicant assumes."69	The comment interprets the requirements of Minnesota's nonferrous reclamation rules (Minnesota Rules 6132) as it relates to project design. It falls under MDNR's Permit to Mine jurisdiction, not MPCA or Clean Water Act authorities.
707-B	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Petitioner's experts universally criticized Applicant's recapture assumptions based on the proposed design of the systems. In his comments regarding the Final Environmental Impact Statement, Dr. David Chambers, an Engineer and Professional Geophysicist, opines that the quality and efficacy of a cutoff wall will depend on: (1) How well the cutoff wall can be grouted into the fractured bedrock to avoid contaminants moving under the wall in more permeable sediments; (2) How effective the collection system on the upstream side of the cutoff wall is at removing pressure on this barrier; and, (3) The permeability contrast between the cutoff wall and the adjacent sediments.70 But Dr. Chambers observes issues, such as: if the grouting is done incorrectly a "zone of relatively high permeability for contaminants to escape could be created"; and that the seepage-collection system for the Category 1 Stockpile may put "more hydraulic pressure" on the cutoff wall, meaning "more seepage through or under the barrier."71 These concerns are shared by Dr. Michael Malusis, a specialist in waste contaminant barriers. According to Dr. Malusis: Specifications generally call for a minimum depth of key into the lower confining unit to ensure an adequate seal that minimizes underseepage. Without a proper key, the assumption of perfect contact between the cutoff wall and the bedrock in the seepage model is probably a poor assumption that will overestimate the actual seepage capture. The permit should include a commitment to a minimum depth of key for the wall.72Malusis also notes that:Use of a cutoff wall with a maximum allowable k of 10-5 cm/s is not consistent with standard practice for vertical barriers used in long-term hydraulic control or geoenvironmental containment (i.e., pollution control) applications. The typical maximum k in these applications is 10-6 or 10-7 cm/s (e.g., Owaidat and Day 1998, McKnight and Owaidat 2001, Spaulding 2007, Ryan and Spaulding 2008), which is 10 to 100 times lower than proposed for this wall.73 Consultants hired by DNR to review Applicant's Permit to Mine Application concluded similarly, noting that "[i]t is our view that this should not be termed a 'wall.' A compacted soil hydraulic barrier should have a hydraulic conductivity of less than 10-7 cm/sec."74 None of these concerns with the efficacy of the containment systems have been resolved by modifications to the design, which has not yet been finalized.75	The commenter questions the validity of the assumed (i.e., modeled) capture rate and that impacts to groundwater will be minimal. These comments were also presented by the commenter during the EIS process (including those offered by the commenter's experts) and were adequately responded to in the FEIS. See RGU Consideration of Comments on the FEIS at 529. The Modflow modeling conducted for the EIS indicated that the capture efficiency for both systems would be in excess of 90% and the subsequent GoldSim modeling indicated that degree of capture would be sufficient to protect downgradient surface and ground water quality. See FEIS at 5-7. Specific comments on the design of the system included in the petitioner's comments (such as keying the barrier into bedrock, the permeability of the barrier material and the efficiency of the collection system) were directly addressed in the EIS. The barrier's primary function is not to hold back the seepage, but instead, together with pumping from the collection system, to allow a hydraulic gradient reversal such that outward flow cannot occur. The MPCA added language in parts 5.176.61 and 5.176.84 of the draft permit that specifically addresses the design and construction of the FTB and Category 1 containment systems by specifying the key components of the systems that are required, including cutoff wall permeability and a requirement to key the cutoff wall into bedrock. These requirements further specify that the systems be constructed and operated so as to maintain an inward hydraulic gradient across the cutoff wall. The draft permit requires that 13 pairs of groundwater monitoring devices (wells and piezometers) at each of the systems be monitored on a monthly basis to ensure that the necessary inward gradient is being maintained. As described in response to Comment 711 and 711-A, if there is an inward hydraulic gradient, flow will not move out through the barrier. The draft permit further requires that the performance of the capture/containment systems and the adequacy of the monitoring network be assessed on an annual basis. As described above in response to Comments 705 through 707-A, the information provided by the commenter's experts regarding waste rock characterization and effectiveness of the barrier were considered in the EIS. For the reasons above, the agency correctly determined that the treatment would meet the standard assumed in the EIS. No new information is presented in the petitions, including the cited experts, to support a different conclusion and the issue was adequately addressed in the EIS.

707-C	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Finally, Dr. Maest also notes that mitigation measures for the Category 1 Stockpile are unlikely to prevent the movement of contaminants to mine site groundwater and surface water.76 Although MPCA included Permit conditions to ensure that the seepage trenches will be monitored, there is no assurance in the Application that the seepage trenches will be appropriately grouted or keyed into the bedrock or that the permeability head will be maintained. With regard to the FTB trench, there is no assurance that all of the compactable silt and peat layers, including legacy tailings from the LTV mining operation.77 It is not clear what construction technique will be used for the Category 1 Stockpile trench, as the Permit to Mine Application is equivocal.78 If the trenches are not properly grouted to competent bedrock or designed to maintain appropriate inward pressure, there is no assurance that the assumed levels of collection will be met and the systems will have to redesigned "on the fly" after the problems are discovered. In order to ensure MPCA's assumptions about the efficacy of the trenches are not unreasonable, MPCA must, at a minimum, include a term in the Permit specifically establishing the "key" to the bedrock for each seepage-collection trench. In addition, as Dr. Maest recommends, MPCA should require that a synthetic liner and segmented leachate-collection system be installed under the Category 1 Stockpile to minimize the release of contaminants to groundwater and help identify the location of leaks that do develop.79 The Applicant's own modeling demonstrates that water from the Category 1 Stockpile will be a major source of water contamination, rendering additional mitigation measures appropriate: Modeling indicates that capping of the stockpile will reduce the total flow and increase sulfate and metal concentrations, but will not significantly reduce the amount of sulfate and metals modeling indicates that the Category 1 Waste Rock Stockpile is a major source of sulfate and heavy metals to the West Pit Lake.80	Waste rock stockpile engineering and design is under the regulatory authority of the MDNR in the Permit to Mine. Minn. R. 6132.1100 subp. 6(B), (C). The MPCA's regulatory authority is to restrict discharges to protect water quality. As described above, the MPCA has concluded that the proposed design will adequately protect water quality. Waste rock stockpile design is based on the potential of the waste rock to generate acid and/or metal leachate as determined by long-term waste rock characterization testing. The adequacy of the Category 1 waste rock stockpile design was assessed in detail in the EIS, taking into account the predicted geochemical behavior of the rock and also including the consequence if higher sulfur waste rock was improperly placed in the stockpile. As identified in response to Comment 706 above, this included an assessment of the representativeness of geochemical samples and the issue regarding the practicality of segregating waste rock types based on sulfur content. The EIS concluded that the proposed engineering controls would be sufficient to control any water potentially affected by the waste rock. See FEIS at 5-7. The MPCA participated in the review of this issue during the EIS process and upon review of the permit application found no reason to disagree with the EIS analysis. The comment does not provide new information to dispute that conclusion. The MPCA did revise the permit regarding construction of the Category 1 stockpile groundwater containment system (part 5.176.84): "The Permittee shall construct the Category 1 Waste Rock Stockpile Groundwater Containment System to include a low permeability cutoff wall keyed into bedrock, a subgrade collection and sump system on the inward side of the cutoff wall, and pumping capable of removing collected water to the Equalization Basins for subsequent treatment at the WWTS. The cutoff wall shall be no less than two feet in thickness and have a maximum permeability of 1x10-5 cm/sec, or equivalent as approved by MPCA. The FTB Seepage Containment System shall be constructed and operated so as to maintain an inward hydraulic gradient across the cutoff wall." In addition, the monitoring surrounding the stockpile described in response to Comment 711 will ensure no seepage leaves the site.
707-D	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Dr. Maest also advises that the FTB should be lined with a geomembrane and leachate-collection system, and that alternative, state-of-the-art methods of tailings management should be considered, including removal of the LTVSMC tailings and the use of dry tailings deposition methods.81 This is reasonable because Applicant's reliance on the application of bentonite to the pond bottom following closure to reduce infiltration and seepage generation is without reasonable basis, as discussed below in Part X. Dr. Maest further suggests that improved techniques for desulfurization of the tailings should be explored.82 MPCA should modify the Permit to ensure that there is an adequate liner system under the Category 1 Stockpile and a liner should also be required (or "dry tailings" be required) at the FTB. In the alternative, MPCA should require Applicant to construct the cutoff wall with an adequate "key" to the bedrock. Petitioners request a contested case hearing on these issues.	Tailings basin design is primarily under the regulatory authority of the MDNR and the Permit to Mine. Minn. R. 6132.1100, subp. 6(B). Alternative tailings basin designs and locations were considered in the EIS process. See EIS at section 3.2.3. Incorporation of a geomembrane liner in the FTB design would require a greenfield site outside the boundaries of the existing tailings basin due to the significant geotechnical impracticalities of placing a geomembrane liner in the saturated and partially inundated cells 1E and 2E of the existing basin. The MDNR determined during the EIS scoping process that an alternative site had not been identified that would likely have significant environmental benefits over the proposed site and that an alternative site may not be feasible or achievable in the time frame of the project. See FEIS at section 3.2.3.3.1. The MPCA has determined that the proposed design will meet all water quality standards and the NPDES requirements under the Clean Water Act. Although not specifically delineated as an alternative in the EIS (section 3.2.3), the removal of the existing LTV tailings for the purpose of making available a location for dry deposition of tailings is not likely to be feasible, nor does it provide an environmental benefit. The removal of the existing tailings would necessitate an additional proposal for a new location for tailings disposal. The EIS process did consider the alternatives of dry stacking and thickened tailings technologies and determined that these technologies would not have significant environmental benefit over the proposed wet tailings method, primarily because a new tailings basin would be required. The MPCA determined that the alternative selected in the EIS will meet all water quality standards, and NPDES and antidegradation requirements.
708	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	C. The Stockpile Liners and Collection Systems Will Not Adequately Capture Contamination Generated By The Stored Waste Rock In The Category 2/3 and 4 Stockpiles. The issue of whether or not the Category 2/3 and 4 Stockpiles' liners and collection systems will adequately capture contamination is material to the MPCA's conclusion that the degradation of the groundwater will be controlled. As an initial comment, Petitioners note that although Applicant discusses the use of liners for the stockpiles in the Application, the Permit does not require their use. The Permit states: 6.10.22 Category 2/3 Waste Rock Stockpile, Category 4 Waste Rock Stockpile, OSLA, Ore Surge Pile, and Equalization Basins 6.10.23 The Permittee shall operate and maintain its engineering controls associated with these infrastructure facilities to ensure there is no discharge to surface waters from the Mine Site. These engineering controls may include, among other things, liner systems, sumps, underdrains (if used), ponds, pumps, and pipelines.83 The use of the phrase "may include" with regard to the listed features renders these features optional for the permittee. As a result, the public lacks any assurance that the liners and appurtenant systems will be installed at all. The permittee could simply select something else.	The draft permit clearly anticipated installation of liners. See Draft Permit at 4 (describing liner), 6.5.20 (requiring samples from liners), 6.10.73 (evaluating liners). The MPCA added permit language that will require the Category 2/3 and Category 4 liner systems to meet the level of containment identified in the application. The permit in parts 5.176.92 and 5.176.93 requires the Permittee to construct the Category 2/3 and Category 4 stockpile liner systems to the permeability specifications identified in the application (10E-5 cm/sec for the Category 2/3 stockpile and 10E-6 cm/s for the Category 4 stockpile). In addition, language has been added to the draft permit in part 5.176.94 requiring the submittal of as-built drawings and QA/QC test results for the liner systems sufficient to document that the required designs have been achieved.
708-A	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	The Category 2/3 and 4 Stockpiles are where Applicant intends to store rock that is the most likely to become reactive.84 Although the Category 2/3 and 4 Stockplies are "temporary," the material in the piles is highly reactive and will form acid and leach-elevated metal concentrations during the time that the waste rock will be temporarily stored on the surface85 (up to 11 to 21 years).86 Dr. Malusis has noted that, although Applicant has portrayed the liner for the Category 2/3 Stockpile as being the equivalent of the liners used for modern heap leach facilities, it does not meet that standard.87 A maximum k of 10-6 cm/s is recommended for the compacted soil component of heap leach pad liners (for example, see Lupo, 2008), but the Category 2/3 liner only has a specified maximum hydraulic conductivity of 10-5 cm/s.88 Dr. Malusis, therefore, recommends that MPCA require a maximum k of 10-6 cm/s for both the Category 2/3 and 4 liners, consistent with the standard of practice for heap leach pads.89	The MPCA added permit language that will require the Category 2/3 and Category 4 liner systems to meet the level of containment identified in the application. See response to Comment 708. The MPCA does not dispute that the proposed liner is not equivalent to a heap leach liner. Given the different purpose and material characteristics of the proposed waste rock stockpiles, design standards appropriate for leach pad liners for heap leaching facilities are not appropriate for the category 2/3 and category 4 stockpiles. In contrast to a waste rock stockpile, heap leaching involves ore grade material, is designed to maximize leaching to extract the commodity of interest, and introduces a leaching solution such as sodium cyanide or sulfuric acid to the stockpile. Those factors increase the risk of a release and justify the more protective liner for the heap leach facility.
708-B	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	The efficacy of the liner system installed for the Stockpiles and its proper construction is material because, based on the modeling prepared by Dr. Myers, releases from these locations may not be caught by the monitoring system (as described in Part VIII) and have the potential to impact a significant quantity of groundwater.90 Although the Permit specifies that, "[i]f the Permittee discovers the sump systems at the Category 2/3 Waste Rock Stockpile, Category 4 Waste Rock Stockpile, or Ore Surge Pile has any leakage, the Permittee shall capture the leakage and route it to the WWTS,"91 this requirement will not create a "magic wand" for Applicant to recapture leakage from the sumps, or anywhere else. As Dr. Myers notes, any releases from this site will be very difficult to remediate and will result in groundwater and surface water contamination.92 The MPCA should modify the Permit to require a better liner for the Category 2/3 Stockpile so that it is equivalent to the Category 4 Stockpile. If this modification is not made, Petitioners request a contested case hearing on this issue.	The draft permit is written with the requirement that excessive seepage is not released. See, e.g., Permit at 5.176.95. The stockpile liner systems are designed to capture the vast majority of any stockpile leachate at sumps, and the permit requires treatment of this captured leachate at the WWTS. The MPCA has considered the effectiveness of the requirements and determined it has adequate authority to enforce all permit conditions on this issue. In addition, the draft permit does require an annual assessment of monitoring data specifically as it relates to the performance of engineering controls and the potential need for adaptive management and/or contingency actions. Regarding the appropriateness of liner types, see response to Comment 708-A.

709	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	VIII. THE GROUNDWATER AND SURFACE WATER MONITORING SYSTEM IS INADEQUATE TO DETECT ISSUES AT THE MINE SITE OR THE PLANT SITE SUCH THAT CORRECTIVE ACTIONS CAN BE TAKEN IN A MEANINGFUL TIME PERIOD. The Permit fails to require Applicant to provide an appropriate monitoring system; the monitoring system cannot adequately detect issues at either the Mine Site or the Plant Site such that corrective actions can be taken in a meaningful period of time. MPCA is required to establish appropriate monitoring and reporting requirements to ensure compliance with permitting limitations.93 These requirements must include "any. . .measurement needed to determine compliance with a permit condition."94 As required by applicable law95 and proposed in the Application,96 the Permit requires Applicant to construct and operate a monitoring system as a necessary safeguard to protect groundwater and surface water from unpermitted contamination.97 MPCA relies on the monitoring system to ensure the containment system's 100% effectiveness.98 And the Permit assumes the monitoring plan will detect leaks before significant impacts to groundwater and surface water occur.99 Although MPCA intends the monitoring system set forth in the Permit to detect a leak if a leak has occurred at the Mine Site or Plant Site, for the reasons stated below Petitioners submit the design is inadequate. Thus, the Permit fails to establish an "appropriate monitoring" plan that will detect leaks. Because the design is inadequate, Petitioners request that MPCA require Applicant to create an adequate monitoring system before issuing the Permit. If MPCA does not require Applicant to undertake this work, Petitioners request a contested case hearing on this issue, as the monitoring system's adequacy constitutes a contested issue of material fact with regard to whether the Application satisfies the requirements of section 7001.1080.	This statement summarizes what will be said in more detail in following statements. See the MPCA's detailed responses to comments 710 through 712-B.
710	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	A. Applicant Failed to Describe How It Selected the Location of the Monitoring Wells. In the Application, Applicant failed to describe how it selected the location of the monitoring wells proposed in the Permit.100 At Petitioners' behest, Dr. Tom Myers, an expert in hydrologic monitoring systems, reviewed the Application to assess Applicant's monitoring strategy. Dr. Myers' first observation is that Applicant did not use the steps necessary to create an adequate monitoring plan when Applicant suggested the placement of the monitoring wells.101 Dr. Myers indicates that, while "[t]here is no simple, uniform boilerplate format or guideline for developing a groundwater monitoring plan . . . . monitoring wells should be placed where contaminant plumes are most likely to pass, in order to be effective."102 Thus, to assess the proper placement of monitoring wells, Dr. Myers posits that four steps are "necessary for the establishment of an adequate monitoring plan."103 Specifically: 1. Identify the groundwater dependent ecosystems and wells that should be protected. Determine what is necessary to protect them. 2. Develop a localized conceptual flow model (CFM) that describes the hydrologic system that supports each groundwater dependent ecosystem and water right. This would be more detailed than a CFM used for a large region because broad-scale flows do not describe small features well. For example, some springs may be perched and therefore affected only by nearby local contaminations but larger sinks such as the Partridge and Embarrass Rivers could be supported by groundwater flow from much further away. 3. Implement the more refined CFM to estimate the detailed pathway between the potential sources and sinks. Because the sources could be a large area, such as the entire area beneath the Category 1 waste rock stockpile, the pathways could be defined as an envelope of paths. This may require numerical modeling or data collection to estimate the paths. 4. Determine the type and location of monitoring that would allow the prediction of changes. For water quality, this means determining the depths to screen the well. Understanding uncertainty should inform these decisions, with more monitoring required where pathways are difficult to estimate.104 Dr. Myers conducted detailed modeling using these four steps and concludes that, because Applicant failed to develop a CFM, "contaminant plumes would miss much of the proposed monitoring."105 The reasons contaminant plumes would miss the proposed monitoring wells is discussed in detail in Parts VIII.B and VIII.C. Dr. Myers opines that "[t]here was obviously no consideration given to dispersion of the contaminants or the advective path other than that the general direction was north or south" and, therefore, "[c]ontaminant plumes could easily pass between the point of compliance wells."106 Because there is a substantial chance that the proposed monitoring system will fail to locate a leak, the Permit proposes an inappropriate monitoring system for the NorthMet Mine Project. Petitioners, therefore, request that Applicant implement Dr. Myers' recommendations listed above and that MPCA require Applicant to create an appropriate monitoring system before approving the Permit. If MPCA does not require Applicant to reassess the location of the monitoring wells, Petitioners request that MPCA grant a contested case hearing on this issue.	The comment criticizes the permit applicant for not explaining the basis for the proposed monitoring, but there is no requirement for the application to contain such information. The MPCA included the basis for wells in the fact sheet, which is referenced in the comments. The MPCA's approach was based on its own expertise and experience in developing permitting requirements, rather than the specific method suggested by Dr. Myers. In its own process, the MPCA assessed the location of each individual well as dictated by the purpose of each well and how each well fit into the overall monitoring well network. This approach was coupled with the incorporation of existing monitoring wells (with a record of baseline water quality) and practical considerations such as access and potential disturbance to wetlands. The well network in the permit was developed to meet multiple goals, which included goals beyond the goal addressed in the comments. There is no legal obligation for the MPCA to use a particular set of steps to determine the monitoring needed, and the process proposed in the comment does not necessarily fulfill the multiple goals of the monitoring network. In general, monitoring wells were installed with the primary goals of: (1) monitoring the performance of engineering infrastructure, (2) serving as indicators for the early detection of potential project impacts, and (3) determining compliance at downgradient locations closer to the property boundary. The monitoring well network required by the draft permit is robust and accomplishes these multiple goals, as described in more detail in response to Comments 711 through 712B. As described more specifically in response to Comment 711, the external review appears to misunderstand the purpose of various wells, and that misunderstanding led to criticism of the monitoring network's effectiveness. In addition, the draft permit requires an annual assessment of the suitability of the monitoring network, and requires the proposal of additional/alternative monitoring locations in the event the original network is not sufficient, based on the ongoing collection of data (including flow direction and groundwater quality). If the MPCA determines in the future that the monitoring well network is insufficient, the agency has authority under Minnesota Rule part 7001.0170 to modify the permit, and authority under part 7001.0150 to require sufficient monitoring to determine compliance.
711	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	B. Applicant Failed to Propose an Appropriate Monitoring Plan at the Mine Site. Applicant's proposed monitoring plan at the Mine Site is unlikely to detect contamination into groundwater and surface water if a leak occurs. In his attached report, Dr. Myers models the pathway contaminant plumes would take if the mine water collection systems fail.107 Dr. Myers opines that, based on his model, "the proposed monitoring plans are insufficient because the wells are spaced too far apart to provide confidence that contaminant plumes would not pass through the monitoring well network.108	The comment appears to misunderstand the purpose and function of the wells surrounding the Category 1 stockpile. The paired groundwater monitoring network at the Category 1 seepage management system consist of 13 pairs of piezometers or monitoring wells, one of the pair located just inward of the hydraulic barrier and one just outward of the barrier. The primary purpose of the paired devices is to monitor for the presence and maintenance of an inward hydraulic gradient across the barrier, which is accomplished by simultaneous measuring of the water table elevation of the two devices. The consistent presence of an inward gradient across the barrier is essential for the proper functioning of the containment system. Water quality monitoring from the paired wells, in which a sample is taken for water chemistry, is only a secondary purpose of these wells. As opposed to identifying a potential pinhole leak in a liner, for example, which could have a fairly narrow plume and be missed by spaced wells at the edge of the stockpile, verifying the direction of hydraulic gradient is not nearly as dependent on a dense array of paired monitoring devices. If the hydraulic gradient is inward, hydraulic head is greater outside the basin and water cannot escape -- instead, water will tend to flow into the capture system. Since the primary purpose of this network is to measure hydraulic gradient and not water chemistry, the proposed locations and spacing are appropriate and the concern in the comment is not applicable. Furthermore, the draft permit requires annual assessment of the engineering controls and an assessment on the suitability of the in-place monitoring network for that purpose. The comment does not provide a basis to dispute that the wells are sufficient to evaluate the inward gradient.
711-A	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	One specific example is the monitoring system around the Category 1 stockpile. The monitoring wells are spaced in close proximity to the seepage containment system and, as a result, the monitoring wells "would likely detect contaminants only if the leak or bypass of the containment system is just upgradient of the well."109 Dr. Myers' modeling shows similar spacing issues through the placement of the groundwater monitoring wells around the Mine Site.110 As a result, Dr. Myers' analysis shows the monitoring wells are simply spaced too widely to detect contaminant plumes from the mine operations.111 And modeling demonstrates that a number of mine-site contaminant could evade detection from the monitoring system altogether.112	The draft permit provides for a monitoring program to assess the performance of engineering controls as well as to monitor the overall environmental effect of the project. The monitoring program includes monitoring of flows and water quality from various collection sumps and ponds in conjunction with the numerous proposed and existing monitoring wells. The permit does not rely solely on the downgradient well network to evaluate the performance of those controls; it also relies on internal waste stream (WS station) monitoring of flows and chemistry and visual inspection of the controls. The proposed well network includes monitoring of both shallow and deeper portions of the surficial aquifer and of the bedrock aquifer as well as shallow and deep groundwater monitoring wells. Together, this monitoring is intended to help assess if potential leakage from the controls is having a detectable effect on groundwater. The MPCA is requiring this combination of monitoring to assess the environmental performance of engineering controls, including liner systems. The Annual Comprehensive Performance Report required by the draft permit specifically requires that the effectiveness of each of the major engineering controls (i.e., seepage containment systems, stockpile liner systems, equalization basins) be evaluated based on all relevant monitoring and performance data. In addition, the draft permit requires an annual assessment of the suitability of the monitoring program, and requires the proposal of additional/alternative monitoring locations in the event the original program is not sufficient, based on the ongoing collection of data (including flow rates, flow direction and water quality).

711-B	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Dr. Myers' modeling also shows that surface-water monitoring will fail to detect whether the Mine Site plumes reach surface water, a very significant risk because "there are various potential groundwater pathways for contamination to reach surface water."113 Dr. Myers notes that the location of the surface-water monitoring wells will fail to isolate the location of leaks.114 For example, if SW002 detected contaminants, the leak could be coming from the Category 1 stockpile, the East Pit, the Central Pit, or the Northshore Mine.115 In situations like this, surface water monitoring wells should be placed such that they can detect where contaminants would discharge to surface water. For these reasons, the Mine Site monitoring plan is unlikely to detect contaminants once a leak occurs. Thus, the Permit fails to establish "appropriate monitoring . . . needed to determine compliance with a permit condition"117 and Petitioners request that MPCA require Applicant to create an adequate monitoring system before issuing the Permit. If MPCA does not require Applicant to undertake this work, Petitioners request a contested case hearing on this issue.	The primary purpose of the surface water monitoring requirements in the draft permit is to assess the overall effect that the project may have on downstream water quality and to ensure that unacceptable impacts are not occurring or will be likely to occur. Its primary intent is not to assess the performance of individual features or engineering controls of the project (the various groundwater and waste stream monitoring requirements are better suited to that). Surface water monitoring stations are generally located upstream and downstream of the two main project areas (i.e., Mine Site and Plant Site) and downstream of WWTS discharge points. The selected locations generally have a long monitoring history such that pre-operational baseline conditions can be established and any changes or trends during operation can be identified. Although the proposed surface water stations may not be able to discern the effect from an individual single-source plume, they are suitable to assess the overall impacts of the project.
712	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	C. Applicant Failed to Propose an Appropriate Monitoring Plan at the Plant Site. Applicant's proposed monitoring plan at the Plant Site is similarly unlikely to detect contamination into groundwater and surface water if a leak occurs in the engineering controls.118 Dr. Myers models the various pathways a contaminant plume would take if the seepage-collection system at the Plant Site fails. Dr. Myers concludes that: [Monitoring wells] will show a decrease in concentration due to seepage capture, but they will not show leaks with certainty because they are spaced too far apart. Monitoring wells located midway between the impoundment and the river show contaminants reaching the wells, but do not begin responding for 20 or more years. This shows they would not be good indicators of a leak. Simulated plumes from leaks placed within the simulated tailings basin could miss the monitoring wells. This is because the width of the plumes is less than the spacing of the monitoring well.119	Data from the existing monitoring wells downgradient of the tailings basin indicate that monitoring wells GW-009 and GW-016 do intercept the northwest and west plumes from the tailings basin respectively, as indicated by existing elevated concentrations of key indicator constituents. These data demonstrate that the monitoring network is capable of detecting potential impacts from operation of the flotation tailings basin, contrary to the claim in the comment.
712-A	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	The modeling indicates that, for the prompt and accurate detection of water contamination, Applicant needs to place more wells around the Plant Site. For instance, Dr. Myers notes that "[t]here should be more compliance wells along the center of the simulated plumes to increase the chances of detecting plumes."120 Furthermore, "[t]he variable slopes in the cumulative load curve, both for with and without the cutoff wall, shows the need for at least four surface water monitoring points along the river, at around mile point 6, 8, 10, and 13."	See response to Comment 711-B.
712-B	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	The modeling also shows that the wells need to be placed more effectively. For example, Dr. Myers says "[p]roposed monitoring wells on the edge of area between the tailings and the Embarrass River are too far west and east to monitor most plumes emanating from either the entire tailings impoundment or from specific leaks within the impoundment."122 Because these contaminant plumes move slowly, this monitoring "must continue for hundreds of years after closure, even if the wells show little contamination at closure." For these reasons, the Plant Site monitoring plan is unlikely to detect contaminants once a leak occurs. Thus, the Permit fails to establish "appropriate monitoring . . . needed to determine compliance with a permit condition"124 and Petitioners request that MPCA require Applicant to create an adequate monitoring system before issuing the Permit. If MPCA does not require Applicant to undertake this work, Petitioners request a contested case hearing on this issue.	The comment appears to misunderstand the purpose and function of the wells surrounding the flotation tailings basin. The paired groundwater monitoring network at the flotation tailings basin seepage management system consist of 12 pairs of piezometers or monitoring wells, one of the pair located just inward of the hydraulic barrier and one just outward of the barrier. The primary purpose of the paired devices is to monitor for the presence and maintenance of an inward hydraulic gradient across the barrier which is accomplished by simultaneous measuring of the water table elevation of the two devices. The consistent presence of an inward gradient across the barrier is essential for the proper functioning of the containment system. Water quality monitoring from the paired wells, in which a sample is taken for water chemistry, is only a secondary purpose of these wells. As opposed to identifying a potential pinhole leak in a liner, for example, which could have a fairly narrow plume and be missed by spaced wells at the edge of the stockpile, verifying the direction of hydraulic gradient is not nearly as dependent on a dense array of paired monitoring devices. If the hydraulic gradient is inward, hydraulic head is greater outside the basin and water cannot escape -- instead, water will tend to flow into the basin. Since the primary purpose of this network is to measure hydraulic gradient and not water chemistry, the proposed locations and spacing are appropriate and the concern in the comment is not applicable. Furthermore, the draft permit requires annual assessment of the engineering controls and an assessment on the suitability of the in-place monitoring network for that purpose. The comment does not provide a basis to dispute that the wells are sufficient to evaluate the inward gradient.
713	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	IX. THE PERMIT FAILS TO ACCURATELY PROJECT THE QUALITY AND QUANTITY OF WATER THAT WILL BE GENERATED BY THE MINING OPERATION SUCH THAT THE WWTS AS CURRENTLY DESIGNED CAN TREAT THE WATER PRIOR TO DISCHARGE. Applicant fails to accurately project the quality and quantity of water that the mining operation will generate such that the WWTS, as currently designed, can treat the water prior to discharge. Applicant's inaccurate projections affect both the sizing of the WWTS, as well as the ability of the WWTS to clean the water to the standards set forth in the Permit. In order for MPCA to grant a NPDES/SDS permit, Applicant must show that it can: at all times properly operate and maintain the facilities and systems of treatment and control and the appurtenances related to them which are installed or used by the permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures.125 Additionally, Applicant must "install and maintain appropriate backup or auxiliary facilities if they are necessary to achieve compliance with the conditions of the permit."126 For the reasons set forth in detail below, Applicant has failed to show either that the WWTS will "achieve compliance with the conditions of the permit," that the WWTS will perform "effective[ly]," or that Applicant has "appropriate backup . . . facilities" necessary to achieve Permit compliance.127 In light of these inadequacies, Petitioners request that MPCA require Applicant to make modifications to the proposed WWTS consistent with realistic projections before issuing the Permit. Petitioners request a contested case hearing on this issue, as the WWTS's effectiveness constitutes a contested issue of material fact with regard to whether the Application satisfies the requirements of Minn. R. 7001.0150.	This statement summarizes what will be said in more detail in following statements. See responses to Comments 714 through 715-B.

714	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	A. WWTS Size Applicant fails to project an adequate size for the WWTS.128 In order to ensure the WWTS performs effectively, MPCA must understand "the water flow through the facility with a water balance" including "approximate average flows at intake and discharge points and between units, including treatment units."129 Such information not only ensures the WWTS will operate properly,130 but is also necessary for the proper calculation of non-TBEL effluent limitations.131 Here, the WWTS will not perform effectively because Applicant underestimates the amount of water that will enter the WWTS and, therefore, the size of the WWTS is likely inadequate for the volume of water.132 In particular, it is imperative Applicant base the WWTS size on accurate dewatering water projections, as dewatering water is "a primary source of water for . . . the treatment facilities."133 Dewatering water includes the groundwater pumped from pit seepage, as well as accumulated runoff in the Stockpiles.134 In 2017, Applicant submitted an updated Water Management Plan – Mine.135 Applicant predicted mine dewatering rates as follows: The East Pit would have the highest inflows due to it intersecting the Virginia Formation. . . . [T]otal inflow to the East Pit in year 1 would average 205 gpm and range as high as 252 gpm (the 90th percentile prediction using the GoldSim model), and during year 11 and 20 would average and range to 378 and 863 gpm and to 448 and 1096 gpm, respectively. Dewatering rates at the West and Central Pits would be lower because, according to PolyMet, the bedrock conductivity is much smaller.136 Contrary to Applicant's statements, the dewatering inflow rates to the WWTS are highly uncertain.137 Applicant's "estimates are based on [a] limited understanding of the hydrogeology of the bedrock at the site, especially the hydrologic properties of the bedrock which control the inflow rates to the pit." In fact, Applicant's own expert report details many ways the dewatering estimates could be too low, including failure to consider the occurrence of unplanned fractures.138 Petitioners asked Dr. Myers to separately evaluate the dewatering rates. Applying his model, Dr. Myers predicts "overall dewatering rates would be significantly higher" than Applicant's projections.139 Dr. Myers contends his model provides "a more realistic estimate for the potential range of inflows."140 Dr. Myers' "dewatering rates are higher because much more groundwater needs to be dewatered in light of calibrated bedrock conductivity being higher than that used by PolyMet and the recharge rate is twice that used by PolyMet."141 Dr. Myers also opines that Applicant failed to "estimate the relative proportions of water entering through different layers or elevations in the pit, which could result in different water quality due to flow through different formations."	The issues related to mine pit dewatering rates were thoroughly addressed in the EIS, including the specific issues raised in this comment regarding efficacy of the WWTS. See RGU Consideration of Comments on the FEIS, Exhibit A at 485. The MPCA reviewed the EIS and has not received information causing it to disagree with the EIS conclusions. The volume and chemistry of pit inflows was specifically considered and the GoldSim modeling conducted for the EIS considered a reasonable range of flows and water quality. The MPCA reviewed this information and concurred it was reasonable. If the flows are higher than expected, fractures can be grouted to reduce pit inflow and/or the WWTS could be expanded to handle higher flow or provide additional treatment. The flows are anticipated to increase over time, and there is sufficient WWTS expansion capacity available to handle these higher flow rates if they were to occur. The comment does not provide facts refuting the feasibility of the approach.
714-A	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Applicant's projections also fail to take into account the need to manage groundwater dewatered to lower the water table beneath the bottom of the sumps and ponds.143 Applicant's Water Management Plan – Mine suggests there are several methods for lowering the water table to avoid "pore pressures on the liner, but has not settled on a final design."144 Dr. Myers indicates that Applicant's groundwater analysis is insufficient "to know precisely the depth to groundwater near the ponds and sumps" and, as such, Applicant has not estimated the additional pumping that may be required.145 Dr. Myers opines: The rate of dewatering to lower the water table beneath the stockpiles could vary seasonally, with substantial amounts of water needed to be dewatered during wet years. This water would be added to the inflow to the WWTS. If the rates are high enough, the design flow rate to the WWTS could be exceeded. [Applicant] presented no analysis of the extra water; therefore, the permit should not be issued without additional analysis and assurance that extra flow would not exceed the WWTS capacity.146 For these reasons, dewatering water will likely exceed the amount Applicant predicted, which calls into question whether the WWTS is the proper size. Consequently, Applicant has failed to show that the WWTS will perform effectively and "achieve compliance with the conditions of the permit."147 Petitioners request that MPCA require Applicant to show the WWTS is properly sized and will perform effectively before issuing the Permit. Petitioners request a contested case hearing on this issue.	The issues related to the management of groundwater from under the stockpile liner systems were addressed in the EIS. See FEIS Section 5.2.2.3.2 at 5-120. The MPCA reviewed the EIS and has not received information causing it to disagree with the EIS conclusions. This water is collected and treated as mine water - volumes are expected to be small, especially relative to other mine site flows and be similar to natural groundwater in quality, so it would have little influence on the sizing or performance of the WWTS. If the flows are higher than expected, the WWTS could be expanded to handle higher flow.
715	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	B. Water Quality In addition to inadequately projecting the amount of dewatering water from the system, Applicant also underestimates the ability of the WWTS to meet the water quality standards set forth in the Permit.148 First, as set forth in Part VIII.A, Applicant likely underestimates the amount of dewatering water the WWTS must treat and, therefore, the "[d]ewatering rates . . . will likely exceed the [WWTS] capacity to treat water.149 If the Permit does not require Applicant to size the WWTS based on accurate projections, water quality will suffer the consequences.	The issues related to the volume and quality of wastewater from the various sources at the mine site, including the back-filled East Pit, were thoroughly addressed in the EIS. The GoldSim modeling conducted for the EIS considered a range of flows and concentrations for this water, including groundwater inflows. See FEIS at 5.2.2.2.1. The MPCA reviewed the EIS and has not received information causing it to disagree with the EIS conclusions. If the flows are higher than expected, the WWTS could be expanded to handle the higher flow or treat higher concentrations. For the flows from the backfilled East Pit in particular, these flows will not be encountered until the later years of the project (beyond mine year 10); thus, there will be sufficient time to assess actual inflow rates to the East Pit prior to the need to collect and treat that water.
715-A	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Should the NorthMet Mine Project see an increase in dewatering water that the WWTS cannot handle, Applicant has failed to show, and the Permit has failed to address, how it would handle the excess dewatering water.151 One option is that Applicant will be required to use "dewatering techniques such as dedicated dewatering wells" to handle the excess water.152 The consequence is that other dewatering techniques will likely result in discharge into the environment;153 a blatant violation of the Permit154 and a violation of the zero-discharge requirement in 40 C.F.R. § 440.104(b)(1).155	The issues related to the volume and quality of wastewater generated from the mining operation were thoroughly addressed in the EIS. The GoldSim modeling conducted for the EIS considered a range of flows and concentrations for this water. The MPCA reviewed the EIS and has not received information causing it to disagree with the EIS conclusions. If flows are higher than expected, the WWTS could be expanded to handle the higher flow or treat higher concentrations.
715-B	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Second, Applicant underestimates the amount of high concentration flow that would be delivered to the WWTS from the Mine Site.156 After thoroughly reviewing the Application, Dr. Myers opines the following: Two of the three pipelines delivering water from the mine site to the plant site for treatment would be a high concentration and low concentration line, with the former being drainage from the Category 2/3, Category 4, and ore surge pile (OSP) and the latter being from the Category 1 stockpile and other supposed low concentration sources. Mine dewatering water would report to the low concentration basin. However, once backfill of the East Pit begins, water pumped from that pit would have a high concentration, but the . . . [A]pplication fails to account for the change in concentration. The [Application] shows that 820 gpm from the East Pit would report to the Low Concentration EQ Basin. However, the East Pit would be in the process of being backfilled with Category 4 waste; this water would be very high concentration. The other two sources shown on the same figure total only 130 gpm, so adding the flow from the East Pit could substantially tax the ability of the high concentration treatment scheme, a chemical precipitation train. If it is added to the Low Concentration treatment scheme, a membrane separation technique, it could upset the process so that expected quality is much poorer. Stated more simply, Applicant's underestimation of the amount of high concentration flow means the WWTS may not "achieve compliance" with the water quality "conditions of the permit."158 Consequently, Applicant has failed to show that the WWTS will perform effectively and "achieve compliance with the conditions of the permit." For these reasons, Petitioners request that MPCA require Applicant to show the WWTS will perform effectively, achieve compliance with Permit conditions, and install appropriate backup facilities before issuing the Permit.159 Petitioners request a contested case hearing on this issue.	See response to Comment 715.

716	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	X. MPCA CANNOT RELY ON FAULTY ASSUMPTIONS AND FUTURE ACTIONS TO GRANT THE PERMIT. MPCA acknowledges the Project will have some impact on groundwater, thereby degrading surface water,160 during operation, reclamation, and closure of the Project.161 Yet, MPCA finds the Project "as designed" will not violate water quality standards.162 To support this finding, MPCA relies on the assumption that Applicant's proposed engineering controls will be 100% effective.163 The 100% effectiveness means the engineering controls will operate exactly as described without any failures, even though the final design of these controls is unknown and therefore, impossible to evaluate.164 And, in the event of a system failure, MPCA relies on future adaptive management or mitigation strategies to protect groundwater and surface water.165 Yet, for the reasons set forth below, MPCA cannot rely on the assumption that the engineering controls will be 100% effective or that future adaptive management or mitigation will prevent the degradation of groundwater and surface water.	The MPCA cannot permit a system it believes will not comply with the permit conditions. Minn. R. 7000.0140. Nor does the agency issue permits assuming that wastewater treatment systems will fail. The Agency relies on its technical review of the permit application and plans submitted to determine if proposed wastewater treatment systems will adequately treat waste from the proposed source. The MPCA technical staff has reviewed the plans and found there is reasonable assurance the WWTS will work as designed. If the Permittee does not comply with the permit, the permittee may be subject to enforcement actions to correct the violations. To verify proper operation of the treatment system, the draft permit requires an annual evaluation of the engineering controls at the Mine Site and Plant Site. The permittee is required to conduct an annual comprehensive assessment of the engineering controls and monitoring system at the Mine Site and Plant Site to prevent impacts to water resources downstream of the project. If the evaluation of the facility indicates the engineering controls are not operating as intended or are not providing a sufficient level of controls, the Permittee must describe in detail the adaptive management or corrective actions that are being done, or will be done to correct the problem, including a schedule for their implementation. Should such insufficient control cause a violation of a permit condition, the MPCA can take action to enforce the permit. The goal of the engineering controls at the Mine Site and Plant Site is to minimize the pollutants from various engineered project features that could reach the groundwater and surface waters. The annual evaluation of groundwater data, surface water data, waste stream data, and internal monitoring data will provide a frequent evaluation of the performance of the engineering controls and the monitoring networks at the Mine Site and Plant Site. An annual evaluation of the engineering controls along with the evaluation of relevant monitoring and performance data will provide early identification of potential impacts from the project and will help determine the need for adaptive management, corrective actions, or mitigation to prevent potential impacts to the groundwater and surface waters. Should any such actions require a modification to the permit the MPCA will undertake the public process required by law.
716-A	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	As currently designed, the Project will require wastewater treatment for more than 150 years, essentially water treatment "in perpetuity."166 In the absence of new technological developments,167 the WWTS and engineering controls must continue to work perfectly the entire time to prevent an unplanned discharge to groundwater and surface water.168 But assumptions that the engineering controls will be "100% effective . . . . are questionable."169 And, studies applying more realistic assumptions show that "there will definitely be leaks that would be very difficult to remediate, and result in groundwater and surface water contamination."170 Thus, MPCA must consider and create Permit conditions around the evidence that groundwater and surface water will be contaminated when the engineering controls fail.	The MPCA relies on technical review of the permit application and plans submitted to determine if proposed wastewater treatment systems will adequately treat waste from the proposed industry. The MPCA has reviewed the available information, including an engineering review, and concluded the permit conditions can be met and the WWTS will function as designed. Although the comment questions the engineering conclusion reached by the MPCA, it does not provide a factual basis for disputing it. The MPCA added language to the permit to require construction of key treatment components of the WWTS to be consistent with the application. The incorporation of adaptive management as a failsafe does not invalidate the requirements for compliance. Adaptive management is regularly used in complex environmental scenarios to ensure standards are met while allowing flexibility. In this case, the underlying requirement must be met; the adaptive management is intended to develop strategies to maintain compliance. As described in response to comments 714 through 715-A, the WWTS can be expanded to treat higher flows or concentrations if necessary. The permit requires the WWTS to meet all discharge limitations. The ability to expand the WWTS provides the ability to achieve those limits. Adaptive management would be implemented as necessary based on monitoring results. As discussed above in response to Comment 22, flows are expected to increase over time and the permittee will have time to address changes in flow. The WWTS design is adaptable so that the treatment capacity can be adjusted to account for actual conditions encountered during operation and to accommodate varying influent streams. Examples of adaptive management options may include: the transfer of water from reverse osmosis membranes to nanofiltration units or vice versa, the completion of a Clean in Place process, pressure checks of the membrane modules, and replacement of the membrane modules. Adaptive management is commonly used in NPDES permitting to address issues as they arise.
716-B	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Further, as discussed in Part IX.A, it is far from clear that the WWTS has been adequately sized for the amount of dewatering water that will enter the system. In the absence of an adequately sized system – and accurate projections of dewatering water – MPCA must assume that the WWTS will not work perfectly. Modifications to the WWTS should occur now, not after mine operations begin, as the ramifications for an improperly functioning WWTS are significant contamination to groundwater and surface water. MPCA attempts to correct the fact that the WWTS and engineering controls will likely fail by pointing to future adaptive management and mitigation strategies.173 But "it is not enough to invoke 'adaptive management' as an answer to scientific uncertainty,"174 especially where the evidence before the agency shows there will be noncompliance with water quality standards.175 Thus, MPCA has a legal obligation to deny the Permit when faced with record evidence that water quality standards will be violated.176	As described above in Line 716 and 716-A, the permit defines the requirements the permittee must meet and does not rely on adaptive management to fill a gap in scientific uncertainty. If the WWTS needs to expand, it has the physical capacity to do so. The MPCA believes the conditions are achievable and will result in compliance with water quality standards.
716-C	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	But even assuming adaptive management could fix the high likelihood that the WWTS and engineering controls will fail, the Permit does not incorporate any particular adaptive management plan. Instead, MPCA primarily177 relies on Applicant to develop adaptive management plans in the future—after a problem has already occurred. 178 By relying on Applicant to develop adaptive management plans in the future, the public is deprived of a meaningful opportunity to review those plans to assess—during the one and only permitting proceeding—whether they are sufficient and enforceable. Such a procedure contravenes the law, which is intended to ensure that the public has a meaningful opportunity to review and comment on the Permit.179 The fact that unincorporated adaptive management plans may contain some information does not resolve the absence of a Permit condition subject to public review.	Permitting often relies on adaptive management for proposed projects. The MPCA added language to the permit to state any adaptive management plans would be evaluated to determine if a major permit modification is necessary. The public would be able to review any major permit modification to address any adaptive management plans. The MPCA has addressed this issue by adding language to the permit regarding the potential for a major permit modification if necessary to implement adaptive management actions. The permit contains the standards that must be met, and the adaptive management provides a way to ensure ongoing compliance with those standards. The comment did not introduce any new facts to suggest the adaptive management is inadequate. The MPCA adequately considered the need for adaptive management and the conditions for the permit.
716-D	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	And upon review of MPCA's website, the only adaptive management plan MPCA considered was dated in July 2016.180 That adaptive management plan is wholly outdated, relying on an old configuration of the engineering controls and wastewater treatment.181 MPCA cannot rely on the plan set forth in 2016 to avoid known uncertainties in the newly proposed WWTS and engineering controls.	The proposed treatment components of the reconfigured WWTS are the same as originally proposed. The location of the proposed mine site treatment system is the only thing that has changed. The MPCA has determined the change in location of treatment does not affect the adaptive management.

716-E	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Finally, Petitioners acknowledge that Applicant submitted an updated Adaptive Water Management Plan in December 2017 to DNR.182 While the Adaptive Water Management Plan does provide some details regarding adaptive management for the WWTS and Category 1 Stockpile,183 Petitioners question whether the strategies are so easily implemented in the face of inadequate monitoring184 and likely leaks into groundwater and surface water.185 But even more importantly, the Adaptive Water Management Plan is extremely limited. As articulated by DNR's expert, the " 'Adaptive Water Management Plan'. . . is probably the most important of all the documents/appendices" but it "only refers to the two water treatment plants and the Cat 1 stockpile, and nothing else."186 DNR's expert further explained that the expert mistakenly believed the Adaptive Water Management "referred to anything that might need fixing if the original design didn't work" and that he "couldn't have been more wrong."187 Then, DNR's expert discerningly observed "I wonder why the title contains 'adaptive.' "188 For example, the Adaptive Water Management Plan regarding the Flotation Tailings Basin ("FTB") is nothing but a vague statement of good intentions. The Permit provides that the FTB will be constructed to ensure "there will be no direct discharge" into "any receiving waters."189 Part of the design is "[a] bentonite amended layer [that] will be placed on exterior sides of the FTB dams to limit oxidation of the tailings."190 But the use of bentonite amended layer is, at best, a "hail Mary."191 Thus, to ensure there is not direct discharge to surface water, the Permit relies on an unproven technology and assumptions which the consultants characterize as "wishful thinking."192 Stated simply, Applicant proposes using bentonite, a type of clay with low hydraulic conductivity, to protect the tailings in the FTB from oxygen infiltration. But Applicant provides "no evidence demonstrating that bentonite-amended tailings . . . will be effective as an oxygen barrier."193 And experts opine that the use of a bentonite-amended layer to minimize oxidations of the tailings is "an unproven and untested approach."194 Yet, the Adaptive Water Management Plan, while acknowledging the bentonite layers may not function as planned, does not provide an option other than changing the thickness of the bentonite to achieve the necessary performance.195 Thus, the Adaptive Water Management Plan does not sufficiently provide alternatives for the possibility that the bentonite does not prevent FTB oxygen infiltration. For these reasons, MPCA cannot issue the Permit until scientific uncertainties are determined and an adequate adaptive management plan is made a condition of the Permit. If MPCA disagrees and finds the assumptions underlying the effectiveness of the WWTS and engineering controls are supported by the record and the Permit requires an adequate adaptive management plan, Petitioners request a contested case hearing on the adequacy of the WWTS, engineering controls, and adaptive management plan.	As described above in response to Comments 710 through 712-B, the MPCA determined the proposed monitoring network identified in the draft permit is adequate. The draft permit requires water quality and/or water level monitoring at a total of 167 monitoring stations at the Mine Site and Plant Site. The draft permit requires an Annual Comprehensive Performance Evaluation Report, which includes an annual evaluation of monitoring and performance data as well as engineering controls at the Mine Site and Plant Site. The requirements of the NPDES permit may not be entirely satisfied by the Adaptive Water Management Plan. The annual evaluation of the engineering controls along with the evaluation of relevant monitoring and performance data, which includes waste stream monitoring results, surface water monitoring results, and internal operational data, will provide early identification of potential impacts from the project and will help determine the need for adaptive management, corrective actions, or mitigation to prevent potential impacts to the groundwater and surface waters. If the evaluation of the facility indicates the engineering controls are not operating as intended or are not providing a sufficient level of controls, the Performance Report must describe in detail the adaptive management or corrective actions that are being done, or will be done to correct the problem, including a schedule for their implementation.
717	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	XI. THE PERMIT FAILS TO ADHERE TO APPLICABLE LEGAL STANDARDS UNDER THE CLEAN WATER ACT AND MINNESOTA LAW. The Permit also suffers from legal infirmities such that it fails to adhere to the applicable legal standards in the Clean Water Act and Minnesota law. To understand these legal infirmities, some factual context is important. Applicant proposes a new direct discharge of pollutants to groundwater and surface water in the St. Louis Watershed. Initially, Applicant proposes to discharge treated effluent from the WWTS to the headwaters portions of Second Creek, Trimble Creek, and Unnamed Creek.196 These headwater segments are low flow, with a 7Q10 flow rate of 0.0 CFS, which means that MPCA may "not allow for dilution when analyzing for reasonable potential to cause or contribute to a violation of water quality standards."197 During the first phase of the Project, Applicant proposes to treat the long list of pollutants that will be present in its discharge (including aluminum, antimony, arsenic, beryllium, bicarbonates, boron, cadmium, chloride, chromium cobalt, copper, fluoride, iron, lead, manganese, mercury, selenium, silver, sodium,sulfate, thallium and zinc) at a WWTS. Following mine closure, Applicant eventually plans to stop operation of the WWTS and move to some form of passive treatment system. That future passive treatment system will likely discharge more pollution that the WWTS and impact rivers and streams that were previously not impacted by direct surface discharges. Applicant has not identified the exact levels of each pollutant it anticipates discharging from its passive treatment system, except to say that these treatment systems will be designed with the goal of meeting applicable water quality standards.	NPDES permits have a five-year term, but the issue the comment raises might occur at some time after facility closure. The MPCA has added language to the permit to require construction of the WWTS component as proposed in the application. The permit does not authorize a discharge from a passive treatment system.
718	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	The Permit, as currently drafted, contains operating limits, technology based effluent limits ("TBELs"), and monitoring requirements for the laundry list of pollutants anticipated to be present in the effluent discharged from the facility. These TBELs "represent the minimum level of control that must be imposed in a [NPDES] permit" and are not designed to, and cannot, ensure the Project does not discharge pollution that will cause or contribute to a violation of water quality standards in the waters impacted by Applicant's effluent discharge.198 The Permit lacks any water quality based effluent limits ("WQBELs") that would restrict Applicant from discharging pollutants at levels that will violate water quality standards.199 While the Permit does contain effluent limits equal to the water quality standards for sulfate and copper, MPCA insists that these limits are neither TBELs, nor WQBELs.200 While "Polymet voluntarily committed to treating is discharge to 10 mg/L sulfate,"201 the 9.3 ug/L copper limit is included in the permit "to provide assurance" that the WWTS is removing all other pollutants in the discharge to levels below the water quality standard.202 The following table summarizes water quality standards applicable to the Project, projected effluent quality, and the effluent limits in the Permit. Applicant projects that the technology it proposes to meet the voluntary operational 10 mg/L sulfate limit will significantly reduce levels of all pollutants in the discharge to levels below the applicable water quality standards.203 It is the voluntary sulfate limit that forms the sole justification for MPCA's determination that no WQBELs are needed to control the variety of pollutants that will be discharged to the wetlands and rivers surrounding the Project.204 MPCA relies solely on these two operating limits to "indicat[e] that the chronic aquatic life standards for other metals will be met" in the effluent discharges from the Polymet Project.205	The MPCA believes the comment misinterprets the permit. During the EIS process, PolyMet offered to resolve outstanding issues related to sulfate and wild rice by incorporating advanced wastewater treatment into the project design. While PolyMet volunteered to do this, compliance with the permit Operating Limit for sulfate is not voluntary. The Operating Limits for both sulfate and copper are enforceable permit limits; if they are exceeded, it will be a violation of the permit. The modeling and pilot testing demonstrated that concentrations of other parameters in the effluent would be far below the water quality standards when the sulfate Operating Limit is met.
718-A	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	MPCA relies on a series of models and pilot tests to predict that the technology used to meet the sulfate limit will reduce other pollutants in the facility's effluent to low levels. These studies are designed to project "achievable potential effluent quality."206 However, when the WWTS is operating, "the actual [] effluent quality could vary from the design model results for a number of reasons, including the actual membrane rejection rates over time, compared to the average values used in the design model, and the blend of reverse osmosis and nanofiltration used to achieve the sulfate internal performance target."207 MPCA has also performed a preliminary antidegradation analysis of the impact of the increased discharge of pollution from the WWTS, but has not done an analysis of the long-term, overall impact of the allowing a new discharge of pollution to these waters. In particular, MPCA has not mad an assessment of whether the future plans for treating legacy pollution after mine closure, when mechanical facilities are abandoned in favor of passive treatment, will degrade the receiving waters beyond the level of degradation anticipated from the WWTS. 203	Federal and state rules require permit effluent limits to be determined by analyzing whether a discharge has the reasonable potential to exceed water quality standards. 40 C.F.R. § 122.44(d). The method to conduct the evaluation is a policy matter. The analysis can use effluent and receiving water data and modeling techniques, or using a non-quantitative approach if effluent data are not available. When actual effluent data are not available, a reasonable potential analysis can be conducted using available information such as modeling and pilot testing data. The EPA NPDES Permit Writers' Manual suggests reasonable potential can be determined through a qualitative process where facility-specific effluent monitoring data is not available. The PolyMet facility has not been built, and therefore has no actual operating data. The MPCA considered the following available information in conducting its RP analysis: 1. Estimated effluent quality as reported in the 2017 permit application on EPA form 2D 2. WWTS design model outputs as described in Attachment H to the WWTS: Design & Operation Report v2, October 2017, cited as a reference in the NPDES/SDS permit application, and 3. Final Pilot Testing Report, included as Attachment B to the WWTS Report. Information available on EPA Form 2D indicates the source of the values provided for "maximum daily value" and "average daily value": the estimates from engineering studies and the "Wastewater Treatment System (WWTS) Discharge Treatment Targets" from Table 2-2 on Page 84 of Volume III of the permit application. The values provided in the application indicate the project will meet the operating limits proposed in the draft permit. The design modeling provided in the permit application accounted for variability in the volume and quality of the wastewater that are expected to occur as the Project progresses from Mine Year 1 into later years. It demonstrated the proposed design can be optimized so the discharge will meet the sulfate and copper Operating Limits proposed in the draft permit. To demonstrate that membrane treatment technologies were capable of meeting treatment targets, the company conducted a 6-month pilot testing program using seepage water from the existing tailings basin. For a portion of the test, additional metals were added to the test influent to more closely simulate projected effluent quality. Results of the pilot testing were used in the MPCA's reasonable potential analysis, and MPCA again determined the proposed design is capable of meeting the Operating Limits for sulfate and copper in the draft permit. In addition, the modeling and pilot testing demonstrated that concentrations of other parameters in the effluent would be far below the water quality standards when the sulfate Operating Limit is met. If reasonable potential is not determined or cannot be determined prior to permitting, the MPCA has the authority to request monitoring as part of the permit. A clause in the permit allows the MPCA to
				If reasonable potential is not determined or cannot be determined prior to permitting, the MPCA has the authority to request monitoring as part of the permit. A clause in the permit allows the MPCA to reopen the permit and impose an effluent limitation if the required monitoring establishes that there is reasonable potential the discharge will cause or contribute to an excursion above a water quality criterion. The MPCA has authority under Minnesota Rule part 7001.0170 to modify a permit based on new information. The draft permit states this in item 6.16.13. If the MPCA determines the facility has reasonable potential based on actual operating data, the MPCA could reopen and modify the permit to add limits if necessary. To address this concern, the MPCA proposes to clarify the reopener language in 6.16.13 in the draft permit to reopen and modify the permit to add WQBELs if actual data indicates WQBELs are necessary. In short, the information before the agency shows that the permit will protect water quality standards. With respect to antidegradation, see responses to Comments 720 through 720-E.

719	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	A. The TBELS and "Operating Limits" Will Not Ensure Long-Term Protection of the Water Quality Standards or Prevent Degradation and WQBELs Are Mandated. Federal law requires MPCA to impose effluent limitations necessary to achieve water quality standards.208 No permit may be issued by MPCA "[w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States."209 NPDES permits must include WQBELs necessary to achieve water quality standards applicable to waters impacted by the discharge to ensure that the discharge from the facility complies with all applicable water quality standards.210 These "more stringent effluent limitations and conditions, such as WQBELs, are imposed when TBELs are not sufficient to protect water quality."211 WQBELs in NPDES permits are required when a pollutant "may be discharged at a level which will cause, have a reasonable potential to cause, or contribute to an excursion above State water quality criteria."212 Here, the Permit contains no such WQBELs or other controls calculated to ensure the discharge does not, as required by federal regulations at 40 C.F.R. § 122.44, cause or contribute to a violation of water quality standards.213 And the TBELs in the Permit are not sufficient to protect water quality.214	The MPCA modified the draft permit to add operating limits for additional parameters and a prohibition against discharges that violate water quality standards. The permit requires monitoring for a variety of parameters, which will serve to verify compliance with the requirement. For more detailed responses, see 719-A through 720-F.
719-A	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	1. The Lack of Water Quality Based Effluent Limits in the Permit Shield Polymet From Citizen Suit Enforcement. According to MPCA's analysis, no WQBELs are needed in the Permit to protect water quality from pollution discharged from the WWTS because the technology the facility currently proposes to use will be subject to two "operating limits" imposed on an internal waste stream upstream from the discharge points. Based on MPCA's analysis, if these operating limits, one of which is voluntary, are met, the remainder of the pollutants in the discharge from the WWTS will not exceed water quality standards applicable to the receiving waters. By failing to include WQBELs on all pollutants that will be discharged from the facility and impact water quality, MPCA has created a broad enforcement shield for Applicant, that insulates Applicant from enforcement should its discharge exceed water quality standards for those pollutants that are not limited by WQBELs in the Permit. Under the "permit shield" provided under 33 U.S.C. § 1342(k), compliance with a NPDES permit is deemed compliance for Clean Water Act purposes. The permit shield "insulate[s] permit holders from changes in various regulations during the period of a permit to relieve[s] them of having to litigate in an enforcement action the question whether their permits are sufficiently strict."216 But the "permit shield" is broader than the permit. Under the Clean Water Act permit shield, "all discharges adequately disclosed to the permitting authority are within the scope of the permit's protection" even if a limit on the discharge of that pollutant is not included in the NPDES permit.217 As a result, the Permit would exempt the Applicant from any enforcement actions, even those brought by impacted individuals under the Citizen Suit provision of the Clean Water Act, if any of a large number of pollutants—including aluminum, antimony, arsenic, boron, cadmium, chromium, cobalt, iron, lead, nickel, selenium, silver, thallium, zinc, and mercury218—reach levels that may contribute to a violation of the water quality standards. MPCA must revise the Permit to include WQBELs that protect water quality for all pollutants in its discharge. Because Applicant is already required to monitor the amount of each of these pollutants in its discharge, inclusion of those limits in the Permit would impose no additional requirements on Applicant	As noted above, the Operating Limits in the permit are enforceable limits and conditions of the permit. If the discharge exceeds a limit, the permittee can be subject to an enforcement action. In addition, the permit now contains a prohibition against discharges that violate water quality standards. See Permit at 5.119.1.
719-B	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	2. The Operating Limits Elude Anti-Backsliding Restrictions. Under the Clean Water Act, "a permit may not be renewed, reissued or modified . . . subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit."219 This Clean Water Act requirement is called "anti-backsliding." Because the 10 mg/L sulfate operating limit in the Permit is neither a TBEL nor a WQBEL, the Clean Water Act anti-backsliding provision will not ensure a sulfate limit at least this stringent remains in effect beyond the five-year term of the Permit if the underlying wild rice sulfate standard is changed.	Anti-backsliding applies to particular types of effluent limitations, including water quality-based effluent limits. 33 U.S.C. § 1342(o)(1). This comment raises a legal issue, not a factual issue. The comment takes the position that the permit should be revised so that limits could not be modified in the future. As described above in response to Comment 718-A, the MPCA found that there was no reasonable potential to exceed a water quality standard, so no WQBEL is required by law. The permit imposes limits to ensure proper operation of the facility and prohibits discharges that violate a water quality standard.
719-C	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Likewise, the anti-backsliding provision also will not prevent removal of the 9.3 ug/L copper limit, that provides assurance that the treatment system is removing pollutants, in future permits. Courts have held that performance based limits, such as the "operating limit" proposed for sulfate and copper in the Permit are not comparable to WQBELs for purposes of anti-backsliding, and therefore anti-backsliding is would not prevent a weakening of these limits in future permits.221 Because the operating limits for copper and sulfate limit are the most important factor dictating levels of all other pollutants discharged to area wetlands, streams, and river, MPCA must revise the Permit to ensure those limits remain in effect in future permits.	As described above in response to Comment 718-A, the MPCA found that there was no reasonable potential to exceed a water quality standard, so no WQBEL is required. The permit imposes operating limits to ensure proper operation of the facility and prohibits discharges that violate a water quality standard. Thus, the permit shield does not apply to any discharge that causes an exceedance of a water quality standard.
719-D	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	3. Without WQBELs There Will Be No Future Antidegradation Trigger Forcing Applicant to Consider the Least-Degrading Alternative. Antidegradation review of new facilities is integral to achieving the water quality goals of the Clean Water Act, and is needed to prevent projects that will impose unnecessary burdens on the people that use Minnesota's valuable water resources. More specifically, antidegradation review is needed to ensure that "degradation of high water quality shall be minimized and allowed only to the extent necessary to accommodate important or social development."223 Minnesota's antidegradation regulations only allow approval of projects that implement available prudent and feasible prevention, treatment, or loading offsets to avoid degradation.224 Where degradation cannot be avoided, the degradation may only be approved if it is prudently and feasibly minimized or the NPDES permit prudently and feasibly minimizesany net increase in loading or other causes of degradation.225 In no instance may MPCA approve issue an NPDES permit or approve a proposed activity "when existing uses and the level of water quality necessary to protect existing uses are maintained and protected."226 In Minnesota, the triggers for antidegradation review are based on the amount of pollution authorized by limits in permits.227 According to MPCA: the pollutant limit in a NPDES permit reflects the level of degradation the agency approved when it issued the permit.228 Hence antidegradation review will not be triggered during future permit reissuances unless the pollutant loads exceed that authorized level of degradation allowed by current and anticipated discharges authorized by the Permit.229 Here for example, MPCA has included an effluent limit in the Permit authorizing the Applicant to discharge 500 mg/L arsenic. This is the level of pollution that the Permit authorizes.230 Hence, antidegradation review will not be triggered in the future unless the Applicant's discharge exceeds this level. But MPCA's antidegradation review is based on an assumed, but not required, effluent discharge level of 0.004 ug/L arsenic from the Applicant's WWTS..231 To prevent Applicant from future degradation of water quality without antidegradation review, MPCA must include effluent limits on all parameters equal to the level of degradation it is currently authorizing – in this case 0.004 ug/L.232 Without these limits, MPCA's ability in the future to force Applicant to consider alternatives that will avoid or minimize the degradation caused by its future discharges will be limited.	The comment interprets the antidegradation rules, but does not include any consideration of the Operating Limits in the permit. The permit imposes enforceable Operating Limits for several parameters, including sulfate. Any change in treatment method would affect sulfate loading. Any increase to the Operating Limits would affect the loading authorized by the permit, and an antidegradation review would be necessary. See Minn. R. 7050.0280 subp. 1.
720	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	4. MPCA's Anti-Degradation Analysis Fails to Consider Future Phases of the Project. MPCA's assumption that, despite the lack of permit limits that prevent degradation of high quality waters, the Project will not degrade high quality waters as it discharges pollutants to nearby streams for the next several hundred years, is "Pollyannaish" at best.233 MPCA fails to consider the following: First, the models MPCA used to show that the project will not degrade, or will only minimally degrade water quality, are based on conditions in Mine Year 10, and there is significant uncertainty about what happens after that time.	The MPCA conducted an antidegradation review to address the discharges that would be authorized by the draft permit. In addition, the mine year 10 discharges used in the analysis represent the highest discharges projected from the facility.

720-A	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Second, MPCA has not performed an antidegradation assessment of the planned discharge to Partridge Creek watershed from the Mine Site that will occur as the Applicant moves to passive treatment. Because the discharge is part of the overall project and treatment of this wastewater is inevitable in future years MPCA must determine that the technologies and treatment it proposes for future phases of this project will avoid or minimize degradation.234	The MPCA conducted an antidegradation review to address the discharges that would be authorized by the draft permit. The permit does not authorize the discharge referenced in the comment and it is therefore beyond the scope of the antidegradation review.
720-B	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Third, neither Applicant nor MPCA have provided a reliable assessment of the quantifiable changes to water quality that will occur when the facility moves to passive treatment of pollution generated at the Mine Site and Plant Site.235	The MPCA conducted an antidegradation review to address the discharges that would be authorized by the draft permit. NPDES permits have a five-year term, but the issue the comment raises might occur at some time after facility closure. As noted in response to Comment 717, MPCA added language to the permit to require construction of the WWTS components as proposed in the application. The permit does not authorize changes to the treatment system referenced in the comment and it is therefore beyond the scope of the antidegradation review.
720-C	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Fourth, models are inherently imperfect and the Permit does not limit pollution from the WWTS to the levels of pollution identified by the model.	As described in the antidegradation review, the MPCA found the design model to be the most reliable prediction of effluent quality. The sulfate Operating Limit in the draft permit is enforceable, and the MPCA revised the permit to include additional operating limits for all parameters for which influent is expected to exceed water quality standards. The MPCA found that there was no reasonable potential for other pollutants to exceed water quality standards and therefore did not impose effluent limits on those pollutants. The MPCA's review concluded that to meet the sulfate limit, other parameters would be consistent with model outputs.
720-D	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	Fifth, the Permit fails to acknowledge that it is permitting a facility that will degrade water quality unless pollution from the facility is treated in perpetuity. Instead, MPCA and Applicant rely significantly on promises that adaptive management will protect water quality in the future. However, "adaptive management" does not excuse MPCA from making decisions based on the record before it today, particularly when the Permit fails to define when "adaptive management" is required, or include definitive "adaptive management" plans, as in Part X. Nor can MPCA rely on adaptive management in the face of scientific uncertainty.236 Sixth, in future years the mine will discharge to waters, including to areas east of the tailing basin and to Partridge River and its tributaries, which are not currently impacted by a direct surface water discharge, but MPCA has failed to ensure that these discharges to high quality waters are necessary or properly mitigated to reduce degradation.237 5.	The MPCA conducted an antidegradation review to address the discharges that would be authorized by the draft permit. NPDES permits have a five-year term, so this permit does not authorize a discharge in perpetuity. The permit also does not address discharges that are prohibited by the permit. Longer-term impacts of the project were evaluated in the EIS.
720-E	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	MPCA's Anti-Degradation Analysis Did Not Consider Alternatives to Reduce Discharges in the Long-Term. Applicant asserted that the use of the WWTS to treat effluent prior to discharge from the facility is the most prudent and feasible alternative to minimize degradation. However, this conclusion is based on the presumption that the "discharge of treated waste water is a fundamental, inherent aspect of the Project."238 But there are less degrading alternatives that MPCA and Applicant have altogether failed to assess, including feasible and prudent alternatives that prevent and minimize near term and long-term degradation of high quality waters, such as dry stack tailings and filtered tailings.239 These alternatives must either be required to avoid degradation or the Permit must be revised to include effluent limits that will require achievement of the highest effluent quality that could be achieved via these feasible and prudent alternatives. MPCA may neither ignore acknowledged degradation that will occur in future phases of the Project nor ignore alternatives that will eliminate the need for perpetual treatment of wastewater from the Plant Site, FTB, and Mine Site.240 Applicant proposes a Project that will inevitably, and by design, discharge polluted effluent to nearby streams in perpetuity. Applicant's documentation does not assess the degradation to high quality waters that is likely to occur as the mine phases out the WWTS and moves to passive treatment, except to say that the discharge will meet water quality standards.241 But MPCA's antidegradation analysis is based on predicted levels of pollution from the WWTS that are much lower than water quality standards.242 Neither Applicant nor MPCA have established that future phases of this project will continue to achieve the low levels of pollution Applicant believes are achievable at the WWTS, nor that it is reasonable to expect perpetual treatment after income producing activities have ceased. None of the Permit documentation indicates that the future perpetual discharge will not degrade high quality beyond the level of degradation modeled in Mine Year 10. MPCA must either revise the Permit to require compliance with the low levels of pollution it is authorizing from the WWTS or provide reasons why prudent and feasible alternatives to preventing and minimizing pollution in the future, namely dry stack tailings and filtered tailings, are not required.	The MPCA also reviewed alternatives and found that among the prudent and feasible alternatives, the proposed treatment alternative minimized degradation. MPCA looked at alternative project designs, including the designs that were considered during the EIS (see EIS section 3.2.3). The comment presumes the treatment will change at some future point, but the permit does not authorize any such change in discharge. Possible changes in future permits are beyond the scope of the antidegradation review required by law. Minn. R. 7050.0280; 7050.0265.
721	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	B. The Draft Permit Must Include Whole Effluent Toxicity Requirements Needed to Ensure Minnesota's Water Quality Standards. The Permit requires Applicant to conduct Whole Effluent Toxicity ("WET") Testing, but does make an exceedance of levels a violation of the Permit.243 Instead, the WET limit in the Permit, is identified as an "intervention limit" that triggers additional WET testing and analysis, and may ultimately result in permit modification to include an enforceable WET limit. The Permit must make exceedance of the 1.0 TUc threshold value an enforceable limit. State law prohibits chronic toxicity from exceeding the chronic standard or criterion, or 1.0 TUc for WET.244 In addition, Minnesota's narrative water quality standards prohibit conditions that endanger fish.245 Violation of WET test results must constitute a violation of the permit: state agencies may not issue NPDES permits[w]hen the conditions of the permit do not provide for compliance with the applicable requirements of CWA, or regulations promulgated under CWA; . . . [or w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States.246 MPCA must revise the Permit to include enforceable limits that prevent exceedances of the WET 1.0 TUc threshold and prevent degradation.247	The MPCA conducted a reasonable potential analysis on various parameters while reviewing the permit application and determined there is no reasonable potential to cause or contribute to an exceedance of water quality standards. However, to address the commenters' concerns, the MPCA revised the draft permit to include a 1.0 TUc WET limit applicable to station SD001. In addition, a provision has been added to the permit to state the discharge of treated wastewater from the WWTS must not violate state water quality standards.

722	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	C. The Permit Allows Applicant to Discharge Mercury at Levels Not Authorized by the Clean Water Act. The Clean Water Act prohibits Applicant from discharging additional mercury to the mercury impaired watersheds impacted by the new discharge from NorthMet Mine Project's , unless, or until, there a concrete plan is being implemented to bring the waters into compliance with water quality standards. The Clean Water Act prevents issuance of a NPDES permit: (i) To a new source or a new discharger, if the discharge from its construction or operation will cause or contribute to the violation of water quality standards. The owner or operator of a new source or new discharger proposing to discharge into a water segment which does not meet applicable water quality standards or is not expected to meet those standards even after the application of the effluent limitations required by sections 301(b)(1)(A) and 301(b)(1)(B) of CWA, and for which the State or interstate agency has performed a pollutants load allocation for the pollutant to be discharged, must demonstrate, before the close of the public comment period, that: (1) There are sufficient remaining pollutant load allocations to allow for the discharge; and (2) The existing dischargers into that segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards. The Director may waive the submission of information by the new source or new discharger required by paragraph (i) of this section if the Director determines that the Director already has adequate information to evaluate the request. An explanation of the development of limitations to meet the criteria of this paragraph (i)(2) is to be included in the fact sheet to the permit under §124.56(b)(1) of this chapter.248 This provision bans new discharges to impaired waters, even those that are offset by claimed reductions from other sources, unless "a TMDL has been performed and the [permittee] demonstrates that before the close of the comment period two conditions are met, which will assure that the impaired waters will be brought into compliance with the applicable water quality standards."249 These two conditions require MPCA to show that there is sufficient remaining pollutant load allocations to allow for the discharge and that the existing dischargers are subject to "compliance schedules designed to bring the segment into compliance with water quality standards."250 In other words the new discharge can only be permitted if it "can demonstrate that, under the TMDL, the plan is designed to bring the waters into compliance with applicable water quality standards."	The comment interprets federal regulation as applied to the facility. The MPCA conducted a reasonable potential analysis for mercury while reviewing the permit application and determined there is no reasonable potential for the discharge to cause or contribute to an exceedance of the mercury water quality standard. In fact, the MPCA expects the project to lead to a net reduction in mercury load exported from the facility because of the capture and treatment system. Because the discharge will not cause or contribute to a violation of water quality standards, it does not violate 122.4(i).
722-A	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	The Permit authorizes Applicant to discharge mercury limit up to 1000 ng/L, without the threat of enforcement. Even if the Permit were revised to include a new mercury effluent limit of 1.3 ug/L, Applicant's new discharge of mercury cannot be permitted because the discharge will impact several waters that currently exceed mercury water quality standards, including: The Embarrass River exceeds the mercury water quality standards for mercury in fish tissue and mercury in water column, and is covered by MPCA's Statewide Mercury TMDL.252 MPCA has not explained in the factsheet whether there is sufficient remaining pollutant load in the Embarrass River TMDL, nor does the fact sheet include an explanation of how the 1000 ug/L limit in the draft permit meets the criteria of 40 C.F.R. § 122.4(i)(2).253 Both the St. Louis and the Partridge rivers are listed on MPCA's Impaired Waters List as impaired for mercury in fish tissue and mercury in the water column, but are awaiting development of a TMDL.	As described above in response to Line 722, the discharge will not cause or contribute to a violation of water quality standards, and 122.4(i)(2) does not apply.
722-B	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	· Nearly all the remaining rivers, lakes, and wetlands, that will be impacted by Applicant's new mercury discharge (except Second Creek), are currently exceeding the water quality standard for mercury, but are not identified as impaired on Minnesota's 303(d) Impaired Waters List.255 MPCA and Applicant estimate that the NorthMet Mine Project's new mercury discharges will not increase mercury concentrations in any of these impaired receiving waters (except in the unnamed creek, where Applicant admits there will a small increase in mercury concentration in Mine Year 10) because this new discharge will be offset.256 However, there is nothing in the Clean Water Act "that provides an exception for an offset when the waters remain impaired and the new source is discharging pollution into that impaired water."257 Applicant's analysis is flawed, and its new discharge of mercury is not allowed because its conclusion, showing no increased concentration of mercury will be present in Mine Year 10, is based on projected offsets. For this reason, MPCA must deny the Permit unless and until Applicant meets the conditions in 40 C.F.R. § 122.4(i).	The comment interprets federal regulation as applied to the facility. As described in response to Comment 722, the facility will not cause or contribute to an exceedance.
723	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	D. The Permit Fails to Limit or Prevent Discharges of Pollutants to Surface Water Via Hydrologically-Connected Groundwater. MPCA failed to include conditions or limitations in the Permit that prevent pollutants discharged to surface water via hydrologically connected groundwater, as required by the Clean Water Act. Here, the various groundwater containment systems, basins, ponds, mine water collection systems, and stormwater management systems that collect and discharge pollutants to groundwater at the Mine Site and Plant Site are considered point sources under the Clean Water Act.258 The Environmental Protection Agency has recognized the need to regulate pollutants from point source discharges to surface waters via groundwater or other subsurface flow.259 Courts agree: the Clean Water Act covers indirect discharges of pollutants that are fairly traceable from these point sources to a navigable waters.260 Applicant and MPCA acknowledge that these various point sources will discharge to groundwater and that the discharges will impacts surface water.261 MPCA has even established a groundwater monitoring network to assess whether there is a discharge to surface water and to "identify the potential for impacts for surface water far enough in advance to allow implementation of adaptive management or mitigation actions that would prevent the impacts from occurring."262 MPCA must include effluent limits, or otherwise prohibit, these discharges before it issues the Permit.	The permit includes specific authorized discharge points. It does not authorize any other point source discharge and in fact prohibits direct discharge to surface waters from the mine site and plant site. The Annual Groundwater Evaluation Report required by the permit specifically requires an annual assessment of the current and future potential and timeframe for migration of groundwater towards surface water from the mine site and plant site. Also, the Annual Comprehensive Evaluation specifically requires that the performance of engineering controls be assessed for any impact to groundwater. Together, these annual reports provide early warning before impacted groundwater would reach surface water such that adaptive management can be implemented before impact to surface water occurs. As a result, the MPCA does not anticipate that groundwater affected by mine operations would pollute surface water.
724	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	E. The Permit Will Endanger Human Health and the Environment. MPCA's regulations provide that the agency may refuse to issue a permit if it finds "that the permitted facility or activity endangers human health or the environment and that the danger cannot be removed by a modification of the conditions of the permit."263 Applicant's proposal to impound slurry mine waste behind a stair-step earthen berm in perpetuity constitutes just the sort of threat to human health and the environment that would require MPCA's refusal to issue the Permit as proposed. Consultants hired by DNR to evaluate the Applicant's Permit to Mine Application have warned for years that the proposal to impound slurry mine waste in perpetuity is highly likely to fail, and when it does it will cause water quality degradations and threats to human life. In May 2017, DNR's consultants wrote to DNR: "the FTB plan gives me severe indigestion because a lake on top of a pile of sand is inherently unstable, and irresponsible. The dam embankments are a stair step arrangement that is inherently geomorphologically unstable, and will erode and cause the ponded water and tailings to escape if it is not maintained and repaired forever."264 No changes to the design of the FTB were made as a result of these critical observations. The likelihood of such a failure is not low: Give that there will be impounded water inside the FTB and that if erosion of the embankments is not properly maintained forever, there is a reasonable probability that erosion will head cut back into the pool and release some pooled water, which may wash out some tailings depending on how fast things unravel.265 DNR's consultants have, in fact, described the eventual failure of the tailings dam as a near certainty: "If the FTB is to remain as a permanent structure without perpetual maintenance, then I recommend that the embankments be designed using established geomorphologic land reclamation principals. Otherwise there is a high probability that the embankments will eventually fail due to erosion, and catastrophically release the saturated tailings."266 This failure is likely to occur during a rain storm, making wide dispersion of the tailings highly likely: The gullys [formed by precipitation] would develop into head cuts that have the potential of eroding back into the stored water pool or into the saturated tailings. If this happens, there is a potential for a massive release of tailings. . . . by storing the water and saturated tailings above and behind a geomorphologically unstable embankment configuration that is constructed of highly erodible sandy silty sized particles, a future failure is likely and could cause substantial environmental harm . . . . It is important to note that the initial failure will be due to localized erosion, but once the embankment is breached, the failure would be identical to other failures. The failure would typically occur during a rain storm, so the pond water may be at maximum capacity. The damage would be cause by the water rushing out and carrying the saturated tailings with it.267 DNR is well aware that the resulting damage would, at a minimum, cause water quality violations regarding sulfate, metals, or suspended solids:268 The wet closure is temporary, it is not permanent. The geomorphologically unstable slopes will erode back into the pooled water if the slope erosion is not repaired perpetually. The saturated tailings will gush out, oxidize, and cause a variety of downstream water quality problems. After this happens, the State of Minnesota will need to collect the escaped tailings, and rebuild the FTB as a dry closure. This will be very expensive.269 Lastly, Petitioners note that DNR Dam Safety staff agrees with these warnings: "[t]he geomorphological issues are essentially why I favor dry closure. I would like to be able to see PolyMet be able to walk away from a site that no longer has seepage issues and can be allowed to revert to forest. Wet closure will not allow that."270 Despite these clear warnings, the proposed mine design being permitted by the Permit would allow the permanent impoundment of slurry mine waste using dangerously unstable and highly erosive dam structures, just as DNR's consultants feared. Because the threat to human health and the environment is well established, MPCA must refuse to issue the Permit. In the alternatives, Petitioners request a contested case hearing to resolve disputed issues of material fact concerning the long term stability of the FTB dam.	This comment raises a factual issue regarding dam construction, but that activity is not within the scope of this permit or within the commissioner's jurisdiction. The adequacy of the dam safety requirements is within the jurisdiction of the DNR. Minn. Stat. §§ 103G.501-561. The DNR has issued dam safety permits for the project and "concluded that any hazards to the health, safety, and welfare of the public and the environment that would potentially be associated with the HRF and FTB Dams, including any arising from probable future development, are not likely to be significant." Dam Safety Findings of Fact at ¶285. The comment does not present a basis to disagree with this conclusion.

725	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	F. MPCA's Antidegradation and Nondegradation Analyses Erroneously Relied on a Nonexistent Continuation of Existing Conditions Scenario Both MPCA's antidegradation and nondegradation analyses compared the impact of the Project to a scenario in which the Project does not occur.271 Implicit in this scenario is the notion that the existing LTVSMC FTB will continue to seep into groundwater and surface water at its current rates. The antidegradation analysis, for example, states in the summary that: while the project will cause degradation for some water quality parameters, the project will also cut off movement of existing polluted groundwater associated with [the] former LTVSMC tailings basin. As a result, the headwaters of Second Creek, Trimble Creek, and Unnamed Creek will experience an improvement in water quality for sulfate and salty parameters.272 This conclusion "relie[s] on FEIS-modeled concentrations from the November 2015 Final Environmental Impact Statement approved by the Minnesota Department of Natural This conclusion "relie[s] on FEIS-modeled concentrations from the November 2015 Final Environmental Impact Statement approved by the Minnesota Department of Natural Resources."273 The MPCA then compared projected effluent concentrations to existing water quality conditions to determine the potential for a measurable change in water quality.274 This methodology forms the basis on the MPCA's antidegradation conclusions: "[c]onsidering the FEIS concentrations and the evaluation of existing water quality and measurable change provided in PolyMet's evaluation, 13 parameters would experience degraded water quality at SD026 because of the proposed discharge."275 In evaluating mercury impacts—the only bioaccumulative chemical of concern—MPCA concluded that "all downstream waters are expected to show no measurable increase in estimated mercury concentrations or loading as compared to existing conditions."276 The existing conditions for the antidegradation analysis were calculated using monitoring data "sufficient to reflect the condition of the surface waters" (expressed as a central tendency value).277 In the GoldSim modeling for the FEIS, existing conditions for water modeling were based on "conditions in the absence of the NorthMet Project Proposed Action and also in the absence of future activities that may improve water quality under the Consent Decree between the MCPA [sic] and Cliffs Erie."278 This is equally true for the nondegradation analysis of the project's impacts to groundwater, where the MPCA compares the projected impact to an assessment of existing conditions: The GoldSim modeling predictions included both a "Continuation of Existing Conditions" scenario and a "Proposed Action" scenario that allowed a comparison of predicted project impacts against what conditions would be in the project was not built. The modeling predicts that during Project operations and after closure, Project activites would result in small increases in the groundwater concentrations for a limited number of solute contaminants compared to existing conditions.279 As noted above, the Continuation of Existing Conditions scenario does not include any consideration of future activities to improve water quality under the Consent Decree between MPCA and Cliffs Erie.280 This assumption lies at the heart of the MPCA's nondegradation analysis conclusions: MPCA staff reviewed the GoldSim modeling predictions for contaminant impacts to groundwater and found that, in general, the concentration of groundwater contaminants with the Project would remain the same or decrease over time, and would be lower than concentrations that would occur if the project was not built. The GoldSim modeling predictions indicate that the Project would not cause exceedances of drinking water standards beyond what would occur with no Project activities. This indicates PolyMet's proposed Project actions at the Plant Site would not preclude appropriate beneficial present and future uses of the groundwater beyond what would occur if the Project was not constructed, in accordance with Minnesota Rule 7060.0500, Nondegradation Policy.	The MPCA's nondegradation and antidegradation reviews used the modeling developed during the EIS. The MPCA participated in the model development and concurred with its results. The comment alludes to a "Legacy Closure Plan" proposed by PolyMet as a basis to argue that existing conditions are not the baseline against which to measure according to the rule. The Legacy Closure Plan is an appendix to the Permit to Mine, and is not a document issued by the Commissioner. The comment ignores this fact in reaching its legal conclusion, but does not dispute it. The existing control documents are the existing NPDES permit and the associated consent decree, which was the baseline ("no-action alternative") used for the antidegradation review. For the tailings basin, the consent decree referenced in the comment does not identify additional specific actions that will be taken beyond continuation of operation of the current pumpback systems at SD004, SD006 and SD026. The consent decree does not have specific dates to terminate the ongoing pumpback systems, to dewater the tailings basin, or to meet particular water quality objectives, so existing conditions are expected to continue and there is no basis to calculate the "alternative" existing water quality conditions as the comment requests.
725-A	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	This assumption that forms the central premise of both the antidegradation and nondegradation analysis, however, is incorrect. If the NorthMet project does not proceed for any reason, it is not the case that no future activities will occur to remediate water contamination issues from the LTVSMC tailings basin. Applicant has a Legacy Closure Plan that covers LTVSMC Legacy Properties to which it will receive fee title from Cliffs Erie, LLC, including the existing tailings basin.282 The purpose of Applicant's Legacy Closure Plan is to "ensure that the continuing reclamation obligations under [Minn. Stat. §] 93.49 will be met with respect to the former ferrous LTVSMC taconite facilities if the NorthMet Project (Project) were not to commence operations for any reason."283 The Legacy Closure Plan is not discretionary, but is a condition to closing on Applicant's purchase of the former LTVSMC processing plant and tailings basin.284	The comment argues that the baseline "existing conditions" against which to measure degradation is a "Legacy Closure Plan" proposed by PolyMet. However, the Legacy Closure Plan is not a document issued by the Commissioner. The Legacy Closure Plan was submitted as part of a Permit to Mine application, and is not enforceable by the MPCA. The comment ignores these facts in reaching its legal conclusion, but does not dispute it. The antidegradation and nondegradation reviews did not rely on this unenforceable document as a substitute for existing water quality, which is the baseline contemplated by the antidegradation rules. Minn. R. 7050.0260.
725-B	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	The Legacy Closure Plan detailing Applicant's assumed obligations as a condition of its purchase of LTVSMC's legacy properties, requires Applicant to dewater and close the existing tailings basin if the NorthMet project were not to proceed "for any reason."285 MPCA analysis of the post-dewatering condition of the LTVSMC basin concluded that conditions in Trimble Creek and Mud Lake Creek could improve.286 It is also apparent that dewatering the LTVSMC tailings basin would improve local surface water conditions for sulfate, thereby improving conditions for wild rice downstream of the proposed mine.287 Existing seepage from the LTVSMC basin contains 350 mg/L of sulfate, and this seepage leaves the existing tailings at a rate of 200 gpm to groundwater and 2,390 gpm to surface water.288 Dewatering the existing basin would reduce that seepage to near zero, thereby eliminating the sulfate contributions to ground and surface water from the tailings basin.289 The error is assessing water quality for existing conditions is also perpetuated throughout the analysis of mercury loading to the Embarrass, Partridge, and St. Louis Rivers. MPCA has accepted the Applicant's assertions that it will offset its mercury contributions by making reductions elsewhere, but this assertion depends on a faulty assessment of existing conditions. This can be readily seen in Large Tables 1 and 2 of Attachment F to Appendix A in Volume III of the NPDES/SDS Permit Application.290 Table 1 is intended to demonstrate that the project will reduce mercury loading to the Embarrass River by 1.3 g/yr, as compared to existing conditions. The 'existing conditions' assume seepage from the existing tailings basin at current rates and mercury loads – 2,590 gpm at 1.5 ng/L.291 But as described above, this assumption is incorrect. If the NorthMet project were not to proceed for any reason, the tailings basin will be dewatered and seepage will be reduced to near zero. If this assumption were corrected to reflect this reality, Large Table 1 in the Mercury Balance Calculations would show that the WWTS mercury discharge of 6.3 g/yr would produce a net increase in mercury loads to the Embarrass River, not a decrease. This would also change the project's contributions to mercury in the St. Louis River, Unnamed Creek, Trimble Creek and Second Creek, all of which calculate net mercury loading by comparing the project to "existing conditions" where the LTVSMC tailings basin continues to seep at current rates rather than be dewatered.292 The error is endemic to the MPCA's antidegradation and nondegradation analysis, and renders both of those documents as fundamentally flawed and misleading. The Legacy Closure Plan therefore establishes that existing conditions at the proposed Plant Site if the NorthMet Project does not proceed cannot assume that no remediation of the existing tailings seepage will occur. In fact, if the NorthMet project does not proceed, the existing basin will be dewatering, thereby drastically reducing the existing basin's impact to ground and surface water. By rule, MPCA is obligated to consider these activities in determining existing water quality conditions.293 It is unlawful for MPCA's antidegradation and nondegradation analysis to rely on a fundamental premise that is not true, namely, that the existing water quality conditions at the site will continue to be impacted by seepage from the existing tailings basin.	The comment addresses a memo that was written to aid DNR in estimating future financial assurance needs for the Permit to Mine. It does not relate to terms and conditions of the proposed NPDES/SDS permit. The memo referenced in the comment describes actions that would be necessary in the event that PolyMet acquires title to the property, prematurely closes before operations, no other entity obtains title, and the state subsequently becomes responsible for the property. It is not a reflection of an existing control document or existing water quality.
726	Elise Larson	Minnesota Center for Environmental Advocacy, the Center for Biological Diversity, and the Friends of the Boundary Waters Wilderness	The NorthMet Mine Project as currently proposed does not conform with state and federal laws protecting clean water, and cannot be permitted as currently designed. For the foregoing reasons, Petitioners request that the MPCA order a contested case hearing to resolve the identified material issues of disputed fact pertaining to the NPDES/SDS Application for the NorthMet Mine Project. In the alternative, should the MPCA choose to forego a contested case hearing on the foregoing issues of disputed fact, Petitioners request that the Application for a NPDES/SDS for the NorthMet Mine Project be denied as noncompliant with lawful requirements.	For reasons described in the responses above, the MPCA disagrees with the legal conclusion in the comment.
727	Nancy Schuldt	Fond du Lac Band	Dear Commissioner Stine: The Fond du Lac Band of Lake Superior Chippewa ("Band") appreciates this opportunity to comment on the draft PolyMet NPDES/SDS permit. In this letter, the Band raises objections to the draft Permit under Minn. R. 7001.1070 subpt. 1 (incorporating Minn. R. 7001.0110), and presents comments raising its other concerns with the draft permit. Because these comments describe ways in which the draft permit fails to comply with the law, they are "significant" comments to which the MPCA must respond under Minn. R. 7001.1070 subpt. 3. The Band requests that this response be made in writing.	This comment is a background statement for comments to follow. The responses below fulfill the request for written responses.
728	Nancy Schuldt	Fond du Lac Band	I. Statement of Interest and Actions the Commissioner Should Take The Band is a federally recognized Indian tribe and a member band of the Minnesota Chippewa Tribe ("MCT"). The Band was a cooperating agency on the Project during the National Environmental Policy Act review process, along with the Grand Portage and Bois Forte Bands. All the Bands involved retain hunting, fishing, and other usufructuary rights that extend throughout the entire northeast portion of the state of Minnesota under the 1854 Treaty of LaPointe1 (the "Ceded Territory"). Band members rely on those rights to hunt, fish and gather natural resources in the Ceded Territory for subsistence, cultural and religious purposes, and the Bands accordingly have a legal interest in protecting natural resources on which those rights depend. In addition, the Fond du Lac Band holds and occupies a Reservation established as the Band's permanent home by Treaty with the United States and which lies directly downstream from the Project. The Band provides governmental services to Band members and other qualifying persons. The Band accordingly has rights and interests in ensuring that its reservation lands and waters and the natural resources on which Band members depend are not adversely affected by the Project. For that reason, it constitutes an "interested person" under the Minnesota Administrative Rules. 2 PolyMet has applied for a state National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) permit for its proposed NorthMet mine project. The NPDES/SDS permit is intended to control discharges to surface waters and provide groundwater protection in the project area. PolyMet applied for a permit authorizing only a single discharge point (SD001) that splits flow to three small streams near the Flotation Tailings Basin (FTB) at the plant site. Other conditions in the permit are intended to protect groundwater resources under state standards, Minn. R. 7060.0100-.0900.	This comment is a background statement for comments to follow. Comment noted.

729	Nancy Schuldt	Fond du Lac Band	1. Legal Standards for Approval of NPDES Permit In Minnesota, with exceptions not relevant here, "no person may discharge a pollutant from a point source into the waters of the state without obtaining a national pollutant discharge elimination system [("NPDES")] permit" from the MPCA.3 The Minnesota Administrative Rules governing NPDES permits provide that "[e]ach draft and final permit must contain conditions necessary for the permittee to achieve compliance with applicable Minnesota or federal statutes or rules, including . . . any conditions that the agency determines to be necessary to protect human health and the environment."4 These conditions are described in Minn. R. 7001.1080.5 They include effluent limitations, standards, and prohibitions, when feasible, for each pollutant to be discharged from each outfall or discharge point of the permitted facility.6 When establishing these effluent standards, the MPCA Commissioner must "consider . . . effluent standard or limitations applicable to the permittee" under the CWA and its implementing regulations, 7 as well as the Minnesota water quality standards.8 Permits must also include monitoring requirements to ensure compliance with permit limitations.9 The MPCA cannot issue a final NDPES permit unless it determines that "the proposed permittee . . . will, with respect to the facility or activity to be permitted, comply or will undertake a schedule of compliance to achieve compliance with all applicable state and federal pollution control statutes and rules administered by the agency, and conditions of the permit and that all applicable requirements of Minnesota Statutes, chapter 116D, and the rules adopted under Minnesota Statutes, chapter 116D, have been fulfilled."10 Chapter 116D of the Minnesota Statues require state agencies to interpret and administer the laws of the State to, among other things, "utilize a systematic, interdisciplinary approach that will insure the integrated use of the natural and social sciences and the environmental arts in planning and in decision making which may have an impact on the environment . . . ."11 MPCA is justified in denying a permit if the proposed permittee "will not comply with all applicable state and federal pollution control statutes and rules administered by the agency," if "the permittee has failed to disclose fully all facts relevant to the facility or activity to be permitted," or if "the permitted facility or activity endangers human health or the environment and that the danger cannot be removed by a modification of the conditions of the permit . . . ."12	The MPCA conducted a reasonable potential analysis (See response to Comment 718-A) and determined there is no reasonable potential to cause or contribute to the exceedance of a water quality standard. Therefore, no WQBELs are required in the permit. The MPCA included TBELs in accordance with 40 CFR part 440. In addition to TBELs, the MPCA included Operating Limits for sulfate, copper, arsenic, cobalt, lead, nickel and mercury. The Operating Limits and TBELs in the permit are enforceable and an exceedance of either the TBEL and/or Operating Limit is a violation of the permit. To address concerns regarding the permit being protective of water quality, the MPCA has also added language to the permit stating the discharge of treated wastewater from the WWTS must not violate state water quality standards. See permit at 5.119.1.
730	Nancy Schuldt	Fond du Lac Band	2. MPCA's Draft Permit Does Not Meet These Standards The permit application pertains to the first five years of mine construction and operations, although in some sections it describes the mine plan for eleven years, and in other sections refers to closure. The application defines eleven sources of wastewater generated by the project: • Mine water: water collected by the mine water management systems, which includes runoff and groundwater from the mine site. Ostensibly, this is only water that has contacted mine sources, such as pit wall, waste rock, or ore, and has been collected from the pit sumps or various collection systems on the mine site. • Treated mine water: water routed from the mine site to the plant site, after collection and treatment at the mine site water treatment facility. Process water: water used in beneficiation or hydrometallurgical process. • Sewage: water from sanitary facilities. • Tailings basin water: water in the tailings basin pond or the pores of the tailings, which includes process water, treated mine water route to the tailings basin, tailings basin seepage, treated sewage, and precipitation on the tailings. • Tailings basin seepage: tailings basin water that infiltrates through the tailings basin. • Hydrometallurgical residue facility (HRF) water: water collected and stored within the HRF. • Plant reservoir water: water stored in the plant reservoir, including makeup water from Colby Lake and precipitation on the plant reservoir. • Industrial stormwater • Construction stormwater • Non-contact stormwater Under existing conditions, runoff from the northernmost area of the Mine Site generally drains north into One Hundred Mile Swamp and associated wetlands along Yelp Creek and the Partridge River. These wetlands form the headwaters of the Partridge River, which meanders around the east end of the Mine Site before turning southwest. Runoff from the majority of the Mine Site naturally drains to the south through culverts under Dunka Road and the adjacent rail line, into the Partridge River downstream of the Dunka Road crossing. The Partridge River hydrology is affected by periodic and variable dewatering of the Peter Mitchell Pit operated by the Northshore Mining Company near the headwaters of the Partridge River, upstream of the proposed Mine Site.13 The majority of the Plant Site is located in the Embarrass River watershed, upstream of the Embarrass River chain of lakes. A small portion of the Plant Site, including stormwater from the Process Plant Area, and Areas 1 and 2 Shops, drains south to Second Creek. Under existing conditions, groundwater and surface water seepage from the existing LTVSMC tailings basin drain towards Unnamed (Mud Lake) Creek to the north, Trimble Creek to the northwest, and Unnamed Creek to the west. Runoff from the outer slopes of the existing LTVSMC tailings basin is tributary to these creeks. Tributaries to the Embarrass River, located between the existing LTVSMC tailings basin and the Embarrass River, which may potentially be affected by the Project include Unnamed (Mud Lake) Creek, Trimble Creek, and Unnamed Creek. Other tributaries located between the Tailings Basin and the Embarrass River that are not expected to be affected by the Project include Spring Mine Creek, which drains LTVSMC's former Mine Area 5N, (another) Unnamed Creek, and Heikkila Creek, and Bear Creek. 14 The infrastructure corridors for roads, rail lines, and pipelines connecting the Mine Site and Plant Site cross Wetlegs Creek, Longnose Creek, and Wyman Creek.15	This comment appears to be a restatement of the content of a portion of the permit application and the 401 Certification Fact Sheet. There is no specific comment offered regarding the content of the NPDES/SDS permit.
731	Nancy Schuldt	Fond du Lac Band	As stated in the NPDES/SDS Fact Sheet, MPCA has determined that the Project as designed does not have reasonable potential to cause or contribute to any violations of any applicable water quality standards in waters of the state. These standards include numeric and narrative water quality criteria, antidegradation standards for surface water, nondegradation standards for groundwater, and beneficial use designations. The draft permit includes extensive requirements to ensure that the Project will comply with all applicable water quality standards. The draft permit also includes requirements to ensure the Project will be constructed and operated consistent with the design reviewed in the final environmental impact statement (FEIS).16 The NPDES/SDS permit is one of the most critical regulatory control documents for this project, and as such, the Band has been awaiting this opportunity to learn specifically how the state proposes to protect surface and groundwater resources given our reasonable trepidation about the likelihood of adverse impacts despite PolyMet's universally optimistic predictions during environmental review.	This comment provides a summary of the content of the draft permit. There is no specific comment on the NPDES/SDS permit content.
731-A	Nancy Schuldt	Fond du Lac Band	There are many disputed issues of material fact, however, that are common to both the draft Permit to Mine and the draft NPDES/SDS Permit, and the Band incorporates our recently submitted comments to the MNDNR on the draft Permit to Mine with our comments on this permit, including: • The ability for the PolyMet project to comply with Clean Water Act requirements and meet MN water quality standards is predicated on the agencies' unsupported faith in seepage capture systems at the Mine Site and Plant Site working flawlessly for centuries. • The draft NPDES/SDS permit completely fails to regulate any pollution seeping from groundwater and welling up in adjacent wetlands and streams, apparently disregarding the strong and repeated recommendations from the EPA throughout the course of the EIS and developing the draft permit. The MPCA's draft permit sets no limits on surface water contamination resulting from this toxic seepage.17 • The draft NPDES/SDS permit fails to require monitoring of water quality in wetlands and streams near PolyMet's mine pits, tailings basin or concentrated waste storage facilities. 18 Without targeted surface water monitoring, even if PolyMet pollution violates Minnesota standards, it could be decades before the contamination of nearby waters is detected. • PolyMet's Final EIS committed to upgrading seepage collection on the south side of the existing LTV tailings basin to have zero discharge to either surface or groundwater.19 However, the NPDES/SDS permit contains no such requirements.20 The draft permit fails to disclose whether the existing seepage capture system will protect downstream water, or allow polluted discharge into groundwater where it surfaces into Minnesota streams. • Contaminant modeling by PolyMet does not consider important flow path details near the mine site or the tailings basin, leading to inaccurate analysis of pathways for contaminants to reach the Partridge and Embarrass Rivers. • Proposed surface and groundwater monitoring is grossly insufficient to ensure the environmental controls are protecting downstream water resources, detecting exceedances, or identifying problematic hydrologic conditions. • PolyMet's application, and the draft permit, have not considered evidence that shows that mercury discharges will likely violate water quality standards	This comment provides a summary of comments that are provided in more detail below. Each of these will be addressed in detailed responses below.

731-B	Nancy Schuldt	Fond du Lac Band	But perhaps most disturbing, the draft NPDES/SDS permit does not reflect the EPA's clearly and consistently conveyed recommendations throughout the environmental review period, including during the supplemental EIS phase when EPA became a cooperating agency. For instance, EPA summarized its NPDES permitting concerns in a 2015 email to the MPCA21, noting that the MPCA had requested that "specific responses to our comments on NPDES related issues be deferred to the permitting phase of the project rather than during the EIS development phase." EPA had accommodated that request, but was seeking a 'shared understanding of the issues and documentation of decisions and approaches we agreed upon.' EPA wanted to verify their understanding of MPCA's expected permitting approach, and explained again, for the record, EPA's position regarding the applicability of NPDES permit requirements for point source discharges of pollutants to surface waters, including those that occur via subsurface flow. EPA noted that because they had deferred settling these issues with MPCA until permitting, they did not anticipate that the information in the EIS would necessarily be sufficient to address the concerns they had raised. Further, EPA stated: Discharges are proposed for the NorthMet site which require NPDES permit coverage in order to be in compliance with the CWA. The project proponent has a duty to submit an NPDES permit application to seek coverage for all proposed pollutant discharges, so that the permit can be in place when the proposed pollutant discharges occur. The MPCA is responsible for issuing an NPDES permit, where appropriate, that contains conditions and limits which assure compliance with all applicable requirements of the CWA and regulations, including limitations controlling all pollutants which are determined to cause or have reasonable potential to cause or contribute to an excursion from any state WQS. The enclosure highlights the more significant issues that we have identified to date for this facility and that must be addressed during the NPDES permitting process. 22	The MPCA considered the previously submitted EPA comments in its development of the permit. The permit complies with Clean Water Act requirements identified by EPA, including permit coverage for all pollutant discharges expected from the facility.
732	Nancy Schuldt	Fond du Lac Band	Those issues in the enclosure included: • MPCA's apparent disagreement with EPA's interpretation of the CWA as it applies to discharges of pollutants from a point source to surface water, specifically those via hydrologically connected groundwater • MPCA's rationale for deferring NPDES permit issuance at the Mine Site until "a point source water discharge adds pollutants to waters of the US.23 EPA comments on the SDEIS24 had earlier raised concerns about PolyMet's modeling approach and that the Partridge River would not be the first receiving water of mine site discharges (adjacent wetlands would be). • MPCA had not been clear about how they would apply potential future NPDES permitting authorities to mine site discharges, based upon monitoring associated with the SDS permit that was intended to cover the mine site. Uncertainties regarding timely detection of pollutants that could trigger NPDES permit development did not provide assurance that PolyMet could avoid noncompliance. Simply applying for a permit does not provide the coverage needed to authorize discharges of pollutants to surface waters under the CWA. • An NPDES permit for discharges of pollutants would need numeric and/or narrative effluent limitations necessary to protect WQS of the receiving waters, as well as any limitations necessary to ensure that downstream WQS are protected. 40 CFR § 122.44(d). • As a "new source", as defined in 40 CFR § 122.2, the PolyMet facility must be able to meet standards at the time of permit issuance; it would not be eligible for variances or schedules of compliance. • If PolyMet did not have NPDES permit coverage for identified pollutant discharges prior to pollutants reaching surface waters, then the company will be discharging without a permit in violation of the CWA – and there is no minimum threshold of predicted pollutant load needed to trigger the requirement to submit a permit application.25	The MPCA considered the previously submitted EPA comments in its development of the permit. The permit complies with Clean Water Act requirements identified by EPA. See responses to Comments 723 (groundwater hydrologically connected to surface water), 703 and 717 (authorized discharge points), 732 (monitoring to ensure no unauthorized discharge), 718-A (limitations to protect water quality standards), and 716 (engineering controls preventing impacts).
733	Nancy Schuldt	Fond du Lac Band	Additionally, at the plant site, MPCA's criteria for assessing "permittability" of the tailings basin, as outlined in a memo to MNDNR26, included that groundwater seepage from the tailings basin should not exceed 500 gallons/acre/day, which they considered equivalent to an engineered lined system. For PolyMet, this could translate to over two million gallons/day, yet the tailings basin would not be subject to NPDES requirements. "Excess" wastewater from the tailings basin (that discharges to the Embarrass River) during operations must meet effluent limits based upon the 10 mg/l wild rice sulfate standard, but MPCA further explained that they would "seek evidence the facility will not have a statistically significant impact on sulfate in receiving waters…groundwater quality standards can be met at the property boundary, and all applicable surface water quality standards can be met in surface waters at the facility." EPA also warned MPCA that the CWA does not include exemptions that would limit NPDES permit coverage to only "excess" wastewater discharges that are deemed to have a "statistically significant" impact on receiving waters at the property boundary. There is no exclusion or exemption for discharges from facilities based on technology or engineering controls, and again, failure to obtain NPDES coverage for discharges of pollutants to waters of the US would put PolyMet at risk of violating the CWA. EPA expressed bewilderment that the MPCA did not clearly understand these issues after substantial interagency discussions over several years, and in fact believed it had been understood and agreed to by both parties some time ago.	The memo referenced in the comment responded to a previously proposed project design. As described in response to Comment 711, maintaining an inward gradient across the seepage containment systems will ensure containment of potential pollution from the tailings basin. This method of containment also addresses the issues raised by EPA because it does not rely on calculating statistically significant impacts.
734	Nancy Schuldt	Fond du Lac Band	And now, the MPCA is asking for public comments on a draft NPDES/SDS permit that defies EPA's clear recommendations and warnings that MPCA's approach for regulating water quality impacts from the proposed PolyMet project is not consistent with the CWA, and leaves surface and groundwater resources at foreseeable risk. Given what we know about the MPCA's track record in regulating hard rock mining in Minnesota, this does not come as a surprise. But it is entirely unacceptable for the agency to offer this water quality permitting scheme for the first of potentially many other copper-nickel mines, and profess that they are protecting northeastern Minnesota's irreplaceable water resources. The Band submits the following additional specific comments relevant to major environmental concerns that we have consistently raised throughout our engagement in the environmental review process. As we show below, PolyMet's proposed mining project relies on remediation and containment designs that are untested, have not yet been finished, or that will not function properly to prevent the discharge of pollutants into the waters of the State in violation of the State's water quality standards and the CWA. We do not believe that the draft NPDES/SDS permit sufficiently dispels those concerns, nor does it comply with the Clean Water Act or Minnesota rules intended to protect the waters of the state; rules that we also rely upon to protect vital treaty resources. It should be denied as currently written, and the Commissioner should take action to resolve these issues – consistent with EPA's recommendations - so that when a revised NPDES/SDS permit is issued, it is based on proper scientific and engineering analyses, and subject to clear limits and conditions that ensure the project complies with the law.	The MPCA disagrees with the comment's general characterization of the permit's compliance with federal law. Responses to specific issues related to this topic are detailed below.

735	Nancy Schuldt	Fond du Lac Band	II. The Band's Comments and Reasons Supporting Them The Band's comments, and the specific reasons supporting them, are as follows. 1. Compliance with permit unrealistically assumes unsupportable seepage capture rates The issuance of the NPDES/SDS permit relies upon a finding that the Applicant will comply with conditions established in the permit,27 including the condition requiring recapture of the contaminated groundwater leaving the tailings basin, the Hydrometallurgical Residue Facility (HRF) and Category 1 waste rock storage pile, in order to maintain compliance with applicable water quality standards. This perspective was confirmed in a consultation meeting between MPCA and tribes on March 1, 2018.28 The Band submitted extensive comments to the MNDNR on the draft permit to mine, summarizing our concerns that no evidence has been presented to demonstrate that the predicted rate of seepage capture was feasible. Among our comments: The PolyMet FEIS claimed that, during mine operations, 3,860 gallons per minute (gpm) of the total 3,880 gpm of seepage modeled would be collected from the unlined, permanent FTB. This represents a nearly perfect collection rate of 99.5%.29 It estimated a similar collection rate of 98.8% during long-term maintenance. 30 In order to arrive at this conclusion, the FEIS first assumed that all but 200 gpm (5%) of total NorthMet tailings seepage will be "surface seepage."31 Then, based on PolyMet's modeling, the FEIS assumed that 100% of both tailings surface seepage and groundwater seepage would be captured on both the east side and the south side of the tailings waste facility,32 and that 100% of the surface seepage and 90% of seepage retained in groundwater would be captured at the north, northwest and west toes of the tailings storage facility.33 Verification of this prediction is fundamental for determining whether this project can even be permitted (both the permit to mine and the NPDES/SDS permit): whether the barrier walls surrounding the tailings basin and the waste rock stockpiles will function as predicted to capture nearly 100% of mine-impacted surface and groundwaters. As Dr. Myers pointed out in his independent expert analysis of the NPDES/SDS permit, compliance with nondegradation requirements is crucially dependent on the seepage collection system "operating perfectly."34 The proper functioning of this system will also determine whether the project complies with permit to mine regulations at Minn. R. 6132.2200, 6132.2500, and 6132.3200. But such verification has not been done.	The permit has been revised to include greater detail regarding required facility design of the FTB Seepage Containment Systems, Category 1 Waste Rock Stockpile Groundwater Containment System, and the Wastewater Treatment System. See permit at 5.176.61, 5.176.84. Regarding the collection rate, see response to Comment 711, which describes why the MPCA does not anticipate release through the FTB and Category 1 seepage containment systems. The Modflow modeling conducted for the EIS indicated that the capture efficiency for both of the seepage capture systems would be in excess of 90% and the subsequent GoldSim modeling indicated that degree of capture would be sufficient to protect downgradient surface and ground water quality. See FEIS at 5-7.. As stated in response to Comment 711, the draft permit requires that 13 pairs of groundwater monitoring devices (wells and piezometers) at each of the systems be monitored on a monthly basis to ensure that the necessary inward gradient is being maintained. The system consists of one of the pair located just inward of the hydraulic barrier and one just outward of the barrier. The primary purpose of the paired devices is to monitor for the presence and maintenance of an inward hydraulic gradient across the barrier which is accomplished by simultaneous measuring of the water table elevation of the two devices. If there is an inward hydraulic gradient, flow will not move out through the barrier. If an inward gradient is not maintained, the Permittee is required to take corrective actions immediately to restore the inward gradient. If the inward gradient is not restored within 14 days, it is considered a violation of the permit. The draft permit further requires that the performance of the capture/containment systems and the adequacy of the monitoring network be assessed on an annual basis.
735-A	Nancy Schuldt	Fond du Lac Band	Despite its promises in the FEIS, in its permit to mine application, PolyMet walks back from its promises in the FEIS that more than 99.5% of total tailings facility seepage will be contained by its seepage capture system. Instead PolyMet states, "tailings basin seepage will be collected to the extent practical by the FTB seepage capture systems."35 This change is substantial and effectively eliminates performance standards. PolyMet states that it will build various segments of a seepage containment system on the west, north and part of the east sides of the tailings storage facility,36 but the draft special conditions do not specify any performance standards for this system. PolyMet proposes to furnish criteria, such as containment system trench wall thickness, conductivity and depth "prior to system construction." 37 Despite more than a decade of project planning, revisions and refinements, PolyMet seeks a Permit to Mine based upon a "conceptual" layout and cross-section of the tailings facility seepage containment system.38 Consistent with its obligations under the Administrative Rules, MNDNR should establish in the special conditions the design and performance criteria that PolyMet must meet in order for this seepage containment system to function as described in the FEIS. Otherwise, Minnesota water quality standards simply cannot be met at the Plant Site.	The NPDES/SDS permit has been revised to include greater detail regarding required facility design of the FTB Seepage Containment Systems and the Category 1 Waste Rock Stockpile Groundwater Containment System. See response to Comment 735.
735-B	Nancy Schuldt	Fond du Lac Band	On the south side of the tailings waste facility, PolyMet acknowledges that groundwater from the existing LTVSMC tailings basin is currently flowing south toward NPDES/SDS monitoring station SD026 at the headwaters of Second Creek, downstream to the Partridge River.39 But PolyMet's permit to mine Application fails to fulfill commitments made during the FEIS process – commitments that ensured environmental protections and the ability to acquire necessary permits - for 100% collection on the south side of the tailings facilities. Now, however, PolyMet is apparently deferring implementation of critical environmental controls with a statement that does not lead to enforceable permit conditions: PolyMet is working with Cliffs Erie and MPCA to evaluate possible improvements to this system, which will be called the FTB South Seepage Management System for the Project. . . A geotechnical investigation is required to determine if additional improvements are needed and to develop a design for these improvements, if deemed necessary. If improvements are necessary, design drawings will be submitted to the DNR for approval and potentially a permit amendment, as determined by the DNR, prior to the initiation of construction.40 Again, during the March 1, 2018 consultation with MPCA, the agency called the tribes' attention to the "different objectives" that currently control this permitted discharge point: A surface seepage pumpback system was installed by Cliffs Erie in 2011 as part of a short-term mitigation plan required by the Consent Decree between Cliffs Erie and MPCA. This system currently is collecting a portion of the south seepage for the purpose of complying with the 1000 umh/cm specific conductance effluent limit in the existing Cliffs Erie permit. (Note: complete capture is not required by the Consent Decree – it needs only to capture an amount sufficient to meet the permit conductivity limit). This capture system will become part of PolyMet's FTB South Seepage Management System. PolyMet has committed to collecting essentially all of the seepage from the basin in this area as part of the NorthMet project. Geotechnical investigations are planned to identify the subsurface conditions in order to identify a final design to achieve this. Options that have been considered to date include lining the existing collection dam with bentonite, injecting grout into the existing dam and/or constructing a second collection dam with a clay or concrete cutoff wall extending to bedrock. Details on the final design depend on the geotechnical findings.41 As the Band reviews the draft NPDES/SDS permit, it appears we are expected to trust that PolyMet will come up with a design, sometime in the future, that will assure 100% capture of seepage at the south discharge of the FTB. Existing conditions under Cliffs Erie's management under the Consent Decree are not in compliance with even the less rigorous 'objective' of complying with the state specific conductance standard; nor is this discharge meeting the existing sulfate standard for wild rice, and Second Creek is a wild rice water. Clearly, this South Seepage Management System is critical for PolyMet to meet WQS, but no plan has yet been developed and neither water quality monitoring nor limits have been proposed. This is a major deficiency in the draft NPDES/SDS permit that must be corrected.	Parts 5.176.58 and 5.176.59 address unauthorized discharges at the plant site by prohibiting direct discharges to surface water from the FTB pond, the FTB seepage containment system or the south seepage management system. All water collected by the containment systems must either be pumped back to the FTB or routed to the WWTS for treatment. As noted in the comment, the intent of the existing pumpback is to meet permit limits, not eliminate discharges. The MPCA has modified language in Item 5.176.81 of the draft permit regarding unauthorized discharges from the mine site, which prohibits the Permittee from directly discharging any mine water or other process wastewater from the Mine Site to surface waters under this permit. All mine water or other process wastewater from the Mine Site must be routed to the Equalization Basins and pumped to the Plant Site for treatment. Permits contain requirements applicable to the permittee. Statutes and rules define the scope of enforcement authority available to the permitting agency. Enforcement actions are determined at the time of discovery and range in seriousness based on the severity of the violation. If there is an unauthorized discharge, it will be considered a violation of the permit and the MPCA will determine appropriate enforcement action at that time.
736	Nancy Schuldt	Fond du Lac Band	2. The draft permit assumes, without scientific support or enforceable conditions, that the contaminated groundwater containment systems at both the flotation tailings basin and the waste rock stockpiles will maintain an inward hydrologic gradient at all times. As the Band stated in its comments and objections to the draft permit to mine, the assumption that the contaminated groundwater containment systems at both the flotation tailings basin and waste rock stockpiles will maintain an inward hydrologic gradient at all times, is not supported by any scientific analysis or enforceable conditions. This problem, and our comments on it, are equally applicable to the draft NPDES/SDS permit, as MPCA staff explicitly stated to the tribes during consultation that their confidence in PolyMet's capture system was based upon the maintenance of an inward hydraulic gradient, unlike similar capture systems at U.S. Steel Minntac and the existing system at SD026 managed now by Cliffs under Consent Decree. In PolyMet's modeling for the FEIS, the contaminated groundwater containment systems at both the Flotation Tailings Basin (FTB) and the waste rock stockpiles, including the Category 1 Waste Rock Stockpile were assumed to collect ninety percent of groundwater moving out of these facilities. 42 Here too, despite numerous requests to the co-lead agencies, we have not been provided with any evidence that this level of effectiveness has ever been achieved before for a cut-off wall, drain, and pump type of system. The co-lead agencies accepted PolyMet's assumption of ninety percent efficiency solely on the presumption that the systems are designed to maintain an inward hydraulic gradient. Under those conditions, any breach in the containment wall would result in water flowing into the tailings basin side of the wall, rather than water escaping from the tailings basin into the surrounding environment. But that assumption of ninety percent efficiency presumes that the inward hydraulic gradient would be maintained at all times. The FEIS never discusses any scenarios or any percentage of the year during which the inward gradient might be compromised. The Permit to Mine application maintains this unrealistic assumption. The application states: The FTB Seepage Containment System will draw down the water table on the Tailings Basin side of the cutoff wall, maintaining an inward gradient and mitigating the potential for tailings basin seepage to pass through the cutoff wall (i.e., any seepage through the cutoff wall would be inward into the FTB Seepage Containment System).43 As to the Category 1 Stockpile, the application states: The groundwater containment system will collect stockpile drainage and draw down the water table on the stockpile side of the cutoff wall, thereby maintaining an inward gradient along the cutoff wall and eliminating the potential for stockpile drainage passing through the cutoff wall. Potential leakage through the cutoff wall, if it occurs, will be inward into the groundwater containment system.44 However, when seeking to find any enforceable requirements of the systems, the only reference for operational requirements that could be found in the Permit to Mine application is the statement that "Proposed performance monitoring for the FTB Seepage Containment System is described in Appendix C of Reference (4)."45 This cited document is PolyMet's NPDES/SDS permit application.	The Modflow modeling conducted for the EIS indicated that the capture efficiency for both systems would be in excess of 90% and the subsequent GoldSim modeling indicated that degree of capture would be sufficient to protect downgradient surface and ground water quality. See FEIS at 5-7. As described in responses to Comments 711 and 735, the draft permit requires that 13 pairs of groundwater monitoring devices (wells and piezometers) at each of the containment systems be monitored on a monthly basis to ensure that the necessary inward gradient is being maintained. The system consists of one of the pair located just inward of the hydraulic barrier and one just outward of the barrier. The primary purpose of the paired devices is to monitor for the presence and maintenance of an inward hydraulic gradient across the barrier which is accomplished by simultaneous measuring of the water table elevation of the two devices. If there is an inward hydraulic gradient, flow will not move out through the barrier. The draft permit further requires that the performance of the capture/containment systems and the adequacy of the monitoring network be assessed on an annual basis. If an inward gradient is not maintained, the Permittee is required to take corrective actions immediately to restore the inward gradient. If the inward gradient is not restored within 14 days, it is considered a violation of the permit. The Category 2/3 and Category 4 waste rock stockpiles will be temporary and do not have the type of capture system required for the FTB and Category 1 stockpile. The permit has been revised to limit the permeability rates for each stockpile. See permit at 5.176.92 – 5.176-93.

			As to the Category 1 Stockpile, the application states: The groundwater containment system will collect stockpile drainage and draw down the water table on the stockpile side of the cutoff wall, thereby maintaining an inward gradient along the cutoff wall and eliminating the potential for stockpile drainage passing through the cutoff wall. Potential leakage through the cutoff wall, if it occurs, will be inward into the groundwater containment system.44 However, when seeking to find any enforceable requirements of the systems, the only reference for operational requirements that could be found in the Permit to Mine application is the statement that "Proposed performance monitoring for the FTB Seepage Containment System is described in Appendix C of Reference (4)."45 This cited document is PolyMet's NPDES/SDS permit application. Appendix C states: Successful containment system performance will be defined by: maintenance of an inward hydraulic gradient during average annual conditions; and consistent pumping rates, with changes attributable to weather. "Average annual conditions" is not defined. And although it downplays the risk for reversing the gradient, the permit application does admit: As long as heads are higher on the exterior side, there will be negligible flow escaping capture through the cutoff wall. It is possible that there could be temporary localized ponding of water on the interior side of the cutoff wall during certain events, such as large rain events or snowmelt, causing heads to temporarily be higher on the interior side of the containment system than on the exterior side.46	
737	Nancy Schuldt	Fond du Lac Band	The draft NPDES/SDS permit also states: The Permittee shall maintain an inward hydraulic gradient across the Category 1 Waste Rock Stockpile Groundwater Containment System as determined by comparing water level measurements from the paired monitoring wells and piezometers taking into account temporary conditions that may result from short-term precipitation or snowmelt events. Short-term precipitation or snowmelt events on the stockpile side of the low-permeability hydraulic barrier must not cause overtopping of the barrier.47 There are no clear or specific criteria for "taking into account temporary conditions that may result from short-term precipitation or snowmelt events". This vague language does not ensure that PolyMet must maintain an inward hydraulic gradient at all times, as had been assumed in the modeling for the FEIS. Both state permitting agencies seem to be ignoring the potential for cracks or other breaches in the containment wall, or for water flowing under the bottom of the wall. The permit to mine assumes that these systems will operate flawlessly for hundreds of years, yet visual inspections are not possible, nor does the permit include any specific conditions under which a detailed investigation would be required. These deficiencies in the design make it impossible to ensure that PolyMet will meet the conditions of the permit, and these deficiencies must be addressed before the permit can be issued. At the tailings basin, FEIS modeling suggested that any contaminated water escaping the system would escape through the bedrock aquifer, and would not surface until miles downstream. But if the hydraulic gradient were reversed for a period of weeks during snowmelt conditions or heavy rain events, the result would be contaminated water escaping through the surficial aquifer and surfacing quickly in the wetlands and headwaters of Embarrass River tributaries, where the impact on water quality would be significant.	The MPCA has removed the "temporary conditions" language and has revised the language of the permit in light of the comment. As described in response to Comment 735, the permit states that if an inward gradient is not reestablished within 14 days of detection, it is a violation of the permit. The permit also requires monitoring of the Category 1 stockpile paired wells/piezometers weekly following a 100-year storm event to ensure that monitoring and any necessary preventative maintenance occur promptly.
737-A	Nancy Schuldt	Fond du Lac Band	The FEIS conclusion that no groundwater would escape the containment system on the east side of the tailings basin is particularly dubious. The FEIS completely omitted any explanation for why the co-lead agencies assumed that PolyMet could collect 100 percent of seepage in this location, but that assumption is highly unlikely if an inward hydraulic gradient is not maintained at all times. The area immediately below the toe of the dam on the east side is a wetland that receives overflow from the Spring Mine Creek headwaters.48 Along with Yelp Creek and Second Creek, the FEIS provided no predictions for potential water quality impacts to this waterbody, which would become the headwaters of Mud Lake Creek after the east side of the tailings basin is built up to a higher elevation. This information must be made available for public review before a permit to mine – or, for that matter, an NPDES/SDS permit – can be issued.	During the EIS, a hydrologic assessment was used to evaluate the effectiveness of the eastern section of the FTB Seepage Containment System. Along most of the eastern side of the Tailings Basin, elevated bedrock will prevent groundwater seepage. In the area of the East Dam, groundwater flow is currently from the east toward the Tailings Basin because of the high hydraulic head in the high ground east of the Tailings Basin. Construction of the East Dam and the tailings deposition behind the dam will result in hydraulic heads that will allow water from a limited area at the eastern edge of the FTB to flow east towards the toe of the East Dam. Installation of the eastern segment of the FTB Seepage Containment System will address this scenario in the same manner as described in response to Comments 711 and 735. The permit stipulates that cells 2E and 1E of the FTB cannot be merged until that segment is fully constructed and operating. The hydraulic gradient across the containment system cutoff wall will be inward, toward the Tailings Basin, to prevent the scenario raised in the comment.
737-B	Nancy Schuldt	Fond du Lac Band	These unsupported and unsupportable assumptions apply equally to the waste rock stockpile liners, and in particular, the Category 1 stockpile, as it will remain a permanent post-closure feature generating reactive mine waste for centuries. The FEIS assumed that all water escaping the collection system would exit via the bedrock aquifer, and virtually all of that water would flow into the mine pits. However, water escaping north of the stockpile, because of a reversal in the hydraulic gradient from mine pit pumping, would likely flow through the surficial aquifer to nearby Yelp Creek. No analysis of this potential groundwater flow path or water quality impacts on Yelp Creek and the uppermost reaches of the Partridge River has been done – but must be, before permitting can proceed.	As described in response to Comment Multiple-543-BN, the MPCA evaluated the monitoring needed at the facility, including that needed to ascertain whether a north flow may occur in the future, in the development of the permit. The Annual Groundwater Evaluation Report required by the permit specifically requires an annual assessment of the current and future potential and timeframe for migration of groundwater towards surface water from the mine site and plant site. Also, as described in response to Comment 711-A above, the Annual Comprehensive Performance Evaluation specifically requires that the performance of engineering controls be assessed for any impact to groundwater. Together, these annual reports provide early warning before impacted groundwater would reach surface water such that adaptive management can be implemented before impact to surface water occurs. As a result, the MPCA does not anticipate that groundwater would pollute surface water.

737-C	Nancy Schuldt	Fond du Lac Band	In both the draft Permit to Mine and the draft NPDES/SDS permits, the state regulatory agencies are relying exclusively on monitoring to not only demonstrate performance of the containment systems but also to reveal any failures and contaminant release to nearby surface and groundwaters. But proposed monitoring wells are spaced to far apart to reliably detect groundwater plumes escaping the containment systems. As described by Dr. Myers, the primary problem with the design's location of the monitoring wells is that the well monitors can only detect contaminants in groundwater that flows directly past them.49 But the monitoring wells are in very close proximity to the stockpiles and the tailings basin, such that "detailed modeling of the mine site and the plant site showed that contaminant plumes would miss much of the proposed monitoring."50 This despite the fact that Minnesota law requires NPDES permits to include monitoring requirements that will ensure compliance with water quality standards.	See response to Comments 710 through 711-B, which directly address the concerns expressed by Dr. Myers. As described in those responses, the MPCA determined the proposed monitoring network identified in the draft permit is adequate. The draft permit requires water quality and/or water level monitoring at a total of 169 monitoring stations at the Mine Site and Plant Site. The draft permit also requires an Annual Comprehensive Performance Evaluation Report, which includes an annual evaluation of monitoring and performance data as well as engineering controls at the Mine Site and Plant Site. As described in response to Comment 716, the annual evaluation of the engineering controls along with the evaluation of relevant monitoring and performance data, which includes waste stream monitoring results, surface water monitoring results, and internal operational data, will provide early identification of potential impacts from the project and will help determine the need for adaptive management, corrective actions, or mitigation to prevent potential impacts to the groundwater and surface waters. If the evaluation of the facility indicates the engineering controls are not operating as intended or are not providing a sufficient level of controls, the Performance Report must describe in detail the adaptive management or corrective actions that are being done, or will be done to correct the problem, including a schedule for their implementation. If the MPCA determines in the future that the monitoring well or surface water monitoring network is insufficient, the agency has authority under Minnesota Rule part 7001.0170 to modify the permit, and authority under part 7001.0150 to require sufficient monitoring to determine compliance.
737-D	Nancy Schuldt	Fond du Lac Band	In short, absent studies that addresses these issues, and absent the imposition of clear conditions in the permit that would require PolyMet to meet specific performance standards, the permit to mine violates Minnesota law. Compliance with Minnesota law clearly relies upon an 'engineered design' that will prevent violations of the State's water quality standards of the State and a monitoring design that will ensure compliance with the permit. The necessary studies must be done and any permit to mine must be amended to include such conditions.	This comment addresses the permit to mine, not the NPDES permit.
738	Nancy Schuldt	Fond du Lac Band	3. Elimination of WWTF at mine site does not ensure protection of Partridge River watershed As described in PolyMet's application for the permit to mine, incorporated into MNDNR's draft permit to mine, PolyMet has changed how it plans to undertake waste water treatment at the mine and plant sites. As the Band described in its comments to the MNDNR on the PolyMet draft permit to mine: Throughout the entirety of environmental review - in the draft EIS, supplemental draft EIS and the final EIS - PolyMet's operations plan have included a mine site [Waste Water Treatment Facility ("WWTF")]. Beginning with the release of the supplemental draft EIS, PolyMet has assured that their project would protect water quality in the Partridge River watershed by upgrading the mine site WWTF during closure to provide reverse osmosis treatment of discharge and collected seepage.51 In the final EIS, the WWTF is an essential part of the company's plans to protect water quality at the mine site during operations, closure and post closure, and provides flexibility for adaptive engineering and contingency mitigation. The WWTF is referred to hundreds of times in the final EIS, and FEIS modeling of solute levels in mine site surficial aquifer and surface water included treatment at the WWTF as a fundamental assumption.52 However, PolyMet has now eliminated the previously proposed WWTF at the mine site, and replaced its prior plan with a single Waste Water Treatment System (WWTS) at the plant site. A single WWTS cannot handle the volume of water from mine site and plant site, as shown by the Water Management Plan and Water Appropriations Permit. Elimination of the WWTF appears to be part of a strategy to avoid issuing an NPDES/SDS permit in the Partridge River watershed, even though there will be contaminated discharges that must be regulated. In its comments, the Band also raised significant concerns about the highly concentration contaminant waste stream being pumped across eight miles of wetlands and streams from the mine site to the single treatment facility at the plant site, and the risk to those surface waters from spills or ruptures. Treatment of contaminated process water at the mine site would now depend solely on uninterrupted operation of pumps and pipelines, and in the event of any disruption in the central pumping system or pipelines, no method of treatment would be available to address contaminated groundwater seepage being managed at the mine site, or any overflow of wastewater from equalization basins. We cautioned that PolyMet's characterization of the quality of mine site wastewater being pumped to the plant site is incorrect and misleading; that in fact the concentration of pollutants in pipeline water referenced in the permit to mine application 53 were based on earlier modeling that assumed a mine site WWTF would treat mine wastewater before piping it from the mine site to the plant site.54 We noted in a major departure from the FEIS, the PolyMet draft permit to mine shows the Equalization Basins have been relocated and are now the closest mine features to the Partridge River. There are no apparent provisions for adequate water management that will prevent overflow of these Basins or other mine site wastewater features, which will quickly end up in the Partridge River.	The proposed treatment components of the reconfigured WWTS are the same as originally proposed. Anticipated flow volumes from the Mine Site to the reconfigured WWTS will remain the same as originally proposed. The location of the proposed mine site treatment system is the only thing that has changed. The equalization basins must have a composite liner system including a clay layer overlain by a synthetic liner. See permit at 5.179.124. In addition, the permit ensures they will not overflow because they must maintain at least three feet of freeboard. See permit at 5.179.133. Thus, the permit restricts leakage to groundwater and prevents discharges to surface water from the equalization basins. The DNR's Permit to Mine specifically addresses the design of the high concentration Mine to Plant Pipeline. Special condition 93 of the Permit to Mine requires this pipeline to be upgraded from the original design. Specifically, the first 25% of the pipeline, where operating pressure is highest, is being upgraded from SDR11 HDPE pipe to SDR9 HDPE pipe. This results in an increased safety factor of 1.25 along the entire pipeline based on operating pressure and a safety factor greater than 2 for surge pressures if the pipe was exposed. Because the pipe is buried (to protect from freezing and physical damage) and will not be exposed to solar radiation, actual safety factors are higher. The Annual Comprehensive Performance Evaluation Report required by the NPDES/SDS permit requires that the Mine to Plant Pipeline be part of the annual performance assessment.
738-A	Nancy Schuldt	Fond du Lac Band	These concerns are supported by the Myers technical memorandum: The mine site would not intentionally discharge directly to surface water, but waste rock stockpiles, mine ponds, and open pits are potential sources of contamination to groundwater, as the following subsections describe. There are also sources throughout the mine site. Runoff from stockpiles could contaminate shallow groundwater. Mine ponds are potential sources of contaminants to groundwater if they are not lined or if the liners leak. Each time they fill, groundwater seepage will cause a plume to enter groundwater. This includes stormwater ponds if runoff from dumps will enter stormwater ditches and flow to a pond. There are many examples of how the mine site could be a source of groundwater and surface water degradation. For example, if water reaches the ditch on the north side of the Category 2/3 dump, it will reach the stormwater pond from which it could seep into groundwater. The pond on the NE corner of the Category 1 dump collects runoff from all along the NE and NW side of the dump, essentially half of the dump. Vol II Sheet SW-008 shows no liner on Pond A and sheet SW-017 shows no liner for the North Perimeter Stormwater Ditch. There is also no liner for the ditch on the north side of the Category 2/3 stockpile. The ditches would carry mine-impacted water and the pond would contain mine-impacted water at least until the dump is reclaimed. The ditch essentially overlies the cutoff ditch, so that seepage would be into the one-inch rock filling the cutoff trench. GCS-010 shows the cutoff trench and stormwater ditch do not coincide. On the north side, the stormwater ditch, unlined, lies outside of the perimeter of the dump and cutoff trench. On the south, there is no stormwater ditch and the cutoff is between the dump and the pit lake. The combination of unlined ditches, cutoffs, and ponds could lead to a significant contaminant source not prevented by the NPDES/SDS permit. 55 In summary, not having a treatment plant at the mine site is not the equivalent of no discharges; it just means that the inevitable discharges to the Partridge River watershed from multiple sources will not be controlled or regulated. This is unacceptable, from a permitting standpoint and for protecting natural resources proximal to the mine site.56 But it also leaves PolyMet at substantial risk for significant liabilities for unauthorized discharges, for instance if/when the Equalization Basins overtop or stormwater collection systems around waste rock stockpiles are overwhelmed and pollutants enter the State's waters.57	The proposed treatment components of the reconfigured WWTS are the same as originally proposed. Anticipated flow volumes from the Mine Site to the reconfigured WWTS will remain the same as originally proposed. The location of the proposed mine site treatment system is the only thing that has changed. Regarding potential pollution from mine site sources, see responses to Comments 736 through 738 and 707 through 708-B.
739	Nancy Schuldt	Fond du Lac Band	4. EPA has consistently interpreted the Clean Water Act (CWA) to apply to discharges of pollutants from a point source to surface water, including those that occur via hydrologically connected ground water. MPCA's draft permit does not. Currently, the EPA is requesting comment on their previous statements regarding the CWA and whether pollutant discharges from point sources that reach jurisdictional surface waters via groundwater or other subsurface flow that has a direct hydrologic connection to the jurisdictional surface water may be subject to CWA regulation.58 They have not stated that CWA permits are required for pollutant discharges to groundwater in all cases, but they have clearly expressed their position and underlying rationale to the MPCA about this issue as it specifically pertains to the PolyMet project as well as other MPCA-permitted mining discharges. Even though the groundwaters are not considered "waters of the US", EPA has interpreted that NPDES permitting authority exists and in fact is required because such discharges are effectively discharges to the directly connected surface waters.59 The permit requirements are intended to protect surface waters which are contaminated via a groundwater (subsurface) connection. This issue has been litigated throughout the US, with various court interpretations and decisions. However, one court noted that "it would hardly make sense for the CWA to encompass a polluter who discharges pollutants via a pipe running from the factory directly to the riverbank, but not polluter who dumps the same pollutants into a man-made settling basin some distance short of the river and then allows the pollutants to seep into the river via the groundwater." 60 It is hard to imagine a more appropriate analogy to the proposed PolyMet project, but MPCA has developed a draft NPDES/SDS permit that does not align with that interpretation. MPCA must clearly articulate and support their alternative interpretation of the CWA so that the Band and the public can discern whether the agency is seeking to protect water resources and the public interest, or PolyMet.	See response to Comment 723, which explains that the permit includes specific authorized discharge points. It does not authorize any other point source discharge and in fact prohibits direct discharge to surface waters from the mine site and plant site.

740	Nancy Schuldt	Fond du Lac Band	5. MPCA has not placed any controls at all on discharge to groundwater that seeps to wetlands, streams and rivers at the mine site and plant site, inconsistent with EPA recommendations. The Clean Water Act requires protection of surface water from pollution released through connected groundwater.61 Yet, there do not appear to be any enforceable requirements anywhere in the draft NPDES/SDS permit for the treatment of mine and plant seepage. PolyMet has admitted that more than 5,250,000 gallons of contaminated wastewater from the mine site and over 10,500,000 gallons of contaminated wastewater from the tailings site would be released without treatment into Minnesota groundwater.62	See response to Comment 723 regarding discharges to surface water via hydrologically connected groundwater. The permit does not authorize discharges to surface water from any source other than the WWTS. As described above, the permit requires construction of engineering controls to prescribed design specifications and these controls required by the permit will protect against impacts to surface water and groundwater from the project.
740-A	Nancy Schuldt	Fond du Lac Band	Additionally, the MPCA failed to perform a reasonable potential analysis for any mine site or plant site discharge to surface water via hydrologically connected groundwater. As a result, the draft MPCA wastewater permit fails to control or even to monitor the effects of polluted seepage on adjacent wetlands and streams. All of these issues must be addressed before a permit may be issued. Without a clear statement of prohibition, the Draft NPDES/SDS Permit appears to actually allow PolyMet to discharge untreated water from its tailings facility to surface waters via hydrologically connected groundwater. The Draft Permit only conditions that there will be "no direct discharge from the FTB (Flotation Tailings Basin) Pond to any receiving waters"63 and that "Direct discharge to surface waters from the FTB Seepage Containment System is prohibited."64 Nowhere is groundwater addressed.	See responses to Comments 740 and Multiple-543-AL through Multiple-543-AS.
740-B	Nancy Schuldt	Fond du Lac Band	The MPCA Fact Sheet appears to sidestep the issue by stating that, "based on typical defect size and frequency, expected hydraulic head, and measured hydraulic conductivity of system components" for the hydrometallurgical residue facility ("HRF"), "no leakage is expected through the lower composite liner." 65 But this does not address the issue, because as the Band described in its comments on the draft Permit to Mine, the proposed HRF site is located on wetlands, which are inherently unsuitable for a toxic waste storage facility because they are structurally unstable.66 As described by MDNR's consultants, "The soft ground beneath the proposed residue facility consists of up to 30 feet of slimes, peat and tailings concentrate. This will not be an adequate foundation for the 80 foot high basin. . . . The basin will have a geomembrane or geosynthetic liner. The liner could deform and fail if the existing underlying material cannot support the material added to the basin."67 PolyMet has proposed compressing the wetlands before building the HRF to avoid this problem, but this engineering approach did not work as intended under similar conditions at a recent Superfund remedial site in the St. Louis River Area of Concern.68 If the liner fails, leakage will occur. Although PolyMet has proposed some leakage capture for HRF maintenance post-closure, that maintenance will "eventually cease once the [HRF] cover system has been completed, once vegetation has become established, and once it is confirmed that there are no areas where surface runoff is becoming channelized and causing erosion of the facility dams.69 Despite the risk of failure and inadequate capture plan, which create a real and unacceptable risk of seepage into groundwater that is hydrologically connected to surface water, the Draft NPDES/SDS Permit establishes no limit on discharge of HRF pollutants through groundwater. The Draft Permit simply says, "Direct discharge from the HRF Pond and/or the HRF Leakage Collection system to surface waters or to the FTB is prohibited."70 The Draft Permit describes a lengthy investigation work plan that MPCA will require for a preload design and liners, but includes no conditions that would revoke the authority being granted in the permit that the "HRF is permitted to receive hydrometallurgical residue and process water."71 Both the MNDNR and the MPCA propose to issue permits for the HRF, although neither agency nor permit has resolved concerns regarding the site, stability and potential leakage from the HRF.	See response to comment Multiple-543-AQ. The design components of the HRF were raised in the EIS and DNR, in consultation with MPCA, considered those issues. The issue of foundation stability was considered in the EIS and requirements for a detailed process of investigation, design and MPCA approvals are included in the draft permit to address that issue. The MPCA and DNR worked with a third-party consultant to evaluate the stability of the HRF foundation and construction methods. The MPCA added language in part 5.182.239 of the draft permit in light of the comment to state that if the MPCA determines that site conditions at the proposed HRF location preclude the construction and operation of the HRF in compliance with applicable water quality standards, construction of the HRF at that location is prohibited.
740-C	Nancy Schuldt	Fond du Lac Band	The EPA has been providing clear and consistent recommendations to MPCA since early in the environmental review process regarding how the proposed PolyMet project should be regulated under the CWA to protect surface and groundwater resources, although apparently, they were not necessarily valued. For example, in their agency comments on the Preliminary SDEIS, EPA states: 72 Recommendation: The SDEIS should consider surface water criteria applicable to the Partridge River as evaluation criteria for the contaminated groundwater entering the Partridge River due to activities at the mine, in addition to the groundwater criteria used in the PSDEIS. According to EPA's ATTAINS database, none of the receiving waters immediately adjacent to the Mine Site, including the Partridge River, Yelp Creek, Unnamed Creek, have been assessed. Biological data consists of measuring community health by sampling and characterizing macroinvertebrates and fish. Minnesota does not have numeric water quality standards based on aquatic life for parameters known to be present in the discharge for many mining and mining related operations. However, the state does have a narrative water quality standard of no toxics in toxic amounts. Recommendation: The SDEIS should acknowledge that the narrative water quality standard- no toxics in toxic amounts - is relevant to NPDES permitting for the NorthMet project and its receiving waters, and that how to address that narrative standard will be considered in the NPDES permitting process. EPA will consult with MPCA in the context of permitting regarding approaches to protecting aquatic life and habitat in receiving waters.	This comment is primarily a quote from EPA in a letter during the EIS process. The MPCA considered the previously submitted EPA comments in its development of the permit. The permit complies with Clean Water Act requirements identified by EPA, including permit coverage for all pollutant discharges expected from the facility.
741	Nancy Schuldt	Fond du Lac Band	Implementation of Effluent Limitations Guidelines (ELGs): Discharges from the Mine Site which impact surface waters would be subject to effluent limitation guidelines (ELGs) found at 40 CFR 440 Subparts G, J, and K. These ELGs apply to discharges from mine drainage. Mine drainage is defined at 40 CFR 440.132 as "any water drained, pumped, or siphoned from a mine." A mine is defined as "an active mining area, including all land and property placed under, or above the surface of such land, used in or resulting from the work of extracting metal ore or minerals from their natural deposits by any means or method, including secondary recovery of metal ore from refuse or other storage piles, wastes, or rock dumps and mill tailings derived from the mining, cleaning or concentration of metals ores." Based on these definitions, all drainage from the Mine Site collected as stormwater is subject to these ELGs. It is expected that the ELGs will be implemented in an individual NPDES permit for the Mine Site.	This comment, as delineated, is a continuation of the EPA quote started in comment 740-C above. The MPCA considered the previously submitted EPA comments in its development of the permit. The permit complies with Clean Water Act requirements identified by EPA, including permit coverage for all pollutant discharges expected from the facility. The permit contains limits consistent with 40 CFR part 440.
742	Nancy Schuldt	Fond du Lac Band	Implementation of water quality standards: Section 301 of the CWA prohibits point source discharge to surface waters, either directly or via directly connected ground water, unless the discharge complies with a NPDES permit. Section 502(12)(A) of CWA defines "discharge of a pollutant" as any addition of any pollutant to navigable waters from any point source. Further, at CWA § 502(7), "navigable waters" are defined as "the waters of the United States, including the territorial seas." The definition of "Waters of the United States" includes lakes, rivers, streams, creeks, and wetlands, etc., and applies to all surface waters on the NorthMet Project site. See 40 CFR 122.2. The PSDEIS seems to anticipate that there will be discharges from the Mine Site to the Partridge River as well as other surface waters such as the West Pit Outlet (aka Unnamed Creek), and on-site and off-site wetlands, but does not conclude that the Mine Site will require an individual NPDES permit. Based on currently available information we believe that an NPDES permit is required at both the Mine and Plant Sites, with limits and monitoring requirements applied at the points of discharge. To comply with the CWA, the permit will need to have been issued when the discharge occurs. WQBEL's must be developed based on water quality standards, including downstream standards, and standards applicable to wetlands. WQBEL's must be calculated based on low flow (7Q10) conditions in the receiving waters. Although Yelp Creek is in close proximity to the Category I stockpile we have not found any discussion in the PSDEIS of whether there will be a discharge from Mine Site features to Yelp Creek (taking into account measures to prevent discharge from the Category 1 stockpile). Recommendation: Identify whether there will be discharges to Yelp Creek; and if so indicate that these discharges will be addressed through NPDES permitting	This comment, as delineated, is the conclusion of the EPA quote started in comment 740-C above The MPCA considered the previously submitted EPA comments in its development of the permit. The permit complies with Clean Water Act requirements identified by EPA, including permit coverage for all pollutant discharges expected from the facility. The permit includes specific authorized discharge points. It does not authorize any other point source discharge and in fact prohibits direct discharge to surface waters, including Yelp Creek, from the mine site and plant site except as authorized through discharge SD001.

742-A	Nancy Schuldt	Fond du Lac Band	Upon publication of the SDEIS, EPA submitted additional comments, including:73 Comment# 7. The SDEIS anticipates that pollutants will be discharged from mine site features, travel via groundwater pathways and reach the Partridge River several years following the start of the mining project. See SDEIS Table 5.2.2-26. However, as EPA has stated previously, the pollutants originating from mine site features may discharge to jurisdictional wetlands and tributaries prior to reaching the Partridge River. CWA Section 301 prohibits any point source discharge of pollutants to waters of the United States, either directly or via directly connected ground water, unless the discharge complies with a NPDES permit. Waters of the United States include jurisdictional wetlands and tributaries. See 40 CFR 122.2. Finally, in a communication to MPCA regarding PolyMet's NPDES Permit Application, EPA related the results of their focused review of the application74, specifically new industrial discharges but also describing other deficiencies they noted in the application materials. They again called attention to the lack of request by the applicant for NPDES permit coverage for discharges at the mine site, as identified in the FEIS: EPA's position, as we explained previously during the development of the FEIS, is that the incorporation of the FEIS into the Application without ensuring that NPDES permit coverage is fully consistent with the information presented in the FEIS could create potential enforcement and permit shield issued under Section 402(k) of the Clean Water Act (CWA). If the application is not revised to either request NPDES permit coverage for the specific discharges proposed in the FEIS or to remove all references to the FEIS and supporting documentation, then any draft permit must include a prohibition on discharges from mine site point sources to surface waters including those discharges that occur via a direct hydrologic connection, as documented in the FEIS. The draft NPDES/SDS permit fails to address these issues, and an NPDES/SDS permit cannot be issued until these matters are fully addressed.	This comment primarily includes quotes from EPA communications made as part of the EIS process. The MPCA considered the previously submitted EPA comments in its development of the permit. The permit complies with Clean Water Act requirements identified by EPA, including permit coverage for all pollutant discharges expected from the facility. The permit specifically prohibits a discharge that violates water quality standards. See permit at 5.119.1.
743	Nancy Schuldt	Fond du Lac Band	Even the proposed special conditions for the draft permit are inadequate75: Special Permit Requirements – No Unauthorized Discharge Permit conditions to ensure there are no unauthorized discharges from the Mine Site and Plant Site: • Permit conditions specifically prohibiting discharge to surface waters from the Mine Site and from the FTB Seepage Containment System and the HRF Leachate Collection Systems at the Plant Site. • Requirement for all water collected by the groundwater containment systems at the Category 1 Waste Rock Stockpile and the FTB seepage capture systems to be routed to the WWTS or pumped to the FTB. • Requirement to monitor and maintain a series of paired piezometers and wells at the Category 1 Waste Rock Stockpile and the FTB Seepage Containment System. • Requirement for the facility to maintain an inward gradient at Category 1 Waste Rock Stockpile and the FTB Seepage Containment System and mitigation requirements to begin in the event inward gradients are not maintained. • Requirement to conduct regularly scheduled inspections of the FTB Seepage Containment System and HRF Leachate Collection System Glaringly absent from this list of special permit requirements is an explicit prohibition from discharges to surface waters via hydrologically connected groundwater. Without this condition, PolyMet will be able to discharge their mine site and plant site wastes and not be considered in violation of their permit. MPCA must establish this prohibition; otherwise, it will be clear that the agency is seeking to protect PolyMet, not the public or the environment.	See responses to Comments 736 through 737-C. The permit includes specific authorized discharge points. It does not authorize any other point source discharge and in fact prohibits direct discharge to surface waters from the mine site and plant site except as authorized through station SD001. In addition, the MPCA added a prohibition against discharges that violate water quality standards. The Annual Groundwater Evaluation Report required by the permit specifically requires an annual assessment of the current and future potential and timeframe for migration of groundwater towards surface water from the mine site and plant site. Also, as described in response to Line 711-A above, the Annual Comprehensive Performance Evaluation Report specifically requires that the performance of engineering controls be assessed for any impact to groundwater. Together, these annual reports provide early warning before impacted groundwater would reach surface water such that adaptive management can be implemented before impact to surface water occurs. As a result, the MPCA does not anticipate that groundwater would pollute surface water.
744	Nancy Schuldt	Fond du Lac Band	6. The draft permit does not have sufficient monitoring of surface and groundwater resources to determine compliance with permit conditions and applicable law. The Band does not find that proposed surface and groundwater monitoring system associated with the NPDES/SDS permit is adequate to detect issues at either the mine site or at the plant site so that corrective actions can be taken in a meaningful time period. Additionally, in some cases the permit allows improper or insufficient monitoring limits.	See responses to Comments 710 through 711-B, regarding monitoring, and Comment 735 through 737-C, regarding the basis for MPCA's determination that the seepage capture system will prevent releases. Regarding the ability to ensure corrective actions can be taken, see response to Comment 716-E. If the MPCA determines in the future that the monitoring well or surface water monitoring network is insufficient, the agency has authority under Minnesota Rule part 7001.0170 to modify the permit, and authority under part 7001.0150 to require sufficient monitoring to determine compliance.
745	Nancy Schuldt	Fond du Lac Band	Insufficient Discharge Limits In reviewing the draft Fact Sheet for the NPDES/SDS permit and attachments, the Band notes that the discharge at SD001 (which monitors the WWTS) has a mercury limit of 2,000 ng/l (daily max) and 1,000 ng/l (calendar monthly average).76 While this is one of the required federal limits (technology based effluent limit or TBEL) for new industrial sources (taconite), it is not the controlling limit for mercury in the Lake Superior Basin. The Great Lakes Initiative ("GLI") chronic wildlife criterion of 1.3 ng/l is the applicable standard for this discharge,77 and this is particularly critical for a new or expanded discharge to a watershed that is already impaired for mercury yet does not have a TMDL in place. The draft permit must be modified to use the GLI criterion.	See response to Comment Multiple-543-BX regarding the expected reductions in mercury through the treatment process. The MPCA has reconsidered the permit conditions and added an operating limit for mercury, additional dissolved mercury monitoring and a requirement to submit a Mercury Minimization Plan in accordance with the Agency's mercury strategy. The MPCA determined that weekly monitoring for mercury in the influent and effluent to the WWTS and the inclusion of a 1.3 ng/L operating limit for the WWTS effluent is sufficient.
745-A	Nancy Schuldt	Fond du Lac Band	There is no discharge limit defined for specific conductance, even though there are exceedances to the Class 3 and 4 standards in the receiving waters from existing legacy contamination, and assessed aquatic life use impairments in the Embarrass River that have been correlated with elevated specific conductance.78 The Band has urged the MPCA to promulgate a protective aquatic life use criterion for specific conductance in its next triennial review; in the meantime, the existing standard should be applied in this permit to ensure that the pollution attenuation expected by PolyMet environmental controls can be clearly distinguished from new loadings.	The MPCA conducted a reasonable potential analysis on various parameters while reviewing the permit application and determined there is no potential to cause or contribute to an exceedance of water quality standards. However, to address the commenter's concerns, a WET limit of 1.0 TUc applicable to station SD001 has been added to the permit. In addition, a provision has been added to the permit to state the discharge of treated wastewater from the WWTS must not violate state water quality standards. The 1.0 TUc limit addresses the narrative standard against toxicity in the discharge.

746	Nancy Schuldt	Fond du Lac Band	Monitoring Will Not Detect Mine Site Discharges Although EPA has established that any mine site discharge to surface water via hydrologically connected groundwater would be a permit violation under the Clean Water Act, mine site surface water quality monitoring actually seems to be designed to avoid detection of such a violation. For example, it appears that MPCA is proposing to monitor as "background" sites that may in fact be impacted by the PolyMet project. From the draft Fact Sheet: Monitoring of the upstream background monitoring stations will be used to establish background/baseline conditions at the Mine Site against which downstream monitoring can be compared. Monitoring of the upstream stations will be required monthly for Group B parameters and twice per year for Group C parameters.79 Background Surface Water Monitoring A total of four surface water monitoring stations will be located upstream of the Mine Site: • Partridge River – upstream of the Mine Site at SW002 • Wyman Creek – upstream of the Transportation and Utility Corridors at PM-6 • Longnose Creek – upstream of the Transportation and Utility Corridors at LN-2 • Wetlegs Creek – upstream of the Transportation and Utility Corridors at WL-2 Downstream Surface Water Monitoring A total of four surface water monitoring stations will be located downstream of the Mine Site: • Partridge River – downstream of the Mine Site at SW004c • Wyman Creek – downstream of the Transportation and Utility Corridors at PM-5 • Longnose Creek – downstream of the Transportation and Utility Corridors at LN-1 • Wetlegs Creek – downstream of the Transportation and Utility Corridors at WL-1 The Band is concerned that if groundwater contours and likely flowpaths of pollutants through the surficial aquifer are closely examined, the sites designated as "background" may actually be downstream of PolyMet groundwater seepage from either the mine site or tailings site, and would reflect mine-influenced conditions rather than unimpacted or reference conditions. Such a closer evaluation should be made to verify that this is not the case, and should also consider the pattern of the mapped fractures, which generally flow from northeast to southwest.	The MPCA reviewed the locations of the surface water monitoring stations and believes the identification of whether they are upstream or downstream locations is accurate. A location the comment appears to be concerned about is upstream station SW002, which is located northeast of the East Pit. The project is not expected to affect this location during at least the first decade of operation because the East Pit will be dewatered and will be at a lower elevation than the river. During later periods of operation and during closure when the East Pit is backfilled, the monitoring data at this location can be assessed against previous data to help determine whether is being affected by the project. (Other groundwater monitoring in this same general area can aid this assessment.) Even if this location was affected, it would still serve as a relative comparison against points further downstream to assess for the potential of overall impacts from the mine site. The surface water monitoring stations located along the railroad corridor have the primary intent of monitoring for potential effects of ore spillage along the railroad, and for this purpose they are independent of mine site activities. A direct comparison of water quality from the upstream location of these "paired" sampling points against the water of the downstream location will accomplish this intent.
746-A	Nancy Schuldt	Fond du Lac Band	The draft permit's requirements for internal waste stream monitoring at the mine site, pit dewatering, waste rock stockpiles, ore surge pile, and Overburden Storage and Laydown Area (OSLA), unreasonably assume complete capture of all seepage associated with these reactive mine waste sources. For the OSLA and Construction Mine Water Basin, even fewer monitoring requirements are imposed. As summarized by the draft NPDES Fact Sheet: *Overburden Storage & Laydown Area (OSLA) and Construction Mine Water Basin: Monitoring of runoff collected at the OSLA will be monitored for Group A parameters once per month. Because the OSLA and Construction Mine Water Basin will store materials that are not expected to release harmful constituents, a reduction in the parameter list from what is monitored at other stockpile locations is appropriate.[80] The draft NPDES Fact Sheet also states: *The OSLA runoff is expected to be of sufficient water quality so as not to require treatment beyond settling to remove suspended solids prior to pumping to the FTB. Any mercury that may be released from the stored peat will be removed with the settled solids in the collection pond and/or via filtration and adsorption by tailings particles at the FTB. *Groundwater downgradient of the OSLA will be monitored using one monitoring well screened in the surficial aquifer. This well (GW411) will be monitored quarterly for a focused set of key parameters and annually for a wider set of parameters.[81] Since these are unlined mine wastewater storage features, and dissolved pollutants can migrate quickly through shallow groundwater to downgradient surface water features (wetlands and Partridge River), there should be a mercury limit (1.3 ng/l) associated with these monitoring locations. Minnesota rules require that every permit issued by the MPCA contain monitoring requirements "that are sufficient to yield representative data to determine whether there is compliance with the terms and conditions of the permit or compliance with Minnesota and federal pollution control statutes and rules." 82 The draft permit should be revised to do this.	MPCA reviewed the monitoring requirements related to the OSLA and determined they are sufficient. The OSLA is primarily used for the storage of excavated peat and saturated overburden and is unlined but has a low-permeability compacted base layer that reduces infiltration and promotes runoff to the OSLA pond. Monitoring of the OSLA pond includes mercury and sulfate. In combination with monitoring of downgradient groundwater, the pond monitoring will be sufficient to determine compliance with state and federal requirements. In addition, the permit requires an annual evaluation of the overall suitability of the existing groundwater monitoring network, including its ability to detect a potential future groundwater impact to any surface water.
747	Nancy Schuldt	Fond du Lac Band	North Flow Path Bedrock Aquifer Monitoring Is Insufficient to Capture Plumes During the preparation of the FEIS, Dr. John Coleman with the Great Lakes Indian Fish and Wildlife Commission provided the co-lead agencies compelling evidence that groundwater from the Mine Site could potentially flow north into the Rainy River Basin via the Northshore Mining Company's Peter Mitchell Pit (Northshore Mine) at mine closure.83 The Co-Lead Agencies considered this possibility, and concluded that such northward flow was possible, but not reasonably foreseeable. Following publication of the FEIS, additional comments were submitted regarding the possibility of northward flow. DNR's adequacy decision concluded that even if northward flow were to occur, it would be possible to detect and prevent effects within the Rainy River Basin. The USFS similarly concluded that northward flow to the Rainy River Basin was unlikely, and that any potential northward flow could be detected and prevented. A monitoring plan for assessing hydrogeologic conditions in the area between the NorthMet pits and the Northshore Mine has been submitted to the DNR and Minnesota Pollution Control Agency (MPCA) separate from this Application (Reference (10)).84 The Band's submitted comments on the MNDNR draft permit to mine addressed this issue, and noted that the MPCA also bore regulatory oversight through their permitting and monitoring responsibilities. Excerpted from those comments: *Neither PolyMet in its revised application nor the MNDNR in its draft special conditions address EPA's position on what needed to be done to address the northward flow. In its comments on the PolyMet FEIS, the EPA agreed with experts that "a northward flow path is a possibility." The EPA stated that "further impact assessment is needed during the permitting process, including information on water quality and quantity impacts that may occur as a result of a northward flow path and/or contingency mitigation measures."85 The EPA recommended: ***Recommendation I: Given the possibility of a northward flow path, analyses of environmental impacts associated with this possibility should be conducted and evaluated during the permitting process. These analyses should include anticipated direct and indirect environmental impacts that may occur if one or more of the proposed contingency mitigation measures are implemented.86 But rather than follow EPA's recommendations and resolve this controversial issue by including as part of the permitting process, specific conditions to prevent northward flow, the MNDNR would allow PolyMet to defer analysis just long enough to avoid scrutiny and reduce its own leverage to deny or condition the PolyMet permit to mine. The MNDNR's draft special conditions simply recite that: ¶66. Prior to blasting within any mine pit footprint, the Permittee must submit a report and supporting data assessing the potential for current and future northward groundwater flow at the Mine Site. If the DNR concludes that this report, or other monitoring data, indicates a reasonable likelihood of northward groundwater flow at the Mine Site, then the DNR will require adaptive management or mitigation. ¶67. Any required management or mitigation must be approved by the DNR.87 The Band believes these MNDNR draft Conditions are vague, unenforceable, and shield PolyMet from their obligation to demonstrate that their proposed mine project will meet legal requirements. The draft Permit is deficient because the MNDNR has not specified their authority to review	The MPCA evaluated the monitoring needed at the facility, including that needed to ascertain whether a north flow may occur in the future, in the development of the permit. This resulted in the requirement to install 11 bedrock aquifer and 8 surficial aquifer monitoring wells. As described in response to Comment Multiple-543-BN, the purpose of the north flow path wells is to monitor the hydrogeologic conditions such that it can be confidently predicted whether a north flow path may develop in the future. This can be accomplished by monitoring current and future groundwater elevations along the potential north flow paths; monitoring of groundwater quality is not needed to accomplish this purpose. The Annual Groundwater Evaluation Report required by the permit specifically requires an assessment on the potential for a north flow path. If that potential exists, the permit requires that a plan and schedule for adaptive management or mitigation to prevent northward flow before it can occur must be submitted to MPCA for approval (emphasis added). As stated in the permit, such adaptive management or mitigation may require a modification of the permit, including a public notice of the proposed modifications.
			But rather than follow EPA's recommendations and resolve this controversial issue by including as part of the permitting process, specific conditions to prevent northward flow, the MNDNR would allow PolyMet to defer analysis just long enough to avoid scrutiny and reduce its own leverage to deny or condition the PolyMet permit to mine. The MNDNR's draft special conditions simply recite that: ¶66. Prior to blasting within any mine pit footprint, the Permittee must submit a report and supporting data assessing the potential for current and future northward groundwater flow at the Mine Site. If the DNR concludes that this report, or other monitoring data, indicates a reasonable likelihood of northward groundwater flow at the Mine Site, then the DNR will require adaptive management or mitigation. ¶67. Any required management or mitigation must be approved by the DNR.87 The Band believes these MNDNR draft Conditions are vague, unenforceable, and shield PolyMet from their obligation to demonstrate that their proposed mine project will meet legal requirements. The draft Permit is deficient because the MNDNR has not specified their authority to review and approve the report, and because the way that "adaptive management or mitigation" will be implemented under the Permit is not clear. The Permit should establish the required content for the report, and define their guidelines for approving the report. If the report is approved, and if the information in the report supports the conclusion that there is the potential for a northward groundwater flow, the MNDNR should: o require PolyMet to submit a plan for how that flow will be mitigated o define the agency's criteria for approval of the mitigation plan, and o provide for a process under which the approved plan will be incorporated into the permit as an amendment. Given the nature of this disputed issue, the MNDNR should require that these reports be submitted to the MPCA as well for its review and approval, and the plans should be incorporated into the Permit to Mine and NPDES/SDS permit through formal amendments.	

748	Nancy Schuldt	Fond du Lac Band	No Limits at Mine Site Surface Water Monitoring Stations According to the draft NPDES/SDS Fact Sheet, the only allowable discharges from the Mine Site are those authorized by Minnesota's Industrial Stormwater General Permit and Construction Stormwater General Permit. The draft permit explicitly prohibits any discharge of wastewater to surface waters from the Mine Site. All mine-related wastewaters will be collected in various sumps and collection systems, routed to equalization ponds at the Mine Site, and then pumped via pipeline to the Plant Site for treatment and discharge at that location. The draft permit envisions that each of the Mine Site features will be constructed and managed such that there is no point source discharge to surface waters nor a discernable impact to surface waters or groundwater. To that end, the draft permit requires monitoring of the performance of the Mine Site engineering controls and the groundwater quality downgradient of the Mine Site features. But both the limited number of monitoring sites proposed for baseline conditions and those proposed to identify surface water impacts are insufficient to detect performance failures of the engineering controls. Similarly, the sites on Longnose Creek and Wyman Creek are intended to monitor impacts of any spills or leakage from the railway and pipeline corridor between the mine site and the plant site.88 Yet only a single surface water site (identified on the map as SW004c) is proposed to monitor impacts from discharge via groundwater to surface water from the entire mine site. This lone monitoring site, located on the Partridge River approximately a mile south of the mine site,89 simply cannot be expected to capture evidence of systems performance failure for the entire mine site. The PolyMet Draft NPDES/SDS permit must be revised to include additional surface water monitoring sites at the mine site, and in wetlands and streams in proximity to mine site sources of contamination in order to ensure that PolyMet is complying with the draft permit's prohibition of the discharge of pollutants into surface water.	See response to Comment 711-B, which explains that the intent of the monitoring wells is not to assess individual features at the mine site. Monitoring related to engineering controls would accomplish this.
749	Nancy Schuldt	Fond du Lac Band	Insufficient Hydrology, Water Quality Monitoring and Lack of Protective Thresholds in Partridge River Watershed The MPCA proposes to include a condition referencing the stream hydrology monitoring required by the DNR Water Appropriation permits for the Project. If monitoring indicates an annual average change in hydrology of greater than 20% from existing conditions at the Plant Site – that is, conditions before the implementation of the tailings basin pumpback systems, which are short term mitigation measures as part of the Cliffs Erie Consent Decree – in Unnamed Creek, Trimble Creek, Unnamed (Mud Lake) Creek, or Second Creek at the Plant Site, the certification requires the permittee submit to the MPCA the stream hydrology data, along with an analysis of whether existing and beneficial uses of the stream(s) have been affected. The certification also requires a proposal for adaptive management, including possible mitigation, as appropriate, to address any loss of existing uses.90 But no such conditions are proposed to protect hydrology in the Partridge River watershed. In 2008, Barr Engineering provided Cliffs Natural Resources with a Long Range Hydrology Study ("LRHS") for the NorthShore Mine Peter Mitchell Pit. On page 20 this study states that "Flows in the upper Partridge River immediately downstream of the post-closure watershed boundary may be reduced by close to 100 percent relative to current conditions." The 4.5 mile reach of the Partridge River that the LRHS suggests might completely dry up is the portion of the Partridge River that winds around the PolyMet mine pits. Based upon this prediction, the DNR must consider how augmentation to flows in the Partridge River could be implemented through enforceable conditions in PolyMet's water appropriation permit. Additionally, wetlands near the mine site may need augmentation and treated water may be needed to prevent a northward flowpath of contaminated groundwater from the mine pits at closure.91 Water quality evaluation points have apparently been negotiated with the regulatory agencies with minimal input from the public. Inexplicably, the FEIS does not include any model evaluation or monitoring points for the first three-mile (or longer) section of the Partridge River that may be impacted. It appears that the model evaluation and monitoring points for the Partridge River were chosen to minimize the potential impacts from the mine project that are shown by modeling or monitoring. Impacts to the Partridge River would presumably be greatest along the primary groundwater recharge zone closest to mine operations. Based on predicted pathways for discharges to the river from mine features, monitoring and evaluation points are more than three miles downstream from this point and are just below the discharge from a creek. Selection of these monitoring and evaluation points ensures that the discharges likely to be highest in pollutant concentrations are not caught by monitoring until well downstream, having been diluted by presumably clean groundwater and by surface water from an area less likely to be affected by mine operations. The failure to monitor surface water at the actual point of contact with groundwater and surface water closest to the mine is directly contrary to GLI requirements and standards to ensure that water quality will not be lowered for impaired waters. The FEIS methodology fails to evaluate the receiving water nearest the actual discharge to the Partridge River, and therefore is inadequate to address potential impairment.92	Comment noted. This comment relates to the 401 certification and DNR's water appropriation permits, not the NPDES/SDS permit.
750	Nancy Schuldt	Fond du Lac Band	Plant Site The draft NPDES/SDS permit would require five surface water quality monitoring stations, the nearest of which is approximately one mile from the northern edge of the tailings facility.93 However, there are streams that originate significantly closer to the FTB than the surface monitoring stations selected. And like the mine site, there are wetlands located immediately adjacent to the sources from which FTB contamination would originate: both the discharge outfalls and the seepage containment system.94 Additional surface water quality monitoring sites must be established in all surface water features (streams and wetlands) in proximity to the FTB, in order to ensure the performance of the engineered controls intended to prevent the release of pollutants to the environment.	MPCA evaluated locations for surface watering monitoring downstream of the tailings basin during permit development and determined that, given the dispersed nature of the treated discharge to headwater wetlands via outfalls SD002 through SD010, the locations in the permit are appropriate. Also see response to comment 748.
751	Nancy Schuldt	Fond du Lac Band	Insufficient Seepage Containment System Groundwater Monitoring Stations: at the HRF According to the NPDES/SDS Fact Sheet, the Hydrometallurgical Residue Facility (HRF) is a closed-loop system that will not have a discharge. Water is recirculated through the facility and reused in the hydrometallurgical process. The draft permit requires monthly monitoring of the HRF Pond water at WS004 and any leachate collected by the HRF Leakage Collection System at WS005 for Group B parameters and annual monitoring for Group C parameters. The Draft NPDES/SDS permit requires monthly inspection of HRF pond and HRF leakage collection system to "evaluate the effectiveness of the liner and Leakage Collection System."95 Yet, although there are monitors for internal waste streams at the HRF, there are zero monitoring sites that could actually detect liner leakage at the HRF: no bedrock groundwater monitoring sites, no surficial aquifer monitoring sites and no surface water quality monitoring sites. 96 This despite the fact, as discussed above, that the location of the HRF invites liner failure and subsequent seepage. Given the potential for failure of the liner system, and the need to comply with the monitoring requirements of the Minnesota Administrative Rules,97 the PolyMet NPDES/SDS permit must also include strategically placed groundwater and surface monitoring sites to determine whether the liners for the HRF are leaking. The HRF will contain highly toxic wastes, including a large mass of mercury, on an unsuitable site with an unstable foundation; therefore, it is imperative that MPCA verify effective leakage capture, not assume.	The issue raised in the comment pertaining to site suitability for the HRF is addressed in the permit by requirements of the Preload Design Investigation Work Plan (which includes a component addressing additional subsurface investigation), the HRF Preload Design Plan (which is designed to address issues related to foundation variability/stability) and the HRF Liner Plan. The HRF Liner Plan includes a requirement for a lysimeter under the sump or other suitable device and the permit has been revised to require the HRF Liner Plan to also include an analysis of the suitability of the proposed monitoring to detect leakage from the HRF. Until the final design of the HRF is known (after completion of the required investigations and studies), it is premature to specify the exact type, number and placement of monitoring.
751-A	Nancy Schuldt	Fond du Lac Band	All monitoring results from the PolyMet project should be immediately made available online so that members of the public will have timely and transparent information as to PolyMet's compliance with Minnesota water quality standards and the requirements of the federal Clean Water Act.	All monitoring data is reported to the MPCA on monthly Discharge Monitoring Reports (DMRs) which is posted online on the MPCA website (available at https://www.pca.state.mn.us/quick-links/eda-surface-water-data). Monitoring data and report submittals are also available by request
751-B	Nancy Schuldt	Fond du Lac Band	Surface water monitoring sites located in wetlands should also specifically measure sulfate, mercury, methylmercury and water fluctuations, to address concerns about increased mercury contamination resulting from the PolyMet project.	Comment noted. This comment relates to monitoring required by conditions in the 401 certification, not the NPDES/SDS permit.

752	Nancy Schuldt	Fond du Lac Band	Effluent Limits at Monitoring Locations are not Sufficiently Protective Federal regulations require that any new copper mine must comply with new source performance standards which provide technology-based effluent limitations (TBELs).98 The only effluent limits contained in the Draft NPDES/SDS Permit for the PolyMet copper-nickel mine project are set at SD001, the monitoring station for surface discharge from the plant site wastewater treatment system (WWTS); those limits are based on TBELs.99 But if treated wastewater was discharged at the contaminant levels allowed under new TBELs for copper mining, it would greatly exceed Minnesota water quality standards. While each NPDES permit must include TBELs, where applicable,100 these TBELs serve as a floor, not a ceiling: Generally, the Clean Water Act uses two different types of standards "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters": technology-based standards and water-quality standards. 33 U.S.C. § 1251(a). Technology-based standards set a minimum level of treatment that must be performed by those who discharge pollutants into waters. That level is predetermined by EPA to be both technologically available and economically achievable. . . . In contrast, water quality standards depend on the purpose for which a particular body of water is used. 40 C.F.R. § 131.3(i). Each NPDES permit must also include water quality-based effluent limits (WQBELs) and requirements in addition to or more stringent than technology based standards, to the extent necessary to achieve water quality standards established under section 303 of the Clean Water Act, including state narrative criteria for water quality."101	The MPCA conducted a reasonable potential analysis for the discharge from the WWTS and determined there is no reasonable potential for the discharge to cause or contribute to an exceedance of the water quality standard for mercury. Therefore, no Water Quality Based Effluent Limits (WQBEL) are required in the permit. Further discussion regarding MPCA's reasonable potential analysis is contained in response to Comment 718-A. However, to ensure that the discharge from the WWTS does not exceed water quality standards, the MPCA included Operating Limits for sulfate, copper, arsenic, cobalt, lead, nickel and mercury (set at their respective water quality standards). The permit also includes Technology Based Effluent Limits (TBELs) in accordance with 40 CFR part 440 (even though these values are higher than the aforementioned Operating Limits). The Operating Limits and TBELs in the permit are enforceable and an exceedance of either the TBEL and/or Operating Limit is a violation of the permit. To address concerns regarding the permit being protective of water quality, the MPCA has also added language to the permit stating the discharge of treated wastewater from the WWTS must not violate state water quality standards.
753	Nancy Schuldt	Fond du Lac Band	Annual Assessment to Ensure no Unauthorized Discharges from the Mine Site and Plant Site Lacks Enforcement Mechanism The draft permit contains special requirements for both an Annual Groundwater Evaluation Report and an Annual Comprehensive Performance Evaluation Report in addition to the permit conditions mentioned above. The purpose of these reports is, in part, to utilize all available monitoring and operating data (including groundwater quality, groundwater elevation, waste stream monitoring and pumping records) to fully evaluate facility performance on an annual basis and to assess whether there is, or is the potential for, a discharge to surface waters. The annual evaluations will provide a comprehensive assessment of the facility engineering controls at the Mine Site and Plant Site in minimizing impacts to water resources downstream of the facility and will require an assessment of potential mitigation options or adaptive management is needed if the potential for an unauthorized discharge to surface waters exists. The Annual Groundwater Evaluation Report and the Annual Comprehensive Performance Evaluation Report are further discussed in the sub-section of the same name below. Monitoring data evaluation and reporting are key elements for MPCA's regulatory oversight of any permitted facility. But the draft NPDES/SDS permit lacks any penalties or repercussions for evidence that engineering controls are not meeting performance requirements, or if a violation has occurred. MPCA has wide ranging authority to enforce permit violations, including "criminal prosecution; action to recover civil penalties; injunction; action to compel performance; or other appropriate action" under Minn. Stat. § 115.071.102 The failure to describe what actions MPCA will take to enforce the permit is a major deficiency of the draft permit, and must be rectified so that the public will be assured that PolyMet will be held accountable for failing to meet permit requirements.	Permits contain requirements applicable to the permittee. Statutes and rules define the scope of enforcement authority available to the permitting agency. Enforcement actions are determined at the time of discovery and range in seriousness based on the severity of the violation. If there is an unauthorized discharge, it will be considered a violation of the permit and the MPCA will determine appropriate enforcement action at that time. In addition, the MPCA has modified language in Item 5.176.81 of the draft permit regarding unauthorized discharges from the mine site, which prohibits the Permittee from directly discharging any mine water or other process wastewater from the Mine Site to surface waters under this permit. All mine water or other process wastewater from the Mine Site must be routed to the Equalization Basins and pumped to the Plant Site for treatment. Parts 5.176.58 and 5.176.59 address unauthorized discharges at the plant site by prohibiting direct discharges to surface water from the FTB pond, the FTB seepage containment system or the south seepage management system. All water collected by the containment systems must either be pumped back to the FTB or routed to the WWTS for treatment.
754	Nancy Schuldt	Fond du Lac Band	7. The Draft Permit Does Not Sufficiently Address Mercury Impacts The MPCA NPDES/SDS Fact Sheet states that a reasonable potential analysis for mercury was conducted as part of the permit application review and the Agency determined there is no reasonable potential for concentrations of mercury to cause or contribute to an exceedance of water quality standards.103 The Band remains entirely unpersuaded by the arguments put forward by PolyMet and apparently adopted by the MPCA, that mercury impacts from the project will be insignificant. FAs the Band described in its comments and objections on the MNDNR draft permit to mine: *Throughout its PTM Application, PolyMet has failed to include mercury in its characterization of wastes or water quality. As noted above, two of the areas where mercury is of greatest concern are not characterized at all -- the HRF in which 164 pounds of mercury will be deposited each year104 and the unlined OSLA, where mercury-containing peat will be stored. We have found multiple tables in PolyMet's Water Management Plans and draft permit to mine that estimate water quality in various locations where water contacts waste, from the toe of the FTB to mine pits and waste rock seepage. But none of these tables estimate levels of mercury in the seepage or wastewater, even though all of the receiving waters for the proposed PolyMet project (the Partridge River and Embarrass River; Embarrass, Sabin, Wynne, Esquagama and Colby Lakes; the Whitewater Reservoir and numerous downstream segments of the St. Louis River) are all listed by MPCA under the Clean Water Act 303(d) as impaired due to mercury.105 MNDNR should require PolyMet to revise its application to analyze and disclose mercury concentrations in all project wastes and in all water quality associated with mine site or plant wastes or ores before a permit to mine can be issued. PolyMet continues to overlook mercury impacts. PolyMet's NPDES/SDS Application does not assure any level of mercury removal efficacy for its proposed treatment. PolyMet states, "Some mercury removal is expected across the greensand filter. However, the influent concentration of mercury to the tailings basin seepage treatment train is expected to be below the WWTS discharge treatment target." 106 To support this conjecture, PolyMet cites a "bench-scale study" of the effectiveness of flotation tailings for removing mercury107 and concludes that the concentration of future FTB seepage "is expected to be similar to the concentrations in the seepage from the existing LTVSMC tailings basin, which is approximately 1.0 ng/L."108 This conclusion is entirely unsupported; PolyMet's seepage will have an entirely different chemical "fingerprint" than seepage from taconite tailings. Although neither the draft PolyMet Permit to Mine nor the NPDES/SDS permit applications provide the underlying data to assess these claims, documents produced during the course of environmental review made the same claims and supplied underlying documents that allegedly supported them. Yet, neither the bench-scale study of flotation tailings adsorption of mercury nor monitoring data from the existing LTVSMC tailings basin support PolyMet's claims that PolyMet's tailing seepage would have mercury concentrations below the levels required to comply with Minnesota's 1.3 ng/L standard. Nevertheless, the draft permit accepts PolyMet's view that mercury impacts are likely to be insignificant:	As stated in the comment, the MPCA conducted a reasonable potential analysis for the discharge from the WWTS and determined there is no reasonable potential for the discharge to cause or contribute to an exceedance of the water quality standard for mercury. Therefore, no Water Quality Based Effluent Limit (WQBEL) is required in the permit. Further discussion on reasonable potential is in response to Comment 718-A. However, to ensure that the discharge from the WWTS does not exceed the 1.3 ng/L mercury standard, the permit has been revised to include an enforceable Operating Limit for mercury (set at 1.3 ng/L) at internal monitoring point WS074 prior to discharge. In accordance with 40 CFR part 440, the permit also includes a Technology Based Effluent Limit (TBEL) for mercury (even though this value is higher than the aforementioned Operating Limit). The EIS concluded that the demonstrated ability of the NorthMet tailings to adsorb mercury, in combination with the previously documented mercury removal capabilities of the underlying taconite tailings, would be expected to result in an overall increase in mercury adsorption and subsequently lower concentrations of mercury in the FTB seepage. (MPCA notes that this is an existing taconite facility.) Thus, the influent to the WWTS is expected to be approximately at the water quality standard of 1.3 ng/L. The MPCA expects further removal by the greensand filtration and reverse osmosis components of the WWTS. MPCA considered this information in conjunction with the results of the pilot testing and the design modeling in the reasonable potential analysis. Further discussion on this is in respons to Comment Multiple-543-BX.
754-A	Nancy Schuldt	Fond du Lac Band	Mercury A Reasonable Potential analysis for mercury was conducted as part of the permit application review. Based on its review, the Agency has determined there is no reasonable potential for concentrations of mercury to cause or contribute to an exceedance of water quality standards. The MPCA expects no measurable change in mercury concentrations downstream in the St. Louis River at Forbes or below. The draft permit requires weekly monitoring of the effluent at SD001 for total mercury using analytical method 1631 and clean-sampling method 1669. The applicable TBEL under the NSPS for mercury is a daily maximum of 0.002 mg/L and a monthly average of 0.001 mg/L.[109] The Band has already identified this error in the applicable mercury permit limit. The draft permit should not be issued until mercury impacts can be properly assessed in light of the bench-scale study and monitoring data from the existing LTVSMC tailings basin, which indicate that mercury concentrations will not comply with applicable standards.	See response to comment 754.
754-B	Nancy Schuldt	Fond du Lac Band	More broadly, the Band has consistently challenged the conclusion that the NorthMet Project Proposed Action would increase mercury loadings in the Embarrass River but decrease mercury loadings in the Partridge River, with the net effect of an overall reduction in mercury loadings to the downstream St. Louis River. 110 We provide additional extensive comments on unmeasured, unmodeled, yet predictable mercury impacts from the PolyMet project in our comments on the draft §401 certification, also submitted today. The Band is convinced that the PolyMet project, when examined holistically for its direct and indirect impacts to surrounding watersheds and waterways, will contribute to mercury exceedances in downstream and downgradient waters, and will contribute to existing wildlife and human health impairments.	The subject of mercury loadings from the project was addressed in the EIS and the EIS was deemed adequate. No information the MPCA has received would undermine that conclusion. The MPCA considered the potential mercury loading and determined there was no reasonable potential to exceed the water quality standard for mercury. See responses to Comments 722 through 722-B for additional discussion. To ensure the discharge from the WWTS complies with the 1.3 ng/L water quality standard the permit was revised to include an enforceable operating limit of 1.3 ng/L for the discharge. Comments submitted on the draft 401 certification are addressed separately in the response to comments for that document.

755	Nancy Schuldt	Fond du Lac Band	8. The Resolution of Legacy Contamination is Uncertain under the Draft Permit MPCA's Fact Sheet for the draft permit includes a section referencing how the agency expects to see legacy contamination issues from the former LTVSMC facility addressed if the PolyMet project is permitted and the company acquires land and facilities currently subject to a Consent Decree. Again, the agency bases its determination that the legacy contamination will be attenuated and the PolyMet project can achieve compliance with these conditions by assuming a seepage capture rate of 100% at the tailings basin111 – which, as the Band has already described, is implausible. The Fact Sheet goes on to state: *Water quality in the wetlands and other waters downgradient of the existing tailings basin, which LTVSMC operated until 2001, has been affected by ferrous (legacy) surface seepage and groundwater seepage. Baseline monitoring in Mud Lake Creek, Trimble Creek, and Unnamed Creek has documented exceedances of surface water quality standards for several parameters associated with the former ferrous operations, namely total dissolved solids (TDS), specific conductance, alkalinity and hardness. *...When the Project begins operating, the existing legacy seepage and future nonferrous seepage captured by the seepage containment system will no longer contribute to the hydrology of the downstream wetlands and creeks. To obtain the benefits of the seepage capture system while at the same time maintaining the functional hydrology of these downstream waters, the collected seepage will be replaced with treated water from the Waste Water Treatment System (WWTS). The treated water, which will meet all surface water quality standards, will be discharged in a dispersed manner to the headwater wetlands immediately downstream of the capture system in the Trimble and Unnamed Creek watersheds. * ...Once PolyMet begins operating the FTB Seepage Containment System and starts collecting the existing ferrous tailings basin seepage for treatment at the WWTS with subsequent discharge of treated augmentation water downgradient of the containment system, there will be a beneficial effect on downstream water quality. However, because there will be previously impacted waters attributable to pre-Project conditions remaining in waters downgradient of the containment system (both wetland water at the surface and deeper seepage that has yet to up-well into surface waters), there will be a period of time following the startup of FTB Seepage Containment System and WWTS before the pollutants in downstream waters are fully attenuated. In other words, there will be a lag in time before PolyMet's capture of seepage and discharge of treated water will completely disperse the remaining legacy contaminants presently in downstream waters.[112] The MPCA's assumption that augmenting the three affected streams with treated water will completely disperse the legacy contaminants is, again, based upon the unrealistic assumption of 100% seepage capture at the FTB. The failure of the Draft NPDES/SDS Permit to set water quality-based effluent limitations for this direct discharge from the existing LTVSMC tailings basin prior to the construction of the FTB and its seepage containment system fails to comply with the Clean Water Act, its implementing rules or Minnesota water quality standards. During future project construction, or under a scenario where the PolyMet Project does not proceed for any reason, existing LTVSMC tailings seepage discharge to surface waters would clearly have the potential to cause or contribute to exceedances of Minnesota's water quality standards. The MPCA must conduct a reasonable potential analysis for existing LTVSMC discharge, and the Draft NPDES/SDS Permit must incorporate water quality-based effluent limitations (WQBELs) for any parameters that have the potential to cause or contribute to exceedances of Minnesota's numeric and narrative water quality criteria.	The comment primarily addresses conditions for an existing facility that is regulated under a separate, existing NPDES/SDS permit. To the extent the comment addresses the effectiveness of augmenting downgradient waters via the discharge of treated wastewater, the hydrologic effects were evaluated in the EIS and the water quality effects were addressed during the NPDES permitting process. The permittee conservatively calculated that it would take up to 18 months to attenuate (defined in the calculations as a 90% mix of treated water to legacy seepage) the effects of the existing seepage upon construction of the seepage containment system and the discharge of treated wastewater. It should be noted that prior to full attenuation, concentrations in receiving and downstream waters would be reduced to levels below water quality standards. To the extent the comment addresses seepage capture system efficiency, the MPCA did not rely on 100% seepage capture efficiency (nor did the EIS in its effects analysis). Modeling conducted during the EIS indicated that capture efficiencies greater than 90% were likely and MPCA relied on the conservative assumption used in the EIS of a 90% capture efficiency.
755-A	Nancy Schuldt	Fond du Lac Band	The EPA has advised the state that enforcement of Minnesota surface water quality standards is not discretionary under the Clean Water Act.113 Regardless of the time elapsed before PolyMet commences operations, the MPCA has no discretion under applicable federal or state law to decide not to regulate a direct discharge from the existing LTVSMC to waters of the United States. The Band is just as deeply concerned about the MPCA's broader policy regarding the cleanup of mining pollution at the plant site, for which PolyMet will be assuming the liabilities that Cliffs now holds. From the Band's comments on the draft Permit to Mine: *PolyMet has long planned to acquire, repurpose and reuse former LTVSMC facilities at the Plant Site from Cliff's, including the tailings basin. These properties are identified as the LTVSMC Legacy Properties for purposes of Section 16 of the revised PTM application 114, and PolyMet provided a Legacy Closure Plan and specifically associated financial assurance to replace Cliffs Erie's closure plan and financial assurance under Cliffs' permit to mine. This Legacy Closure Plan (Appendix 15.1) includes provisions for investigations and remedial actions in accordance with MPCA's voluntary investigation and cleanup program (VIC), and other reclamation activities such as dewatering of the tailings basin. After consistently questioning MPCA and the co-lead agencies about their anticipated regulatory oversight for addressing LTVSMC's legacy contamination throughout the entire EIS process, the Band is astounded to see that PolyMet will not be held to any water treatment activities or costs to remedy legacy pollution at the tailings basin115. The Band objects to this proposed decision, as it is a clear violation of the Clean Water Act and must be rejected and revised. This determination that no water treatment would be required, nor any associated costs included in the financial assurance for the Legacy Closure Plan, is apparently based on a December 12, 2017 memorandum from the Minnesota Pollution Control Agency (MPCA) to the DNR. This memorandum states: "...should the PolyMet copper-nickel mine project never become operational (scenario II), no treatment or mitigation would be required for potential exceedances of mercury, sulfate, alkalinity, hardness, total dissolved salts and specific conductance at the LTVSMC tailings facility.116 The tailings basin is currently regulated under an existing Cliffs NPDES/SDS permit (MN 0042536) and a Consent Decree, which requires Cliffs to implement a Long Term Plan for testing and implementing active and passive water treatment at two outfalls, SD026 (south discharge from tailings basin) and SD033 (Area 5N). MPCA has been exceptionally lenient in	The comment primarily addresses a closure scenario in the absence of the NorthMet project that is regulated under a separate NPDES/SDS permit. The comment does not address the NorthMet NPDES/SDS permit.
756	Nancy Schuldt	Fond du Lac Band	9. Failure to meet zero-discharge requirements The PolyMet project would likely also violate the "zero discharge" requirement. A "zero-discharge requirement applies to the process facilities, including tailings impoundment. The zero- discharge standard is described as follows: 40 C.F.R. § 440.104(b)(1): Except as provided in paragraph (b) of this section, there shall be no discharge of process wastewater to navigable waters from mills that use the froth-flotation process alone, or in conjunction with other processes, for the beneficiation of copper, lead, zinc, gold, silver, or molybdenum ores or any combination of these ores. The Agency recognizes that the elimination of the discharge of pollutants to navigable waters may result in an increase in discharges of some pollutants to other media. The Agency has considered these impacts and has addressed them in the preamble published on December 3, 1982. PolyMet will violate the zero-discharge standard in two ways. First, tailings seepage not captured by the collection system will violate the standard, regardless of the effect on groundwater quality. PolyMet plans to effectively meet the zero discharge by planning to collect and recycle all tailings water that seeps beneath the facility (Vol. III, § 5.2) even if the collected seepage would be treated and later discharged to surface streams. But, seepage that escapes the tailings seepage collection system will violate the zero-discharge standard because it will not be part of the combined waste stream and will reach the Embarrass River or tributaries. If PolyMet's assumption regarding seepage collection does not manifest, PolyMet will violate its permit. Second, mine dewatering water would violate the standard if dedicated dewatering wells become necessary. As discussed in the NPDES modeling section, there is a substantial chance that the dewatering requirements will exceed the predicted rates. If dewatering needs exceed the predicted rates, and PolyMet requires dedicated dewatering wells, PolyMet will violate the permit. Both of these deficiencies must be addressed before the permit can be issued.	The zero discharge standard (at 40 C.F.R. part 440) applies to direct discharges of process wastewater to surface water. Direct discharge to surface water from both seepage containment systems is prohibited by this permit. Mine dewatering wells are not currently being proposed - the commenter is speculating on their use. In any event, mine dewatering water (whether from direct pumping or from dewatering wells) is considered mine drainage in the context of applying the "allowable discharge" requirements of 40 CFR 440.104(b)(2)(i) and is not part of the restricted allowable discharge. In addition, the permit has been revised to include a numeric maximum allowable discharge limit in accordance with the above regulation.
757	Nancy Schuldt	Fond du Lac Band	10. Antidegradation The Minnesota Administrative Rules provide that §401 certifications for new federal licenses can only be issued when "existing uses and the level of water quality necessary to protect existing uses are maintained and protected." Existing uses can be preserved by "compensatory mitigation . . . when there is a physical alteration to a surface water" only when certain conditions are met, including that prudent and feasible alternatives are not available to avoid or minimize adverse impacts, the mitigation is sufficient in quality and quantity to ensure replacement of the lost surface water, the mitigation is accomplished by "establishing or enhancing a surface water of the same type," and that it occurs within the same watershed "to the extent prudent and feasible." If a permittee is seeking compensatory mitigation, then it is required to provide to the MPCA a proposed compensatory mitigation plan. The plan must, among other things, provide a "description of how compensatory mitigation will establish sufficient quality and quantity of uses to preserve existing uses and the level of water quality" needed to preserve them, and "a proposal for monitoring and reporting the changes in existing uses and the level of water quality necessary to protect existing uses of the surface waters in which mitigation will occur." Because PolyMet proposes to destroy an extensive area of wetlands that are "surface waters" under Minnesota law, it has submitted a wetland mitigation plan that it claims will meet these standards. However, it is far from clear that PolyMet's proposed mitigation plan is sufficient, and the §401 certification should not be granted until these issues with the antidegradation standards can be addressed. The Antidegradation Evaluation and MPCA's subsequent review demonstrate that water quality degradation caused by the proposed Project cannot be avoided, but will be prudently and feasibly minimized, existing and beneficial uses will be protected, and the proposed activity is necessary to accommodate important economic or social changes in the geographic area in which degradation of existing high water quality is expected. The proposed Project will implement the best technology in practice and treatment. Therefore, the MPCA has made a preliminary determination that the Project will satisfy antidegradation standards in Minnesota Rules 7050.0265, 7052.0300, and 7052.0330. (NPDES Fact Sheet)	This comment is about antidegradation as it relates to MPCA's 401 certification and is not about the NPDES/SDS permit. Comment noted.

758	Nancy Schuldt	Fond du Lac Band	11. Nondegradation for Groundwater Minnesota Rules part 7060.0500 identifies a Nondegradation Policy applicable to underground waters of the state. Because MPCA's review of the Groundwater Nondegradation Evaluation was completed prior to submittal of the October 2017 updated permit application, the review did not fully capture or acknowledge some of the specific updates that were included in the updated application. For example, MPCA's hydrogeological review recommended installation of an additional monitoring well in a particular hydrogeologically-favorable area at the Mine Site with the result that this well location was included in the updated application and draft permit. MPCA also incorporated into the draft permit the hydrogeological review's recommendation on the use of appropriate statistical methods in the review of groundwater monitoring data. The Nondegradation of Groundwater Evaluation and the MPCA's subsequent review demonstrate that the requirements set forth under Minnesota Rules 7060 for protection of groundwater resources have been satisfied and that the proposed groundwater monitoring included in the NPDES/SDS permit will verify the protection of the groundwater resources. Therefore, the MPCA has made a preliminary determination that the project satisfies the nondegradation standards in Minnesota Rules 7060. Furthermore, the MPCA has determined that even though its review of the Groundwater Nondegradation Evaluation occurred prior to submittal of the October 2017 updated application, its conclusions and preliminary determination would not be different than had the updated information been available.	Comment noted. This comment quotes from MPCA's draft permit Fact Sheet that was placed on public notice with the draft permit; it does not include a new comment on the draft permit.
759	Nancy Schuldt	Fond du Lac Band	12.MPCA record in regulating hard rock mining Minnesota has repeatedly failed to control water pollution, even when required to do so under the federal Clean Water Act. The MPCA has a long history of delayed and inadequate permits and poor enforcement of limits on mining pollution. In fact, the State is under investigation for failure to comply with the Clean Water Act and failure to control pollution from existing mines. Permits are being administratively continued long past expiration dates, with no new limits imposed regardless of monitoring data or reasonable potential analysis. This draft permit is a continuation of the status quo, not a responsible example for how the agency intends to regulate new, more environmentally hazardous mining projects and protect high quality waters that sustain ecologically, economically and culturally significant resources.	Comment noted.
760	Nancy Schuldt	Fond du Lac Band	13. Summary In summary, the NPDES/SDS permit does not meet the requirements of state law. It does not contain conditions that will ensure that PolyMet will achieve compliance with applicable Minnesota or federal statutes or rules, or with the terms of the permit itself. As the Band describes above, the designs that PolyMet has provided and that are effectively adopted by the draft permit, do not ensure that PolyMet will meet applicable effluent limitation, standards, and prohibitions for pollutants that will be discharged by the mine and associated facilities. Nor does it provide sufficient monitoring to ensure that PolyMet will continue to meet permit limitations. More modeling must be done, and amendments made to the draft permit conditions, to ensure that PolyMet's operations will not harm human health and the environment. For those reasons, MPCA cannot issue the permit as currently drafted and must take the actions the Band has requested above to make the permit compliant with applicable laws.	This comment is a summary statement for the comment letter. See individually delineated comments above for specific responses.
761	Walter Sve	Citizen	I oppose the proposed copper nickel mining in the Lake Superior watershed. As a commercial fisherman having seen and struggled through Reserve mining dumping tailings into the lake, that devastated my business for over 30 years, I fear another blow to the fishing industry with this type of mining. Mercury levels are already high in Lake Superior fish and this type of mine will cause more mercury contamination, not only mercury but other contaminants as well.	See response to Comment 198. The control of sulfate in the discharge to less than 10 mg/L will minimize the potential for increased methylation of mercury.
762	Walter Sve	Citizen	The risk of this type of mine is not worth devastation it can cause. I understand other states and countries have done this type of mining and none of them have been done safely. Why would anyone consider this mining without first having a proven method of doing it, and / or cleaning up and reversing the damage done to these other sites?	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
763	Steve Sve	Citizen	Do not issue a 401 certification, air, or wastewater discharge permit to PolyMet Mining Company. No one has prevented acid mine drainage pollution from an open pit copper mine. The St. Louis River will be PolyMets drainage ditch and pollute Lake Superior for centuries. As a commercial Fisherman this will have a negative effect on my Business. And also endanger the lives of everyone living downstream from the mine site.	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
764	Anita Suzanne Tillemans	Citizen	To whom it may concern: Creative expression is an essential ingredient in all of our lives and it stems from a love of beauty in all its forms. Without this where are we? Is artistic expression something we do when other "more important" things are accomplished? Or is it, like the song of a sparrow, the rush of a spring, essential to our survival? Sigurd Olson remarked that everyone needs to find their "spot of blue". Over the years, his reference developed from a "spot of blue" in his search for water on a portage in northeastern Minnesota in the BWCAW and in the Quetico of Ontario, the sense of adventure and discovery on that quest, to a metaphor encompassing a search for knowledge and spiritual meaning. Humans have evolved into super predators through the use of tools and weapons. Once our dominance over the animal and plant kingdoms was assured we turned these weapons on ourselves. As a consequence, it becomes even more essential that we find our "spot of blue" and a place where we can meditate on our existence and the paths each one of us needs to take for the sake of our species and life on earth. When there is no wilderness, places where we can find solitude, no respite from the drum of socalled progress, nothing but the steady beat of production at all costs and money our god, what then? Where will we find the space and the time to appreciate the beauty and find our spot of blue? Our survival as a human species may depend upon it.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

765	Anita Suzanne Tillemans	Citizen	This permit proposes to monitor discharges in the Laurentian area from this project's coppersulfide mining of low grade ore in an extremely water-dependent area of the world at the headwaters of the Great Lakes and the St Lawrence Seaway. Infrastructure including rails and roads will be required for the North Met Project. Among the facilities referenced in the draft permit, the following: • A beneficiation plant • A hydrometallurgical plant • A flotation tailings basin (FTB) including Seepage Capture Systems • A hydrometallurgical residue facility (HRF) • A waste water treatment system (WWTS) - discharge of which will be routed through pipes to maintain flows in Trimble Creek, Second Creek, and Unnamed Creek, with some being recycled directly to FTB pond. • Other ancillary facilities (eg Colby Lake water pipeline) including: o Mine water filtration train o Tailings basin seepage treatment train o Wastewater treatment of solids/byproducts: from the tailings basin seepage treatment train including waste from filters and membrane cleaning and concentrate, which will be routed to FTB pond and mine water chemical precipitation treatment train. Can we rely on a for-profit corporation to monitor itself? The permittee, Polymet, is expected to report all data from the required monitoring stations, whether favorable or not. If reported accurately and standards are not met, then Polymet will be required to monitor again until standards are met. What worthy and worthwhile actions will be taken at the "end of the day?" If the unfathomable number of reports (essentially required just to monitor the discharge from this mining operation) are maintained accurately with regularity, consistency and competency, what truly effective actions can be taken when standards are exceeded? What of the monitoring stations that have no set standards as guidelines? What of those that are not enforceable?	See response to Comment 144.
766	Anita Suzanne Tillemans	Citizen	What actions are possible that will return the water to its base levels when the degradation becomes apparent to us all? What amount of money in the form of fees or financial guarantees can reclaim what is lost?	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
767	Anita Suzanne Tillemans	Citizen	In addition, there is little that anyone can do to prevent natural processes and disasters from occurring, or human error whether knowingly or not; and so, by any standard, this mine will degrade our water resources in Minnesota and beyond. Can any permit for such a mine adequately address these issues?	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
768	Anita Suzanne Tillemans	Citizen	Once copper mining has run its course in the Arrowhead by setting precedent with Polymet, the first of many to come, what will remain and what can truly be reclaimed? "Downstream," the St Louis River estuary and Lake Superior, the largest body of fresh water in the world? "Downstream," the BWCA, and the Rainy River Watershed, the Superior National Forest and Voyageurs, the most pristine wilderness areas on the planet? Can we afford this mine?	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
769	Anita Suzanne Tillemans	Citizen	There are hundreds of pages listed (in this water permit draft and other permits) of essential equipment and gauges required just to monitor pollution from the proposed NorthMet Project (copper mine) on a continuing basis daily, monthly and/or annually through the life of this mine and beyond. This alone speaks for itself and cannot be reconciled with the safety of our greatest natural resource. I respectfully request that MPCA deny this permit to pollute and to mine the waters of the St Louis River watershed in a land that has no equal on earth in a water dependent ecosystem at the headwaters of the Great Lakes and the St Lawrence Seaway. How long will such beauties last in a copper mining scenario?	Comment noted. Monitoring data considered in the development of the draft permit and required by the draft permit documents are publicly available. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
770	Arnie and Cindy Whiting	Citizen	We respectfully request that you deny the NorthMet Mining Project Water Quality Permit for the following reasons: •As stated by the Environmental Protection Agency, sulfide mining is the most toxic industry and creates a much greater risk than iron ore mining. •It is a well-documented fact that sulfide mining has never been done without a breach. Never.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
771	Arnie and Cindy Whiting	Citizen	•This draft permit proposes the same wet slurry storage method that caused a catastrophic collapse in the Mount Polley mine project in British Columbia, Canada in 2014 and the Samarco project in Brazil.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
772	Arnie and Cindy Whiting	Citizen	•This draft permit would allow PolyMet to use billions of gallons of water per year that would drain into the headwaters of the Lake Superior Water Basin without adequate protection.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
773	Arnie and Cindy Whiting	Citizen	•The Environmental Impact Statement provided by PolyMet concedes that water treatment from this mining proposal would be required for 200 years and the overall site for 500 years. Are we, as constituents of the MN DNR and homeowners near this proposed mine, to believe that PolyMet will continue to pay for this for the entire 500 years???? We think not!	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
774	Arnie and Cindy Whiting	Citizen	•According to the Minnesota Voter's Environmental Priorities Survey in February 2017, 74% of those polled oppose sulfide mining and nearly half are very concerned about rollbacks in environmental laws.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
775	Arnie and Cindy Whiting	Citizen	•In his State of the State address on February 21, 2018, proposed $477 million in clean water initiatives, which includes $214 million for the Clean Water Fund and supports efforts to protect sensitive groundwater and drinking resources. Please protect our water first... before it is put at risk! Protecting clean water should be our first and foremost objective.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments. This comments states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.

776	Arnie and Cindy Whiting	Citizen	•In the March-April, 2018 issue of the Minnesota Conservation Volunteer magazine, a magazine published by MN DNR, the article "The Long Reach of Legacy" made the following statement regarding the November, 2008 Clean Water, Land and Legacy Amendment: "More than $2.2 billion has been allocated as a result of the amendment, which increased the state sales tax from 6.5 percent to 6.875 percent in July 1, 2009 ". It goes on to list the projects that this money has been allocated to, such as "reduce harmful drainage into waters" and "monitoring aquifers to ensure the quality of drinking water". As taxpayers in the State of Minnesota, we vehemently oppose any approval of this or any sulfide mining project that will potentially require our tax dollars to clean up their mess!	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
777	Arnie and Cindy Whiting	Citizen	DENY THE NORTHMET MINING PROJECT WATER QUALITY PERMIT, AND PROTECT THE CLEAN WATER AND LAND THAT WE HAVE FOUGHT FOR SINCE NOVEMBER OF 2008!	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
778	Dennis Szymialis	Citizen	I am writing to express my objections to the PolyMet application for a permit along with the grossly inadequate provisions for the public to protect itself from a corrupt government bent on approving this deplorable project including a grossly inadequate amount of review time provided for at any and all stages of review.	Minnesota permitting rules require that proposed NPDES permits be public noticed for 30 days. For this this permit, the public comment period was extended to 45 days. (It should also be noted that the public review period for the EIS was extended by the DNR beyond what is mandated by rule.)
779	Dennis Szymialis	Citizen	Tailings basin seepage treatment train at the WWTS estimate of 4000 gpm during operations is underestimated at 5,760,000 gallons per day. This amount seems unrealistically optimistic given the treatment demands for a much smaller amount of process material at the Humboldt Mill in Michigan will take 2.8 million gallons a day and does not include treatment of water from a very large mine. The PolyMet mine is planning to process 32 thousand tons of ore per day while the Humboldt mill only processes 2 million tons. This indicates that PolyMet is claiming to be 7-8 time more efficient even though they have no experience in mineral processing. This much larger amount of water to be treated will inundate the system. These claims are consistently underestimated with the low estimates proven to be wrong at the Humboldt Mill and at the Resolution mine site as necessary. These dishonest estimates are a danger to the public and it must not be acceptable for PolyMet simply to be expected to be allowed to simply dump tens of millions of gallons of tainted water into the St. Louis River water shed to poison downstream water consumers with heavy metals and arsenic from this high arsenic mineral formation and processing. This and it's allowance is simply not an oversight it is criminal. With the limited time I have had to review the permit to mine this is the one blaring lie that sticks out along with the fact that the greensand filtering contingency does not actually describe greensand filtering.	The comment compares the discharge volume at Eagle Mine's Humboldt mill with PolyMet's discharge but does so incorrectly and without taking into consideration differences in the mill flowsheet, water recycling and reuse between the two projects. Eagle is authorized to discharge at up to 972 gpm, which is reasonably proportionate to PolyMet's maximum discharge rate at full development given the differences between the two facilities. In any event, PolyMet's treatment system is sized to treat the expected water flow for its project and is designed such that it can be expanded to treat a larger flow if actual flows are higher than expected.
780	Dennis Szymialis	Citizen	I have standing in this matter based on being a downstream water consumer who has been engaged in recreation with the effected PolyMet project lands and waters including the swimming and fishing in the St. Louis River, hiking on the PolyMet land exchange site, and viewing the area as the view exists from the skibo, mn viewing site at that roadside rest.	This comments states an opinion and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to this comment.
781	Dennis Szymialis	Citizen	I have been opposing the PolyMet mining project and others that will be utilizing the PolyMet processing plant now for more than 12 years. The processing plant is being built to 3 times the capacity of the mine. I have read hundreds of articles on sulfide mining and spent more than 4 weeks at the rate of about 35 hours per week analyzing and commenting on the PolyMet SDEIS. I have attended conferences on mining in South Dakota, Minnesota, Michigan, Wisconsin, and Arizona. These conferences had mining engineers and other professionals lecturing.	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
782	Dennis Szymialis	Citizen	Not only is PolyMet a moral issue it is an economic issue. Mining exploration devalues the tax base, and in redistributing the tax burden to other business inhibits economic development and economic prosperity. A ten percent allocation of electrical rates to Polymet as a future subsidy at the expense of consumers and businesses is also having an adverse economic impact on the Minnesota rate payers in the Minnesota power rate payer district that extends from Little Falls to Silver bay Minnesota. Pollution from PolyMet will have an adverse impact on the tourism economy in Minnesota and Wisconsin from water pollution. Businesses in Minnesota and Wisconsin other than mining will be hurt by increased health care costs from arsenic, mercury, and other heavy metals. PolyMet and its supporters venture to enslave the people and businesses of northeastern Minnesota to the subservience of mining. What business would want to locate in this economic environment? More is on the way. There are projects other than PolyMet on the drawing board as the Minnesota Legislature works to repeal the federal Clean Water Act for the benefit of mining companies. Future mining is a clear job and people killer. Other subsidies include the loss in taxes from devalued land and the homes served by tainted water, decreased standard of living from destroyed recreational opportunities, higher health care costs, ect. Basically, destroying the desirability for other economic development. It is a mining make work project with horrible consequences.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
783	Dennis Szymialis	Citizen	The power rate subsidy for PolyMet can only be imagined. It is a mine right in the middle of a geological formation known as the hundred mile swamp on the inside bend of a horseshoe shape of the partridge river. The amount of water that will need to be pumped much less treated from this open pit will be incredible with the electric costs for the pumps etc. being passed on to the Minnesota power rate payer district, much of it rural, that extends from Silver Bay, Minnesota to Little Falls, Minnesota. The amounts of water needing treatment and pumping has been dramatically underestimated in both of the last two projects supervised by PolyMet CEO John Cherry as indicated in the following two articles: http://savethewildup.org/2015/01/concerns-raised-about-proposed-discharge-permit-for-eagle-mineshumboldt-mill/. http://tucson.com/news/resolution-copper-mine-venturing-feet-below-earth-surface/article_44ca18f8-7a29-5562-9833-dd6611c968fc.html.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
784	Dennis Szymialis	Citizen	Water in mining became an unexpected problem for John Cherry's mining company even in the desert. In the Duluth Tribune article titled "Coasters vs. copper" from Sunday, February 25, 20071 John Cherry project manager for PolyMet is quoted as saying regarding the Eagle Project in Michigan, "The mining industry has learned from the mistakes of the past." Clearly, as evidenced has subsequently happened at that project, they haven't and he hasn't as indicated in the article above. Discharges increased from .82 million gallons per day from their tailings basin in their first requested permit to 2.8 million gallons per day and this is for a mine output many times smaller than at PolyMet. Their treatment plant has a capacity of 1.44 million gallons per day. For whatever treatment that is. In addition, PolyMet is expected as indicated in the SDEIS to treat the water infiltration from the mine pit as it gets discharged into the tailings basin. Cherry is quoted by the Duluth News Tribune regarding the Eagle project in Michigan, as saying, "To avoid problems with acidic pollution, he said, all of the ore would be loaded onto trucks and sent to an Ontario smelter." This didn't happen and is indicative of the bait and switch tactics that have occurred with the mining companies, government agencies, and their engineering agents. Mr. Cherry is also quoted as saying, "The water will be clean enough we could bottle it and sell it." The Humboldt mill discharging the above water is not a greensand facility which means that all of the process mercury and arsenic gets discharged.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

785	Dennis Szymialis	Citizen	The subject matter of H.R. 3115 land exchange involves the exchange of U.S. Superior National Forest Service land and is currently one of the issues in litigation in Minnesota Federal Court. The main parcel of land that is being exchanged for Weeks Act land at the prospective PolyMet mine sight is the Hay Lake land near the currently inactive McKinley mine. A dominant portion of this land was previously land exchanged by the U.S. Forest Service to a mining company. The pretext for the PolyMet exchange is that they will be getting land that will enable them to consolidate the Superior National Forest. However, in the past it was the judgement of the Forest Service that this land was not necessary. I had to do a title search with a friend to determine this. Also, the Forest Service has been secretly conspiring to limit access to the PolyMet mine land exchange site for the purpose of attempting to help PolyMet deny standing to litigants. First, they denied that there was any access. Then, we bushwhacked in through a Forest Service parcel which forced them to acknowledge access in court. The whole time the Forest Service Superior National Forest branch in Duluth Minnesota has been recognizing a gate that has been installed on forest service road 113c as private property. Again, I was obligated to do a title search and determined that there existed a public easement in the County Recorder's office in Duluth. The Forest service never provided notice that they intended to have this easement vacated and no notice of vacation has been provided in the public record. More recently I determined that there is a gate on the north end of 113c blocking public access to a public road of record, i.e. the Dunka Road. The claims made by the Forest Service that the land exchange parcels are not legally accesible to the public are also just a boldface lie of their own creation for the benefit of this toxic mining company and their select private interests that conflict with the actual public interest. Soon after entering highway 113c there is an expansive beaver dam. The PolyMet land exchange site and the surrounding public lands are flush with moose poop and moose and wolf tracks, and I am told Lynx poop and tracks. It has been grueling hiking for me but well worth the effort. I am hoping, ironically, that the presence of some endangered wolves and Lynx will ultimately lead to save thousands of people from painful and premature death from heavy metal toxification. The methylation of mercury is explained by the mining companies as at mile x in the river with a sulfate level of 6x only 2x of mercury is methylated by 2x of sulfate. This is to give people the impression that the only place for mercury methylation is at mile marker x. However, the 4x of sulfate continues downstream to methylate 2x of mercury at mile markers 2x and 3x. The result is that the more sulfates that are generated by mining companies the more mercury is methylated. Mercury methylization is the process by which mercury enters the food chain and is consumed by people. Studies have shown that sulfates continue to escalate from mines in the Lake Superior watershed after closure. The distraction that is taking place is to show that sulfates produce sulfides which inhibit the growth of wild rice. Copper mining produces arsenic which rice takes up so the substitution of providing for the growth of wild rice by perhaps using reverse osmosis to remove sulfates is a arsenic toxic crop of wild rice. Furthermore, eventually the entire fishery of Lake Superior is to be contaminated with methylated mercury to the extent that it will be unfit for human consumption. This is expected to occur from the continued run-off from old mining even if no future mining occurs. Again, the amount of water needing treatment will far exceed estimates in the permit application. Twin Metals that they would deposit their tailings in the St. Louis River watershed again an expression of a disregard for human life as these tailings are likely to be "rich in arsenic" as the nearby Wetleg deposit just a few miles to the south west of some of Antofagasta's deposits that they intend to mine. Protection of human life cannot be deferred.	See response to Comment 370. The issue of the land exchange between PolyMet and the USFS is not germane to the NPDES permit. See response to Comment 198 on the issue of mercury methylation. See response to Comment 788 regarding arsenic removal and wild rice.
786	Dennis Szymialis	Citizen	Allowing Antofagasta or PolyMet mining would be tantamount to the loading and abandoning of a spring gun as in Katko v. Briney, 183 N.W.2d 657 (Iowa 1971) and the repeal of the principle in that case that "the law has always placed a higher value upon human safety than upon mere rights in property." With mining being allowed by these companies it would not be sufficient for regulators giving permission to simply escape with a civil judgement against them. Given the scope of and severity of the pain inflicted on victims of various types of cancer and hideous cancer deaths caused regulators should be judged with a capital murder conviction for crime against humanity. In Chile where Twin Metals primary partner Antofagasta does their usual business 34 people die in that country each year alone from mining accident s. "(Since 2000, about 34 people have died every year on average in mining accidents in Chile - with a high of 43 in 2008, according to Sernageomin data." http://www.cbc.ca/news/world/story/2010/10/14/chile-mine-safety-104.html I have been having trouble lately locating arsenic references to the PolyMet deposit lately because of the volume of information. However, my friend, retired from the MPCA, has indicated to me glittering rock walls he observed in the 1970's at the AMAX bulk sampling and now Teck Cominco site to the east of PolyMet indicating a rich presence of pyrite containing arsenic (reference arsenopyrite). The Wetlegs deposit shown on the following map to the West of PolyMet is close to PolyMet as you can see from the link: http://sosbluewaters.org/Deposit_map.pdf The following report indicates that Wetlegs is rich in Arsenic: http://forum.amiminerals.it/viewtopic.php?t=12078 The Cities of Superior, Duluth, and Cloquet are I am told by a representative of PolyMet 170 river miles downstream. Anafogosta Chile has experienced serious and ongoing health issues resulting in large numbers of premature death from arsenic flowing 180 miles downstream: http://www.academia.edu/10724720/Arsenic_enrichment_in_waters_and_sediments_of_the_Rio_Loa_Second_Region_Chile Research indicates that arsenic alone will kill a conservative 50 but more likely closer to 100 people per year in the Duluth, Superior, Cloquet area, i.e thousands of people in Superior WI over the next 300 years. Your help can save lives in exposing this (PolyMet) criminal venture. Arsenic has been linked to a variety of illnesses including diabetes and heart disease. http://www.bmj.com/content/342/bmj.d2431 There is no known safe amount of arsenic: http://www.reuters.com/article/us-chile-cancer-idUSTRE80N1YJ20120124 The PolyMet Supplemental Draft EIS indicated that Arsenic and Mercury would be removed with reverse osmosis. In the Final EIS it was acknowledged the RO would not do the job and a reference to Greensand Filtering was made with a denial contrary to the 1960's Chilean experience that the Arsenic would not make the 170 river miles to the drinking water intakes of Duluth, Superior, and Cloquet. Even with greensand filtering which is simply promised and not guaranteed A 1999 study of methods highlighting greensand filtering indicates the complications in arsenic removal and one of the main conclusions of greensand filtering was "the technology discussed here is probably not cost effective." http://www.usbr.gov/research/AWT/reportpdfs/report041.pdf Third world African countries are fighting the importation from Chile of arsenic laced copper concentrate. https://www.lusakatimes.com/2015/06/22/dont-demonise-kcms-motive-to-import-toxic-copper-concentrates-from-chile-sinkamba/	The potential uptake of arsenic by wild rice has not been substantiated and no standard or measure related to arsenic and wild rice is available. In any event, the WWTS treatment technology is effective at removing arsenic and an enforceable arsenic operating limit set at the applicable water quality standard has been added to the permit.
787	Dennis Szymialis	Citizen	Speaking of third world journalism. Although the EPA regional director indicated guarded approval of the PolyMet project as a result of political pressure she has since resigned as a result of suppressing a report in the Flint, MI case which has gone unreported in Duluth/Superior and her PolyMet report continues to be cited by PolyMet supporters. http://www.clickondetroit.com/news/breaking-epa-regional-administrator-for-flint-resigns In addition to the dangers of Arsenic questions linger regarding the synergistic effects of heavy metals. In one study it was determined that rats exposed to an amount of mercury that would kill 1% of rats combined with lead that would kill 1% of rats killed 100% of rats. http://amalgam.org/education/scientific-evidenceresearch/synergistic-effects-of-mercury-other-toxic http://amalgam.org/education/scientific-evidenceresearch/synergistic-effects-of-mercury-other-toxicexposures/	Comment noted. Comments related to this theme generally state an opinion and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
788	Dennis Szymialis	Citizen	A big deal is being made about sulfides inhibiting the growth of wild rice, but if a strain of wild rice is found that will grow in these sulfate waters/arsenic waters they will be poison from an uptake of arsenic. http://www.huffingtonpost.com/2012/09/20/arsenic-rice-toxic-element-inside-grain_n_1900654.html This is the Science indicated above.	The potential uptake of arsenic by wild rice has not been substantiated and no standard or measure related to arsenic and wild rice is available. In any event, the WWTS treatment technology is effective at removing arsenic and an enforceable arsenic operating limit set at the applicable water quality standard has been added to the permit.
789	Dennis Szymialis	Citizen	This comment includes 2 appendix pages with a photo.	Comment noted.
790	Dennis Szymialis	Citizen	The photo on this page shows the tailings basin in the background.	Comment noted.
791	Rachel Nelson	Citizen	I quote from your own website: "Water is one of Minnesota's most abundant and precious resources. The Minnesota Pollution Control Agency helps protect our water by monitoring its quality, setting standards and controlling what may go into it." Indeed. Protecting our water quality is how we are kind to the earth and to the generations of humans, plants, and animals to follow us here. Given that, I can only presume that the PCA has been influenced and bought on this PolyMet project issue.	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
792	Rachel Nelson	Citizen	There was never a question as to whether there would be a spill affecting our water. That is a given. It will happen, sooner or later. The only question you asked and demanded answer from PolyMet was "How will you clean up spills when they happen? Prove to us that you have the funds in reserve to do this."	Comment noted. General comments related to water quality and flow were considered during the environmental review process. Comments related to this theme generally do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.
793	Rachel Nelson	Citizen	There are no sufficient funds to clean up after such a spill. For how many years would that money provide reverse osmosis treatment to all drinking water for Minnesotans drinking the contaminated water? For how many generations?	Comment noted. Comments related to this theme generally pertain to issues considered in the development of the DNR Permit to Mine. No changes were made to the draft permit in response to these comments.
794	Rachel Nelson	Citizen	HAS IT OCCURRED TO ANY OF YOU that MN is a co-guardian, with Canada and Wisconsin, of the largest freshwater sink in North America? That PolyMet's proposed aquifer would drain into that precious water? That WATER will be here, and already is in many parts of the world, THE SINGLE MOST ESSENTIAL AND THREATENED HUMAN RESOURCE ON THE PLANET? Given these facts, and placing them next to MN PCA'a avowed mission vis a vis water protection, I must conclude that there has been collusion and illegal influence on MN PCA in this matter. It is not too late to avoid investigation. Listen to the comments of your constituents who understand water and its current overriding value today. Deny the water quality permit draft to PolyMet .	Comment noted. Comments related to this theme generally pose questions or contain statements about issues previously considered during the environmental review process and do not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). No changes were made to the draft permit in response to these comments.

795	Bethel Anderson	Citizen	My name is Bethel Anderson. My late husband, Len Anderson, and I have been studying this project for over 12 years. There are several areas of concern for me about the PolyMet project, most notably in the water quality permit. #1. The use of the old LTV tailings basin, already containing waste rock and adding to that, with it's known seepages into the ground water, should be unacceptable to the MPCA.	This comment poses questions or contains statements about issues previously considered during the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2).
796	Bethel Anderson	Citizen	#2. Catastrophic waste dam failure must be considered, especially with climate change and the frequency of adverse weather events. Dam failure would imperil the St. Louis River watershed, it's people, and Lake Superior.	Comment noted. This comment pertains to issues considered in the development of the DNR Dam Safety permit. No changes were made to the draft permit in response to this comment.
797	Bethel Anderson	Citizen	#3. The increase in sulfate and subsequent methylation of mercury in the St. Louis River watershed is already a problem. My concern here is allowing PolyMet to operate using "adaptive management". Past experience for over 20 years with Minn Tac and it's discharges, makes me wonder how this would be managed. If PolyMet operates with a variance for 20 years like MinnTac has, the life of the mine would end with only a variance agreement in place for the entire time.	See response to Comment 370. The MPCA used available data and reports when developing the permit. Adaptive management is commonly used in NPDES permitting to address issues as they arise. The incorporation of adaptive management as a failsafe does not invalidate the requirements for compliance, it allow a more rapid response in case of a problem. Adaptive management is regularly used in complex environmental scenarios to ensure standards are met while allowing flexibility. In this case, the underlying requirement must be met; the adaptive management is intended to develop strategies to maintain compliance.
798	Bethel Anderson	Citizen	#4. The Health Risk Assessment, which has been requested by Minnesota doctors and nurses, has not been done. We need to find out with a new study, the mercury levels of people living near the proposed plant and those downstream. We cannot afford to add more methylation of mercury from sulfates to already existing high levels in our fish and subsequently in our future generations. Despite the improvements made to the mining permits, I believe it is not safe to operate this sulfide mine in our water-rich environment. I believe the water quality permit should be denied.	The comment related to a health impact assessment was addressed as part of the environmental review process and does not reference specific sections of the draft permit (Minn. R. 7001.0110, subp. 2). See response to Comment 198. The control of sulfate in the discharge to less than 10 mg/L will minimize the potential for increased methylation of mercury.
799	Margaret Watkins	Grand Portage Band of Chippewa	Thank you for opportunity to comment on the draft PolyMet NPDES SDS permit MN0071 013. The Band is a federally recognized Indian tribe, as one of the member bands of the Minnesota Chippewa Tribe ("MCT"). The Band participated as a cooperating agency in the Environmental review of the PolyMet project, along with other MCT-member Bands, Fond du Lac and Bois Forte. All the Bands involved retain hunting, fishing, and other usufructuary rights that extend throughout the entire northeast portion of the state of Minnesota under the 1854 Treaty of LaPointe1 (the "Ceded Territory"). In the Ceded Territory, all the Bands have a legal interest in protecting natural resources and all federal agencies share in the federal government's trust responsibility to the Bands to maintain those treaty resources. 2	Background statement for comments to follow. No response needed.
800	Margaret Watkins	Grand Portage Band of Chippewa	New Source Performance Standards While the stated goal of this permit is to "reduce pollutant levels in point source discharges and protect water quality in accordance with the U.S. Clean Water Act, Minnesota statutes and rules, and federal laws and regulations," the draft permit lacks the required minimum federal effluent limits with the exception of SD001, the wastewater treatment plant discharge.	The federal effluent limits are applied at SD001, which is the point of compliance. The effluent is then distributed via SD002-SD011, to maintain flow to various receiving waters. Compliance at SD001 ensures compliance at the distributed outfalls.
801	Margaret Watkins	Grand Portage Band of Chippewa	As a new source, and a copper/nickel mine, the permit must include a daily maximum and monthly average limit for total suspended solids, copper, zinc, lead, mercury, aresnic, and pH for all surface water discharges	The permit contains daily maximum and monthly average effluent lmits for these parameters at SD001.
802	Margaret Watkins	Grand Portage Band of Chippewa	If the only permitted discharge will be SDO 1, all other groundwater and surface water monitoring locations at both the plant and mine sites listed in the permit must state that no discharge is authorized under the permit.	The permit includes specific authorized discharge points. It does not authorize any other point source discharge and in fact prohibits direct discharge to surface waters from the mine site and plant site except as authorized through discharge SD001.
803	Margaret Watkins	Grand Portage Band of Chippewa	Lack of Surface and Groundwater Monitoring Locations Near the mine site there must be additional surface monitoring locations. Above the confluence of Stubble Creek, the Partridge River is in very close proximity to the mine pit. Yet, the nearest monitoring locations are located upstream at SW402 and downstream at SW413 leaving a vast area in close proximity to the mine pit unmonitored. We recommend adding at least one surface water monitoring site on the Partridge River between SW413 and SW402 upstream of Stubble Creek.	See response to Comment 711-B. In addition, the MPCA evaluated the surface water monitoring needed at the facility during the development of the permit, considered the facts presented in the comment, and added a surface water monitoring station (SW414) downstream of the mine site at the West Pit Outlet Creek downstream of the Transportation and Utility Corridor. The MPCA has determined that the proposed surface water monitoring locations, with the addition of SW414, are adequate to evaluate effects from the mine site.
804	Margaret Watkins	Grand Portage Band of Chippewa	Wyman Creek has no surface monitoring locations even though in MN water quality standards it is classified as a drinking water source and trout stream. Wyman Creek has been identified as impaired due to elevated temperature, low dissolved oxygen, and high concentrations of specific conductance, sulfate, total suspended solids, iron and iron precipitate. 3 We recommend requiring a surface water monitoring location on Wyman Creek downstream of the railroad connection track.	See response to Comment 803. The MPCA evaluated the surface water monitoring needed at the facility during the development of the permit, considered the facts presented in the comment, and determined that the proposed surface water monitoring locations on Wyman Creek are adequate to evaluate effects from the Transportation and Utility Corridor.
805	Margaret Watkins	Grand Portage Band of Chippewa	The only surface monitoring location on Second Creek is SD026. Mitigation of high concentrations of sulfate, TDS, bicarbonates, total hardness, and specific conductance resulting from tailings basin leakage to Second Creek was included in the Cliffs Consent Decree. Second Creek was not one of the streams monitored during the St. Louis River Watershed Intensive monitoring effort that lead to the St. Louis River Stressor Identification report. We recommend one additional surface monitoring location in Second Creek downstream of the Colby Lake Pipeline.	See response to Line 803. The MPCA evaluated the surface water monitoring needed at the facility during the development of the permit, considered the facts presented in the comment, and determined that the proposed surface water monitoring locations are adequate to evaluate effects from the Plant Site.
806	Margaret Watkins	Grand Portage Band of Chippewa	To increase the likelihood of identifying groundwater discharges, additional monitoring wells must be added near the equalization basins at the mine site, the Overburden Storage Layout Area (OSLA), the ore surge piles, north of the mine pits, and around the tailings basin. Parameters including copper, zinc, lead, mercury, arsenic and pH, must be included in addition to water level monitoring.	The MPCA assessed the location of each individual well as dictated by the purpose of each well and how each well fit into the overall monitoring well network. This approach was coupled with the incorporation of existing monitoring wells (with a record of baseline water quality) and practical considerations such as access and potential disturbance to wetlands. The monitoring well network in the permit was developed to meet multiple goals, which includes monitoring the performance of engineering infrastructure; serving as indicators for the early detection of potential project impacts; and determining compliance at downgradient locations closer to the property boundary. The monitoring well network required by the draft permit is robust and includes 78 wells/piezometers at the mine site and 40 monitoring wells/piezometers at the plant site. The wells monitoring the mine site near the OSLA and EQ Basin are adequate for determining potential project impacts and determining compliance at downgradient locations. The MPCA has considered this comment and in addition to the wells identified in the draft permit, the MPCA will be requiring an additional bedrock well to be located downgradient of the tailings basin.
807	Margaret Watkins	Grand Portage Band of Chippewa	Reasonable Potential to Exceed Determination of a reasonable potential to exceed water quality standards for the Lake Superior basin is based on comparing preliminary effluent limitations to projected effluent quality. "In all cases, the permitting authority shall use any valid, relevant, representative information" to determine if there is a reasonable potential to cause or contribute to an exceedance of water quality standards.4 Where facility-specific effluent monitoring data is not available "the permitting authority shall specify the project effluent quality as of the distribution of the projected population of daily values of the facility-specific effluent monitoring data projected using a scientifically defensible statistical method that accounts for and captures the long-term daily variability of the effluent quality."5 Based on this analysis the permitting authority must then set water quality based effluent limits if the projected effluent quality exceeds the preliminary effluent limitations to protect aquatic life, human health and wildlife from chronic effects and/or aquatic life from acute effects.6 However, MPCA, by their own admission and in violation of 40 CFR part 132, did not conduct a "quantitative" reasonable potential to exceed water quality standards analysis, and instead relied on a "qualitative" analysis that only included the projected water quality intentionally discharged from wastewater treatment plant.	See response to Comment 718-A. As described in response to Comment 802, discharges are only authorized through SD001.

808	Margaret Watkins	Grand Portage Band of Chippewa	Poly Met will be purchasing the plant site from Cliffs. MPCA has provided that "A condition to closing on that purchase is that the NPDES/SDS permit and Consent Decree obligations held by CE for the Basin be assigned to Poly Met or one of its affiliates (together, "PolyMet")."8 In clear violation of the Clean Water Act (CWA), MPCA stated "[I]t is important to note that operation of the proposed NorthMet project resolves any legacy water quality issues at the ferrous Basin."9 Yet, there appears to be no plan to clean-up Spring Mine Creek, nor is there certainty that 95 percent of the seepage from the tailings basin can be collected and treated.	Regarding legacy issues, see response to Comment 587. Spring Mine Creek is not affected by the proposed project and impacts to it are not relevant to the draft permit. Seepage capture efficiency is addressed in lines 807, 588-A, and 588-B.
808-A	Margaret Watkins	Grand Portage Band of Chippewa	PolyMet's operation may resolve legacy pollution at the plant site, but this determination cannot be made until PolyMet is operational. Therefore, all pollutants, legacy or otherwise, known to exceed water quality standards must have a limit in the NPDES permit.	As described in Response to Comments Line 801, the MPCA did consider reasonable potential for other parameters and determined, based on review of available information, that there is no reasonable potential for the facility to cause or contribute to an excursion above a water quality criterion. If reasonable potential is not determined or cannot be determined prior to permitting, the MPCA has the authority to request monitoring as part of the permit. A clause in the permit to allow the MPCA to reopen the permit and impose an effluent limitation if the required monitoring establishes that there is reasonable potential the discharge will cause or contribute to an excursion above a water quality criterion. The MPCA has authority under Minnesota Rule part 7001.0170 to modify a permit based on new information. The draft permit states this in item 5.184.305. If the MPCA determines the facility has reasonable potential based on actual operating data, the MPCA could reopen and modify the permit to add limits if necessary. To further address this concern, the MPCA proposes to add additional reopener language in part 5.119.2 in the draft permit to reopen and modify the permit if the MPCA determines that the discharge is causing or contributing to a violation of water quality standards; this could include adding WQBELs if actual data indicates WQBELs are necessary.
809	Margaret Watkins	Grand Portage Band of Chippewa	In the same memo 10 MPCA provides discussion regarding groundwater issues including exceedances of arsenic, barium, aluminum, iron, manganese, and pH. The only groundwater exceedances that are explicitly dismissed are arsenic and barium since "an evaluation of tracer pollutants indicates these exceedances are not due to the Basin. " 11 This is in spite of the fact that MPCA has not ruled out stack emissions from the L TVSMC operation as one of the sources of groundwater exceedances of arsenic and barium.	The referenced memo reflects current knowledge. The memo focused on groundwater migrating from the basin to surface water and did not further evaluate sources.
810	Margaret Watkins	Grand Portage Band of Chippewa	Surface water issues surrounding the tailings basin include exceedances of mercury, sulfate, alkalinity, hardness, TDS and specific conductance criteria. To dismiss these issues, MPCA incorporated multiple rationales including high priority rulemaking where proposed revisions could make criteria for alkalinity, hardness, TDS and specific conductance less stringent. 12 No treatment would be required for surface water sulfate exceedances because of the proposed wild rice rule revisions or the possibility of developing site specific criteria. 13 Elevated mercury concentrations are "most likely due to influences from precipitation and background concentration, not from seepage from the existing Basin" and therefore would not be an issue.14 Minnesota surface water criteria have been exceeded in water samples collected near the tailings basin proposed for use by PolyMet.15 All permitted discharges within the vicinity of the tailings basin must have limits on mercury, sulfate, alkalinity, total dissolved solids (TDS), bicarbonates, total hardness, specific conductance, and iron, to ensure that they will not contribute to an existing excursion from water quality standards.	The concern in the comment appears to be about legacy pollution, which is regulated by the existing tailings basin permit as described in response to Comment Multiple-543-CI. Regarding the MPCA's approach regarding reasonable potential in this permit, see response to Comment 718-A. The MPCA conducted a reasonable potential analysis and determined there is no reasonable potential for these parameters to cause or contribute to the exceedance of a water quality standard. Therefore, WQBELs for these parameters are not required in the permit. The MPCA included TBELs in accordance with 40 CFR part 440. In addition to TBELs, the MPCA included Operating Limits for sulfate, copper, arsenic, cobalt, lead, nickel and mercury. The Operating Limits and TBELs in the permit are enforceable and an exceedance of either the TBEL and/or Operating Limit is a violation of the permit. To address concerns regarding the permit being protective of water quality, the MPCA has also added language to the permit stating the discharge of treated wastewater from the WWTS must not violate state water quality standards.
811	Margaret Watkins	Grand Portage Band of Chippewa	Impaired Waters Within the Lake Superior basin, which includes the Project area waters, MN Water Quality Standards prohibit any new or expanded point source discharges ofbioaccumulative substances of immediate concern including mercury.16 Moreover, Minnesota's mercury TMDL process does not adequately address the fish consumption impairment in these waterbodies. Therefore, any new discharges that would result in further degradation to waters with an existing water quality . impairment are not legally permittable under the, CW A.17	See response to Comments 722 through 722-B and 745. The statewide mercury TMDL was calculated to address mercury in the water column, not necessarily fish consumption impairments, but the reductions assigned in the TMDL may achieve fish consumption targets.
812	Margaret Watkins	Grand Portage Band of Chippewa	Waters with known mercury impairments in the vicinity of the project including: the Embarrass and the Partridge Rivers; Embarrass, Sabin, Wynne, Esquagama and Colby Lakes, and; the Whitewater Reservoir. 18 In spite of these impaired waters, neither the PolyMet Water Management Plans nor the draft permit to mine estimate concentrations of mercury in seepage from various locations where water will contact mine waste including the toe of the tailings basin, waste rock storage piles, ore surge piles, or the mine pits. Additionally, there has been no estimate of the amount of mercury that could seep from the unlined Overburden Storage Layout Area (OSLA), where mercury-containing peat will be stored. 12 !d. pg.4.	Monitoring for mercury is required at several internal monitoring points including the influent to the WWTS from the FTB seepage capture system (WS015), mine pit dewatering (WS401-404), combined mine water sources (WS415 & WS416), treatment of the mine water effluent (WS072 & WS073), OSLA runoff (WS413). Mercury is also limited at the internal performance monitoring station (WS074). In addition, the Permittee is required to submit an Annual Comprehensive Performance Report to assess the performance of the facility engineering controls at the Mine Site and Plant Site in minimizing impacts to water resources downstream of the facility. Mercury is required to be evaluated in the annual comprehensive performance report.
813	Margaret Watkins	Grand Portage Band of Chippewa	In 2003, the Minnesota Department of Natural Resources (MNDNR) reported that taconite tailings appeared to be a sink for mercury in tailings basins in northern Minnesota. The loss of mercury through adsorption to solids in the tailings basin and subsequent burial in the sediments resulted in an overall permanent retention of mercury within the basin and decreases the mercury load released to receiving waters. 19 However, mercury in the existing Cell2E pond of the L TVSMC tailings basin has a concentration of 1.4 ng/L of mercury and water collected seeping out of the toe of the tailings basin has a concentration of 4.9 ng/L.20 This contradicts the MNDNR21 by demonstrating that mercury concentrations after seeping through the tailings do not decrease, in fact the concentration more than triples.	See response to comment Multiple-543-CA.
814	Margaret Watkins	Grand Portage Band of Chippewa	PolyMet estimates that 164 pounds of mercury will be deposited in the Hydrometallurgical Residue Facility (HRF) each year.22 This estimate is accompanied by an assumption that none of the mercury in the .HRF will be released into the environment into perpetuity.	Direct discharges from the HRF Pond and/or the HRF Leakage Collection system are prohibited. The HRF is a double-lined facility, will operate as a closed-loop system, and will have no discharge to groundwater or surface waters, or to the FTB/WWTS system.
815	Margaret Watkins	Grand Portage Band of Chippewa	Poly Met has predicted that the concentration of total sulfide mineral dust deposition could exceed 1,000 milligrams per square meter per year, or four times more than the predicted concentration of the deposition to the "wetland of interest". Yet, this prediction was made for areas at the mine site where water will be draining into the "wetland of interest" without discussing how a particular downstream wetland could legitimately receive just one-quarter of the predicted sulfide mineral dust deposition. The effect from sulfide mineral dust deposition on stormwater mercury methylation was not estimated in this analysis, or the effect that might have on wetlands with high concentrations of sulfate reducing bacteria. Mercury deposition into wetlands, where high sulfur concentrations can greatly increase methylation of mercury should have received more scrutiny.	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.
816	Margaret Watkins	Grand Portage Band of Chippewa	Mercury releases into the environment go beyond the wastewater discharge, and include deposition of dust contaminated with mercury originating from the Project. Using cross media analysis the spread of dust from the facility was examined to determine the potential for contamination of water and wetlands through deposition?3 Dust deposition resulting from blasting at the mine site and wind erosion from the Category 1 waste-rock stockpile were excluded from this analysis. Further, MPCA did not consult with their own in-house experts and was unconcerned about the concentrations of mercury in dust. This lack of concern was based on speciation and assumed, without scientific data, that mercury is bound to dust and therefore would not be released into the environment.	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.

817	Margaret Watkins	Grand Portage Band of Chippewa	Without the estimates of mercury releases from dust, storm water, the OSLA, ore surge piles, waste-rock stockpiles, mine pits, and toe of the tailings basin, the FEIS stated that, based on mercury mass balance analyses, the Project is predicted to result in an overall net decrease of mercury loadings of approximately 1.0 grams per year to the St. Louis River. This is accomplished by a decrease of 1.2 grams per year in the Partridge River and a net increase of 0.2 grams per year in the Embarrass River.24	This comment addresses the 401 certification. No changes were made to the draft NPDES permit in response to this comment.
818	Margaret Watkins	Grand Portage Band of Chippewa	While SD01 permit limits include mercury, the concentrations are one-thousand times higher than MPCA Lake Superior Basin Water Quality Standards allow.25 However, there are no mercury discharge limits in the NPDES permit or the Stormwater Construction General Permit for the OSLA. All surface water discharges must include mercury limits that are consistent with Great Lakes mercury criterion.	Runoff from the OSLA will be treated as mine water and routed through the WWTS. The MPCA conducted a reasonable potential analysis and determined there is no reasonable potential to cause or contribute to the exceedance of a water quality standard for mercury, therefore, a WQBEL for mercury is not required in the permit. This is further described in response to Comment 811. The MPCA included TBELs in accordance with 40 CFR 440. In addition to TBELs, the MPCA added an Operating Limit of 1.3 ng/L for mercury. The Operating Limits for mercury in the permit is enforceable and an exceedance of this limit is a violation of the permit. To further address the concerns of this comment, the MPCA also added language to the permit stating the discharge of treated wastewater from the WWTS must not violate state water quality standards. With respect to construction stormwater, the MPCA requires best management practices that will have the effect of reducing mercury in stormwater. The type of construction proposed at the facility is comparable to the types of construction at other projects covered by the construction stormwater general permit. The construction stormwater general permit is beyond the scope of this NPDES permit.
819	Margaret Watkins	Grand Portage Band of Chippewa	Specific conductance limits are not included in the draft permit. Yet, Spring Mine and Wyman Creeks, and the Embarrass and Partridge Rivers are known to have aquatic life impairments resulting from high concentrations of specific conductance. 26 Therefore, all permitted discharges must have specific conductance limits that that comply with Minnesota's 7050 rule.	See response to Comment 721.
820	Margaret Watkins	Grand Portage Band of Chippewa	Tailings Basin Seepage PolyMet's seepage capture rates are unrealistic and cannot be demonstrated by any other project that has been cited as a reference. Predicted tailings basin seepage capture system efficiency rates are: 100 percent of the Tailings Basin 's surface seepage; 100 percent of the groundwater approaching the containment system from the Tailings Basin 's east and south toes, and; 90 percent of the groundwater approaching the containment systems from the Tailings Basin 's north, northwest and west toes (Poly Met 2015d). 27	The comment questions the efficacy of controls of the seepage capture systems required in the NPDES permit at the Mine Site and Plant Site and presumes failure of control systems without justification. See response to Comment 707 through 707-B regarding capture rates and Comment 711 for an explanation of why maintaining an inward gradient ensures capture.
821	Margaret Watkins	Grand Portage Band of Chippewa	Poly Met' s. claim that 90 percent or more of the seepage from this tailings basin can be captured is unrealistic, to say the least. Tribes requested any example of the "90 percent or better" capture efficiency rate to be provided by the Co-Lead Agencies, but they were not able to provide a single example anywhere in the world. 28 Instead, just one citation was provided from an EPA guidance document that stated: ((Most barriers in the study have been in place for fewer than 10 years; therefore, long-term performance can only be extrapolated ... All sites included in the study were existing sites that had vertical barriers and, in many cases, caps. None of the sites has an engineered bottom barrier. Therefore, the effect of leakage through aquitards was not evaluated in this study. "29 The same report also indicated that "10% of the containment systems reviewed failed to meet the performance objectives and required corrective action, and 19% of the evaluated facilities did not have sufficient data to conclude whether the containment system was operating successfully or not."30 In other words, even the Co-Leads' own authority did not support a 90 percent capture efficiency rate. Further, tailings ponds in Fort McMurray, Alberta, Canada, are cited by Poly Met as an example of successful seepage containment: "Another example is the installation of a soil-bentonite cutoff wall around the p erimeter of a mine tailings pond located in the province of Alberta, Canada. The cutoff wall is approximately 100-feet deep and 3 feet wide, and has a hydraulic conductivity of less than 1 x1 0-7 em/sec. The cutoff wall was used to isolate the tailings pond from down gradient surface water features including wetlands and the Athabasca River."31 Unfortunately, Environment Canada, a federal agency, published research in 2014 that substantiates that the Athabasca River has been contaminated by toxic chemicals seeping from Alberta's tar sand tailings ponds in spite of the fact that ditches, cutoff walls, groundwater interception wells, and water pump back systems were used to prevent the seepage pollution from occurring. 32 One of the two leaky tailings ponds studied reportedly seeps toxic wastewater at a rate of approximately 2.65 cubic feet per second, or more than 625 million gallons per year, into the Athabasca River.33 So this example is actually the opposite of "successful seepage containment." Other examples of similar proposals show similarly poor results. The Zortman-Landusky Mine in Montana installed containment and pump-back systems to be used in conjunction with a wastewater treatment facility. However, they "did not capture all surface and subsurface drainage."34 The Molycorp, Inc. Mine site in New Mexico concluded that " [t]he pathway for contaminant migration is the leaching of tailing seepage downward from the tailing facility to ground water that migrates through fractures to surface water."35 Therefore, no credible support for Poly Met's claim of seepage capture rates by these means has been provided or has been found.	See response to Comment 707 regarding the modeling used as a basis for the capture rate. See response to Comment 707 through 707-B for further discussion regarding capture rates and Comment 711 for an explanation of why maintaining an inward gradient ensures capture. See response to Comment 588-B, which includes discussion regarding the enforceability of maintaining an inward gradient.
822	Margaret Watkins	Grand Portage Band of Chippewa	Yet, MPCA has promoted the idea that as long as groundwater seepage from the tailings basin does not exceed 500 gallons/acre/day (greater than 2 million gallons per day), the basin is permittable because it is "equivalent to an engineered lined system with respect to release of seepage to groundwater."36 Further, as long as the facility does not leak polluted groundwater at rates higher than 500 gallons/acre/day the tailings basin would not be subject to NPDES/SDS requirements,37 without having to address the hydrologic connection between groundwater and surface water flow at the site. In order to evaluate the need for permit coverage for the facility, MPCA will "seek evidence the facility will not have a statistically significant impact on sulfate in receiving waters ... groundwater quality standards can be met at the facility property boundary, .[and] all applicable surface water quality standards can be met in surface waters at the facility. "38 However, no exemptions exist in the CW A that constrain NPDES permit coverage to "excess" wastewater discharges that are estimated to have a "statistically significant" impact on receiving waters at the property boundaries. US EPA has clearly articulated to MPCA and PolyMet that failure to obtain NPDES coverage for discharges of pollutants to waters of the United States would place-the discharger at risk of violating the CWA.39 40 CFR § 122.21(a)(1), "Duty to apply," requires that "any person who discharges or proposes to discharge pollutants ... and who does not have an effective permit ... must submit a complete application to the Director in accordance with this section and part 124 of this chapter." 40 CFR § 122.21(c) states that "Persons proposing a new discharge are encouraged to submit their applications well in advance of the 90 or 180 day requirements to avoid delay." Simply applying for a permit does not provide the coverage needed to authorize discharges of pollutants to surface waters under the CW A. Yet, MPCA has not included any groundwater or surface water discharges beyond the wastewater treatment plant for the plant site or the tailings basin.	See response to Comment 723. Additionally, as a clarification, the MPCA added a prohibition against discharges that violate water quality standards.

823	Margaret Watkins	Grand Portage Band of Chippewa	Residential Wells MPCA's groundwater standards prohibit any discharges that could pollute groundwater, limit or preclude using groundwater as a drinking water source.40 MPCA has conflated polluted tailings basin groundwater with natural background conditions. "Data shows groundwater quality is generally better than applicable groundwater standards at the property line. For aluminum, iron, manganese and pH, natural background exceeds the groundwater criteria. For arsenic and barium, an evaluation of tracer pollutants indicates these exceedances are not due to the Basin."41 Even if arsenic and barium concentrations are not due to the Basin, they may be related to stack emissions from LTVSMC and must be addressed along with manganese, aluminum and sulfate.42 Fourteen residential wells located between the tailings basin and the Embarrass River were identified during the environmental review of the PolyMet project. Minnesota rule 7060.0200 states that " [I]t is the policy of the agency to consider. the actual or potential use of the underground waters for potable water supply as constituting the highest priority use and as. Such to provide maximum protection to all underground waters ... For the ... prevention of possible health hazards, it is necessary and proper that the agency employ a nondegradation policy to prevent pollution of the underground waters of the state." Many of the residential wells exceed the Health Risk Limit for manganese. In high concentrations, manganese is a potent toxin that is known to cause Parkinson's like symptoms. PolyMet's contaminant transport modeling suggested that the project will cause manganese, aluminum and sulfate to exceed drinking water standards. In the monitoring wells near the tailings basin, pollutants including iron, sulfate, manganese, aluminum, and fluoride already exceed drinking water standards. 43 Therefore, drinking water limits for arsenic, barium, sulfate, manganese, aluminum and fluoride should be included in groundwater monitoring locations between the tailings basin the residential wells to ensure that further degradation of potable groundwater does not occur.	See response to Comment 710 regarding the basis for groundwater well locations. See response to Comment 723 for an explanation of why the Annual Groudnwater Evaluation Report will ensure prevention of groundwater impacts. See response to Comment Multiple-543-EL for discussion of existing exceedances.
824	Margaret Watkins	Grand Portage Band of Chippewa	Mine Site Seepage Similar to the tailings basin, MPCA and PolyMet contend that there will be no seepage from the mine pits, waste-rock stockpiles, ore surge piles, or OSLA, that will not be captured and treated by the wastewater treatment facility. Because there is no federal minimum seepage requirement that triggers the need for a permit, capturing 95 percent of the seepage from the tailings basin and 99 percent from the mine site simply means Poly Met is planning on violating federal rules, and MPCA is allowing these violations. The draft permit states "[T]here will be no discharge of mine water or other process wastewater to surface waters from the Mine Site." 44 This statement excludes groundwater seepage that has a direct connection to surface water. In fact, in terms of prohibiting a discharge from the mine site, the draft permit only excludes direct discharges to surface water:	This comment addresses actions not authorized by the permit conditions. The permit includes specific authorized discharge points. It does not authorize any other point source discharge and in fact prohibits direct discharge to surface waters from the mine site and plant site, except as authorized through station SD001. If the Permittee does not comply with the permit, the permittee would be subject to enforcement actions to correct the violations. For any other point to be authorized, the permittee would have to submit an application to modify the permit. The MPCA has modified language in Item 5.176.81 of the draft permit regarding unauthorized discharges from the mine site, which prohibits the Permittee from directly discharging any mine water or other process wastewater from the Mine Site to surface waters under this permit. All mine water or other process wastewater from the Mine Site must be routed to the Equalization Basins and pumped to the Plant Site for treatment.
825	Margaret Watkins	Grand Portage Band of Chippewa	"This p ermit does not authorize the direct discharge to surface waters from the HighConcentration, Low-Concentration and Construction Mine Water Pipelines. 45 This permit does not authorize a direct discharge from the Mine Site Equalization Basins or any other industrial mine water pond system to surface waters. "46 This is a great concern because the FEIS presented the sulfur concentrations of Project waste rock ranging between 0.01- 5.0%47 with an average mass-weighted concentration of0.15%. The Virginia Formation has the highest concentrations of sulfur, 0.4-5.0%, and the Duluth Complex, 0.13-0.6% sulfur. These concentrations are much higher than in Montana's Zortman-Landusky Mine waste rock (0.2% sulfur)48 that has already required perpetual wastewater treatment. And, like the project proponent in Zortman-Landusky, the Project proponent has suggested that "most (70 percent) of the NorthMet waste rock would be the low-sulfur, non-acid-generating" and will never cause acid mine drainage. However, the north wall of the east pit is composed of the Virginia Formation (sulfur concentration 0.4 -5%) meaning that it will be exposed to both air and water and will likely contribute a substantial load of sulfate and metals to mine pit water. Twenty-feet of pit wall will never be submerged and as such constitutes a perpetual source of mine related contaminants. 49 Poly Met claims bedrock transport of contaminated water is negligible due to the very low bulk hydraulic conductivity of bedrock and that groundwater flow rates in these flowpaths were not large enough to affect water quality at the groundwater and surface water evaluation locations. 50 Modeled projections of the rate and volume of flow of polluted water from the mine pits suggest that it could take 17-34 years after the commencement of mining for pollutants to reach the Partridge River. 5 1 A potential that was not considered in model development for the mine site was the possibility that pollutants may be discharged to wetlands ~n close proximity to the mine site. The possibility also exists that pollution from mine features, including the pits, may reach the Partridge River more quickly than predicted because pollutant flow paths may not be exclusively underground, or travel time may be reduced as a result of pressurized fracture flow.	See response to Comment 824 regarding the possibility of groundwater impacts to surface water. As discussed in that response, the permit prohibits unauthorized discharges. Mine pit water is handled as process water and would be treated by the WWTS before discharge. See response to Comments Multiple-543-AZ and Multiple-543-EJ regarding the MPCA's nondegradation review for groundwater, including potential transport through faults and fractures.
826	Margaret Watkins	Grand Portage Band of Chippewa	Although the draft permit requires groundwater monitoring for both the mine site and the plant site, there are no permit limits for groundwater. It appears that MPCA will only require Poly Met to apply for NPDES coverage at the mine site if monitoring results indicate that there is, or will be, a discharge of pollutants to surface waters. However, this does not comply with Minnesota rules or the Clean Water Act. A complete NPDES permit application must include information detailing when and where pollutants originating from the mine site will enter surface waters. 52 Even ifPolyMet could ensure that monitoring would detect a potential discharge to surface waters before a discharge occurred this would still violate Minnesota rules.	See response to Comment 824. See response to Comment 723 for an explanation of why the Annual Groudnwater Evaluation Report will ensure prevention of groundwater impacts.
827	Margaret Watkins	Grand Portage Band of Chippewa	MPCA has stated that if an unauthorized discharge occurs the agency may pursue enforcement action. 5 3 Further, MPCA put forth two options to address an unauthorized discharge in the permit: " 1) there could be a new permit limit in an adjustment to the permit, or 2) discharge would need to stop." The option to stop a discharge may not be possible; therefore this is simply not adequate and does not comply with Minnesota rules or the Clean Water Act. If Poly Met insists that there will be no unauthorized discharges to surface water and therefore does not apply for adequate NPDES permit coverage, MPCA must pursue enforcement actions for noncompliance and add new permit limits for all discharge points not previously included in the permit.	See response to Comments 591-A and 716.
828	Margaret Watkins	Grand Portage Band of Chippewa	Conclusion NPDES permits must include numeric and/or narrative effluent limitations necessary to protect water quality standards of the receiving waters, as well as any limitations necessary to ensure that downstream water quality standards are protected, 5 4 MPCA's groundwater standards prohibit any discharges that could pollute groundwater, limit or preclude using groundwater as a drinking water source. 55 Therefore, all authorized discharges to groundwater and surface water must have limits that comply with new source performance standards and limit the concentrations of pollutants that are kno\vn to exceed water quality standards. Since there is no federal minimum seepage requirement that triggers the need for a permit, capturing most of the seepage from the tailings basin and mine site simply means Poly Met is planning on violating federal rules. By not requiring permit limits at all external monitoring locations, MPCA is sanctioning these violations of federal rules. If after operations begin, it is determined that PolyMet has erroneously concluded there will be no discharges to surface or groundwater, MPCA must swiftly pursue appropriate enforcement actions against the company for violating theCWA.	The MPCA notes that the permit includes specific authorized discharge points. (See responses to Comments 802, 824, and 826.) It does not authorize any other point source discharge and in fact prohibits direct discharge to surface waters from the mine site and plant site. If the Permittee does not comply with the permit, the permittee would be subject to enforcement actions to correct the violations. For any other point to be authorized, the permittee would have to submit an application to modify the permit.
829	Margaret Watkins	Grand Portage Band of Chippewa	Although Grand Portage is not specifically requesting a contested case hearing, we reserve the right to participate if a contested case hearing is ordered. Sinerely, Margaret Watkins, Grand Portage Water Quality Specialist.	Comment noted.